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The transformation agenda implementation at Eskom, Koeberg: lessons learnt for nuclear new build

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Title

The transformation agenda implementation at Eskom, Koeberg: Lessons Learnt for Nuclear New Build.

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Engineering.

Date: 18 October 2019

Declaration

I declare that this research report is my own unaided work. It is being submitted to the Degree of Master of Science in Engineering to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.

Signed at Johannesburg, 18 October 2019.

_____

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(Student Number: 1786528)

Abstract

South Africa aspires to re-industrialise and transform the economy into a globally competitive one, comprised of inclusive growth and development of all citizens. By leveraging the state's procurement spend it strives to unlock opportunities for localisation and empowerment within state owned companies such as Eskom.

This study sought to make recommendations from the investigations and analysis at Eskom, Koeberg regarding the lessons learnt from the implementation of its transformation agenda in the procurement processes, to assist nuclear new build. Data was collected and analysed, finding that little buy-in was obtained. Entrenching Transformational DNA – the central point around which the study binds – indicates the corrective action needed to commence its change journey, where DNA entrenchment is a sustainable and necessary precursor to future implementation in nuclear new build.

The findings are significant if Koeberg is to maximise its local developmental impact in the 'nuclear' and 'designated sectors for localisation' productive sectors.

It is recommended that Koeberg should re-implement the transformation agenda, taking cognisance of the lessons learnt.

Dedication

Nellie and Ronnie Mocke, my beloved parents.

Dirk-Jan Dijkstra, my dearest husband.

Acknowledgements

My supervisor, Bernadette Sunjka, for her unwavering support, guidance and commitment to always assisting me – without which this report would not have been printed. I would also like to thank my co-supervisor, James Larkin, for his kindness and belief in me during the course of my studies.

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DEFINITION OF KEY TERMS

Transformation Agenda: The objective is to realise the potential of our nation by contributing positively to South Africa's economy through localisation and empowerment that leads to job creation. Transformation is an empowerment and inclusive growth initiative in line with the growth objective of the Broad-Based Black Economic Empowerment Act of 2013. Eskom is mandated to address the key challenges of economic and industrial growth and poverty, inequality and unemployment, characterised by these supplier development and localisation (SD&L) initiatives.

(1) **Localisation**: The development of local industries with an emphasis on manufacturing enterprises. The corresponding concept of local content refers to value added in South Africa by South African resources. Utilisation of Eskom and suppliers' spend to develop South African based suppliers relevant to the energy sector (focusing primarily on B-BBEE and Black Owned suppliers).

(2) **Industrialisation**: Concept in line with the CSDP aimed at developing sustainable industry in South Africa. Utilisation of Eskom and suppliers' spend to foster the establishment of new competitive industries in the energy sector.

(3) **Supplier Development**: Providing a platform for SA-based suppliers to develop into national and international suppliers, including a platform for emerging suppliers to develop the ability to do business with Eskom.

(4) **Skills Development**: Increasing the skill base of South African workers in areas relevant to the energy sector and where there is a national scarcity of skills. Participating Suppliers commit to train certain individuals in specified trades so that they may become more employable**.**

(5) **Job Creation**: Creation of new jobs by suppliers as a direct result of Eskom business.

GLOSSARY

Term	Description/Definition of Term
Contract[ing]Strategy	Is the part of the commercial strategy that governs the nature of the relationship which the employer wishes to foster with the contractor, which in turn determines the risks and responsibilities between the parties to the contract, the contract terms and conditions and the methodology by which the contractor is to be paid.
Design for Local	Means technical specifications, commercial structures, contractual conditions or any other intervention that enables participation by local manufacturers.
End-User	The consumer of a particular material or service. This individual would typically place the reservation or Purchase Requisition for the desired material or service to be consumed.
Procurement Practitioner	Means a Procurement Practitioner who has been trained, assessed and accredited to execute, support and/or approve procurement transactions at Eskom and who has been formally delegated with such authority in writing.
Procurement of a project	Process which creates, manages and fulfils contracts relating to the provision of goods, services and engineering and construction works or disposals, or any combination.
Procurement Strategy	Is the part of the commercial strategy and sets out pricing and targeting strategy, procurement mechanism, evaluation processes and any other element of the procurement procedure for a particular procurement.
Project	Defined scope of work undertaken during a defined period of time to deliver a unique product or result.
Project Procurement Strategy	The overarching delivery management strategy for the execution of contracting and procurement requirements for the project from which detailed commercial strategies are developed for each contract required by the project for

	each work package.
Project Strategy	Strategy which is adopted to execute, manage and resource the delivery of the project.
Procurement Practitioner	Refers to an employee within Eskom appointed to manage and/or execute a procedure or process as contained in Eskom's P&SCM Procedure (32-1034), the Eskom Delegation of Authority, or within any of the approved Process Control Manuals relating to procure-to-pay processes forming part of the Approved Procurement Framework. A Procurement Practitioner is required to be trained, assessed and accredited within a reasonable period as agreed to with his/her Procurement Manager, to become an Accredited Procurement Practitioner.
Responsive/Acceptable Tender	Means a tender that complies with all the terms and conditions of the enquiry, without material deviation or qualification.
Supplier	Means a current or potential supplier, vendor, contractor, consultant, or service provider. A supplier may be a natural or legal person, and includes any employee of such Supplier acting within the course and scope of his/her employment, or any agent or manager acting for or on behalf of, or in the interests of the person registered as a supplier on the Eskom Supplier Database.
Tactical Sourcing	The Tactical Sourcing Function purchases and leases assets, goods, works or services on behalf of End-Users. Tactical Sourcing procures items where other Divisions within Eskom generally cannot consolidate the requirements with other identical requirements procured. It is generally applied when requirements do not have significant long term demand, requirements are non-complex and have low savings opportunities, or where consolidation opportunities are limited.

ABBREVIATIONS

Abbreviation	Description
ASL	Approved Suppliers List
B-BBEE	Broad-Based Black Economic Empowerment
BI	Black Industrialists
BIP	Black Industrialists Programme
BIS	Black Industrialists Scheme
BOO	Build Own Operate
BOOT	Build Own Operate Transfer
BPwD	Black People with Disabilities.
BYO	Black Youth Owned
BWO	Black Women Owned
cidb	Construction Industry Development Board
CFT	Cross-Functional Team
CGD	Commercial Grade Dedication
CSDP	Competitive Supplier Development Programme
CSIR	Council for Scientific Industrial Research
CSD	Central Suppliers Database
DFI	Development Funding Institution
DG	Designated Groups
The dti	Department of Trade and Industry
DOE	Department of Energy
DPE	Department of Public Enterprises
DST	Department of Science and Technology
ECC	Engineering and Construction Contract
EPC	Engineering, Procurement and Construction
EPCM	Engineering, Procurement, Construction Management
EME	Exempt Micro Enterprise
EOI	Expression of Interest
EPPEI	Eskom Power Plant Engineering Institute
GM	General Manager
Gx	Generation Division, Eskom

HR	Human Resources
IDM	Integrated Demand Management
IPAP	Industrial Policy Implementation Plan
JV	Joint Venture
KOU	Koeberg Operating Unit (Koeberg)
MRO	Maintenance, Repair, Operations
M&O	Maintenance and Operations
NDP	National Development Plan
NEC	New Engineering Contract
Nexco	Nuclear Executive Committee
NGP	New Growth Path
NIP	National Industrial Participation
NIPF	National Industrialisation Policy Framework
NNR	National Nuclear Regulator
NT	National Treasury
OEM	Original Equipment Manufacturer
NERSA	National Electricity Regulator of South Africa
NNR	National Nuclear Regulator
PCM	Process Control Manual
PFMA	Public Finance Management Act
PPPFA	Preferential Procurement Policy Framework Act
PPR 2017	Preferential Procurement Policy Framework Act Regulations 2017
P&SCM	Procurement and Supply Chain Management
QSE	Qualifying Small Enterprise
QA	Quality Assurance
QC	Quality Control
RFI	Request for Information
RFQ	Request for Quotation
RFP	Request for Proposal
SAP	Systems Application Processes
SABS	South African Bureau of Standards
SCATT	Supply Chain and Transformation Tool

SCM	Supply Chain Management
SCCs	Structures, Systems and Components
SD&L	Supplier Development and Localisation
SIPDM	Standard for Infrastructure Procurement and Delivery Management
SHEQ	Safety, Health, Environment, Quality
SME	Subject Matter Expert
SMME	Small Medium and Micro Enterprise
SONA	State of the Nation Address
SPV	Special Purpose Vehicle
SteerCom	Transformation of the Supply Chain Steering Committee
TLIU	Technology Localisation Implementation Unit
TOR	Terms of Reference
WG	Working Group

Chapter 1 INTRODUCTION

1.1 Research Context/Background

South Africa is characterised as a developmental state, whereby it utilises its state-owned entities to largely contribute to achieving its local developmental objectives which in turn would lead support to societal transformation. These developmental objectives are notably in accordance with policies such as the National Development Plan: Vision 2030 (NDP, 2012), New Growth Path (NGP, 2010) and the Industrial Policy Action Plan (IPAP, 2007b).

Eskom, as a State-Owned Enterprise (SOC), is required to fulfil its mandate in accordance with the Department of Public Enterprises' (DPE) compact. This includes DPE's vision of unlocking growth, driving industrialisation, creating jobs and developing skills and other strategic objectives (CSDP, 2007).

Eskom is pivotal in realising the developmental state outcomes as the SOC with the largest procurement spend – of which the nuclear new build programme (NNBP) is expected to be the largest procurement spend in the country (NEP, DME (2008)). The Koeberg Nuclear Power Station (Koeberg) falls within the Koeberg Operating Unit (KOU) business unit as part of Eskom's Generation Division (Gx) (Eskom, 2019c).

The KOU Nuclear Commercial Supplier Development and Localisation (SD&L) department was formed in June 2012, in order to provide an effective nuclear supplier development and localisation (SD&L) service to the KOU internal supply chain customers in accordance with Eskom's mandate to realise local developmental objectives, that are namely: Industrialisation; Localisation; Supplier Development; Skills Development and Job Creation (Eskom, 2013a).

In February 2018, the Chief Nuclear Officer (CNO) and Nuclear Executive Committee (Nexco) had in principle supported the issue of a 'Directive' to the KOU - indicating commitment to actively drive supply chain transformation at the

KOU – and supported the establishment of the Supply Chain Transformation Steering Committee (SteerCom). The SteerCom's objectives would be to provide strategic oversight on the overall supply chain transformation activities at the KOU. It would also provide direction to the working group sub-committees (WGs) whose purpose is to execute all activities related to the attainment of the transformation of the supply chain at the KOU. Supply chain transformation would involve procurement from foreign to local suppliers (localisation), as well as targeted procurement empowerment of designated group (DG) suppliers and broad-based black economic empowerment (B-BBEE) compliant suppliers, amongst others.

In early 2018, an impasse relating to senior leadership indecision of the SteerCom's constituency ensued subsequent to the Nexco approval of the CNO's Directive for the commencement of the SteerCom and working groups. It was consequently not issued to the KOU and did not progress as envisaged. However, both the CNO and Koeberg Power Station Manager (PSM) have made a solid re-commitment to the SD&L team in June 2019 to constitute the SteerCom and WGs.

The KOU plays a critical role in the transformation and economic empowerment of South African society. The delays and issues experienced in implementing the transformation agenda impact on the development of South Africa.

This study sought to investigate the impact of delays and issues since SD&L's 2012 inception on supply chain transformation in the KOU and, then, make recommendations to the NNB for the implementation of the transformation agenda in its supply chain.

1.2. Problem Statement

A transformation agenda in accordance with the developmental state has been implemented in Eskom, Koeberg and the KOU supply chain. There have been

potential roadblocks, problems and questions raised about its performance and impact. This transformation agenda will need to be taken to the nuclear new build programme (NNBP).

However, there are lessons to be learnt from the Koeberg implementation that needs to be investigated and analysed, so that the resultant recommendations may be used to assist the implementation of the transformation agenda in the NNBP. Because of the scope of the Koeberg project, only the learnings from the related procurement aspects at the KOU will be investigated in this research.

1.3. Critical Research Question

What recommendations can be made for nuclear new build based on the lessons learned from the implementation of the transformation agenda in the procurement processes at Eskom, Koeberg?

1.4. Research Objectives

The primary objective of this research is to make recommendations from the investigations and analysis at Eskom, Koeberg, regarding the lessons learnt from the implementation of its transformation agenda in the procurement, to assist the nuclear new build (NNB).

This objective will be achieved by:

- Determining the current status of the Koeberg transformation agenda implementation in the KOU procurement processes.

- Establishing the relevant set of learnings from the implementation in the KOU procurement processes.
- Making recommendations that can help determine the most feasible / appropriate means of implementation in the NNB programme in the KOU procurement processes.

1.5. Summary of Research Method

The data gathered informs the research method. A qualitative research approach and thematic analysis method of analysing data was used. It is deemed to offer the most complete resolution to the research study and is also well-suited to the manner in which the research problem will be addressed. The rationale for selecting this method is elaborated on in Chapter 3, sections 3.1 and 3.4.2. The ethics clearance certificate number is MIAEC 074/17.

1.5.1 In-Depth Interviews

Face-to-face in-depth interviews with key participants, with the use of a semi-structured questionnaire. This chosen method was the preferred method to obtain valuable, rich data, of the perceived poor performance of the transformation agenda's local developmental objectives at Koeberg.

1.6 Delimitations

- Analysis or discussion on financial stability within Eskom as a possible influencing factor will not be undertaken.
- A detailed study of the skills development (TA) aspect will not be undertaken.
- The focus of the research will be on the Koeberg transformation agenda.

1.7 Outline of Chapters

I. CHAPTER 1: INTRODUCTION

This aims to provide some background and context into the study and discusses the problem statement, research objectives and summarises the research method.

II. CHAPTER 2: LITERATURE REVIEW

Provides the developmental state expectations and requirements of the government and DPE by examining the most important procurement empowerment and industrial procurement legislation, as well as the four-tier system of public procurement levers.

III. CHAPTER 3: RESEARCH METHOD

Discusses the six-step iterative Braun and Clarke generic form of thematic analysis method of data analysis employed that employed complete coding to inductively analyse the data.

I. CHAPTER 4: DATA ANALYSIS AND RESULTS

Addresses the objectives based on the themes derived from the interviews undertaken.

IV. CHAPTER 5: DISCUSSION

An in-depth analysis of the results and themes as it relates to existing literature and research, and the reliability and validity of the study.

V. CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS FOR FURTHER RESEARCH

Addresses the objectives and research question in summary, and recommendations for further research.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

The purpose of the literature review is to outline the key government policies and legislation that apply to transformation in SOE procurement, and that have formed part of the Koeberg implementation to identify the internal Eskom documents that affect the transformation agenda, and to outline the key areas of the transformation agenda that will be the focus of this study.

There are key areas in the transformation agenda that impact it, including: (1) Culture and the "unwritten rules" at Koeberg; (2) Change Management and the Role of Leadership; (3) Procurement transformation; (4) Contract Management; (5) Post-project management implementation reviews and (6) Nuclear Safety aspects. However, this study will focus on the sets of learning relevant to procurement in new builds in areas (2), (3) and (4), as listed.

It is imperative to establish the emergence and relevance of the developmental state as it underpins and gives effect to the transformation agenda in Eskom, Koeberg. Furthermore, the evaluation of legislative procurement empowerment and procurement levers – including internal Eskom policies, procedures and work instructions. These are essential to elucidate and expound on the industrial procurement legislation and policies as it is intended for industrial development in South Africa (SA). At its essence, it is an evolving system of procurement and supplier development that aims to serve the developmental state objectives, as envisaged by the government.

2.2 The Developmental State

The National Planning Commission was tasked in 2010 to devise the National Development Plan (NDP). The National Development Plan: Vision 2030 is a government policy instrument that was subsequently implemented in 2012, whereby SA is to eliminate poverty and reduce inequality. To achieve this, the economy must grow rapidly in order to drastically lessen these ills. One of the

apex priorities of the NDP envisages a 'capable and developmental state' rise - via strategic government legislation, policies and instruments – to conquer the triple threat of poverty, unemployment and inequality (NDP, 2012). The literature seeks to build a theoretical narrative of these ambitions. Eskom is seen as a key SOE to assist this vision. An analysis of the NDP as it views *nuclear's* envisaged role in reducing the *triple threat* of poverty, unemployment and inequality will be undertaken. The NGP relates specifically to employment creation in SA.

2.2.1 Background

When looking back at the advent of the ANC led democracy in 1994, it is evident that the ANC led government was keen to institutionalise legislation and policies aimed at eradicating the injustices of the past apartheid regime. Hence, the introduction of state economic interventionist policies whose aim was to strengthen the new democratic state's capacity to deal with the very real societal challenges regarding inequality, unemployment and poverty. This planted the seed to what has subsequently been coined as the ambitions of the developmental state.

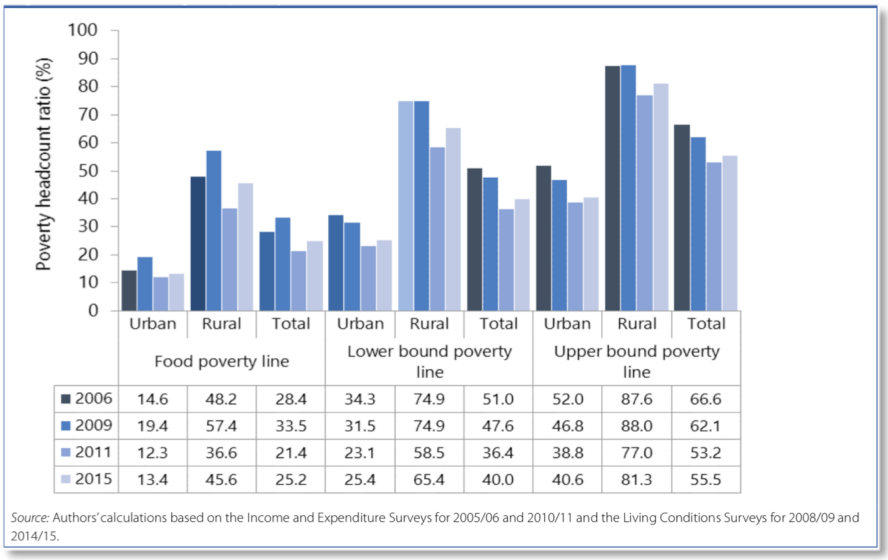
2.2.2 What is a developmental state?

South Africa's endeavours to emulate the developmental state model because of its great success in these East Asian countries and is considered as one of the greatest models of industrialisation.

There are many definitions and interpretations of the developmental state in literature, but in essence there is agreement on its fundamental features (Tshishonga & de Vries, 2011). In concept, the development state essentially rests on two assumptions in the third world, whereby the first is that the country must be in a dire position that market forces in themselves prohibit substantial economic growth, and the second is that these countries are capable of actually overcoming barriers that face late developers (Liou, 2002). Tshishonga & de Vries (2011) assert that when arguing from a theoretical framework in which the developmental state is positioned, this would imply that South Africa focuses all its efforts on addressing the urgent socio-economic problems it faces.

In summary, it is found that the main imperative for building a legitimate developmental state is to place as prime the state's commitment to directly intervene - via its legislation and policies - in overcoming the grave societal ills of poverty, unemployment and inequality. However, there are many scholars and critics (Southall, 2006; Ndlovu, 2011) who argue that South Africa cannot claim to be a developmental state as it lacks the necessary *state capacity* such as financial resources to become one. That is, corruption greatly negates the concept and aspirations of building a capable and developmental state as it erodes state capacity and confidence in the people.

2.3 Current Status of Triple Threat – Poverty, Unemployment, Inequality



	Food poverty line			Lower bound poverty line			Upper bound poverty line		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
2006	14.6	48.2	28.4	34.3	74.9	51.0	52.0	87.6	66.6
2009	19.4	57.4	33.5	31.5	74.9	47.6	46.8	88.0	62.1
2011	12.3	36.6	21.4	23.1	58.5	36.4	38.8	77.0	53.2
2015	13.4	45.6	25.2	25.4	65.4	40.0	40.6	81.3	55.5

Source: Authors' calculations based on the Income and Expenditure Surveys for 2005/06 and 2010/11 and the Living Conditions Surveys for 2008/09 and 2014/15.

Figure 2.1 Overall changes in poverty rates (Source: The World Bank, 2018)

In World Bank Report and World Development Report, NDP (2011) Priority: Eradicate absolute poverty – from 39% of people living below the poverty line of R419 (2009 prices) to zero (NDP):

(1) Poverty levels in South Africa declined between 2006 and 2011, but subsequently increased during 2011 to 2015.

(2) Proportion of the South African population living below the Lower Bound Poverty Line increased from 36.4% in 2011 (18.7 million people) to 40.0% in 2015 (21.9 million people).

(3) Proportion of people living below the Upper Bound Poverty Line initially decreased from 66.6% in 2006 to 53.2% in 2011. However, by 2015 it had increased to 55.5%.

	Food	Lower bound	Upper bound	$1.9 a day	Gini coefficient
2017	24.7	39.8	55.5	18.6	62.8
2030	18.8	32.7	51.3	12.7	59.5
Change 2030–2017	-5.9	-7.1	-4.2	-5.9	-3.3

Source: World Bank staff calculations.

Figure 2.2 Projected poverty and inequality rates - baseline scenario (Source: The World Bank, 2018).

In figure 2.2 above, the complex nexus between growth and inequality in South Africa is illustrated through the projections of poverty trends until 2030 under different scenarios. **Absent new policy interventions**, the prospects for reduced poverty and inequality are very limited, but would benefit from progress in access to education

2.3.1 What are the developmental state requirements for South Africa?

The NDP is a long-term, comprehensive, integrated developmental plan that is backed up by strategic medium and short-term plans. The strategic objectives of the NDP is to eradicate poverty, reduce inequality and address unemployment (NPC, 2018).

As one of the six pillars of the NDP, and one Chapter 13 ("*Building a Capable Developmental State*") is given prominence. Below, dominant reference is made to '*Building a Capable State'* concept paper (Fitzgerald, 2016), where key perspectives on the five areas identified for targeted action in Chapter 13 of NDP are discussed, namely:

(1) Develop technical and specialist professional skills: - Strong recommendations to strengthen the state's role in developing technical skills, as well as ensuring clear career paths for technical specialists within the public sector, are noted in the NDP. The article opined that these

recommendations *"should be seen as a collegial value proposition in the national interest, with distinct benefits for both governmental and Higher Education Stakeholders"* (Fitzgerald, 2016).

In the Eskom context, this is significant given its unique position to realise the development of nuclear-related technical and specialist professional skills.

(2) Clarify the objectives and mandates of state-owned enterprises: - This outlines the NDP's perspective on SOEs. First, it starts to outline the developmental utility for SOEs; and given that the SOEs have a clear and focused mandate that renders transparent how its activities serve the public interest. It further indicates that **a well-defined governance structure should be in place**, as well as a clear plan to deal with capacity constraints.

Fitzgerald (2016) argues that, as expressed in Chapter 13, many SOEs are burdened with over-complex or obscure mandates belonging to some agenda other than the public interest. Governance is murky, if not downright dysfunctional, though continues to state that the point is made that SOEs differ markedly in purpose, size and scope – and some may enjoy comparative better functioning.

The key critique offered to NDP is that there is *"...no real summation or set of conclusions, except a paragraph affirming the need for progress and implementation"* (Fitzgerald, 2016). As a strategic state asset, it shall serve its **dual mandate of providing electricity and promoting local development**, as indicated in figure 2.3 below.



Figure 2.3 Eskom's Mandate, Vision and Mission (Source: Eskom, 2019b)

The OR Tambo Debate 5 addresses issues related to building an ethical and effective public service and capable state that is able to play a transformational and developmental role in realising the plan's vision for 2030. The debate article serves to highlight major themes that provide varying perspectives and concerns from its audience (which also serves as a good assessment of the current relevance of the developmental state to the TA at Koeberg). Amongst others, the debate culminated in the recognition that inequality within society is our biggest and most critical challenge, as well as the widely held view that corruption is widespread – taking from the poor and undermining South Africa – noting that overcoming these instances of 'selfishness and greed' is key to building an ethical public service. The debate's end note highlighted the critically important need for partnering.

2.3.2 Radical Economic Transformation

On 9 February 2017, then President Zuma officially introduced the concept of Radical Economic Transformation (RET). Amongst others, he indicated that: (1) there must be a fundamental change in the structure, systems, institutions and patterns of ownership, management and control of the economy to ensure it benefits all South Africans, especially the poor, most of whom are African and female; (2) Black-controlled companies must benefit more from the government's R500bn annual procurement budget, growing the number of black industrialists. Following some discourse with the business community, Zuma indicated business accepted these transformation imperatives – hence the start of 'a new chapter of RET. Importantly, the state will play its role in the economy to drive transformation by utilising its existing strategic levers to the maximum (SONA, 2017).

2.3.2.1 Discussions on Radical Economic Transformation (RET)

In a debate on RET and the NDP hosted by the Wits School of Governance on 20 July 2017, panellists agreed on the need to define the 'radical' in RET. The

discussion included an agreement that the RET should not only include programmic content (as offered by Zuma's 2017 SONA), but also 'an ideological set of commitments that need to be just, transformative and outlast auditable targets and terms of office' in order to effectively transform SA's economy.

Government should lead and take charge of economic policy - including macro-economic - instead of the private sector (currently). Amongst others, views on 'Building a more equitable and inclusive society' included:

i. Industrial policy needs to be expanded as it is a key driver of economic development and SA needs a solution to its commodity dependence;
ii. Small business needs to be a critical component of any development strategy and the reasons why small business are failing in spite of funding from the State needs to be investigated and rectified;
iii. Monopolies and cartels need to be broken up and
iv. Ensure real Black Economic Empowerment by moving beyond the few empowered (Wits, 2017).

In an update on 18 December 2018, President Ramaphosa stated that RET and inclusive growth are the same thing, during a live interview on 702 and CapeTalk by Xolani Gwala. He said that RET was ANC policy, and that this must include economic growth in townships and the involvement of black-owned business. Ramaphosa said, "*Underpinning what we are about, is [the advancement of] black people previously kept behind, but in the process, [also making everyone] feel that this is a South Africa for all of us*," (Smith, Fin24, 2018).

Government and particularly through its SOC Eskom, and the large procurement spend emanating from Koeberg, need to fulfil its promise of RET that a successful transformation agenda both at present day Koeberg, and in the NNB can achieve.

2.3.2.2 The Role of Science, Engineering and Technology seen as drivers of development

"Science and technology are key to development, because technological and scientific revolutions underpin economic advances, improvements in health systems, education and infrastructure" (NDP, 2011).

(Relevant extracts from the NDP and commentary), as summarised and edited from SET for economic growth (NSTF, 2017):

i. SET seen as key to improving the lives of poor people in developing countries, whereby these are the differentiators for developing economies to emerge as economic powerhouses.
ii. Technology is defined as ranging from telecommunications to biotechnology and nanotechnology. Koeberg's role in leveraging procurement spend by developing skills and suppliers innovatively and sustainably, as one of only two nuclear installation sites (Necsa, the other), is massive and potentially even more massive.
iii. Technology is seen as a way to increase productivity and to unlock access to affordable health and education. At the same time, ICT and internet access depend on electricity and other power sources – no power, no access. This has a direct bearing on the Fourth Industrial Revolution and the so-called "Internet of Things".
iv. There is a need to manage the challenges around technological revolutions. For e.g., there is a risk of worsening inequality through early and extensive technology access by the rich.
v. To promote technological advances, developing countries need to invest in quality education for the youth, continuous skills training for workers and managers, and ensuring that knowledge is shared as widely as possible across society.
vi. To encourage research and development (R&D), there is a need for investment and incentives. Coupled to this concept is the view of strategic investment into nuclear.

To quote President Cyril Ramaphosa (SONA, 2019) when referring to the critical role technology has in the betterment of our society, "…*It is about developing the technology and the capabilities that will build a dynamic and competitive economy that creates decent, sustainable jobs*.".

2.4 The Concept of Change and Change Management

The research question is primarily concerned with the effects of implementing a transformation agenda – which in itself implies significant change. Likewise, the transformation agenda comprises a fundamental change in the status quo relating to Eskom, Koeberg's public procurement activities.

According to Burnes (2004) change is an ever-present feature of organisational life, both at an operational and strategic level. Since the need for change is often unpredictable, it tends to be reactive, discontinuous, ad hoc and often triggered by a situation of organisational crisis (Burnes, 2004; De Wit and Meyer, 2005; Luecke, 2003; Nelson, 2003). The emergent approach to change emphasises that change should not be perceived as a series of linear events within a given period of time, but as a continuous, open-ended process of adaptation to changing circumstances and conditions (Burnes, 1996, 2004; Dawson, 1994). Change management is a systematic approach to dealing with change - both from the perspective of an organisation and on the individual level - that encompasses at least three different change aspects, including: adapting to, controlling and effecting change. A proactive approach to dealing with change is at its core.

In literature, change management and the role of leadership are inter-related and interdependent concepts - as the former is a process that is led by the latter- and is often regarded as fundamental enablers of successful project implementation.

2.4.1 Models of change management

Kanter et al. (1992) contends that we live in a constantly changing world, and change has an impact on the individuals and the organisation as a whole. Different transformational change theorists/authors' views are depicted in Table 2.1 below, showing transformational learning (process) as a condition for transformational change in firms (Henderson, G.M., 2002).

Table 2.1 Transformational learning/process as a condition for transformational change in firms (Source: Henderson, G.M., 2002)

Theorist/Author - Transformational Change	Key Terms / Concepts	Process for Organisational Transformation
(1) Kurt Lewin (1951) (as elaborated by **Edgar Schein** (1992))	Three Step Model - Unfreezing and freezing - Environmental forces (force-field analysis) - Organisation as social system	- Unfreeze current level of behaviour - Movement to change the social system - Refreezing to establish behaviour that is secure against change
(2) Lippit, Watson, and Westley (1958)	- Phases of change - Change agent - Institutionalising the change - Development of internal change management expertise	- Development of the need for change - Establishment of a change relationship - Working toward change - Generalisation and stabilisation of change - Achieving a terminal relationship
(3) Burke and Litwin (1992)	- Transformational and transactional dynamics - Organisational climate - Systems view	- Assess level of change required - Redefine mission and strategy - Leadership commitment - Communication, training and integration
(4) Beckhard and Pritchard (1992)	- Systems thinking - Fundamental change - Vision-driven change - Resistance formula Lewin's unfreeze-movement-refreeze	- Diagnosis - Create Vision - Create new structures and processes - Move to learning mode - Reward learning and commitment - Build commitment through education, role modeling and rewards.
(5) John P. Kotter (1996) *Transformational Change	Kotter's Eight Steps of Transformational Change Model - Guiding coalitions - Vision and strategy - Anchoring new approaches in the culture - Short-term wins	- Establish sense of urgency - Create a guiding coalition - Develop vision and strategy - Communicate change vision - Empower broad-based action - Generate short term wins - Consolidate gains and produce more change - Anchor new approaches in the culture
(6) David A. Nadler (1998) *Transformational Change	- Systems thinking - Discontinuous change - Integrated change and congruence model	- Recognising the change imperative - Developing a shared direction - Implementing, consolidating and sustaining change

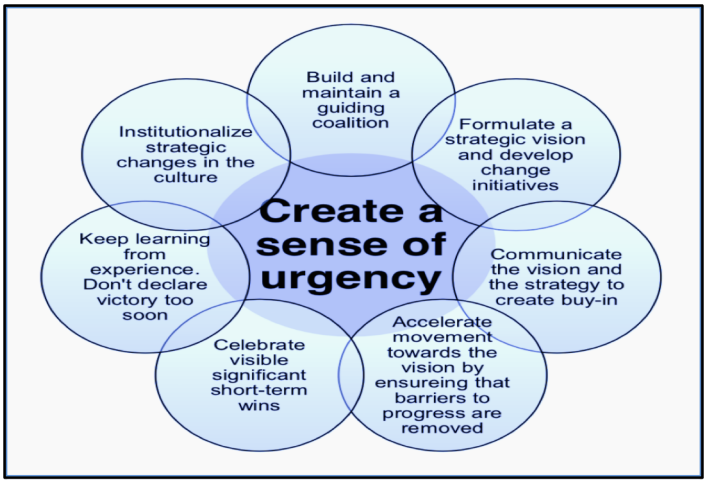


Figure 2.4 Eight steps of transformational change (Source: Kotter, 1996)

2.4.2 Summary of Change Management Models or Frameworks

Transformational organisation change management theories indicates the varying approaches to transformational organisational change. As shown in Table 2.1, organisational change was placed in the context of the organisation as a system by Lewin (1951), Schein (1992), Beckhard and Pritchard (1992), and Nadler (1998). The systems view was shared by Burke and Litwin (1992), with distinctions given to levels of change (transactional and transformational). Leadership and management perspectives were given prime in organisation change by Kotter (1996), whereby Lippitt, Watson and Westley (1958) focused their approach on an external change agent.

Nonetheless, there is a commonality throughout, namely that the change processes are targeted at organisational level – with the exception of Lewin and Schein, all models postulate changing an organisation will result in change in its individual members.

2.4.3 The Commitment to Change and Change Leadership

Leadership and organisational culture are widely believed to be linked in the process of change (Afsaneh, 1993; Kotter, 1998; Schein, 1984). As Kotter (1998) stated, *"Only through leadership can one truly develop and nurture culture that is*

adaptive to change" (p. 166). Furthermore, leadership is often cited as a critical factor on change processes in public sector organisations (Hennessey, 1998; Stewart & Kringas, 2003). There are many models prescribing the role of leadership in implementing organisational change in change management literature (Fernandez & Rainey, 2006; Kotter, 1996).

The leadership and management of change is an emotive and often daunting process representative of many symbolic facets at play, as much as it is a business need or rational process. Any change management process must be led by individuals – which is the **role of leadership**.

2.5 The Role of Leadership

Broadly, leadership can be defined as a process whereby a person influences and directs others to accomplish a certain objective or achieve a common goal (Northouse, 2007). More narrowly, *change leadership* refers to *"a set of principles, techniques, or activities applied to the human aspects of executing change to influence intrinsic acceptance while reducing resistance"* (Griffith-Cooper and King, 2007, p.14).

Change leaders are people with creative visions, who are able to foresee a new reality and how to get to it. Change leaders have to understand how their employees perceive change and ensure they accept the change and are ready for it (Al-Haddad & Kotnour, 2015). The critical role of leadership in the change management journey needs to be fully understood before it may be enabled. Additionally, an understanding of *transformational change* is needed before it may be implemented and followed.

2.5.1 Leadership approaches to change

There are two main leadership styles literature refers to: *transactional leadership and transformational leadership*. *Transactional leadership style* is characterised by the leader acting like an agent of change and supports the employees through

procedures of fundamental changes that improve productivity. *Transformational leadership style* implies that the leader empowers the subordinates to assume the organization's vision which reflects into growth of productivity, of employees' motivation, of work satisfaction and of individual performance (Burns, 1978).

2.5.2 Transformational Leadership

Transformational leadership has been described as the single most studied and debated idea within the field of leadership studies over the past 30 years (Diaz-Saenz, 2011). Transformational leadership refers to behaviours of leaders who motivate followers to perform and identify with organisational goals and possess the capacity to motivate employees beyond expected levels of work performance.

Transformational leadership uses the six factors proposed by Podsakoff, MacKenzie, Moorman, and Fetter (1990): (1) articulating a vision for the future; (2) providing an appropriate role model; (3) fostering the acceptance of goals; (4) setting high performance expectations; (5) providing individual support; and (6) providing intellectual stimulation. According to Podsakoff et al. (1990), articulating a vision consists of having a clear understanding of where the company or group is going, painting an interesting picture of the future of the group, and inspiring others with the leader's plans for the future.

Bass identified four transformational leadership behaviours, represented by the four 'I's - shown in Figure 2.5 below - ensuring success for a transformational leadership style (Avolio, 1999; Bass & Avolio, 1992), namely:
(1) *Idealized influence (charisma)* – arouses strong emotions from followers and identification with, and emulation of, the leader (Avolio & Bass, 2001; Yukl, 1998) because leaders act as strong role models for followers (Avolio, 1994; Bass, 1998; Northouse, 2001).
Hence, enables a leader to be trusted and respected;
(2) *Inspirational motivation* – includes developing and communicating an appealing vision (Avolio, 1994), using symbols and images (Avolio & Bass,

2001) to focus the efforts of subordinates, and modelling behaviours that are deemed appropriate (Yukl, 1998).

It will be the ability to stimulate employees to outrun themselves, whilst being captivated by an inspiring picture of the future created by the leader. Hence, the guiding coalition captivates and motivates the follower to achieve TA outcomes.

(3) *Intellectual stimulation* – increases awareness of problems, influencing followers to see problems from a new perspective (Yukl, 1998). Followers are stimulated to be creative and innovative; challenging their own, their leaders, and organisational beliefs and values (Bass & Avolio, 2001).

This kind of intellectual stimulation could serve the implementation of the TA well as there will be a lot of creativity and innovation involves in the planned working groups and its support structures;

(4) *Individual consideration* – involves providing support, encouragement, coaching (Avolio, 1999; Bass, 1998; Yukl, 1998), delegation, advice, and feedback for use in the personal development of followers (Avolio & Bass, 1992).

It is a habit of listening to the needs and wishes of followers and making them feel that leadership and management will encourage and support them. This will especially be useful when followers start breaking from the norm and using innovative and problem-solving skills to help transform the supply chain, e.g. from foreign to local supply. As depicted in Figure 2.5 below, the additional effect of transformational leadership results in '*Performance Beyond Expectations*' (PBE) when applied purposefully during change initiatives.



Figure 2.5 Additive Effect of the Four 'I's of Transformational Leadership (Source: Renjith, V., Renu, G., George, A., 2015)

Change leadership goes back to Kotter (1995) who had emphasised that for change leaders to be effective, and obtain the change outcome that they envision, they will need a strategy for change that creates a guiding coalition that has enough influencing power to lead the change and getting the team to work together effectively. So, by using transformational leadership behaviours, and empowering the change agents in the guiding coalition that ease change obstacles to change by removing processes or systems that are not aligned or in sync with the TA vision, much may be achieved.

Transformational leadership is required in organisations that experience change. These leaders channel the energy of followers in pursuit of a common vision. Awareness of leadership competencies, leaders' strengths and weaknesses, and change behaviours will lead to identifying pragmatic strategies to be applied through the change process.

2.6 Procurement Empowerment and Legislation



Figure 2.6: The national challenges and government Legislatory and policy responses (Source: Adapted from the dti (2017))

The transformation agenda (TA) narrative is heavily focused within public procurement. In this context, it relates to the "transformation" of the South African economy (an economic growth trajectory), and the inclusion of black persons into the mainstream of the economy, empowering black persons,

transforming ownership, management and control patterns of enterprises (the dti, 2004). This view is taken to enable SA to become a more 'equitable society' (The Constitution, 1996).

2.6.1 An Introduction to Public Procurement

Procurement is thought of as one of four major economic activities performed by government (Nijaki & Worrel, 2012). Underpinning the role of government itself, it provides: a legislative framework; the redistribution of income through taxation and spending and the provision of public goods at no additional cost to the public (Thai, 2001).

Public procurement operates in an environment of increasingly intense scrutiny and accelerated changes driven by technology, programme reviews, and political expectations (Bolton, 2006; Eyaa & Oluka, 2011). It is also a business process with an underlying political system (Wittig, 2007:2; Watermeyer, 2011:8). The approach and far-reaching impact of public procurement includes a range of factors and conditions that need to be engaged in order to achieve maximum local developmental impact. The study focuses on tapping into these elements in order to consider how it aids the KOU to leverage its procurement spend to further the goals of implementing the TA as needed.

2.6.2 The Public Sector SCM Regulatory Environment

South Africa is a constitutional democracy, where its government is the country's largest procurer of goods, services and construction works. The Constitution of the Republic of South Africa, Act 108 of 1996 (RSA, 1996), represents the supreme authority and Section 217 of The Constitution deals with the basic constitutional requirements of public procurement.

In line with this, the five principles of procurement must be adhered to - providing the normative framework with which the function must be executed - namely, "when an organ of state contracts for goods or services … it must do so in accordance with a system which is *fair, equitable, transparent, competitive and cost-effective".*

In accordance with SCM Section 33 of The Constitution (1996), it must provide for the advancement of persons or categories of persons disadvantaged by unfair discrimination, as cornerstones of South Africa's public sector procurement system. In 2004, National Treasury (NT) introduced the public sector SCM legislative framework that provides for decentralised policy and public sector resource management. The aim was to align with the Public Finance Management Act 1 of 1999 (PFMA, 1999), its Regulations and the General Procurement Guidelines PFMA (1999), permitting the public sector SCM to be decentralised so that the relevant managers may manage. The PPPFA and its Regulations give expression to Section 217(3) of the Constitution which prescribes the framework within which preference and socio-economic objectives are to be achieved.

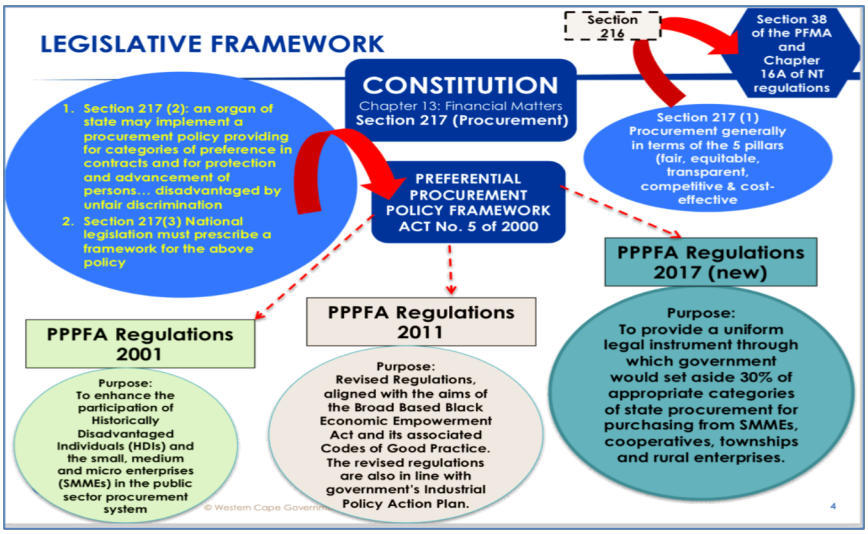


Figure 2.7: PPPFA Legislative Framework (Source: Western Cape Government, 2018)

Eskom's Procurement & Supply Chain Management Policy 32-1033 (Eskom, 2018d) represents Eskom's governance framework for all procurement and supply chain management activities within Eskom. Koeberg's Nuclear Commercial department is aligned to Eskom's Corporate Commercial Group, who is mandated to align its operations with the strategic objectives of Eskom.

There is a *plethora of legislation* regarding public procurement in South Africa. However, key to the country's public procurement policy is the Preferential Procurement System, as the main procurement lever used by organs of state, such as Eskom (an SOC). The revised Preferential Procurement Regulations (PPR)

2017 issued in terms of the Preferential Procurement Policy Framework Act, 2000, came into effect on 1 April 2017, thus repealing the 2011 PPPFA Regulations in its entirety. The PPR 2017 has introduced a number of key changes aimed at using procurement to promote local industrial development, socio-economic transformation and the empowerment of small business enterprises, co-operatives, and rural and township enterprises.

PPR 2017's policy objectives represent government commitment to transformation and inclusivity of the business environment. They are based on three interrelated government policy objectives, viz.: (i) socio-economic transformation; (ii) promotion of small enterprises, cooperatives, rural and township enterprises; (iii) promotion of local industrial development, where it is aimed at strengthening compliance with local content thresholds by state entities (NT, 2017).

Empowerment is seen as one of the key aspects of the Amended PPR 2017. The PPR 2017 provide added empowerment advantages to certain '*designated groups'*, as classified in the B-BBEE Act 2013 and Codes of Good Practice. The *measures* to promote empowerment include raising the threshold for preferential points evaluation for both 80/20 (for tender values > R1M and < R50M) and 90/10 (for tender values > R50M) bids.

Arguably, the most significant change to the regulations is the introduction of pre-qualification criteria, the PPR 2017 afford organs of state the added discretion of applying the pre-qualifying criteria to advance certain designated groups: Black People with Disabilities (BPwD), Black Women Owned (BWO), Black Youth Owned (BYO) and SMMEs, viz. Emerging Micro Enterprises (EMEs) and Qualifying Small Enterprises (QSEs).

The three categories of pre-qualification criteria (a limited form of set-aside) may be applied to advance certain designated groups, via Regulation 4 as follows: (i) Set a minimum B-BBEE Level; (ii) Only EMEs or QSEs may tender and (iii) An undertaking to sub-contract minimum of 30% to certain designated

groups. Organs of state such as Eskom as an SOC may apply these pre-qualification criteria at its discretion, as a *condition of tender.* Any tender that does not meet these criteria will be rejected. All tender documents must: (1) stipulate the preference point system applicable; (2) determine whether pre-qualification criteria are applicable; (3) determine whether the goods or services are in a designated sector for local production and content; (4) determine whether compulsory sub-contracting is applicable; and (5) determine if objective criteria are applicable.

A review of the current SCM legislative framework is underway (National Treasury, 2015). This will culminate in a single public procurement legislation addressing all the legislative and regulatory inefficiency in the system. Amongst others, The Public Procurement Bill is being finalised and aim to: (1) Ensure the SCM system is fair, equitable, transparent, competitive, and cost-effective in line with section 217 of the Constitution; and (2) Provide for an agile system of preference that will support social-economic transformation consistent with section 217 of the Constitution.

2.6.3 PPR 2017 Key Criticisms

(1) In order to achieve these five principles regarding its procurement, the SCM policies and legal environment that underpin and support it, need to be clear and easily understood. However, there are more than *eighty* different legal instruments that govern the public sector SCM (National Treasury, 2015). Therefore, SCM across South Africa is *highly fragmented* - making it difficult for government to obtain maximum value when procuring goods and services. In its 2015 Public Sectors Supply SCM Review, NT noted that it will be working with all government institutions to institute oversight and reform activities in public sector SCM procurement as legislated (National Treasury, 2015).
(2) The current fragmented procurement regime is a barrier to entry for emerging small and medium businesses; this makes it difficult for new businesses to transact with government.

(3) There has been criticism that PPR 2017 do not go far enough to achieve the preference, empowerment and socio-economic objectives described in Section 217(2) of the Constitution. It does not accommodate other forms of pre-qualification or *'set-asides'* to promote empowerment at this stage, as it is not permissible under the current Legislatory Acts itself. National Treasury (NT) have, however, indicated that more targeted procurement interventions will be provided for in the issue of its much anticipated, long-awaited Procurement Bill.
(4) There is arguably a price to empowerment, where critics view Government willing to pay a price premium for procurement, as higher points are awarded for a higher B-BBEE rating.
(5) The PPR 2017 provides preference points for empowerment, but not for localisation objectives. This is not in line with the CSDP's localisation objectives of the TA.

2.6.4 PP R 2017 Key Praises

(1) The set empowerment criteria provided for in the PPR 2017 will prevent tenderers with no aspirations of complying with/improving on their B-BBEE score from being awarded contracts. It necessitates the need to research more actively *what is achievable* in each industry and *what is appropriate* when setting out pre-qualification criteria for a tender.
(2) The revision of the PPR 2017 is an interim measure to advance the interest of targeted groups. The process of the development of the Procurement Bill has commenced to provide for, *inter alia*, the enablement of government socio-economic objectives in a broader manner.
(3) The PPR 2017 provide requirements on how to address the objectives of the Industrial Policy Action Plan - specifically those aimed at promoting local sectors. NT has provided stipulation for the dti's designated sectors of specific industries that are of critical and/or strategic importance to SA as Regulation 8. Deepens localisation in respect of Regulation 8.4 to 'self-designate'.

2.7 The Broad-Based Black Economic Empowerment Transformation Imperative

To realise the aspirations contained in the likes of the NDP, B-BBEE may be viewed as government's policy to ensure that companies support and promote enterprise and supplier development, industrialisation, localisation, job creation and skills development (Hareeparsad, 2015).

Economic transformation is defined by the B-BBEE Strategy (dti, 2004) as the transition from an economy that confined wealth creation to a racial minority to an economy that benefits all citizens; and is characterised by ownership, management and control of factors of production by previously marginalised communities (the dti, 2004). The dti's BEE Strategy is underpinned by four principles of Black Economic Empowerment, viz.: (1) is broad-based; (2) is an inclusive process; (3) is associated with good governance; and (3) is part of South Africa's growth strategy (the dti, 2004).

The B-BBEE regulatory framework is based on the Constitutional provision in Section 9 (2). It essentially provides for the right to equality and makes provision for legislative instruments aimed at achieving this in order to remedy historical inequalities. The Department of Trade and Industry (the dti) has been tasked with overall responsibility for instituting and monitoring the laws that govern BEE, since the introduction of the Broad-Based Black Economic Empowerment Act no. 53 of 2003 (Ferreira and Villiers, 2011). Black persons are defined as a generic term that refers to Africans, Coloureds and Indians (B-BBEE Act, 2013). After a High Court ruling in 2008 in Pretoria, it was ruled that the South African Chinese community were "black" in terms of B-BBEE. Other designated groups include women and black people with disabilities. The B-BBEE Commission is a statutory entity of the dti as a watchdog over B-BBEE implementation.

The B-BBEE Codes of Good Practice ('the Codes') were first published in 2007, as the B-BBEE Act of 2003 itself had no powers to deal with non-compliance and there was a lack of alignment of B-BBEE Act with other pieces of legislation,

such as the PPPFA. There were also gaps in verification processes, as well as material misrepresentation and fronting practices. The Act affords an outline for BEE whereas the Codes provide an understandable and detailed framework for the measurement of BEE (Marais & Coetzee, 2006).

2.7.1 Amendments to BBBEE Act, 2013

A number of amendments were made in response to deficiencies identified in the principal 2003 Act and Codes. Hence, the B-BBEE Amendment Act 46 of 2013, came into effect on 24 October 2014 with the material revision and issue of the 'Amended 2013 Codes' that came into effect on 1 May 2015. The Amended Codes are underpinned by the need to drive an inclusive economy, and in compliance with the Constitution.

Although the exclusion of imports based on brand or technical specification is still operable, this exclusion will now require a localisation plan. The inclusion of such a localisation plan will need to be included in the verification process – and in Eskom's case, in its exclusions submissions report request to the dti – to ensure that the avoidance of the localisation objectives is limited.

The 2013 Amended Codes has introduced priority (compulsory) elements: (1) Ownership; (2) Enterprise and Supplier Development (ESD); and (3) Skills Development (SD). All measured entities, viz. (i) LMEs and (ii) QSEs to comply with priority elements, whereby: (i) LMEs to comply with all three priority elements; and (ii) QSEs to comply with at least two of the priority elements, with (1) Ownership a compulsory element, and either ESD or SD as an optional priority element. The SMME designated groups are: (1) Exempt Micro Enterprises (EMEs) with an annual total revenue/allocated budget/gross receipts of R10M or less; and (2) Qualifying Small Enterprises (QSEs) are measured entities with an annual total revenue of between R10M and R50M.

The 2013 B-BBEE Act's *Key Amendments* (in 2013, from Principal B-BBEE Act, 2003) include: (1) Aligning the B-BBEE Act and the Codes; (2) Introduction of a

trumping clause; (3) Creating the B-BBEE Commission; (4) Specifying requirements re: monitoring, evaluation & reporting; (5) Introducing offences, penalties & prohibitions; (6) Introducing the concept of 'B-BBEE Verification Regulator & Verification Professionals' and (7) Clarifying & extending Minister's power to make regulations (speedily effecting and implementing fraud-busting measures).

The Minister may allow organs of state and public entities to set criteria for procurement and other economic activities that exceed those set out in the codes. The revised codes' objectives are to tackle the triple socio-economic challenges related to: Poverty; Inequality and Unemployment. These are undermined by the triple macro-economic challenges, viz. the trade deficit (Net importer; insufficient production); insufficient economic growth and an enormous budget deficit.

The real economy (i.e. agriculture, mining, manufacturing, construction and productive services, with an initial focus on manufacturing) is a factor that formed the basis of amending the B-BBEE Act and Codes. There has also been a concerted effort in linking B-BBBE with other government economic development strategies and policies, such as IPAP, CSDP, NGP, etc. These policies are significant in that they are both established in the highest seated legislation, and that government has committed to use *procurement as a lever* to redress the inequitable practices of the past. These socio-economic transformation goals and empowerment of SMMEs can come at a huge financial cost. That is, legislation (see PPR, 2017) dictates that government is willing to pay a premium of 20% on all contracts (when applying Regulation 6 of the PPR 2017 '80/20' preference point system up to the value of R50 million), and likewise a premium of 11% on all contracts above R50 million (when applying Regulation 7 of the PPR 2017 '90/10' preference points system).

The inclusion of an *empowering supplier* status will serve to limit the ability to dump fully imported products onto the South African market. It will mean that businesses in South African will need to be committed to participating in the economy through job creation, beneficiation and local procurement.

Beneficiation, in the South African debate, means downstream industrial development – taking mined minerals and transforming them into industrial products like machine tools and motor vehicles – and is the official policy of South African government, where it is intent on using mineral beneficiation as one of the major drivers in advancing empowerment. A concern is that South Africa continues to import a variety of finished products, representing a significant opportunity cost in export revenue and employment creation possibilities. Hence, the amendment to B-BBEE Act in 2013 by the inclusion of *an empowering supplier*. Further, the Nuclear Energy Policy (NEP, DME(2008)) defines Necsa's envisaged future role as the SOE responsible for front-end nuclear fuel processes – where commercial uranium beneficiation will feature prominently. As an SOE, Eskom is a key role player in ensuring that the socio-economic benefits and outcomes of such a beneficiation strategy is upheld, where Eskom would be required to support local fuel cycle services by the 'uptake' of fuel from Necsa.

Minister Davies has said that government is aware that the pace of economic transformation, despite interventionist efforts in the private and public sectors, has been too slow (Kilian, 2017). Dr Davies also stated that more effective implementation of the B-BBEE Act was key to advancing the pace of radical economic transformation (B-BBEE Commission, 2017).

2.7.2 B-BBEE Key Critiques

"*Rent-seeking is an activity, usually implying the expenditure of scarce resources, to cause and capture artificially-created (and usually politically contestable) rents, as well as transfers which are not part of society's intended income redistribution*" (Fischer, 2004, p.34) is found to be an appropriate rent-seeking working definition. Arguably, since the advent of BEE, its largest criticism has been its 'narrow' influence to positively create a more inclusive economy and society. In fact, its critics have likened BEE - in its many guises – as a thinly veiled form of rent-seeking.

Rent-seeking was introduced by Anne Krueger's popular paper, '*The Political Economy of the Rent-Seeking Society*' in 1974, whereby the relevant economic

theory had been previously developed by Tullock in 1967 (Fischer, 2004). In the context of narrow BEE beneficiaries, rent-seeking matches Fischer's (2004) discussion, whereby he identifies rent-seeking behaviour as one of the main causes of poor economic performance (previously observed in many other African countries, including Nigeria and Tanzania). He notes that it is often where a single government intervention, if not carefully devised and implemented, can lead to rent-seeking behaviour on many levels, for instance, rent-seeking efforts of corrupt individuals to obtain jobs with the government (within positions involved in procurement), or similarly, cadre deployment in SOCs. Rent-seeking systems have their own dynamics, preventing any desirable change and thereby locking an economy into inefficiency. He further indicates that *"...If a large share of the income is earned by privileged groups in a non-productive or even destructive way, it is not surprising that such economies cannot develop and prosper*" (Fischer, 2004, p.34).

Interestingly, Tollison (1987, p.145) asserts that "*basically, rent-seeking is a cost of government activity in general"*, and Medema (1991, p.1060) indicates, when emphasising that institutions and policies change over time, "*once we allow for the possibility and desirability of change in legal and economic relations, we inevitably introduce rent seeking*" (Fischer, 2004).

In everyday South African terms, rent-seeking may be defined as instances where the politically connected make easy money without having to work for it. The state capture debacle involved rent-seeking practices by obtaining public sector contracts (and favourable policies) by virtue of their patronage to the Zuma ANC-led government. Rent-seeking is a pervasive form of corruption.

William Gumede, an Associate Professor at the Wits School of Governance, had opined in an online Mail & Guardian article (Gumede, W., 2015) about "…*the entrenchment of a rent-seeking culture that undermines the productive capacity of the economy, as well as innovation and new investment. It discourages job creation and efforts to reduce poverty and inequality. It ultimately stymies economic growth"*. By this, he directly referred to narrow BEE as the 'obvious form' of rent-seeking. He spoke of how shares in traditional (white) enterprises

are sold to few politically connected black people – and how they become famously wealthy in an instant, thanks to their political connections. Clearly, this brand of empowerment is thinly veiled corruption or 'rent-seeking', that adds no value, and instead serves to diminish it. Indeed, in this culture of rent-seeking, there can be no long-term investment or economic growth, as rent-seekers aim to maximise their stockpile before being side-lined by a more dominant rent-seeking replacement.

Other *BEE concerns* that have been raised by stakeholders (see B-BBEE Commission (2018); BUSA, 2018) include: (1) B-BBEE must benefit the poor and create employment opportunities; (2) Consistency within Government in the implementation of the B-BBEE Act; (3) Clarity on the trumping provision, black empowerment schemes, and the 'once empowered always empowered' concept; (4) Alignment of legislation, in particular the B-BBEE Act and the PPPFA, as this hinders procurement initiatives to advance transformation; (5) Guidance on the exemption and deviation to exceed generic codes; (6) Consistency in approaches of the dti, the National Treasury and Auditor General on B-BBEE; (7) Use of partnerships and collaboration in monitoring compliance with the Act; (8) The need to take the '*substance over form'* approach to ensure transformation was tabled by Business Unity South Africa (BUSA, 2017). By this, BUSA recognised the need to critically assess whether B-BBEE legislation has successfully realised its transformational intent. That is, in practice it appears that the '*form*' approach (via numerical and quantifiable measures on the scoring aspect of the B-BBEE Scorecard) takes precedence over the '*substance*' approach. BUSA asserted that B-BBEE has not meaningfully achieved its outcomes – as evidenced by South Africa's continued poverty, joblessness and inequality. An approach that 'recalibrates the measurement of B-BBEE' to focus more effectively on substantive transformation, value and influence was recommended; (9) Barriers to empowerment (and entry) still continue, such as access to finance and/or markets and (10) Clear disregard of corporate governance. With due cognisance taken of the above, a key question is whether Koeberg is sufficiently utilising B-BBEE to help *create an inclusive economy.*

2.7.3 Leveraging Procurement Spend

McCrudden (2004) shares how government endeavours to combine two functions, one being an active market participant as purchaser, whilst regulating it through the use of its purchasing power to realise measures of social justice.

Three phases constitute the public procurement process, viz.: (1) acquisition planning and market research; (2) source selection and contract award; and (3) contract administration and close out. By introducing a regulatory framework that govern each of these phases, governments seek to achieve various policy objectives (ITC, 2014). These objectives include good governance principles linked to, *inter alia*, value for money and related efficiencies; integrity and equality. These aspirations should include increased participation by marginalised entrepreneurs (such as the designated groups of SMEs) in public procurement and the economy more broadly (ITC, 2014). This concept underlies *'leveraging procurement spend'.* Public procurement in SA is leveraged via its spend to enable *localisation and transformation.* The ability to perform effective market analyses and understand how to access quality and competent black suppliers to participate in localisation, is a key government expectation of public procurement.

Dionne Kerr, CEO of transformation consulting firm, Siyakha Consulting, has said that public procurement mechanisms are seen as a "draconian approach to tendering". She added that, when applied in strategic projects, it is indeed a commitment to transformation at the forefront of what is seen as a critical measure to ensure that the economy grows. When *B-BBEE is coupled with localisation,* it ensures that as economic opportunities arise, they enable black empowerment. These Codes are driving localisation to the point where it is understood to be an essential imperative linked to SA's sustainability and attaining NDP outcomes (Smart Procurement, 2015).

However, an inclusive growth challenge is that leakage, corruption and inefficiency drain the fiscus, by drawing resources away from growing sustainable participation in the economy, and there must be greater market access to EMEs, that can be achieved by reducing barriers to entry (BUSA, 2018). B-BBEE, as an

economic empowerment and growth model, needs to create a more inclusive economy – bringing those 'marginalised' into its mainstream. Greater consistency of the use of the Codes within SOCs are needed to bring needed legitimacy and confidence in its application. Significant support from both the private and public sector will be needed to effect any meaningful changes.

2.8 Industrial Policy - The Industrial Policy Action Plan (IPAP)

The Industrial Policy Action Plan (IPAP) is firmly entrenched in Government's overall policy and plans to address the key challenges of economic and industrial growth and race-based poverty, inequality and unemployment (the dti, 2008). Together with the National Industrialisation Participation Programme (NIP), the IPAP forms the dti's key industrialisation policy levers. The iterative IPAP is Government's policy for promoting localisation and industrialisation, utilising the state's procurement levers. Specifically, the *IPAP is the implementation plan* that addresses the National Industrial Policy Framework (NIPF). The NIPF (2007) is a policy compiled by the SA cabinet that broadly outlines Government's industrialisation approach. The dti included the nuclear industry as a means to address key industrial growth and empowerment imperatives in the NIPF. The dti's minister, Dr Rob Davies, reiterated Governments' firm commitment to also reverse the imports trend, by devising and implementing a set of interconnected and mutually supportive public procurement instruments to support localisation, where there was an emphasis on **designations** and **local content** (IPAP, 2017).

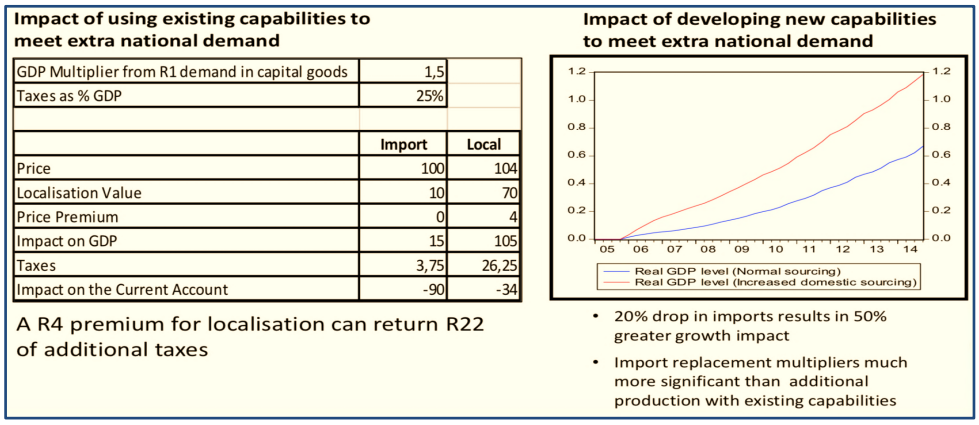


Figure 2.8 IPAP Procurement Lever (Source: the dti, 2016)

In Figure 2.8 above, it is shown that procurement leverage is a particularly powerful instrument for industrial policy as the state recoups costs of the programme through increased taxes (the dti, 2016).

The importance of industrial policy is attributed to the fact that industry is the backbone of the economy, as it has the highest economic and employment multipliers – and the strongest linkages to all sectors – it is critical for South Africa's long-term development. The manufacturing sector is more productive than other sectors – about 15% higher than the overall average. It leads to significant productivity improvements in all other sectors and is a critical driver of research and development (R&D) and innovation. The IPAP supports radical economic transformation, as an ongoing effort to fundamentally change the structure of the economy. The *manufacturing sector is considered key*. Hence, a core objective of the IPAP is to diversify the economy and to provide strong support for value added manufacturing (the dti, 2017).

The multiplier effect (or '*spillover effect'*) of a sector is the relationship between the initial spending and the total effects generated by the spending, which is also known as the impact of the sector on the economy - where impact analysis is referred to as the study of multipliers (The Eskom Factor 2.0, 2018c). Manufacturing has the capacity to generate positive and *significant spillover effects* on the rest of the economy as follows:

(1) Demand creation*:* Manufacturing draws in and creates demand for a huge range of upstream inputs and services;

(2) Output multipliers: In South Africa, every additional R1unit of investment spending in the manufacturing sector generates 1.13 units of additional output in the total economy;

(3) Employment multipliers: Likewise, every R1 million of additional investment spending in the manufacturing sector will create about 3 decent and sustainable jobs and

(4) Quality work: Manufacturing provides quality jobs, offering higher wages and better career prospects than many other sectors. Industrial growth both depends on and spurs higher quality education and training (the dti, 2018).

At the same time, dynamic modern industry is becoming more dependent on employees with STEM skills (science, technology, engineering and mathematics); which means that producing these skills to scale has become a critical component of sustainable industrial development. The **NDP** highlights the need for SA to develop a more competitive and diversified economy with a higher global share of dynamic products and greater depth and breadth of domestic linkages (NDP, p.103).

The latest IPAP, released in May 2018, has a sharp focus on deepening industrial development, speeding up radical economic transformation and increasing ability to produce higher value-added products. The core to South Africa's industrial policy is the objective of transforming the racially skewed ownership, management and employment profile of the economy (Cloete, 2018).

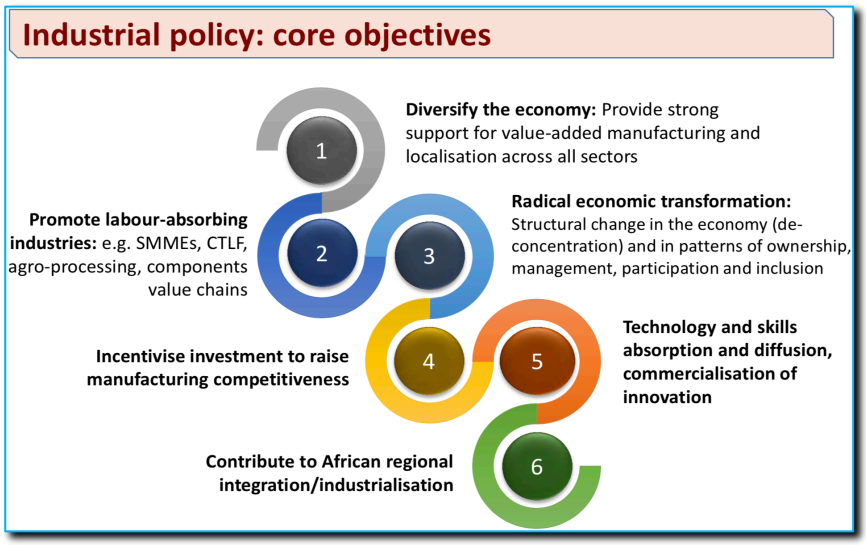


Figure 2.9 Industrial Policy: Core objectives (Source: IPAP 10-year review, 2018)

2.8.1 The Revised National Industrial Participation (NIP) 2013 Guidelines

NIP places a statutory obligation on the suppliers who import content of $10M and above, to participate in the economy, by supporting industry via investment; export sales; technology transfer; and transformation of the domestic economy with emphasis on manufacturing. The NIP obligation translates to 30% of the imported portion of the purchase.

NIP forms part of the *four-tier system of public procurement levers* approved in cabinet in December 2012, that is:

(1) Designations in terms of the PPPFA;

(2) The Competitive Supplier Development Programme (CSDP);

(3) Direct NIP - refers to local manufacture, value-addition and related services projects that are directly related to the sector or industry from which the public sector procurement contract originates, e.g. in NNBP.

(4) Indirect NIP - by contrast, refers to the set off obligation in an unrelated industry. It is not the preferred method for fulfilling industrial participation obligations, and only applicable in industries with no reasonable capacity/capability to be developed to support long-term industrial development.

Public procurement is widely regarded as one of the principal policy instruments to deepen and expand industrial and economic activity within both developing and developed countries (the dti, 2013). The nominal reason offered by South Africa and other developing countries for using localisation measures is the need to achieve the twin objectives of local employment and the protection of infant industries (Cimino et al., 2014).

Further, public procurement, as an industrial policy instrument, according to Chang is policy pursued by the state, and/or its institutions with the aim of positively affecting the performance of industry (Chang H.-J., 1998). If the South African government is to gain the full benefit of its procurement levers, there is an urgent need for a shared vision among key stakeholders, ethical leadership and the development of sophisticated curricula by academic institutions (Ambe, 2016).

Koeberg's foreign spend is large, resulting in increased imports that decreases our current account, whereby these imports do not contribute to economic growth and the reduction and in the *triple threat* facing our country. Clearly, much needs to be done to change this narrative. Accordingly, an investigation regarding Koeberg's localisation and industrialisation efforts, in accordance with its transformation agenda, will be assessed in order to determine learnings to be taken into the NNB.

2.8.2 The Black Industrialist Policy (BIP)

Black industrialists are black South Africans that significantly own and control an enterprise; whose products are significantly used and have significant impact on decent employment and create broad-based economic opportunities (dti, 2015). Thus, black industrialists must be directly involved in the strategic and operational leadership of the operation have requisite expertise. They should take personal risk in the business and be locked in for a reasonable time frame to the entity.
This definition is in sharp contrast to SA's prevailing BEE policies that has seen empowerment partners becoming 'junior partners' in others' businesses - as noted by the dti's director-general, Lionel October (Njobeni, 2018). Targeted beneficiaries include established industrialists with extensive experience, operations, and track records in their respective industrial sectors who require support to expand their operations and/or improve their business efficiencies.

The BIP is envisioned to *accelerate radical economic transformation* and changing the ownership patterns of the country's economy. The BIP's objective is to promote the participation of black industrialists as manufacturers in key sectors of the economy as identified in the IPAP. The BIP will ensure that black entrepreneurs are meaningfully involved in the manufacturing sectors (the dti, 2016). The Black Industrialists Scheme (BIS), that offers a cost-sharing grant ranging from 30% to 50% to approved entities, has resulted in R11.1 billion from 128 projects so far (dti, 2018).

There is much riding on the BIP as the dti is touting its BIP as a means of correcting the shortcomings of the country's BEE policies. Minister Davies noted, *"…where what passed as BEE was that somebody did a deal in someone else's company. They often borrowed money to achieve some shares through some special purpose vehicle. They did not get any dividends until they paid back the capital.*" (Njobeni, 2018). Davies further added that this BEE model of empowerment was often ineffective as the majority of these deals are chiefly fronting.

Davies further commented that the acceptance criteria to get into the government funded programme are steep. For example, it is required that that the enterprises are in the industrial space, as well as being majority (more than fifty one percent) black owned, managed and operated (Njobeni, 2018). Davies also noted that BEE is a limited form of empowerment when he referred to the more sophisticated forms of fronting practices (where companies are no longer co-opting their gardeners as junior BEE partners) at play. Davies stated, *"Empowerment will be found in allowing more entrants into our economy. The problem with the SA economy is that it is too concentrated, which lends itself to rent-seeking. Well-established old boys' networks are running too many value chains in this country. The entry points are too small. As a result, empowerment is limited and stunted."* (Njobeni, 2018).

BIP is essentially what BEE is meant to be **– BEE 3.0**. The Black Industrialists Scheme (BIS) is the incentive component of the BIP, offering a cost-sharing grant that ranges from thirty to fifty percent to approved entities, up to a maximum of R50 million per project It provides access to funding with access to more equitable equity and loan funding at more appropriate terms.

At the inaugural black industrialists' round-table dialogue held in October 2018, the dti aimed at fostering an open and robust discourse between Government and the private sector that included black industrialisation scheme (BIS) beneficiaries. These beneficiaries posed concerns about the high barriers to entry and lack of market access and penetration related to established sectors of the economy. They noted that although funding is critical, the need to actually have a market for their offerings was just as essential for their survival (SA News, 2018).
Minister Davies, in response to naysayers expecting that the BIS would be open to corruption and favouring by selecting those who are 'politically connected' – another form of rent-seeking – has rebuffed this by proving it false, given the dti's strict due diligence and strong management oversight evidenced in its unqualified audit outcomes for 2017/2018.

In Figure 2.10 below, an illustration is made of the nexus of the different procurement levers for industrial development in South Africa (the dti, 2017). It is an evolving system of procurement and supplier development that is supportive of transformation and black economic empowerment, in the pursuit of localisation and industrialisation for economic growth.

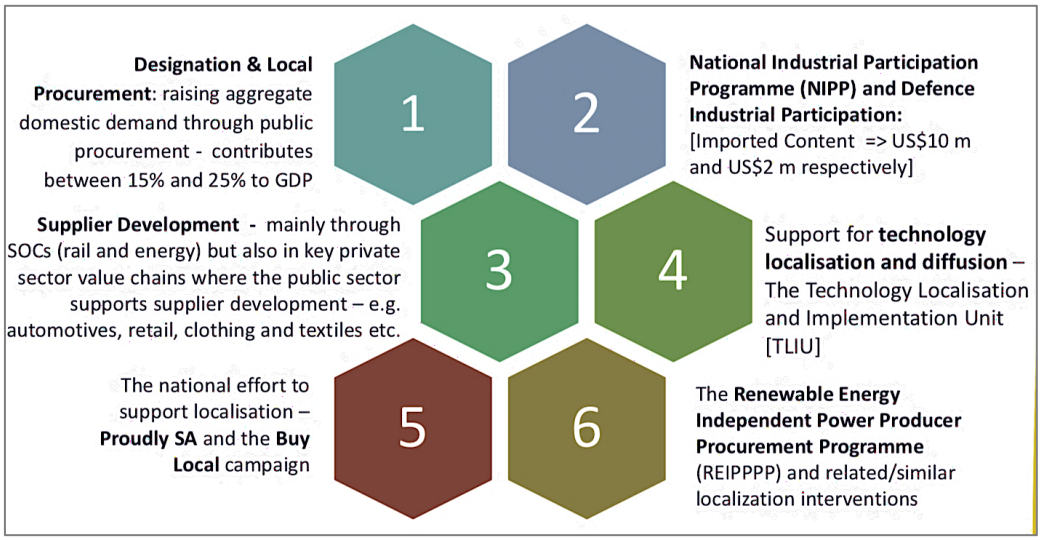


Figure 2.10 Public procurement levers used for industrial development (Source: the dti, 2017)

2.8.3 Lessons learnt from South Korea's Industrialisation Policy

The success of the East Asian countries' industrial policies is undisputed, as 'developmental state' was coined specifically in response to it. The lessons learnt are also well documented in literature.

'South Korea's Miracle on the Han River' (Maseko, 2016) is especially interesting; given their successful use of nuclear power in their economic development trajectory. Their industrial policy was undoubtedly at the centre of South Korea's success. In fact, the state intervened to the extent that it actively directed and managed its very industrial structure (Amsden, 1989). As Amsden argued, central to South Korea's success – in the interests of pursuing economic growth - was the requisite government condition that large private firms meet strict performance standards so that they may, in turn, enjoy economic and political support. Failing to do so, would result in these non-performing firms'

assets and products being transferred by the Korean state to other firms that were performing.

Amsden (1989) continues to postulate that the South Korean state invested to a much greater extent than other late industrialisers in education and training that resulted in a critical and well-educated number of production workers, technicians and engineers. The mass acquisition of technological capabilities by domestic firms was considered imperative for successful industrial development by the South Korean state. The South Korean state introduced and used SOEs to further its aims, enlisted subsidised capital to the private sector firms, as well as employing protectionist measures of their domestic industries from foreign competition (Amsden, 1989).

Ultimately, by utilising strict performance and quality standards, the South Korean government regulated the performance discipline of the private sector (Amsden, 1989). Key interventionist policies that are propelled by economic growth clearly emanate from industrial policy. The literature thus points to this East Asian success that pivot around the central role of employing a 'developmental state'- where Government intervenes by way of its industrial policies, in the growth, success and global competitiveness of industry.

However, South Korea was plagued and categorised by bureaucratic authoritarian rule in the early stages of its development in the 1960s, 1970s and early 1980s. Specifically, the state used coercive measures to discipline large private businesses including tax audits and withdrawal of bank credit, among others (see Kim, 1997). Labour was also repressed with regards to labour rights including assembly, unionisation, and wages. Thus, in South Africa's constitutional democracy (touted as liberal) - with its history of colonialisation and apartheid - such fraught bureaucratic authoritarian state interventionist measures (justified as 'economic development'), would be untenable and unfeasible. Therefore, outlining a development path for South Africa by likening it to the one initially followed by South Korea (i.e. extreme authoritarian measures) is considered out of scope – as it is not relevant/applicable - given that in modern day, constitutionally democratic South Africa, this would be unfathomable.

Nonetheless, South Korea's use of state interventionist industrial policy measures an essential contributor to their success, remain unchallenged.

2.8.4 South Korean Nuclear Localisation Success Story

A key aspect that will need to be further investigated will be the aspect of how the developmental state, as similarly experienced in South Korea, has contributed to tackling poverty, inequality and unemployment there. A study of their related experience and outcomes is to review if we are to draw a comparative analysis of the outcomes anticipated versus outcomes achieved.

South Korea is a great example of localising its entire nuclear industry, much as South Africa aspires to nuclear industry self-reliance in its Nuclear Energy Policy (2008). They are regarded, in many aspects, as global industry leaders in the design and supply of nuclear components- further evidenced in the export of its NPP technology to the United Arab Emirates (UAE).

After the Korean war ended in 1953 – where the Korean peninsula was split into North Korea and South Korea – it left South Korea in a severely depressed economic state, with little industrial and power generation capability left. South Korea then commenced with its series of economic development plans that included aggressive state interventionist industrial policy. Korea had successfully localised 95% of nuclear power technology by 1995 and accumulated extensive localisation experience in nuclear technology development and nuclear power plant construction and operation (IAEA, 2009). Currently, the Republic of Korea has 24 operational nuclear power reactors, which accounted for about 30% of the total electricity mix in 2017. Five reactors consisting of an additional 7 GW (e) were under construction as of December 2017. The future nuclear technology development strategy was established to provide support for the research and development (R&D) part of the energy transition policy and expand the socioeconomic application of nuclear technology capability at the end of 2017 (IAEA, 2018). South Korea's milestones towards nuclear self-reliance – spanning a few decades - is depicted in Figure 2.11 below.

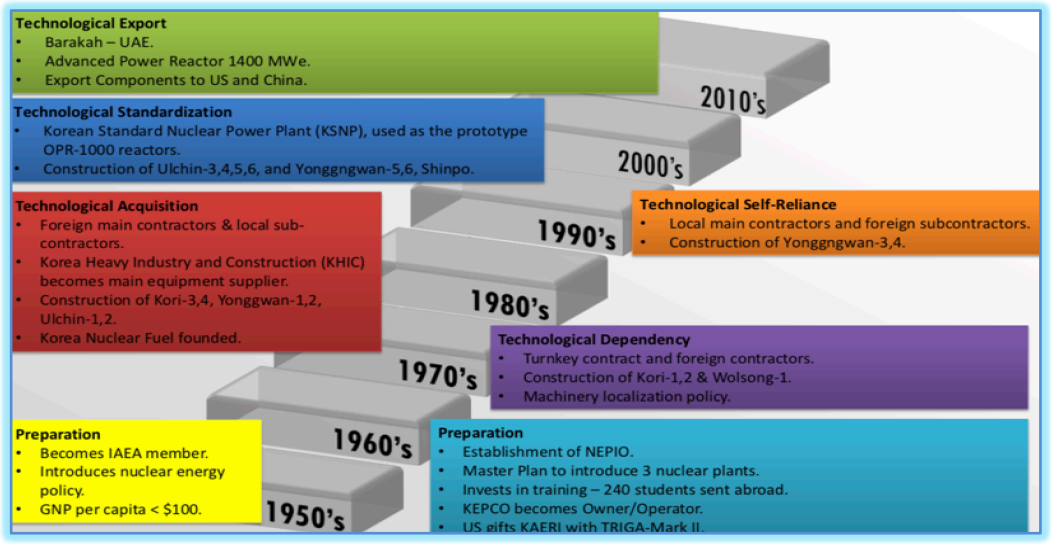


Figure 2.11 Korean milestones towards self-reliance (Source: Maseko, 2016)

2.8.5 South Korean Lessons Learnt for South Africa

Van Wyk (2012), in his study on, 'a localisation strategy for the South African nuclear power programme', used the South Korean case study of past experience in depth in his argument to prove the economic benefits of successful localisation and nuclear industry development. He indicated that the Korean nuclear industry is an excellent example of successful localisation to the host country - as evidenced from its positive economic impact on South Korea's GDP. The study showed that nuclear contributed 1.3% to the Korean GDP, making it the fourth largest GDP contributor there. Hence, the conclusion that successful localisation in SA that follows a similar path, would also offer much benefit to growing South Africa's economy. The Korean localisation principles were also integrated with other countries and authors to identify core localisation principles, and Van Wyk (2012) concluded that these principles are also applicable to the South African case. These core principles include (1) Aggressive human resource development; (2) Government leadership and support; and (3) International co-operation (Van Wyk, 2012). Through South African industry feedback, he indicated that these principles were verified, especially government leadership and support. The Korean government pursued aggressive industrial pursuits, albeit somewhat controversial. The take-away for South Africa is to actively address and pursue its

industrial development objectives, encapsulated in its public procurement levers to achieve its 'developmental state' ambitions.

2.9 Maximising Localisation outcomes and Contracting Models in the NNBP

The ensuing discussion focuses on possible contracting structures or models in the envisaged NNBP that South Africa would most likely want to consider and negotiate with potential nuclear vendor bidders. It is by no means a comprehensive list, but aims to provide an extract of contracting options available to maximise localisation in its procurement spend.

2.9.1 Contracting Approaches for new Nuclear Power Plants (NPPs)

Technology owners are experts in the fields of their technology and usually own the intellectual property (IP) related to plant design. The contracting models used will cater for the transfer of IP and data needed for safe, reliable and economic plant operation by the Owner/Operator. Failure to do so can be an area of dispute between the vendor and the Owner/Operator if not negotiated up front. However, an equity partnership model where technology owners build–own–operate (BOO), and possibly transfer (BOOT), an NPP may be a good alternative to follow. Such models mean that the main vendor technology provider (the developer), shares risk with the Owner (e.g. Eskom), and should not have major IP sharing concerns. The rationale for it is that it makes the plant more efficient – and in the developer's interest – as the developer is an investor in the NPP (IAEA, 2016).

2.9.2 Traditional Contracting Models for New Nuclear Build

I. *The EPC Lumpsum Turnkey Contract (LSTK):* The traditional view for mega construction projects is that the EPC LSTK contract type can provide greater cost and time certainty to the employer or financier (McNair, 2011). It includes design, engineering, procurement, construction and commissioning of the NPP – where the main contractor assumes responsibility for the deliverable.

However, this is dependent on the client clearly defining the scope of work in the contract, in order to avoid ambiguity and delays stemming from role uncertainly, that can lead to arbitration or litigation and delay the project (Clark, 2009). This contract enables a well-defined cost and time schedule for the project. Although the EPC LSTK comes with a high risk to the main contractor, it also comes with high rewards. The different types of contract forms in industry include the FIDIC EPC/Turnkey Contracts, commonly known as the "Silver Book" or the NEC3 Engineering and Construction Contract (ECC). These are also approved by the cidb.

II. *The EPCM:* In the EPCM cost-reimbursable contract, the 'CM' indicates 'construction management'. The EPCM contractor normally executes the design engineering work and appoints sub-contractors to execute the work packages. Given this arrangement, it can increase the risk to the employer, as it prolongs the duration of the contract to increase value. In order to counter this, the client introduces incentives to allow for early completion in the form of a performance bonus should the project be completed under budget or earlier than its agreed project schedule (Chan, 2014). A number of parties will need to work together to complete the build itself. This introduces a number of contractual and practical interface risks. Successful plant delivery requires three main parties to come together: the Nuclear Steam Supply System (NSSS) – i.e. the main nuclear technology supplier, turbine supplier, and the EPC contractor. Project owners have a range of contractual arrangements available to them, each with varying degrees of interface risk (Mocke et al., 2014).

One of the main approaches that project owners may take when opting for EPC contracts includes the Multi-prime Model variation, commonly known as the China Model. A governmental entity is responsible for developing, building, and operating the NNB project, contracting separately with each of the necessary parties. The government entity may selectively contract for the transfer of technology and management expertise, gain access to the lowest supplier prices and leverage national resources for fabrication and construction.

Ultimately, the government entity and its national suppliers gain the experience needed to be self-sufficient in all aspects of nuclear plant design, program management, fabrication, equipment supply, construction, and operation (KPMG, 2011).

Of the 'traditional' models, the Multi-prime Model is perhaps the closest traditional model envisaged by Eskom in its cancelled 2016 RFI bid for NNB (Yelland, 2017). At its very simplest, the choice of contractual approach boils down to how much *risk* the project owner is willing to assume and whether the pricing for that risk represents good value. However, undertaking large and complex construction projects requires a strategic approach to risk (KPMG, 2011).

2.9.3 Alternative Contracting and Ownership Approaches for NNB

Another dimension to contracting is the newer developments in contracting models, such as the BOO (Build, Own, Operate) and BOOT (Build, Own, Operate, Transfer). A BOO or BOOT structure is granted the right by the host country to develop, finance, build, own, operate, and maintain a facility for a specified period, whereby the entity retains the revenue and associated risk. Under a BOOT, at the end of the designated period, ownership of the facility is transferred to the host country.

The developer will often be a project company which could be comprised of a single entity or consist of a joint venture (JV) which has been set up by a number of partners in order to limit their individual exposure to financial risk, with the terms and conditions of each partner's shareholding in the developer typically defined via a Shareholders' Agreement. The structure of the JV may also change over time, as the construction is complete, and the plant is commissioned and starts to operate. For the BOO (T) structure, the foreign developer will have the controlling equity interest in the NPP, as it also places the responsibility for delivering the project on the developer (IAEA, 2014).

Under the BOO structure, the developer retains ownership throughout the life of the project. In contrast, under the BOOT structure, the developer ultimately transfers ownership of the project to the host country – after the developer had operated the project over the agreed period of time. Prior to transfer, the host country and other entities must *develop the capability* to own and operate the NPP. A knowledge transfer programme will be needed, so that the transferee is enabled to operate and maintain the asset in due course. Fundamentally, when the host country takes back the asset (pre-determined) from the developer, two considerations must be addressed:

(1) The host country must have the capability to take over control of the operating NPP. 'Transfer' in the nuclear industry means that the NPP is transferred from one owner/operator to another one; and

(2) The conditions that precede the transfer must be clearly established, so that the developer is not faced with a situation where the host country can reject the transfer, except in extreme cases (IAEA, 2014).

2.9.4 Limited technology transfer and local content

Localisation provisions within contracts are often also referred to as technology transfer agreements. Such provisions are designed to develop national capability to produce or use a particular technology. That is, when a host country decides upon a NNBP, it may also be based on a number of country ambitions. An example is where the host country requires that a certain percentage of the project is attributed to local content.

Another consideration could be that a certain level of knowledge transfer (i.e. training and development of local human resources capabilities) occurs. In the event of a large scale, fleet procurement scenario, the specifications might even require that the bidders license or sell their technology to the host country, so that the host country can ultimately assume manufacture of critical nuclear technology (as was required in the 2005 procurement of the AREVA and Westinghouse NSSS designs by the People's Republic of China) (IAEA, 2014).

2.10 South African Nuclear New Build Programme and Localisation Ambitions

What is also clear is that the shared supply chain vision is clearly articulated and agreed upon between the developer and the government before the NNBP starts. This will help maintain public support and to set the supply chain expectations unambiguously - that will effectively reduce cost whilst managing risk. Initially there is a 30 to 40% local content anticipated in the proposed NNBP (WorleyParsons, 2011). The Nuclear Energy Policy (2008), identified nuclear construction and operation as a means to meet national economic growth goals. NEP (DME, 2008) identified the NNBP to help establish a modern nuclear technology industry that included the manufacturing of nuclear components, construction and service provision. In Figure 2.12 below, the localisation steps to follow is indicated.

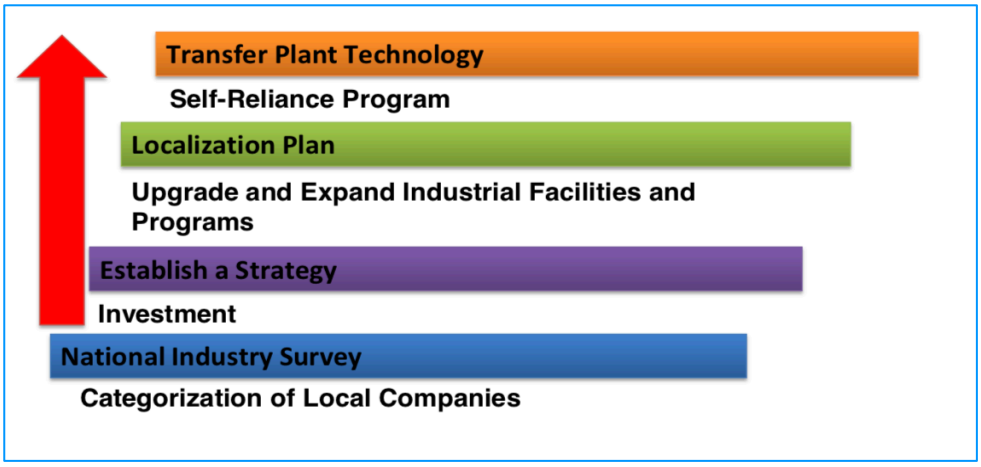


Figure 2.12 Localisation steps to follow (Source: Maseko, 2016)

In December 2017, it was determined that Eskom would be unable to issue any new Request for Proposal (RFP) before the new Integrated Energy Plan (IEP) and Integrated Resources Plan (IRP) for electricity are finalised. It was also reported that, while raising issues concerning the role of government to set policy, the powers of the energy minister, and the separation of powers, between the executive and the judiciary, the Minister of Energy acknowledged that the

government needed to start its processes afresh, in conjunction with NERSA (National Energy Regulator of South Africa), justifying the need for the NNBP.
In support of transformation, contracts (including the NNBP) should be packaged into the smallest components practicable. However, with due consideration for potential effects on the quality of service, logistics of implementation and impacts on the project schedule.

Further, the Construction Industry Development Board (cidb), cautions clients (such as Eskom) when using the PPR 2017 pre-qualification criteria used in tenders as follows (cidb, 2018):
(a) Regulation 4 (discretionary): for example, where only (i) B-BBEE Level 1 Contractor may tender; or (ii) Only EME Black Owned Level 1 may tender. If done inappropriately, and without thorough market research and analyses, there is a potential risk in over-constraining the market; and
(b) Similarly for Regulation 9 (mandatory for contracts > R30M to sub-contract to EMEs/QSEs): Where, if done inappropriately, there is a potential risk in over-constraining the market.

2.11 The Technology Localisation Implementation Unit (TLIU)

The TLIU is a Department of Science and Technology (DST) funded initiative that is hosted by the CSIR. Established in 2012, the TLIU was formed to assist with the technological enhancement of the manufacturing sector as defined within the Technology Localisation Plan (TLP) of the DST.

The TLIU is aligned to Government's infrastructure rebuild programme as well as other national imperatives linked to the government's local development plan. The DST as part of its role to support CSDP, realised the need to support the South African manufacturing sector with technological interventions.

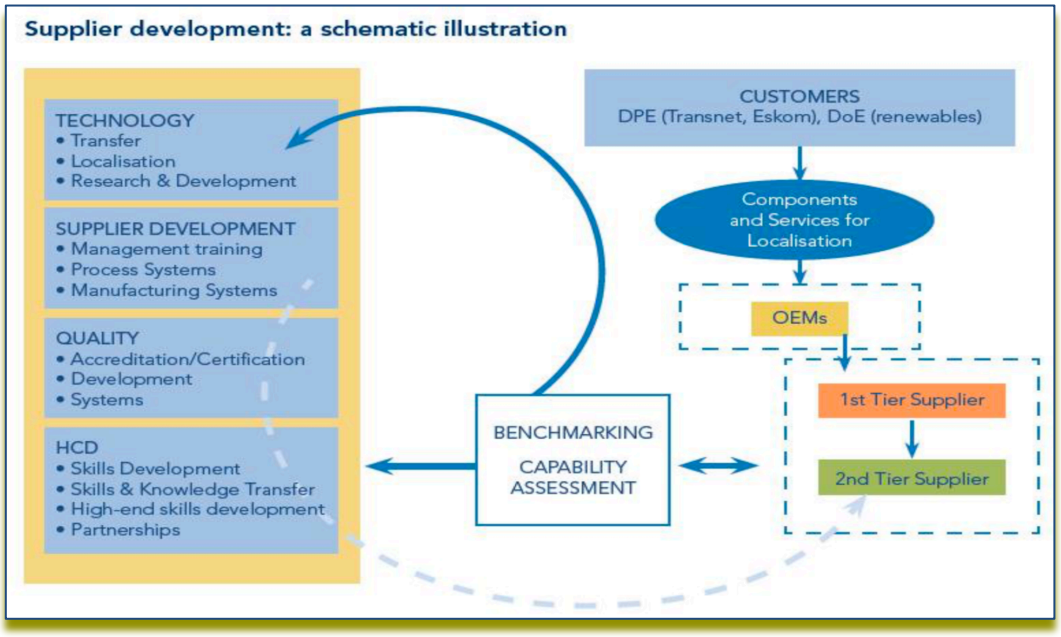


Figure 2.13: Schematic illustration of Supplier Development within the TLIU (Bhugwandin, 2017)

2.12 Short-term effects / impacts versus the long term

The price premium issue is a major stumbling block to localisation where local companies cannot always compete due to raw material pricing; labour cost and economies of scale.

In order to counter the price premium debate, a holistic approach is required, where the multiplier effect that creates economic contribution and employment must be considered.

This means that the benefits of localisation must be clearly defined.

The dti's designation as a procurement lever must be utilised to aid local industry, as imports have a more expensive long-term economic effect. We need to carefully select industries as not all industries are practically localisable (Bhugwandin, 2017).

It is further argued that the cost of the price premium should be borne by government, who needs to enable these manufacturers to enter the market in the short term.

However, suppliers are to ensure that they become increasingly competitive over time and fully independent over the long term.

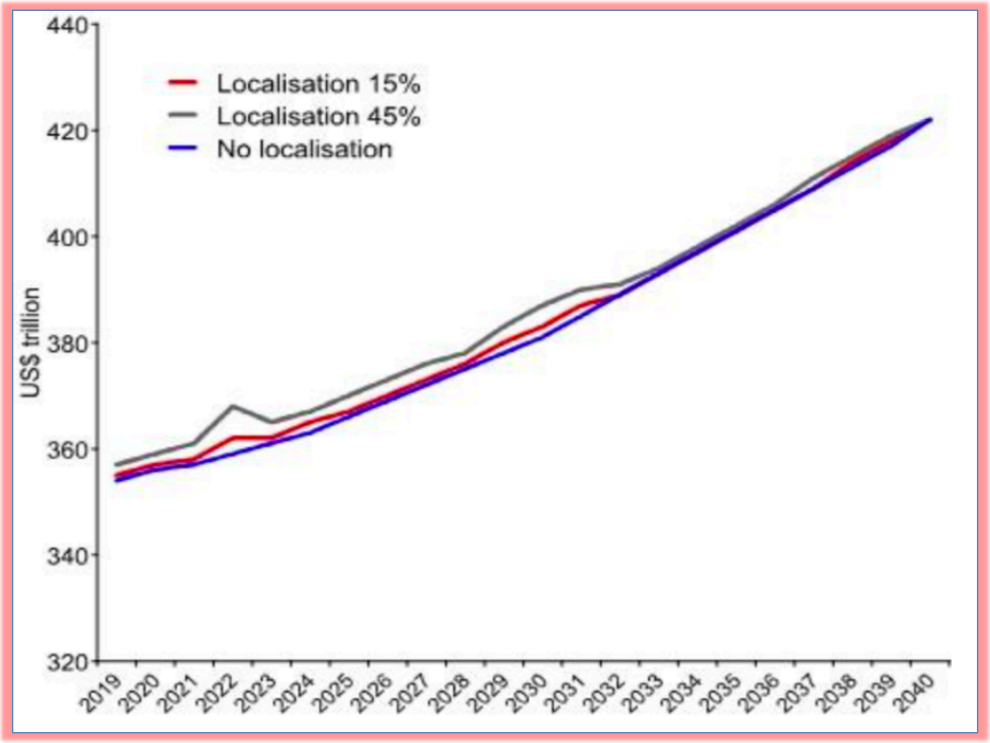


Figure 2.14: Effects of localisation in NNB (modelled) on GDP (Source: Trusted Sources, 2016)

The multiplier effects of localisation in the envisaged NNB is modelled in Figure 2.14 above. The varying degrees of localisation – as depicted in localisation percentages – illustrates the various scenarios' impact on GDP over the lifecycle of the envisaged NNBP.

Table 2.2: Short-term versus long-term benefits and drawbacks of implementation of transformation agenda

Time Frame	Benefits	Drawbacks
Short-term	• Being "proudly South African" fosters nation building • Keeping an eye on NDP: Vision 2030 • Fosters entrepreneurship • Increase the designation of local items • Possible decreases in price • Multiplier effects	• Price Premium for purchasing local increases • Increased costs borne by government of lowering barriers to entry of manufacturing enterprises & black industrialists • Increased resources allocated to SOCs to enable and implement transformation agenda policies • Delivery of local items may take longer owing to local manufacturing enterprises still being set up or experiencing other start-up delays • Increases in corruption - especially of procurement officials, can seriously hamper progress. • Lack of monitoring and control mechanisms make it difficult to assess progress.
Long-term	• Employment Creation • Poverty and Inequality narrows • Price Premium of buying local decreases • Increased economic growth, strengthening of Rand, decreased trade deficit, increased exports and GDP. • Manufacturers and Black Industrialists becomes competitive and independent • Less reliance and risks associated with imports	

2.13 The Department of Public Enterprises' Competitive Supplier Development Programme

Eskom Holdings State-Owned-Company (SOC) Ltd (Eskom) is South Africa's primary electricity supplier, supplying 90% of the electricity used in South Africa and 40% in the Southern African Development Community (SADC) region (Eskom, 2018a). Eskom is entirely owned by the South African government, represented by the Department of Public Enterprises (DPE) as its Shareholder. The DPE aims to drive investment, productivity and transformation in its portfolio of SOCs, their customers and suppliers so as to unlock growth, drive industrialisation, create jobs and develop skills (DPE, 2019). The DPE established the Competitive Supplier Development Programme (CSDP) [Cabinet approved policy] in 2007 for its SOCs with the main aims being to: reduce costs; reduce the dependency on imports and foreign exchange exposure and develop niche export areas, while furthering the long-term commercial interests of the SOCs.

Thus, the CSDP involves both supply and demand side provisions (Cawe, 2014). It is the DPE's responsibility on the demand side to approve the supplier development plans of SOEs. In turn, the dti provides supply side measures by way of incentives and support for the local supplier industry.

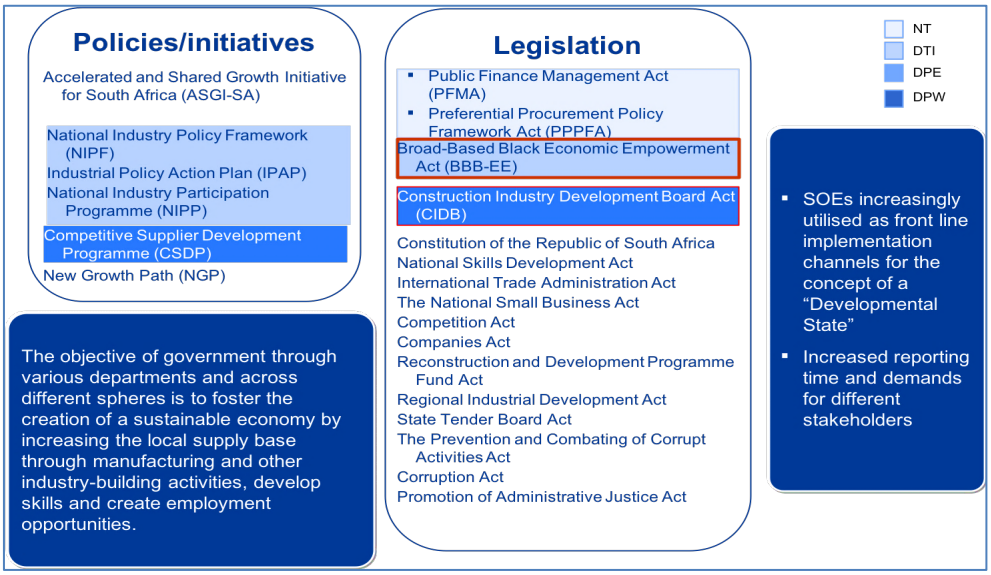


Figure 2.15 Legislation-guided local development centred on localisation and transformation (Source: Eskom, 2013a)

One of the CSDP's main thrusts is to facilitate localising Eskom's supply chain, which is aided by encouraging foreign direct investment from foreign OEMs and suppliers into local enterprises in an effort to increase their capacity and capability. It is envisaged that these foreign suppliers and OEMs will not only enable these local suppliers to meet Koeberg's stringent supply requirements, but also to potentially supply export markets, as part of these OEMs' and suppliers' global supply chains. By enabling such competitive export capabilities, the leveraging of SOC spend is then maximised.

Eskom (PFMA, 1999) must, in consultation with its executive authority (the DPE Minister), annually conclude a Shareholder's Compact (SH/C), and encapsulate these in Eskom's Corporate Plan and periodically revise as required. Industrialisation and Localisation is the applicable transformation agenda KPA, which further comprises six KPIs (Eskom, 2019c).

Currently, Eskom is in the CSDP 3 iteration that comprises a five year planning horizon, as depicted in the Monument in Figure 2.16, where it is aligned with meeting the government's TA objectives, as stated in legislation and policy, that includes both people and industry development as key pillars.

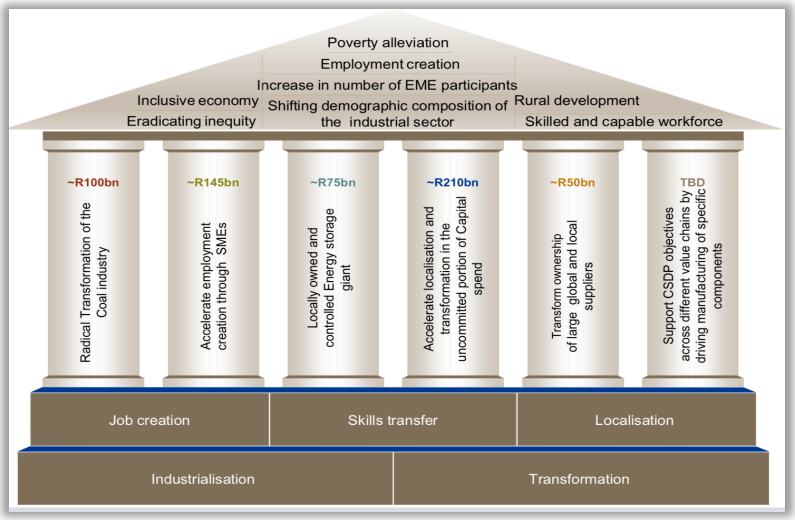


Figure 2.16: Eskom Competitive Supplier Development Plan 3 Monument (Source: Langenhoven, 2017)

2.14 The Eskom, Koeberg Supplier Development and Localisation (SD&L) Mandate

Koeberg is a French designed NPP and largely aligned with the French OEMs and can generally be considered as part of the French fleet of NPPs. To avoid the isolation of the only NPP on the African continent from the best practices worldwide, Koeberg is a member of all the relevant associations relating to NPP operation. The Intellectual Property (IP) of Koeberg currently is owned/resides with the OEMs. Historically, a large proportion of Koeberg procurement spend is linked to the OEMs (foreign spend). Eskom is mandated to develop local industry - reflected in Figure 2.17 below - for inclusion in its operations and for the benefit of the country as a whole. By definition this is the focus of the SD&L function.



Figure 2.17 Eskom SD&L Mandate (Source: Eskom, 2013a)

This is accomplished via a mandate which leverages procurement spend to achieve maximum and sustainable local development impact in a manner that meets the government's localisation and transformation development objectives as entrenched in government's legislation and policies. The CSDP plan is developed from unpacking Eskom's procurement spend and identifying which can be directed to local industry, thereby complying with its SD&L mandate. Infrastructure development, such as big spend projects and the envisaged NNBP, is a major focus to achieve this mandate.

Eskom's transactional process for leveraging procurement is in accordance with the DPE's state procurement leverage programme that addresses both;
(1) strategic procurement and (2) 'catch-all' transactions, as defined:
(i) *Strategic procurement* comprises both programmatic transactions and strategic transactions. Programmatic transactions spans medium to long-term procurement,

of five years or longer, and are identified in the IPAP as strategic fleet. These transactions transcend the regular planning horizon of the SOC, as well as the funding capability of its balance sheet. It necessitates a collaborative approach between the SOC and government, as its long term nature favour industrialisation objectives, viz. investment in plant, technology and skills to develop competitive advantage in advanced (and intermediary) capabilities. The NNBP is an example of a programmatic transaction.

Strategic transactions consider a medium term of three to five years, but still addresses investment in plant and/or technology to develop the supply chain around a particular industry. These involve the investment in (at least) plant, technology and/or skills in less advanced (intermediate) capabilities.

(ii) *'Catch-all' transactions* include those that by virtue of their scale can be used to encourage supplier development. The focus is on investment in technology or skills that enhance existing capability but will not lead to the development of the supply chain around a particular industry.

2.14.1 Eskom SD&L Extracts

Eskom is expected to drive the TA by entrenching applicable legislation and policies into procurement practices, where it is mandated to leverage its spend. Eskom, iaw its SD&L mandate, has defined the **SD&L KPIs** for its **procurement leverage programme** (see Definition of Terms).

In 2012, Eskom developed a six-step supplier development process to be executed within procurement process and guided by the SD&L function to address the SD&L objectives as follows:

Step 1*:* Demand analysis of the internal demand.

Step 2: Supply analysis for each project/commodity and development of procurement strategy.

Step 3: Classification of projects and commodity groupings linked to SD&L objectives.

Step 4: Strategy development driven by the nature of the project or commodity grouping.

Step 5: Execution and support, a support team that creates the tender and contractual documents.

Step 6: Monitoring and reporting involves collection and verification of local development KPIs, and B-BBEE spend through the consolidation of SD&L performance (Mbiko, 2016; Eskom, 2013a).

Table 2.3 Simplified SD&L interventions for procurement leverage programme translated to contract commitments (Source: Adapted from Eskom SD&L presentation, Eskom (2013b))

Intervention	Description	Anticipated/Desired Impact	Comments
Industrialisation and Localisation	Use contractual lever to ensure OEM/LME suppliers invest in plant according to CSDP framework	• Investment not only in plants owned by OEMs but investment in local DG industrial partners • Significant IP transfer; skills development and **job creation**	• Based on high value strategic contracts • Informed by commodity and capex procurement strategies • Requires significant planning and roll-out support
Supplier Development	Eskom is "market maker", promoting the development of DGs through targeted intervention in areas where capacity is low	• Establishment of DGs in strategic industries where few or no DGs previously existed • Development of new supplier base	• Requires industry intelligence and higher risk appetite on behalf of Eskom • Designed to plant the seed for long term growth of DGs
Enterprise Development	Encourage OEM and large established local suppliers to sustainably partner with and expand the value chain of DG suppliers	• Access to markets • Skills Development • Revenue Generation • Enhanced organisational maturity and capability of the DG partner	• Self-reliance of the DG partner as the ultimate goal • Needs to be closely monitored to avoid "fronting" • Requires long term strategic contracts to work
Sub-contracts and Joint Ventures	Stipulate contract-based requirements for OEMs and large established suppliers to sub-contract significant value or to establish a joint venture	• Revenue generation for DG sub-contractor or JV partner • Access to work, skills development and job creation opportunities for DG partner • "Local to site" stimuli aligned to the geographic footprint of Eskom's operations.	• Impact through helping DG suppliers to sustain and capitalise themselves • Dependency on established partners • Long term strategic growth not necessarily enabled.

The SD&L objectives are translated into interventions (shown in Table 2.3) and depicted in Figure 2.18 below.



Figure 2.18: The SD&L objectives spans a number of Key Performance Areas (Source: Dijkstra, 2018)

Koeberg's SD&L team has a general position of including feasible local development opportunities in all the latest contracts linked to its OEMs. The first phase is to use the OEMs to carry out capability assessments of the local industry relating to their area of supply. A list of twelve localisation items/possibilities has been identified (includes, *inter alia*, reverse engineering of obsolete components; technical training and coaching; diagnostic valve testing; nuclear graded valves). With CSDP Plan 3, Koeberg has opted to focus on one component at a time, starting with O-rings. Cognisance is taken of the demand created by two units versus a fleet of 9.6Gwe.

One major capability assessment has been completed by Framatome, viz. '*Eskom Localisation Project in Collaboration with EdF (and Framatome) and TLIU'*. It concerns the potential localisation of four commodities, namely: valves, pumps, transformers and cables. This was as a result of its contract commitment regarding the 'valve capability assessment' executed under one of Framatome's contracts. These commodities are as a result of the dti's designation requirements for these requirements – as they have responded to industry's requests (designation is an

industry initiative, but it is driven and endorsed by the dti as part of its industrial procurement policies). These four commodities are nuclear graded ones – meaning that they are potentially for Koeberg's supply – that need to meet Koeberg's and the NNR's stringent quality requirements, in order for them to be utilised on the Koeberg plant. These commodities were chosen as Koeberg is currently 'non-compliant' with designation requirements regarding these designated items. This necessitates the need for Koeberg to be an active participant in the pilot programme.

2.14.2 KOU envisaged working groups (WGs)

Envisaged to be comprised of cross-functional teams (CFTs), the WGs would be accountable to the Transformation of the Supply Chain at the KOU Steering Committee (SteerCom), functioning as:

1) The Procurement Commodities WG: Focus on short-term localisation of commodities
2) Component Localisation WG: Contains nuclear qualifications and obsolescence. It takes a medium to longer term view and ensures that market research of the local supply capability is conducted, matching projected commodities demand to capabilities in the local market.
3) The Project Procurement WG: Focuses on projects related to localisation and transformation.
4) The Services WGs: One working group team will be focused on quality and plant-related services, and the other on the balance of plant and non-quality level related services.
5) Supplier Planning WG: Focus will be to increase/diversify the Approved Suppliers List (ASL) with specific focus on the designated groups (DGs) for identified scopes of work.

Other WGs include: TLIU initiatives (linked to designation); OEM long-term contracts and nuclear fuel.

2.14.3 Front-End Planning and SCATT Tool

The NT Strategy Planning Interface is concerned that PMFA requirements are not being met regarding fruitless expenditure due to a 'traditional approach' to procurement, driven by lack of proper planning at the various stages prior to procurement execution phases of bidding, negotiating and contract award. A more strategic approach is required by NT as depicted in Figure 2.19 below:

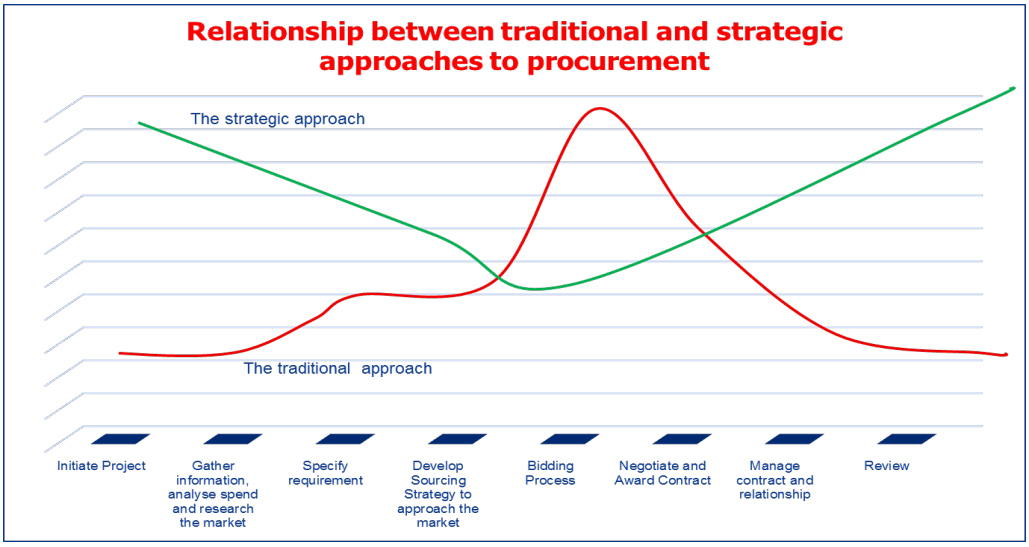


Figure 2.19: Traditional vs Strategic Planning Approaches (Source: Adapted from National Treasury, 2015)

PLCM Phase	Pre-project planning	Concept	Definition		Execution				
Governance Stage	CRA	DRA		ERA					
Activity	Develop user requirement	Concept designs	Basic designs	Works information	Tendering &Evaluation	Detail Design	Manufacturing & construction	Commission & Support	Hand-over
Output	Functional specification	Concept designs Report	Project design Manual	Employers requirement	Contract award	Design freeze/approval	Data books	Acceptance testing	Hand-over
Phase	FEP				Execution				

Figure 2.20: The Eskom Project Life Cycle Model (Source: Motsepe, 2018)

FEP is conducted at the beginning of the project before the execution phase. Based on the Project Life Cycle Model (PLCM) in Figure 2.20, the ability to influence project costs are greater in the initiation phases and decreases as the

project progresses, confirming that it is important to conduct FEP as early as possible (Motsepe, 2018). With effective FEP, risks can be mitigated through developing a detailed scope definition and the subsequent efficient use of project resources (Samuel, 2012). FEP is completed to ensure that the requirements of the plant are clearly defined (scope) and the costs and time for implementing the project are estimated with high accuracy (Motsepe, 2018).

The aim of SCATT is to aid FEP as it is the key driver to the sourcing process and forms the basis for the development of a procurement strategy. Generally, the level of detail to be included in the FEP will depend on the size, complexity, value and strategic significance of the transaction. Lack of adherence to FEP will be to the project's detriment - where projects are executed under pressure, which has a negative impact on local supplier participation in projects and commodity groups.

A key to unlocking SD&L opportunities is by utilising the *'design for local'* concept that maximises the development of local industries. The SD&L function is expected to advise on mechanisms for facilitating front-end loading of SD&L levers, such as: the technical design; procurement time lines; financing of the project; project structure and geographic location (Eskom, 2018b).

In response to the 'design for local' concept, the SD&L Opportunities Matrix or Supply Chain and Tranformation Tool (SCATT) Methodology was developed by nuclear SD&L at Koeberg in 2013/2014 (Kingsley-Wilkins, 2014) and involves a matrix that requires the breaking down of the Scope of Work to maximise local participation. It caters for the various industry participants across the value chain and include designation requirements in accordance with Regulation 8 of PPR 2017. SCATT includes sub-contracting and B-BBEE considerations; and considers demand and supply side requirements by utilising project management and systems engineering techniques with quality and contract management oversight.

The SCATT methodology of unpacking SD&L opportunities for local industry participation is depicted in Figure 2.21 below.

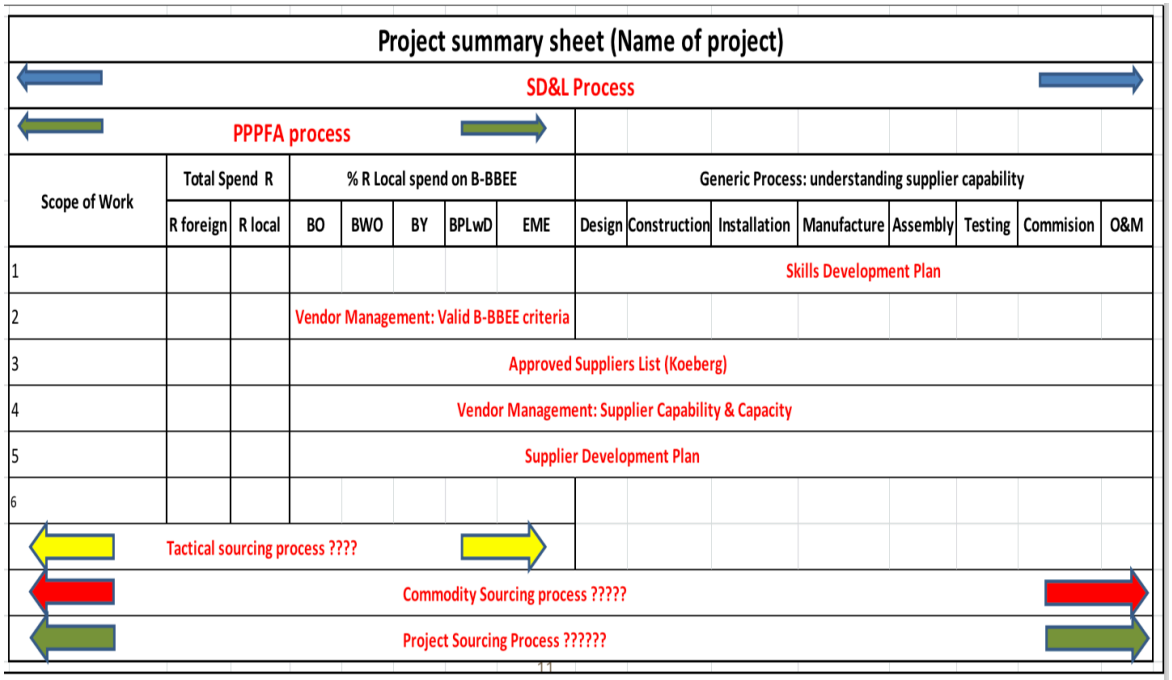


Figure 1.21 SCATT for unpacking projects and sourcing input to maximise local participation (Source: Kingsley-Wilkins, 2014)

In Figure 2.22 below, the local industry participation is maximised through increased functional capability, designation and initiaves in procurement strategies and contracts, utilising SCATT to unpack the SD&L opportunities in projects accordingly.

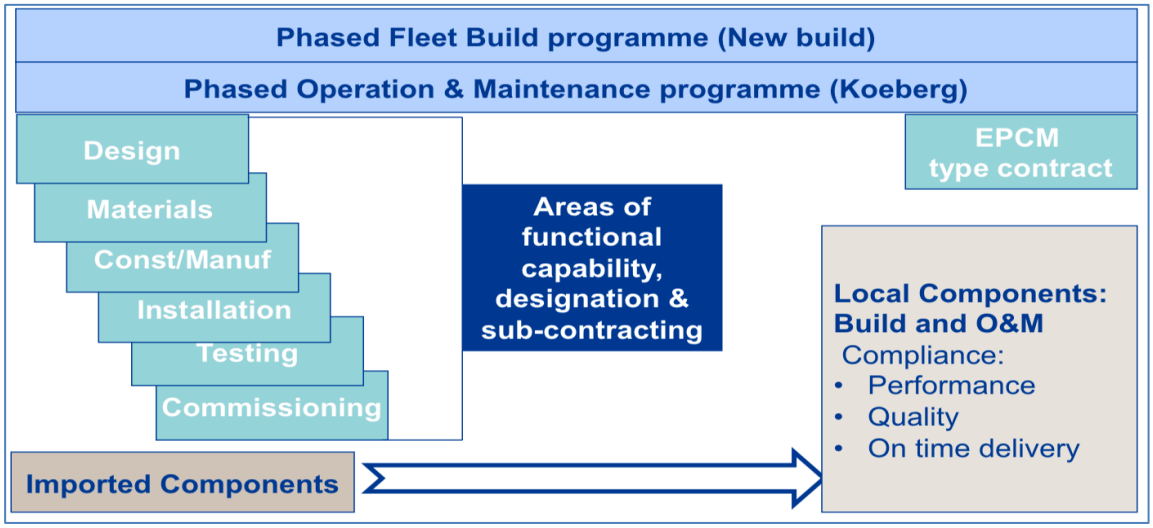


Figure 2.22: Local industry participation is enhanced through increased functional capability, designation & sub-contracting initiatives (Source: Kingsley-Wilkins, 2017)

CHAPTER 3
3. RESEARCH METHOD

This chapter concerns the research design and approach used to answer the research question and objectives. The methodology regarding the epistemology and ontology served to provide the researcher with the means of how and why to approach the study. The tools employed to gather the data are discussed, as well as the method of analysing the data.

3.1 Research Design

The study was qualitative in nature. A qualitative method is appropriate for research because it allows in-depth probing and deeper understanding (Corbin and Strauss, 2008). Qualitative research enables "*a vivid, dense, and full description in the natural language of the phenomenon under study*" (Hill, Thompson & Williams, 1997, p. 530). A qualitative method is described by Gibson & Brown (2009) as an assortment of interpretative techniques that strive to provide description and clarification of the meaning of naturally occurring phenomena, that is purposefully left open-ended and open to interpretation.

Thematic Analysis is a type of qualitative analysis. It is used to analyse classifications and present themes (patterns) that relate to the data. It illustrates the data in great detail and deals with diverse subjects via interpretations (Boyatzis, 1998). Thematic Analysis is considered the most appropriate for any study that seeks to discover experiences using interpretations. The most common strategy for analysing qualitative data is to identify recurrent features or patterns across the dataset. The essence of pattern-based approaches focuses on what people say – is thematic analysis (Braun and Clarke, 2014). Many versions exist, namely broadly within methodology specific and generic forms. The former incorporates thematic analysis as an integral part of a wider methodology, such as Phenomenological Analysis, and the latter, generic forms – are not tied to any philosophical, theoretical and/or methodological position.

One of the strengths of such generic forms is that it is regarded as more flexible and adaptable than methodology-specific forms because they are not bound by particular theoretical or philosophical commitments – but this does not mean that such commitments are irrelevant – quite the opposite. It simply signifies that the researcher needs to figure out their position and ensure that the analysis is coherently consistent with it (King & Brooks, 2018).

As a novice qualitative researcher, thematic analysis provided a means of doing research that otherwise seemed conceptually challenging and overly complex. The research topic, research question and method of data collection were all a good fit for thematic analysis. The research question was exploratory and experiential. The researcher was interested in the participants' own accounts, or perceptions, of events and their points of view, in order to get closer to their meaning making - but perhaps not to the extent inherent in a more interpretative approach such as Interpretative Phenomenological Analysis (IPA), as described by Smith, Flowers & Larkin (2009). IPA has, *inter alia*, specifying guiding theoretical principles, study designs and analytic procedures (Braun & Clarke, 2013).
Although the data was analysed in detail, it was not with a view of generating theory, such as Glaser and Strauss's (1967) Grounded Theory (GT). Conducting GT is a demanding and exhaustive process - that is better suited to larger studies that is not constrained by time and resource pressures. Discourse analysis (DA) is not a method (like thematic analysis), and nor is it an approach to qualitative research (like IPA or GT) - it is a approach to psychology and knowledge (Braun & Clarke, 2013). To use DA, in-depth knowledge of its underlying theoretical frameworks is needed, which can often be complex and time-consuming to understand and apply. Given these aspirations - with the scale of the study limited to Eskom, Koeberg - Braun and Clarke's generic six-phase style of thematic analysis was deemed the most suitable method to analyse the data.

The study was conducted within a critical realist/contextualist approach – which assumes truth can be accessed through language, but that accounts and experiences are socially mediated (Madill, Jordan, & Shirley, 2000). The research

question aimed to capture an understanding of the participants experiences as their reality (their 'truth') that does exist and are generated within broader social or societal contexts (Terry et al., 2017). As a result, this position largely determined the interview questions and the analysis as well.

The study was therefore a combination of inductive and deductive thematic analysis – inductive as complete coding that is data driven and based on the participants' lived experiences (meaning that the researcher's analytic lens does not override their stories), and deductive as the theoretical constructs from literature and organisational experience gleaned from being a subject matter expert (SME) served to render certain aspects more visible, that the participants might not have expressed explicitly in their accounts.
In depth interviews were used with key participants to delve deeply into the reasons for the perceived poor performance of the developmental objectives embedded within the SD&L imperatives – also referred to as the transformation agenda (TA) - at Eskom, Koeberg. This was done with the intent of compiling and analysing lessons learnt so that recommendations may be made for its subsequent application in the nuclear new build programme (NNBP).

The data needed to be detailed, comprehensive and representative of the phenomenon in question as the nature of the research questions required a face-to-face engagement. The research question and its sub-questions provided the basis of constructing the semi-structured questionnaire. This was adapted and edited as needed when interviewing particular key informants, given their respective roles and perspectives at Koeberg. It was thus clear from early on that these key participant responses would not entirely drive the analysis process – as context, memo writing, and reflexivity would do much to centre and focus the study and its results. These actions were taken as quality checks in order to stimulate critical thinking, specifically to the needs of the study. However, an account of what is credible and transferable was sought, whilst recognising that the conclusions will always be exploratory.

3.2 Sampling

Qualitative analysis is concerned with meaning, not numbers. This is the central distinguishing factor of its paradigm and design. It records the messiness of life, puts an organising framework in place and interprets it (Braun & Clarke, 2013). By contrast, quantitative research has different foci and purposes – including numbers and 'statistically significant phenomena' – that result in quite different knowledge and claims.

Quantitative research generates 'shallow' but broad data – as there is not a lot of complex detail obtained from each participant, even though it involves many participants in the study. That is, a large number of participants is essential in quantitative analysis in order to obtain/generate the necessary statistical significant phenomena. This is not the case when using qualitative analysis (Braun & Clarke, 2013). In contrast, qualitative analysis generates 'rich data', with 'thick descriptions' (Leedy & Ormrod, 2015) that are detailed and complex accounts from each participant, where not many are needed to take part (Braun & Clarke, 2013). The size of the sample depends on the size and scope of the study (Braun & Clarke, 2013), where Terry et al. (2017) recommend that 6-15 interviews are sufficient for a Masters and Professional Doctorate project.

Sampling is the selection of research participants from an entire population and involves decisions about which people, settings, events, behaviours, and/or social processes are to be observed (Terre Blanche, Durrheim & Painter, 2006). The sampling technique chosen was that of purposeful sampling, as it was considered to be the most appropriate to the analysis. The goal of purposeful sampling is to understand a specific phenomenon, not to represent a population, by selecting information-rich cases for research (Creswell, 2003).

3.2.1 Purposeful Sampling

As indicated, purposive sampling involves selecting participants based on a specific criterion who are knowledgeable about the issue under investigation

(Creswell, 2003, 2007). According to Babbie & Mouton (2007), purposive sampling methods can be used to select participants based on the specific criteria required by the research question/investigation. Furthermore, this form of sampling entails the selection of a participant pool that will best assist the researcher to understand the problem and the research question. However, they (participants) must be willing to reflect on and share their knowledge of the problem being studied (Babbie & Mouton, 2001).

As indicated, the study follows a qualitative approach, with an exploratory view, on the basis that the specific topic in the context of the SA nuclear industry is not well-researched. The internal participants were all interviewed at the Koeberg Nuclear Power Station. The key participants were handpicked – subjectively based on the researcher's judgement who possesses deep knowledge as an SD&L subject matter expert since its implementation, and relevant knowledge of Koeberg as one its employees - then approached and engaged by the researcher herself, requesting an interview at a time and place that was both convenient and conducive to the type of questioning.
Further, the participant selection was based on their relative organisational role and ability to provide the most adequate and potentially diverse account of the phenomenon, according to their relative knowledge, experience and perspectives. The sample size's inclusion of key influencers, leaders and managers and plant/business-knowledgeable individuals as part of the sample size was also peer checked for relevance.

The number of key participants (ten) had an average of 25 years' service at Eskom. These individuals were deemed to be a sufficiently representative sample, with intimate knowledge, experience and application of the KOU's plant processes and design, engineering and/or business endeavours in context of the study at hand. Thus, purposeful sampling was employed by the researcher - that involved selecting participants based on a specific criterion - who are knowledgeable about the issue under investigation (Creswell, 2003; 2007).

3.3 Instrumentation

The instruments used in the study were the use of a semi-structured questionnaire. As it was semi-structured, it allowed for discussion and posing of questions 'off-script'. It was also adapted for a few of the participants to best gauge and solicit the most meaningful responses, based on the participant's relative experience and role at Koeberg.

3.4 Data Collection and Analysis Procedures

In qualitative research, the process of data collection, data analysis, and report writing is not always distinct steps; they are often interrelated and occur simultaneously throughout the research process (Creswell, 2007). Hence, the representation of the six-phase Braun and Clarke (2006; 2013) best practice style of generic thematic analysis - albeit systematic - takes full cognisance of the iterative, recursive and indeed reflexive and reflective process that is a natural development over time of qualitative inquiry. The perpetual movement between the different phases of the six-phase approach was exhaustive, but in the end reflected the best representation of the research process, given the approach and method chosen.

The data gathered is entirely attributed to qualitative methods by means of in-depth face to face interviews with key informants that are key internal Koeberg stakeholders that possess in-depth knowledge of the research topic at hand. The purpose of these interviews was to fully gauge the respondents' feelings, attitudes, biases and ideas. The period spanned a period from early December 2017 until August 2018.

The thematic analysis method outlines a set of procedures that can be utilised as a method of data analysis (Braun & Clarke, 2013). According to Braun and Clarke (2006), their specific thematic analysis method addresses the criticism that is often levelled at thematic analysis by arguing that their method provides a clear demarcation of TA to ensure that others who use TA can make effective decisions

about the particular form of analysis they are engaged in and that they seek to honour the flexibility of the TA and provide a framework within which researchers can conduct thematic analysis in a theoretically and methodologically sound manner.

Braun and Clarke (2006) aim to assist novice and experienced qualitative researchers to be clear about what they are doing and why, in order for them to give a step by step account of "how they did their analysis" in their written reports. It also offers the chance to learn basic data-handling and coding skills, without having to delve deep into theoretical constructs" (Braun and Clarke, 2013).

The usefulness of applying thematic analysis to analysing the critical research question because it is particularly suitable for analysing experiences, perceptions and understandings – which key in determining lessons learnt and recommendations, which is expanded upon in Chapter 5 (Discussion).

The aims of qualitative approaches are to describe and understand social realities, including the meanings that people attach to their experiences and perceptions (de Vos, Strydom, Fouchè & Delport, 2011). The use of a qualitative research approach enabled the researcher to engage with the participants by gathering information about their perceptions, understanding and knowledge of the implementation of the transformation agenda at Eskom, Koeberg.
To this end, it was exploratory research given that it is the first time that such a study had been undertaken. Qualitative research often involves the collection of people's experiences, views and opinions in their own words (Vossler & Moller, 2014).

3.4.1 Coding possibilities

Thematic analysis also (in addition to theoretical position) offers flexibility to the analysis – where the researcher needs to make deliberate choices about their approach to the data and analysis. This choice is whether to approach the data inductively or deductively, either exclusively or primarily.

With inductive coding, theme development involves working 'bottom-up' from the data and developing codes (which are the building blocks of later themes) using the data as the point of departure, as it provides the basis for identifying meaning and data interpretation. However, this is somewhat a fallacy, as the researcher is "never a blank slate" (Braun and Clarke, 2013) - but an inductive orientation implies that the analysis is data driven.

Conversely, in a deductive approach, the analytic starting point is more 'top-down' approach where the researcher employs a series of concepts, ideas, or topics that they use to code and interpret the data – that is, using existing theoretical concepts or theories that provide a foundation for 'seeing' the data, for 'how meanings are coded, and for how codes are clustered to develop themes and also provides the basis for interpretation of the data' (Braun et al., 2015).

In reality, coding and analysis uses a *combination of both approaches* – but one tends to predominate (Braun and Clarke, 2012). Much like other research methods, the process related to data analysis can occur in two primary ways – inductively or deductively (Braun & Clark, 2006). Thus, the decision to focus semantically or latently (again either exclusively, or primarily) is a second analytic choice.

Semantic codes capture the explicit meaning and are identified at the surface level –*in vivo* codes are such a form. Implicit meaning is captured in latent coding – where ideas, meanings, concepts and assumption are not explicitly stated by the

participants. This requires a ‘deeper’ level of analysis. The more one is immersed in the data, more ‘latent’ codes are utilised.

The choice between these two is attributable to the appropriateness of the research question, where one is more apt. *Consistency and coherence* of the overall framework and analysis is paramount.

3.4.2 The Braun and Clarke Six Step Iterative Process

With reference to the Braun and Clarke (2006) six-phase thematic analysis process followed, Table 3.2 below provides an explanatory summary that was followed to derive the results of the study.

Thematic analysis is a method or technique for collecting and analysing data, which is considered an ideal one for researchers new to qualitative research, as it is very accessible that involves procedures common to most forms of qualitative analysis (Braun and Clarke, 2014), such as Interpretative Phenomenological analysis (IPA), Smith, Flowers and Larkin, 2009.

Table 3.1 Adapted from Braun and Clarke Six Phases of Thematic Analysis (Source: Braun and Clarke, 2006)

Stage of Thematic Analysis	Explanation of Stage
1. Familiarisation with data	- Transcribing data (if necessary) - Reading and re-reading the data, noting interesting aspects of the data
2. Generate initial codes {starting to organise it into meaningful groups (codes are defined as a feature of the data that seem interesting to the researcher}	- Coding interesting features of the data in a systematic fashion across the entire data set - Phase ends with data collated data extracts relevant to each code
3. Searching for Themes {themes are defined as broader units of analysis than codes; end result is a collection of *candidate themes* & all data extracts are coded to these}	- Collating codes into potential themes - Gathering all data relevant to each potential theme
4. Reviewing Potential Themes {involves review both at the level of the coded data extracts & at the higher thematic level to produce a *candidate thematic map}*	- Essentially quality check if themes work in related to the coded extracts (Level 1) and the entire data set (Level 2) - Generating a final thematic 'map' of the analysis
5. Defining and Naming Themes {at the end of this phase, the researcher should be able to clearly define their themes by succinctly describing their scope and content}	- Ongoing analysis to refine the specifics of each theme, and the overall story of the analysis - Generating clear definitions and names for each theme
6. Producing the report	- The final opportunity for analysis. - Selection of vivid, compelling extract examples - Final analysis of selected extracts, relating back to the analysis of the research question and literature, producing a scholarly report of the analysis.

The six-phase approach employed and depicted in Table 3.2 is the Braun and Clarke thematic analysis method of data analysis.

3.5 Reliability and Validity

It is said that one of the ultimate goals of a researcher is to design a study that has strong internal and external validity and reliability, a comprehensive multi-perspective view (Boyd, 2000), as well as procedures that decrease potential biases within the research (Mitchell, 1986; Shih, 1998). Multiple perspectives can eliminate competing hypotheses, prevent premature acceptance of plausible explanations, and increase confidence in developing concepts or constructs in theory development (Banik, 1993).

Triangulation increases confidence in research data, thereby creating innovative ways of understanding a phenomenon, revealing unique findings, and providing a clearer understanding of the research problem (Jick, 1979). This is the reason for using a triangulation of methods – the inductive as well as deductive analyses, together with a strong theoretical framework from both the literature and insider knowledge by the researcher. Methodological triangulation is the use of multiple methods when examining a phenomenon. The intent is to conduct the study with multiple lenses and questions in mind, in order to lend support or refute findings (Denzin, 1970; Boyd, 2000).

The use of triangulation will also help to reduce bias. It will entail multiple observations on site in addition to the in-depth interviews – which will be compared to identify common themes in the collected data. Additionally, the collection of rich data will allow for triangulation as follows:

- Interviews were undertaken with a selection of highly relevant employees of the Koeberg Operating Unit.
- The sample size constitutes a good representation of individuals who have deep knowledge and experience of the TA at Koeberg.
- Use of a peer debriefer to perform a member check.

Validity and reliability will be performed that includes the identification of consistency and patterns or themes in the responses.

3.5.1 Reliability

The use of triangulation, as explained above, was used to reduce researcher bias – though it is argued that researcher bias is a strength in this study, given the disciplinary knowledge and genuine interest in developing lessons learnt and recommendations for why the TA implementation was not successful and what could be done to improve it going forward.

The key participants, based on the researcher's judgement when employing purposeful sampling, have intimate knowledge of the TA implementation – from 2012 to date - at Koeberg.

3.5.2 Validity

During discussions with industry supervisor/mentor, many concepts and aspects of the study became clearer. That is, "*Discussion not only provides an opportunity to articulate your internal thinking processes, but also presents windows of opportunity for clarifying your emergent ideas and possibly making new insights about the data* (Saldaña 2016, p. 28)." Such discussions included the checking of interpretations developed with some of the participants themselves, as well as noting thoughts in reflective analytic memos as needed.

3.6 Ethical Issues/Clearance

The researcher followed the prescribed University of the Witwatersrand (Wits) ethical process. Upon having assessed the application and being successfully cleared, ethics permission was obtained from the chair of the ethics committee at the School of Mechanical and Aeronautical Engineering Chair, Dr E Bruno. The researcher's supervisor was duly informed as well. The ethics clearance number is MIAEC 074/17.

Participation in the research was sought primarily via verbal request by the researcher to the participants. These requests included the information on the prepared letters for participation in the research, to which the majority of those

approached had agreed to the interviews. The letters of consent were was administered and signed prior to the commencement of interviews with the participants, informing them of their rights to absolute anonymity and confidentiality. This pleased them, given the sensitive workplace information shared, and relatively small size of the project sample size.

Amongst others, they were informed that the interviews may be audio-taped, provided that they provide their consent, whereby they have the right to refuse any of the questions at any time, without penalty. It was also indicated that should they wish not to have the interviews recorded, this would be respected and strictly adhered to. One of the participants refused to be interviewed, which was respected. However, the interview had continued with much gauged from the interaction. Notes were taken throughout the interview, which were checked with the participant thereafter for accuracy.

As part of the application for the ethics clearance sought, the researcher's senior manager required that the report will allow for internal Eskom review and vetting of information in the final report in order to comply with National Key Point Industry requirements. He requested that due to the relatively small sample size and sensitivity of the information, that Koeberg reserve the right to review any sensitive material and that the tapes, where applicable, be strictly confidential, whilst retaining rights to its distribution.

Chapter 4: DATA ANALYSIS AND RESULTS

4.1 Introduction

This chapter presents the thematic analysis of the interview data that was undertaken with the ten respondents during December 2017 to August 2018, all conducted at Koeberg in Cape Town. The respondents interviewed were a selection of middle, senior and general managers. Since it is a relatively small sample, pseudonyms are used, with a brief overview of job role and background– in an attempt to protect their true identity (Table 4.1 below). Please refer to Appendix N for a detailed discussion on the data analysis and results.

Table 4.1 Respondents and their larger job role and background

Name	Larger Job Role/Function and Background
Respondent 1	Nuclear localisation role with extensive nuclear industry experience; over 30 years combined Eskom and Necsa experience. Middle Management Level.
Respondent 2	Nuclear Project Management at Senior Management Level; Over 25 years' experience at Eskom
Respondent 3	Highly experienced nuclear engineer in projects space; Chairman at procurement tender committee; Middle Management Level; 20 years' experience at Eskom
Respondent 4	Senior Management Level with extensive nuclear project management and plant experience; with over 30 years at Eskom
Respondent 5	Senior Management Level; 20 years' experience at Eskom; Nuclear Engineer in Commercial Role
Respondent 6	Nuclear design engineer in Commercial management Role; 20 years' experience at Eskom
Respondent 7	General Manager Level in nuclear engineering; key management role; over 25 years' experience at Eskom
Respondent 8	Middle Management Commercial level; Extensive Eskom experience in different roles – 20 years' experience
Respondent 9	General Manager Level in nuclear engineering; specialist role; experience over 30 years.
Respondent 10	Nuclear specifications and design manager; experience over 20 years.

The interviews were transcribed, and hard copies were printed in order to facilitate mark-ups and jottings on paper. Repeated reading and re-rereading of the data in printed hard copy form led to deep engagement with the entire dataset. Ideas for coding, such as interesting data extracts, were made on these hard copies. An organic coding approach followed, where coding evolved as the process

progressed through the entire dataset. There was no codebook or coding framework used.

The theme development benefited immensely from deep engagement with the data set, permitting- focus and choices about the most relevant data segments. Potential ideas for themes developed - where the data was re-read again to see how they fit into every individual experience as the most relevant narrative from the dataset – whilst being mindful of the research question at all times. This resulted in the first iteration of candidate themes that identified potential clusters of patterned meaning. After a few iterations of 'quality checking', final themes were derived. The theoretical framework and prior researcher knowledge facilitated this process immensely. The quotes selected aim to provide the structure of the analysis by supporting the interpretation of the data and its meaning. The *data narrative* will aim to explain and *interpret* what and *why* a particular extract is interesting, within the larger context of the research question and objectives.

4.2 Definitions and names of the over-arching theme, themes and sub-themes

All themes generated developed as a result of identifying lessons learnt from the Koeberg implementation of the TA. The objectives are to determine the participants views on the *current status* of the TA, *lessons learnt* and *recommendations* of how this should have been done and importantly, what needs to be done now – with application both for Koeberg and the NNB. During the inductive complete coding exercise, change management and the role of leadership were found to be distinct areas of their own, despite their obvious dependencies, in order to uncover the respondents' views and experience on the implementation of the TA.

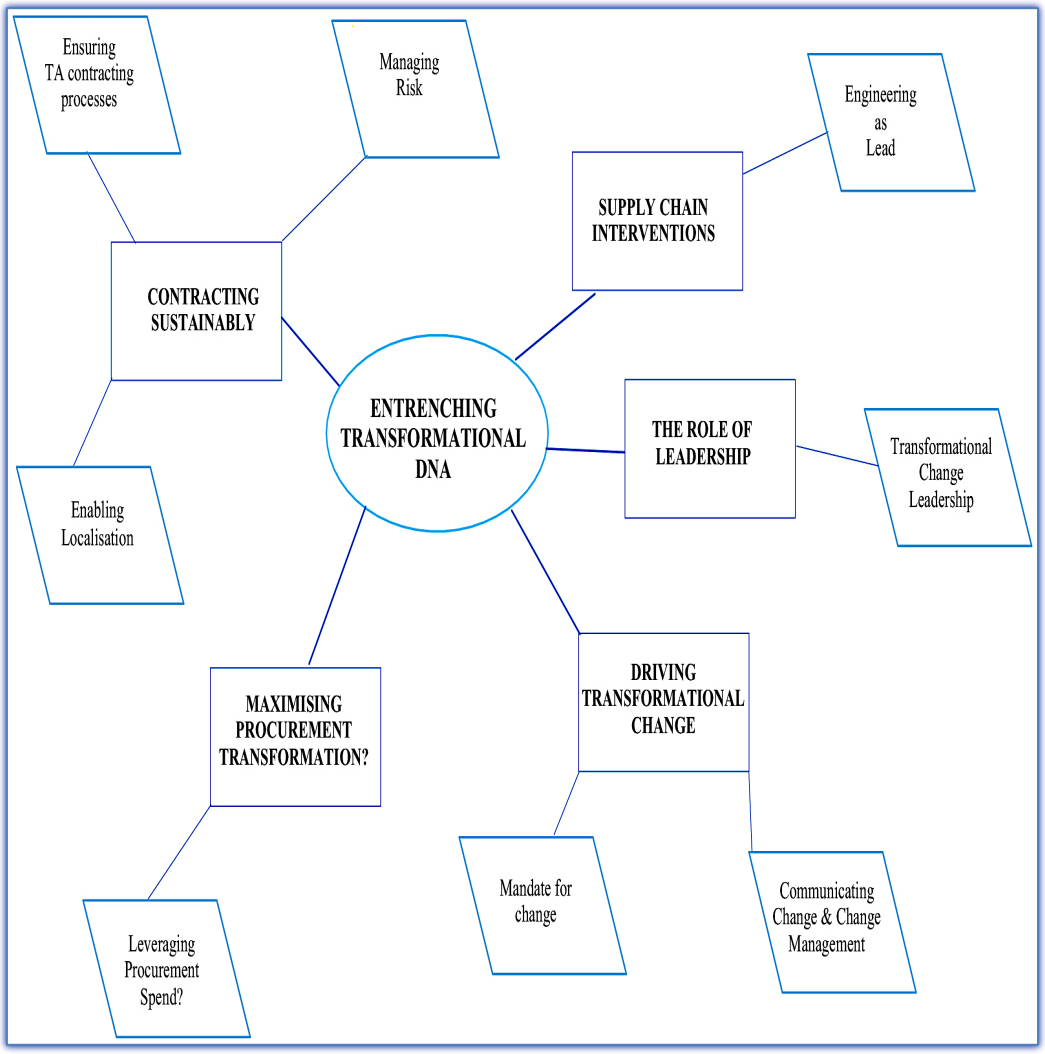


Figure 4.1: Final Thematic Map

A visual mapping process (thematic map) was used to construct a rich and coherent analysis, as indicated in Figure 4.1 above.

Furthermore, each individual theme and definition are indicated in the thematic table, Table 4.2, below. The table was also used to succinctly sum up the description of the main themes and sub-themes in a tabulated format in order to make further sense of the thematic map.

Table 4.2 Final thematic table with definitions

Theme and definition	Sub-theme	Sub-Theme Definition
(1) Driving Transformative Change ***The 'Why' of change?*** {The need to drive transformational change of the transformation agenda is highlighted}.	(i) The Mandate for Change	Eskom's local developmental mandate as SOC not known or understood by employees. Mandate needs to be defined.
	(ii) Communicating Change and Change Management	Communicate the need for change and the process to follow/implement.
(2) The Role of Leadership ***The 'How' to Lead change*** {Leadership's role in shaping the transformation agenda is given primacy}.	(i) Transformational Leadership	Transformational leadership to lead change, and needed to drive change management.
(3) Maximising Procurement Transformation? ***The 'How' of maximising change*** {Investigating and assessing procurement's empowerment role in the transformation agenda}	(i) Leveraging Procurement Spend?	Has the use of the applicable empowerment transformation legislation and policies led to maximising to leverage procurement spend to achieve the transformation agenda objectives.
(4) Contracting Sustainably ***Ensuring the outcome of change*** {Assessing how contract management and related aspects will enable the objectives of the transformation agenda (localisation and empowerment) in the NNBP}.	(i) Enabling Localisation	IP ownership of the procurement specifications will determine maximum local participation in tenders – both for Koeberg currently and in the NNB. Localisation models must specify how the IP of the procurement specifications will be addressed in order to maximise localisation in the NNB.
	(ii) Ensuring TA contracting processes	Integrating transformation agenda objectives into the contracting processes (related to the PLCM and SIPDM processes) to ensure the desired contracted outcomes are enabled and enforced. Will also cover the KPIs that must be adhered to in contracts as measurement of control of the process outcomes.
	(iii) Managing Risk	Incorporates risk mitigation that comes from procuring from local and transformed vendors (not mutually exclusive), addressing costing issues specifically and the short-term vs long term benefits and drawbacks associated with that.
(5) Supply Chain Interventions ***Enabling the 'How' to change*** {Implementing engineering processes that institutionalise sustainable transformation of the supply chain}.	(i) Engineering as Lead	SteerCom, WGs, Reducing barriers to entry of new designated group (DG) suppliers.

The overarching theme, *entrenching transformational DNA*, was found to be the central point around which binds the entire study – the DNA entrenchment (that implies sustainability) of the transformation agenda at Eskom, Koeberg – as a precursor to its future implementation in the NNB. The data extracts indicated below proved so powerful and impactful that it was used as the overarching theme, which also represents the *through-line* of the analysis and report. Sustainability is the golden thread that runs throughout the themes.

[NB: All the respective participant quotes are placed in the tables below. For the sake of brevity, some quotes have been shortened, indicated by using '…'. The full quotes and extensive data analysis and results may be found in Appendix N. The full list of codes used to develop the themes are available from the author on request].

Respondent 1	The how you do it, is to entrench it in the DNA of the organisation; we are a state-owned company, okay. So, the add on is not profit, the add on is, maximise the input of local industry, okay… It comes back to the DNA. It's not in our DNA.

In the quote below, Respondent 8 explains that the poor manner in which the TA was implemented by Eskom as a key cause of it not being understood as a business imperative.

Respondent 8	What Eskom didn't do themselves, or do Koeberg any favours, is the way that they implemented transformation at Koeberg or nuclear.

The respondents in the quotes below refer to not knowing where SD&L had come from or the purpose and intent of SD&L.

Respondent 6	SD&L was seen as a completely separate thing and not part of normal business processes, and not seen as part of a fully integrated, structured approach.

Respondent 7	It wasn't something didn't make a big impact upon me as XYZ you know, or changing the way we do things...it was in the compliance bit, that it became evident that there was a function.

The current status, learnings and recommendations for the overarching theme are summarised below.

4.2.1 Current Status

Entrenching Transformational DNA indicates that Koeberg has not undergone any transformational change management whereby its legitimacy and right to existence and action is left undisputed.

4.2.2 Learnings

The TA mandate and objectives is not entrenched as a business imperative as it has received little *buy-in* from the KOU business.

4.2.3 Recommendations

It will only become accepted by the business once it becomes entrenched as a business imperative.

4.3 Theme 1 - Driving Transformational Change

Diving Transformational Change is a major theme that manifests the idea that change needs to be driven in order for the TA to succeed. The quote below illustrates the need for a changed approach.

Respondent 1	It's very simple, we need to do it differently; That is why we are putting together this directive and oversight committee

	(SteerCom), to close that gap.

Instituting performance management of TA KPIs in individual job compacts has been identified as a gap that needs filtering down the KPIs into the KOU business. Relevant respondent quotes are:

Respondent 2	No, there aren't any, not yet directly. It's reported at a global level. But it should also be incorporated into the performance contracts.
Respondent 5	There's the shareholder compact, but I think that perhaps that's managed at too high a level, so it won't modify people's outcomes as it is.

4.3.1 Sub-theme 1 – The Mandate for Change

The *Mandate for Change* sub-theme addresses 'the why' related to change at Eskom, Koeberg. The NDP envisages building a capable and developmental state by using its SOCs such as Eskom to assist in realising this goal.

In the quotes below, there is strong support of using Eskom, as an SOC, to further the South African government's ambitions of building a capable and developmental state.

Respondent 1	So, yes, Eskom should be used to further the government's local developmental goals for SA; Localisation and transformation should be like you breathe.
Respondent 5	As a state-owned organ, the funder is government…owned by the citizens of South Africa. So, there are national imperatives that need to be progressed.

Key issues raised by the respondents related to the mandate for change sub-theme, are listed below:

(1) Caution must be exercised to avoid corruption seeping into the TA in the NNB.

Respondent 2	Corruption must not seep in. The new build shouldn't end up like Medupi and Kusile.

(2) The main shortcoming of the implementation of the TA was attributed to the employees not caring about it.

Respondent 1	… people don't care and that's been the biggest problem all along. Until people give a shit, SD&L won't work.
Respondent 4	It's an afterthought and not in everyone's mind. Nobody really cares about it…
Respondent 5	They concerned about production needs, and they actually just don't give a shit.

(3) The TA implementation was ineffective, with considerably little, if any, *buy-in* as a roadblock.

Respondent 1	It hasn't been effective as there's been no buy-in and this can only be done once leadership adopts it as part of the core business.
Respondent 5	So, the main roadblock was cross-functional buy-in and commitment...

(4) Siloed thinking is prevalent at Koeberg, inhibiting employees' broader developmental thinking.

Respondent 1	So, people still think in silos.
Respondent 5	The key is integration and that the common message is spread and shared, instead of a 'silo' approach.

(5) Koeberg employees' role in the TA developmental mandate is not known in the organisation.

Respondent 4	The transformation agenda is collectively not well-understood, and it hasn't been well communicated.

(6) The challenge with localisation is having the mindset and confidence that it is actually achievable.

Respondent 9	We don't have the necessary confidence in the local supply thing…and you need to lose your 'afro pessimism' South African low confidence mind-set somehow, and that needs to percolate into your engineering mind set.

(7) Localisation successes are to be shared, in an effort to showcase local suppliers' capabilities and negate mental roadblocks that localisation comes with inferior quality.

Respondent 7	So, let's say we've had a success…we should actually share that with our staff also, to say, 'these are the examples of where we got a local company in', and maybe showing them some pictures of a factory and people who work there.

4.3.2 Sub-theme 2 – Communicating Change and Change Management

Change starts with communicating the change and *creating excitement* with a *common message*. The respondents recognised that communication with the KOU employees is an integrative part of the change efforts and strategies that will be needed. The related respondent quotes are as follows:

Respondent 4	The transformation agenda is collectively not well-understood, and it hasn't been well communicated.
Respondent 5	The leadership buy-in, also the common message and breaking the silos.
Respondent 7	…from the steering committee, the current thing that we'll probably wanna focus on, is how're we gonna communicate.

Key issues raised by the respondents are indicated below, as it relates to the Communicating Change and Change Management sub-theme are as follows:
(1) The current status of the TA implementation is still at the beginning of its change journey.

Respondent 4	It is still poor.
Respondent 5	…So, we are behind, on the backfoot.

(2) It was noted that Koeberg's past performance regarding the TA is really poor. There was, however, also a concession of a (present) hope of things changing for the better.

Respondent 9	But currently…there are encouraging signs…but the track record is really poor.
Respondent 10	So, when I think about it, there's no real difference between now and in what's happened since 2012, cos there isn't anything seen.

(3) The critical next step is for the CNO and Nexco team to drive and lead an urgent and *authentic* transformational change at the KOU.

Respondent 5	the main guys, they do support it, but they need to be led and need to know what to do, they need a strategy and direction on how to implement it; the main issue is to get change management happening, that is critical…Change management is critical, as touched on.
Respondent 6	In order to drive the transformation agenda, leadership needs to follow a top down, inclusive approach. That is how you get buy-in, it's from following a change management approach.

(4) Recognising that accountability needs to originate from the most influential leaders at the KOU.

Respondent 7	…you must institutionalise it, build a culture and make sure everyone is behind it, and…so if we drive it, as the Nexco team…are passionate about it

(5) The importance of the *authenticity* of change was stressed. The TA should be communicated and viewed as an organisational imperative, and not merely a KPI requirement. Without it, success will not be achieved.

Respondent 8	If it becomes an imperative, that people understand the 'why it's important', instead of chasing a number – and that is the change management from the heart… 'it needs to come from within'.

(6) Clear, official communication of the CNO's directive will serve to entrench the TA in the KOU's DNA.

Respondent 1	The entrenching in the DNA is a directive from Nexco. Leadership need to provide the directive.
Respondent 7	And I think the thing of the letter from the CNO to everyone to say, 'we will not be acquiring certain things from anywhere other than in South Africa', that kind of thing is required.

(7) An important part of the CNO's directive will be to punt the cost savings benefits of the TA.

Respondent 7	I think to some extent it's a little bit more of a discussion on saving costs, and it's maybe driving it more, and that's good, cos I think that everyone benefits if we can spend less on buying a spare that does the same function. So, costs are a big driver.

In the context of Eskom's massive financial crisis, the current imperative across the organisation is cost savings that, amongst others, is linked to employees' job security. Reducing the high costs of imports by purchasing goods and services locally is a means that the message of adopting the TA as a business imperative may be conveyed in a way that is meaningful to the KOU employees.

4.3.3 Current Status

The current status of the TA implementation at Eskom, Koeberg as it relates to the theme of *Driving Transformative Change* and its sub-themes (derived from the dataset) is listed in the points below.

(1) There are currently no TA KPIs in place in employees' job performance contracts that can effect a change in behaviour regarding their role in the attainment of the TA objectives.

(2) The shortcomings attributed to the implementation of the TA at Koeberg was because people simply do not care about it.

(3) Holistic thinking is generally not practiced as employees exhibit 'silo mentality' where they are seen to be going about their day to day activities with little thought of Eskom's larger developmental role in the country.

(4) SD&L is largely viewed as a separate function that is a "nuisance and irritation" to the business.

(5) There are major mental roadblocks and a lack of confidence in local suppliers' capabilities.

(6) There has been no communication about the change to the employees – only whispers about it in the corridors - related to the KOU's aspiration to transform its supply chain. As a result, there have been no real changes seen – from 2012 to date – in day to day operations in the business.

(7) The current status of the TA implementation is that it is still poor. It was further noted that the KOU is still at the beginning of its change journey and that it is 'on the backfoot' of the TA implementation.

The current status of the TA implementation as suggested by the respondents is therefore that the KOU has as yet not moved on the journey of change regarding the transformation of its supply chain.

4.3.4 Learnings

The relevant set of learnings from the *Driving Transformative Change* theme, as established from the dataset, is indicated in the points below:

(1) If there were TA KPIs in place, then the TA objectives would most likely have had more of a chance of success.

(2) The TA implementation was ineffective and had considerably little, if any, *buy-in*, notably because there was no change management that supported this. Change management would have permitted the KOU employees to understand that the TA is a business and country imperative.

(3) The prevalent silo mentality of employees does not only make boundary crossing difficult, but often causes major anxiety when having to engage with other departments and their processes. And so, it is with the TA. The silo mentality of '*us and them'* bars employees to think beyond their own job functioning within their functional departmental at the KOU.

(4) SD&L is seen as a nuisance in the business because of the narrow-minded, ignorant approach of not understanding that the TA *is* part of Eskom's dual mandate.

(5) Lack of confidence and mental roadblocks negate the use of local suppliers and is a deeply entrenched issue.

(6) Because there has been no common message of change yet, there has been almost no buy-in into the objectives of the TA. The change message therefore becomes crucial as corridor whisperings do not translate into changed actions.

(7) The current status of the TA implementation is poor because we have not progressed with the implementation of change and change management. The common change message still needs to be issued so that it may trickle-down the business (where the verb, 'trickle', and the phrasal verb, 'trickle-down', is used in the context of how change and change management initiatives are cascaded down

the business from senior management to middle management, and to their subordinates).

(8) Nexco and the entire change implementation effort must be viewed as authentic and something that comes from the heart, or else it will not be successful. For the TA to succeed, lessons emanating from a 'forced' change, such as the HR change that was driven by the former Eskom Board at the KOU in 2013, must be revisited and internalised. Change and the accomplishing of the TA must be authentically driven – as the lesson is to entrench it in the DNA of the business at Koeberg.

4.3.5 Recommendations

The following list of recommendations were elicited from the respondents for the *Driving Transformative Change* theme.

(1) The CNO is to issue a directive to the business about implementing KPIs into employees job compacts, together with a clear implementation plan, to close the KPI gap. Consideration should be given to including all the SD&L TA objectives and not merely the Shareholder's Compact B-BBEE Scorecard KPIs.

(2) The CNO, with the PSM's support and whole Nexco team is to urgently embark on change management journey with all staff regarding the importance of the TA to Koeberg and SA.

(3) Silo, fragmented thinking is to be squashed with the urgent commencement of a change management approach by the CNO, PSM and other Nexco members.

(4) For SD&L not to be viewed as a nuisance, the Koeberg employees must know about its dual developmental mandate, and role as a strategic enabler of Eskom's mandate in the organisation. This is why change management is needed a recourse.

(5) In order to develop more confidence and belief in the local supply chain, localisation successes are to be shared, in an effort to negate mental roadblocks and a certain degree of 'Afro-pessimism' that persists. We need to instil the same thoughts into Koeberg employees as the South Koreans and the Chinese have done, as it is sorely lacking in South Africans. We should live and embody

Proudly South African ourselves and be an example to South Africans of what our suppliers can achieve.

(6) A common message of communicating the change must be issued in order to start the change management process and also to creating excitement about what we have achieved locally, in order to create excitement and willingness to change.

(7) CNO and Nexco team urgently need to rectify the poor current status regarding the TA in Koeberg by issuing the Directive – which is the message of change – so that the journey to change may begin.

(8) The next steps would be to:

(i) urgently drive and lead an authentic transformational change internally at Koeberg;

(ii) The SD&L manager needs to give Nexco the strategy and direction of what to do regarding how to implement the TA going forward;

(iii) The CNO and Nexco should start communicating the change and utilise Stakeholder Management to spread the goal of communicating change;

(iv) Given Eskom's massive financial crisis where the current imperative of *cost savings* is linked to employees' job security, the CNO's communication of the KOU fully adopting the TA as a business imperative, will serve a meaningful means of conveying the message of adopting TA objectives. An important part of the communication to the KOU should be to punt the benefits of TA localisation.

4.4 Theme 2 - The Role of Leadership

In *the Role of Leadership* theme is given due prominence in the data analysis as it focuses on the 'how' to deal with change. It highlights leadership's approach and role in shaping the transformation agenda implementation at the KOU. Aspects related to the past role and experience of leadership, and notably the former CNO, is discussed. The analysis then proceeds to focus on how the current CNO and Nexco leadership team should approach the change that comes with the full implementation of the TA at the KOU.

The following is a list of key issues that relate to the *Role of Leadership* theme raised by the respondents.

(1) The CNO's 'misaligned values' as it pertained to the TA, as he did not believe that it belonged in Eskom and did not support it. The former CNO was also a highly influential leader who negatively influenced the Nexco team. Nexco and others were seemingly highly susceptible to leader influence.

Respondent 7	I think it was almost with the KOU leadership kind of ignoring it more than anything else. Actually, maybe Karl was a little bit negative towards the concept of localisation – for some reason - and so we never ever discussed it at Nexco.
Respondent 1	…our most senior person at Koeberg at the time...the former Chief Nuclear Officer, told me straight to my face that it doesn't belong in Eskom; There has been a major learning curve. It was susceptible to who was leading it at the time, different opinions etcetera…which then swayed the implementation.

(2) The former CNO used his legitimate leader power (as the most senior leader at the KOU) to influence others. This style of leadership is also referred to as Autocratic Leadership, where they make vital decisions on their own (Cellar et al. 2001) and enforce their views on their followers in a strict and directive top-down approach. Interestingly, autocratic leadership of authoritarian regimes, such as in South Korea (1960s-early1980s), were rejected by the Korean people, whose 'yearning for democracy' escalated throughout the 1980s (Page & Tarp, 2017). Thus, autocratic leadership is not sanctioned or justified by any means for successful economic development. Sadly, world history has shown that far more countries fail to achieve economic growth and development, and are able to reduce poverty in their nation states, when that state is authoritarian in nature. Examples abound - such as in Argentina's Perón and Ethiopia's Haile Selassie. Instead, a democratic developmental state should be studied to provide a developmental state that could bring about poverty reduction and economic

development (see Edigheji 2010). As such, South Korea's own economic development history shows that its economic growth actually accelerated with democratisation since the late 1980s (Page & Tarp, 2017). Bringing this back to the Koeberg scenario, the former CNO displayed distinct autocratic leadership traits that largely stifled the implementation of the transformation agenda as a strategic organisational objective mandated by the Shareholder. Therefore, it was shown to have no place in the re-implementation of the transformation agenda at Koeberg.

Respondent 8	So, Karl them will say, "quality versus implementation of transformation", where there is the link to say that, "I cannot jeopardize production due to a lack of quality"; The role of leadership is the big learning. It needs to come from the top - the direction…there was no contest when considering the Karl vs Barney voice, and Nexco was not in support of it at the time…And everybody followed Karl's direction, and Barney's voice was silenced…

(3) There was an acknowledgement of leadership shortcomings and deficiencies regarding the TA.

Respondent 9	…us as leadership, haven't taken a consistent and appropriate interest in it, and we've have hidden behind the nuclear aspect of it. So, I think we've been very poor.

(4) There were key influential leaders (Nexco members) who had dissenting views at the time and supported the TA drive in their areas.

Respondent 9	None. I told you mos, you just decide. Don't you think I agonised about it, don't you think I took stressed over it?

(6) Leadership should have taken an active position when claiming to support the TA drive.

Respondent 8	Leadership was selective in their support, they would pay lip service to it, but there was no action.

(7) There was an element of *laissez-faire leadership* at the KOU. Laissez-faire leaders are typically described as the avoidance or absence of leadership (by abdicating leader responsibilities).

Respondent 8	So, if you ask about the role of leadership in the implementation, I'd say nothing; No real support from Barney either.

(7) Currently, the TA is still lacking in driving change, but Nexco is grappling with the TA change.

Respondent 8	they are still grappling with it themselves in terms of that change management…
Respondent 7	…it's only now actually that we're starting to see some changes, some ownership from there; The other part is, we're almost having a more top down discussion, where the leadership is taking ownership of this thing and trying to see what can be done to get transformation entering the supply chain…

(8) The display of transformational change leader behaviours in the CNO.

Respondent 8	Karl didn't sponsor it. The one thing that John did, he sponsored it, with his comments. You could see that day in Nexco when he made those comments, everybody suddenly was aligned with that, cos he set the tone, and said, "I'm even prepared to pay and throw money away to buy (local), it must

	happen".

(9) The SteerCom and working groups' (WGs) role in the TA is expected to be a game changer.

Respondent 1	What we're now implementing is that we'll be leaders for the programme in Eskom as a whole, cos no-one else in Corporate has done it…The oversight committee is probably one of the best things that's ever been offered, okay.

4.4.1 Sub-theme - Transformational Change Leadership

The sub-theme, *Transformation Change Leadership*, considers the transformational leadership needed to drive change management. It is the explicit expectation that the role of leadership is to lead an authentic change. It will take a great transformational *change leadership* effort to start changing negative, siloed mindsets into collaborative problem solvers for the TA to be successfully implemented. The respondents' expectations of leaders include genuine commitment, support and a *commonly aligned view* of the TA outcomes.

The following respondent views indicate these expectations accordingly.
(1) In order to legitimise the change effort, there should be a commonly shared view and commitment by the CNO and Nexco that the TA is a business imperative. It should be recognised that it takes tremendous leadership drive, competence and commitment to actively support the TA (projects) on the ground – both at the KOU and NNBP.

Respondent 7	One of the big ones must be to get the leadership on the project must be truly aligned behind the need for the transformation agenda and ensuring there's a common view.
Respondent 9	Then there's the leadership championing, like we spoke about at Nexco level;

	I think you mustn't underestimate the leadership drive and competence required to do this.

4.4.2 Current Status

The current status of the TA implementation at Eskom, Koeberg as it relates to the theme of *The Role of Leadership* (derived from the dataset) is listed in the points below.

(1) The effects of the former CNO not supporting the transformation agenda or the localisation drive in Eskom had led to most of the Nexco team being negative towards SD&L and the TA since its implementation, and many of them are therefore still grappling with change. There is an acknowledgement of leadership shortcomings and deficiencies.

(2) The current CNO and many other senior and middle managers do support the TA implementation, and the CNO is seen to be sponsoring change efforts. The CNO and Nexco have also bought into the idea of the Directive, SteerCom and Working Groups as means to effect change.

(4) Leaders like the CNO are starting to take ownership of the TA and accountability of wanting to achieve the TA objectives.

4.4.3 Learnings

The relevant set of learnings from *The Role of Leadership* theme, as established from the dataset, is indicated in the points below:

(1) The former CNO had misaligned organisational values pertaining to the TA and the transformation of the supply chain, as he did not believe that it belonged in Eskom. This learning shows the negative effects of a very influential leader who convinced his followers – specifically Nexco and other influential managers – of his intolerant and non-supportive view of the TA. He is an example of abusing legitimate leader power that comes from being appointed at the highest seat at the KOU. As an autocratic leader, he enforced his views on his followers in

a strict directive top-down approach. *The role of leadership is considered as the big learning* for the failure of the TA implementation at Koeberg.

(2) Influential change leaders are needed to drive the TA implementation that take a top down approach to change. This is gauged from the sponsoring of the localisation drive at Nexco, which has had the desired and positive effect on the Nexco team. Without the influential leaders buying into the TA, there will be no Directive, SteerCom and WGs to start institutionalising the change of implementing the TA at Koeberg. It also indicates that change management and the role of leadership are intertwined, and one cannot operate without the other during an organisational change initiative. These senior influential leaders should be exhibiting transformational change behaviours.

(4) If leadership are not prepared to take ownership and accountability when it comes to the TA objectives, success cannot be achieved. It is by showing followers commitment– by *driving* it – and not paying mere lip service to it – that will present changes. It is by leadership making tough decisions about the local purchase decision and standing by their teams by effecting the change. By inference, there will be no role for Laissez-faire leadership styles and behaviours, as it demotivates and deflates those who desire change and are excited about it.

4.4.4 Recommendations

The following summarises the respondents' recommendations for *The Role of Leadership* theme.

(1) The result of appointing autocratic senior leaders who have misaligned values pertaining to the transformation agenda in Eskom, as gauged from the KOU scenario, have strongly inhibited its progress within the business unit. This is particularly pertinent in the KOU's case whereby its procurement represents a large foreign component, and there is in urgent need for deepened localisation. In order to overcome the negative effects left by the former CNO, urgent interventions need to occur. These interventions include a visible leadership drive by the CNO through the issue of the TA Directive to staff, reinforcing the shared organisational values as it pertains to the TA.

(2) The influential senior leaders, for example the CNO, PSM and Nexco members need to team up with other influential managers and leaders on the plant – to gain momentum in the change process. By the CNO sponsoring change efforts - by for example asserting the localisation of plant commodities in the TA Directive to the KOU - would start the display of transformational change leader behaviours. This effort would be immensely effective as it challenges the engineering and other teams to start thinking differently.
(3) Expectation of leadership is that they must drive the commitment to localise by 'putting skin in the game', meaning that they must be accountable for the outcomes when taking such a pro local position. Nexco as the most senior leadership team needs to display a collaborative and integrated approach in order to break the fragmented thinking of the siloed approach that is evident at the KOU. As a result, *leadership must visibly drive* the TA implementation and be seen to taking accountability for the localisation and transformation decisions in order for their followers to gain confidence and belief in local industry.

4.5 Theme 3 - Maximising Procurement Transformation?

As a major theme, *Maximising Procurement Transformation?* refers to whether the SD&L mandate is being adhered to at the KOU and what the bottlenecks or issues are in doing so. It also investigated and assessed procurement's empowerment role in the TA.
Barriers to entry of new entrants, notably the designated group (DG) vendors, was listed as a key deterant to maximising the outcomes of the transformation of the supply chain at the KOU. In the examples below, the respondents illuminate on reasons for the high barriers to entry at the KOU.
(1) The difficulty, frustration and fear (related to nuclear requirements) of doing business with Eskom, Koeberg is a key *Barrier to Entry.*

Respondent 3	Look, and in some cases, I think the heaviness of our procurement process, inhibits suppliers sometimes – a lot of requirements, a lot of paperwork.

Respondent 9	…the cost and difficulty of doing business with Eskom, creates a very high barrier to entry, which many suppliers may not be keen to come to the party with. The fear of new entrants to enter the nuclear market is immense.

Vigilance of functionality requirements in tenders are required when determining 'genuine' barriers to entry and 'artificial' barriers to entry. These two scenarios are explored in the points below.

(2) The 'genuine' barriers to entry are created by complex technical criteria and quality requirements in tenders. In this scenario, few or no tenders are submitted (by the DG vendors) or these DG vendors simply do not pass through the tender's mandatory functionality requirements.

Respondent 5	But then we don't have anybody responding to the tenders, or when they do respond, they don't get through the tender process, cos they, on the paperwork, they are non-compliant and don't get to pass through functionality.

(3) For the 'artificial' barriers to entry scenario, this results from end-users specifying unwarranted and onerous requirements in the functionality requirements of tenders. These measures are taken to bar new suppliers from tendering or resulting in their failure to pass the mandatory functionality thresholds in tenders. In such scenarios, the reason cited is their preference for suppliers that they are familiar with, also referred to as "the usual suspects".

Respondent 8	So I'll be on the look-out for requirements that are Koeberg specific, so that only a vendor that is doing business with Koeberg will meet the requirement…to prevent the specification to be like that, because then you are not giving the potential new vendor the opportunity.

For both ‘genuine’ and ‘artificial’ barriers to entry, the functionality requirements in tenders at the KOU deter potential new entrants (for empowerment and localisation) to participate in the supply chain at the KOU. The ‘heaviness’ of procurement (doing business with Eskom) stems primarily from adhering to paperwork linked to stringent quality requirements and technical criteria in tenders.

4.5.1 Sub-theme: Leveraging Procurement Spend?

This sub-theme considers if and how the use of applicable empowerment legislation and policies have led to maximising local development by leveraging procurement spend, in accordance with the SD&L mandate and outlined in the IPAP and CSDP.

The following is a list of key issues that relate to the *Leveraging Procurement Spend?* sub-theme raised by the respondents.

(1) The government’s transformation empowerment legislation needs to be streamlined.

Respondent 1	Streamline legislation, take it back to basics, apply the basics of people and facilities to the process and have one piece of legislation or policy driving the thing.

(2) Procurement empowerment legislation and policies are simply not understood or unknown by the applicable users (SCM officials and procurement end-users and contract managers).

Respondent 4	the legislation is excellent, yet it’s not understood by the people who must use it.

(3) There were criticisms, and applause of the PPPFA and challenges experienced in its application.

Respondent 4	It's clear, and it's good, which puts us on a certain trajectory; The PPPFA doesn't meet the local content objective, or very minimalistically does.
Respondent 5	It has helped in having a standard and a level, but it hasn't helped as they are thin and lacking on the details regarding the how, or practical application, or execution of it; so, it's driving the right behaviour regarding empowerment.
Respondent 6	PPPFA 2017 …do assist in the transformation agenda. It ramps it up more.

(4) The procurement legislation allows limited empowerment through pre-qualification criteria set in tenders to target DGs (such as SMEs) but in reality, the legislation is minimally helpful. That is, the challenge comes in when these targeted suppliers do not meet the stringent technical and quality criteria set in the KOU tenders. This is often due to affordability constraints, i.e. not being able to adopt costly quality systems (and paperwork) and the lack of internal value and supply chains that assist in lowering their internal costs (that the LMEs possess).

Respondent 6	The LMEs are better geared to meeting our requirements, as it's so costly to put quality requirements in place, and they can afford to put these systems in place, and they have a base regarding their own supply and value chains, etc.

(5) Procurement legislation clashes as it is a difficult task to develop more local suppliers but not being able to select suppliers that we have identified to meet our requirements, based on the 'fairness' Constitutional principle.

Respondent 3	Look, one thing that probably hampers us is in the procurement process…where you're not allowed to favour any supplier and I agree with that…but then we need to find a way around the way of developing suppliers, without favouring them – which I think, is quite a tall task.

(6) There were mixed reviews on the B-BBEE legislation.

Respondent 1	We can't transform everything. We've got to find sustainable industry and choose our fights; It hasn't worked as people are putting their own agendas in the mix, like radical economic transformation, and linked to this is corruption…
Respondent 2	The transformation agenda is important as it will maybe normalise society. Given that so much time has passed, and people aren't necessarily better off, maybe the B-BBEE legislation and policies is not a smart way to do business.

(7) The TA successes at Koeberg were all as a result of engineering led interventions, and not commercial.

Respondent 5	Before my time, some good stuff happened…that led to some entrenched local capability, and the important thing is that it's nuclear…And so in those early interventions…it was driven by engineering and plant; the upfront planning and planning interventions is only starting to happen now, with engineering support.

(8) Unless we get the FEP right – in spares that is the demand plan –we will not be able to consolidate demand and find the targeted DG suppliers that would be able to tender.

Respondent 6	I'd like to see more front-end planning done. It needs to happen at the upfront planning stage, and not when it's in the execution cycle, as it's currently being done now.

(9) The TA successes have chiefly been in the projects and nuclear fuel space, as the internal lead-time to tender spans a number of years, as opposed to the tactical day to day plant procurement.

Respondent 2	For projects it's been especially good. But across the board for the whole of Koeberg – like the plant - it hasn't been well.

4.5.2 Current Status

The current status of the TA implementation at Eskom, Koeberg as it relates to the theme of *Maximising Procurement Transformation?* (derived from the dataset) is listed below.

(1) *Barriers to Entry* was cited as a key deterant to maximising TA outcomes. These barriers included the 'heaviness of procurement' process regarding all the paperwork and requirements that need to be adhered to by suppliers when tendering to Eskom. This could lead to the challenge of non-responsive tenders, especially from the targeted designated group of suppliers - such as black youth, black women and black disabled SMEs. EMEs especially find doing business with Eskom as difficult and not worth the effort and cost involved (stemming from the stringent quality and technical criteria that need to be complied with).

(2) Functionality requirements that are overly onerous (when they do not need to be) were also found to be a deterant for SME suppliers. These are both 'genuine' and 'artificial' functionality requirements that deter potential new entrants.

(3) Koeberg is not leveraging its spend and obtaining maximum local developmental impact as it is mandated to do. The fact that there are over 80 pieces of legislation in the procurement space means that people – and especially procurement practitioners / SCM officials - do not know it and do not know how to apply or interpret it.

(4) There was a number of criticisms levelled at the procurement legislation as it expects Eskom to develop suppliers, but then they cannot be seen to be favouring one supplier over the other. The PPR 2017 prohibits this for reasons of fairness - for example – from creatively approaching a local supplier who may have the capability to manufacture an item such as a nuclear graded valve, that is currently imported. Perhaps they need some development in the sense of 'know-how' capability or quality assurance (QA) and control (QC) aspects that we can assist with, but then are prohibited from doing so as it may be seen as favouring that one

supplier over others. And then they are expected to request suppliers to do supplier development and thereby creating competitors to themselves, when the opportunities at Koeberg are already limited for local suppliers in certain categories.

There was criticism with the manner in which the local content is handled in the PPR 2017, where tenders cannot stipulate 100% local content. See the problem of 'shifting legislation', (Revised and Amended B-BBEE Act and Codes and PPR 2017, in 2013 and 2017 respectively), where Government does not see changes happening quickly enough, then change the legislation in a bid to make things happen faster. Following the PPR 2017 permitted exemption process is lengthy, so often there would be SD&L leakages on site, as the KOU could have obtained more local developmental impact by targeting local communities (local to site); local suppliers only (no foreign tenders) and requested additional supplier or skills development initiatives or other criteria.

(5) The PPR 2017 was applauded as well. The general view regarding legislation is that it has done well to assist Eskom in their TA aims, and that the revised B-BBEE Codes are a good improvement on the first iteration, albeit challenging in its implementation.

(6) Supply chain successes seem to stem from black empowerment with the use of B-BBEE suppliers and to a certain degree, in localisation, as a result of engineering led interventions. Supplier development is not really done.

(7) Noted that the TA has been most effective in the projects and nuclear fuel space at Koeberg. The localisation successes in day to day plant procurement (tactical sourcing) have not been as successful.

4.5.3 Learnings

The relevant set of learnings from the *Maximising Procurement Legislation?* theme, as established from the dataset, is indicated in the points below:

(1) Overcoming bottlenecks such as the *Barriers to Entry* will be needed to maximise the TA outcomes. This is one of the main reasons for unresponsive tenders from the targeted DGs such as the EMEs and QSEs (SMEs), and especially those that are black owned.

(2) New entrants, especially EMEs and QSEs tend to not pass the functionality requirements in tenders, stemming from the sometimes onerous and/or purposeful inclusion of threshold requirements that these new entrants can only gain by having had worked at Koeberg before. Learning is to be vigilant of this practice (in functionality requirements) before they are issued to the market. Supplier development will be needed to assist smaller suppliers comply with functionality requirements.

(3) There are over 80 different pieces of legislative procurement, which causes procurement and empowerment legislation to be fragmented. Interpretation and ignorance of their mandates as Eskom buyers, as well as the procurement legislation is a *key r*eason why the PPR 2017 and designations of local sectors are to be complied with when it comes to transformation empowerment and localisation. It is also because the TA is not entrenched in the organisation's DNA.

(4) The expectation for procurement practitioners and end-users to comply with 'governance and compliance' often comes at the cost of innovation, creativity and local supplier development. Not being able to stipulate 100% local content in the PPPFA procurement process is viewed as 'counter-productive' as it 'only minimally' allows local content to be stipulated by way of the designated sectors when using the PPR 2017. The problem of shifting legislation costs Eskom money – as the costs incurred by compliance by the suppliers are passed on to Eskom in tenders - and government needs to be mindful of this practice. The PPPFA has many internal conflicts as a piece of legislation, as it purports to support empowerment but has too many limitations when setting aside certain local

content or targeted designated group criteria, and even requesting exemption from it takes far too long to be effective, and this causes SD&L leakages to occur.
(5) Sourcing teams do not always use the pre-qualification criteria in tenders to aid empowerment legislation, and ensure designation as applicable is included tenders, that results in implementing the empowerment and localisation (legislation) challenging, often leading to SD&L leakages.
(6) Engineering is given the credit for all the successful localisation and B-BBEE suppliers utilised on Koeberg's site, as it is only through an engineering led intervention - with front end planning - that the scope may be broken down and opportunities found for greater local participation in the procurement requirements.
(7) In order to find opportunities for local supply and participation – even if its via sub-contracting – takes time. There is a lot of upfront planning and FEP that needs to be done, which can take a long time to complete. The SCATT tool is most applicable in this space. The luxury of long lead times is not available in tactical plant procurement as production pressures require almost immediate purchase – resulting in the default to OEMs or the 'traditional' suppliers or 'usual suspects'.
(8) Supplier development is an area where very little attention is paid, and perhaps legislation is conflicting, as discussed, but must be given due attention if we are to achieve any meaningful development of local industry. This applies particularly to the designated group of small black suppliers who are struggling to comply with our requirements.

4.5.4 Recommendations

The following summarises the respondents' recommendations for the *Maximising Procurement Transformation?* theme.
(1) By effectively finding a mechanism to reduce the barriers to entry and 'heaviness' of the procurement process by rationalising our requirements when targeting EMEs and QSEs (SMEs), the KOU will most likely obtain more responsive tenders from the targeted group of suppliers.

(2) Functionality requirements need to be interrogated - as the 'usual suspects' tend to tender and are offered the same contracts as before – and hence the broad-based 'pie' is not spread, which may become a plant risk (of supply) if not handled appropriately. There also needs to be an accountability session held with offenders (Eskom contract managers) and some form of disciplinary measures taken if they are repeat offenders, as this is the start of fraud and corruption. For those who cannot meet our genuine quality or technical requirements, an interventionist supplier development approach must be taken. The KOU should employ the assistance of the TLIU, large corporates and community organisations to assist in the endeavour of devising supplier development programmes that would enable local suppliers to be successful in passing functionality in tenders – by providing requisite support to them beforehand.

(3) Rationalising the vast number of 80 procurement legislation into the Procurement Bill that succinctly deals with procurement empowerment and localisation designation requirements to further local development (both mandatory and self-designated) in tenders.

Educating procurement practitioners on what their transformation mandates are will go far in making them understand the critical role they play in the organisation in leveraging Eskom's spend to maximise local development. Further training of SCM officials on the legislation and how to apply it in the interim regarding maximising transformation and localisation outcomes, in the main, will be a good place to start.

(4) Despite the conflicts in the PPPFA regarding need for fairness and supplier development in B-BBEE, we need to find the means of still developing suppliers, within the prescripts of the law, which in manufacturing developing terms, will take time and effort to identify. This 'wicked problem' will need to be taken up in the Working Groups together with the Commercial team's involvement. The government should increase the number of self-designated sectors in a bid to achieve greater mandatory local content in tenders when applying the PPPFA. SD&L Leakages could be minimised if the PPPFA exemption process were a shorter and simpler process.

(5) The sourcing teams and procurement practitioners need to ensure that they include PPPFA pre-qualification empowerment criteria in their tenders.
(6) Engineering should lead all SD&L interventions, albeit not necessary that the actual function reside in the engineering department space. Engineering must constitute the SteerCom and Working Groups so that more opportunities abound for local participation where the procurement spend may be leveraged in a manner that maximises TA objectives and local developmental impact.
(7) The working groups and adapting the SD&L opportunities matrix (SCATT) to suit the plant's purchasing needs, is the mechanism to unlock the plant's purchases for local and transformed supply. This will assist immensely when procurement requirement is identified, as the local transformed vendors would be already known, negating the purchase from the OEM or traditional supplier.
(8) Supplier development efforts must be deepened, where Koeberg needs to further penetrate the local communities and seek collaborations with corporates and OEMs (as part of their SD&L commitments in contracts) or in its envisaged ESD supplier development programmes.

4.6 Theme 4 - Contracting Sustainably

The *Contracting Sustainably* theme focuses on how the TA objectives are addressed in contracts with suppliers, and how suitably sustainable measures may be taken to effect it.
The original plant contract for Koeberg, as negotiated with the nuclear vendor OEMs in the 1970s, did not cater for and nor include localisation or self-sufficiency criteria regarding the operations and maintenance (O&M) of plant critical spares, materials and services. As a result, the OEMs still largely hold the IP rights and ownership of the applicable O&M procurement specifications. The effect of this aspect has diminished Koeberg's ability to localise accordingly. The only time Koeberg is permitted to deviate from purchasing from the OEMs is when the OEM items are obsolete. Koeberg may then be allowed access to the procurement specifications to conduct equivalencies, or reverse engineer the items – depending on the IP information made available to it. Hence, the need to be very

careful and cautious of not repeating the 1970s contracting scenario when entering into discussions with nuclear vendor countries on localisation. The internal Eskom procurement and localisation strategies must be fully supportive of the TA objectives.

The respondents' quotes below support these claims.

Respondent 7	The other big one is the propriety information from OEMs, so you can only buy from them, cos they have specifications and specific materials, that may not be available locally, and those will be more difficult. So that talks to you of want to localise within South Africa and transform…you're going to not necessarily find that specification in the country.
Respondent 8	…our specifications as an example, are so crappy, cos it was written for the OEM. Nobody else is gonna maintain the plant is what they thought…we will have to contract right in the beginning with those OEMs that build.

4.6.1 Sub-theme 1 - Enabling Localisation

The *Enabling Localisation* sub-theme focuses on what may be reasonably purchased for the KOU at present, given the IP constraints applicable to many of the KOU O&M components. The IP rights or ownership of the procurement specifications will determine the maximum local participation in tenders – both for the Koeberg plant and in the NNBP. It will be essential that the localisation models for the NNBP specify how the IP of the procurement specifications will be addressed in order to maximise the localisation potential in the NNBP.

The following is a list of key issues that relate to *Enabling Localisation* raised by the respondents.

(1) Purchasing IP or rights to IP must be mutually sustainable for both parties where the OEMs are incentivised, such as potential partnering scenarios to be negotiated with them.

Respondent 3	…the local companies being used to boost the volumes and forming part of the OEM's international supply chain, and then their business case will look better; And if the local vendors can be competitive, then there's more reason for the OEMs to use them in the international market. So, they export sub-components and components to the OEMs' other markets.
Respondent 2	We're struggling with IP. The way to do it is to show a mutual benefit.

(2) For the NNBP, there should be an Eskom localisation oversight body in place (linked to NEPIO) whereby the proposed NNB localisation model should realise technology and knowledge transfer over time, in accordance with the fleet approach to procurement. Sound contract management with a clearly set out strategy and plan must be in place in order to ensure that the TA deliverables are met. The IP purchase for the NNB was noted as a means to enable the graded approach to localisation.

Respondent 2	We need to have a clear strategy that's documented…The contract must be in place, together with the KPIs and penalties therein, …to ensure the deliverables are met. There must be an organisation in place to drive and measure it, as well as see that the necessary oversight is in place to ensure its success.
Respondent 3	…we own the IP…we'd be able to get the South African suppliers to manufacture the components for the South African market.
Respondent 5	There must be upfront planning with engineering oversight and project management. And they need to strategise…so that local vendors can participate.
Respondent 6	Are we developing once-off or sustainable? That's why proper contract management will be critical.

(3) Utilising Eskom Power Plant Engineering Institute's (EPPEI) masters and doctoral students to write the procurement specifications for the local supply market in the NNB will be an excellent opportunity for practical application by these students – and deepened skills development. It will also serve as a Return on Investment for South Africa; a triumph for SA capability by growing its domestic knowledge base; and so that in the future, SA may be able to develop its own IP.

Respondent 10	For the new build, we have the opportunity to write the specs and then we can meet the design for local, or the local spec. We can use the EPPEI MSc. Eng. to help us to do this.

4.6.2 Sub-theme 2 - Ensuring Transformation Agenda (TA) in Contracting Processes

The *Ensuring TA in Contracting Processes* sub-theme concerns integrating TA objectives into the contracting processes, ensuring that the desired contracted outcomes are enabled and enforced.

The following is a list of key issues that relate to the *En*suring *TA in Contracting Processes*

sub-theme raised by the respondents.

(1) The lessons learnt on Medupi and Kusile new build projects need to be re-visited before embarking on the NNBP. Meaningful TA aims regarding technology and knowledge are required.

Respondent 1	…if we use Medupi and Kusile as an example, cos that's actually where this stuff started being applied, I don't think that they got it right.
Respondent 2	The new build shouldn't end up like Medupi and Kusile. The numbers for skills development…may look good but it's not from a technical point of view.

(2) The South Korean nuclear success story was posed as a good example of what South Africa should be emulating in its NNBP endeavours. Furthermore, the learnings from the UAE partnering with the South Koreans for their new build.

Respondent 2	The supplier development must first be done by having the right political will, like they had in South Korea, which is a great success story…
Respondent 6	Let's look at a case in point being the UAE and how they are working together with the S Koreans. This could be an interesting learning for SA's new build.

4.6.3 Sub-theme 3 - Managing Risk

The sub-theme *Managing Risk* incorporates risk mitigation that comes from procuring from local and transformed vendors (not mutually exclusive); addressing specifically costing issues; and the short-term versus long term-benefits and drawbacks that are associated with implementing the TA.

The following lists a few key issues relating to *Managing Risk* sub-theme, raised by the respondents.

(1) Managing risk is an important aspect to consider when localising. Formulating risk mitigation strategies are essential when localising. There is good operational experience (OE) of Koeberg taking on too much risk without first understanding the local suppliers' capabilities.

Respondent 2	When you localise, there's risk; That'd be taking on too much risk and not understanding the local suppliers' capabilities. So, in order to mitigate the risk, we must understand the risks as well as the suppliers' capabilities and include compensatory measures so we can sufficiently cover our risks.
Respondent 5	In the short-term there is added risk because of the way in which the work breakdown structure is packaged…there's

	more interfaces…So a lot of it goes around the risk balance. The result is demand for more resources at Koeberg… more budgets and contingencies to address. There is a real risk to manage.

(2) Benefits and drawbacks of localisation were discussed, and the associated potential cost savings and cost premiums. Most of the respondents were heavily in favour of localisation to realise needed country benefits. Other notable comments related: competitiveness of the local supplier industry is a necessary pre-requisite of supporting localisation; supplier diversity as a strategic benefit to Eskom; and associated country multiplier benefits of localising.

Respondent 2	The longer-term benefit's that we have more accessibility to suppliers, so that is a critical benefit, and so we're not at the mercy of one supplier – so that's strategic. …it establishes an industry, then that enables us to more cost-effectively, run our plants. And it will directly affect the price of electricity.
Respondent 4	We have to make peace with the fact that we'll initially be paying a premium for localisation, and it must be contracted into with the main international vendor.
Respondent 5	But in the long term, we then end up with more capable local suppliers, that both in the short-term and long-term, can be more cost effective. We have seen it happen when we do localisation, it's not a wish list – when we do localisation it is 90% cheaper than doing it foreign. So, it's having the skills base locally…
Respondent 7	So, in the short-term, I think you might actually spend a little bit more for certain things, but it's not a general rule. A lot of experience that we've actually had, has shown that the local suppliers are gonna end up spending you a lot less…
Respondent 9	But there's a multiplier effect…this industry…this kind of transformation is heavily geared in terms of breaking the

	poverty cycle.

4.6.4 Current Status

The current status of the TA implementation at Eskom, Koeberg as it relates to the theme of *Contracting Sustainably* (derived from the dataset) is listed below.

(1) Koeberg's *IP* of their *procurement specifications* have not been clarified. The plant OEMs do not want to release the IP for the specifications and hence Koeberg needs to determine who rightfully owns the IP – given that much time has passed since the inception of the original contract forty odd years ago. Without owning – or rights to - the IP, Koeberg cannot localise components. This is a key constraint currently.

(2) Koeberg is focusing on piloting nuclear graded commodities to meet designation requirements for local supply with the OEMs and the TLIU.

(3) For the NNBP, there is talk of finding the most suitable contracting model to maximise local development ambitions and nuclear self-reliance ambitions, with a fleet approach, where Eskom and local suppliers will also have an equity stake in the NNBP to ensure that Eskom has access (if direct ownership of the associated IP is not offered/for sale) to the procurement specifications of spares and commodities.

(4) Koeberg is very risk averse. There is a fear to localise at Koeberg as there is a perception that when you localise, there is greater risk, and which will be more expensive.

4.6.5 Learnings

The relevant set of learnings from the *Contracting Sustainably* theme, as established from the dataset, is indicated in the points below:

(1) The fact that Koeberg does not have access to, or own, the *IP related to the procurement specifications* it uses is *cited as the biggest learning* from one of the respondents.

(2) Focusing on too many competing commodities at once makes you lose focus (CSDP Plan 2). There is a need to be innovative and use government initiatives such as the TLIU and OEMs (as part of their SD&L obligations in contracts) to pilot supplier development programmes so that local manufacturers may be enabled to supply Eskom in the future.
(3) Government must not repeat the mistakes of the past regarding the manner in which the Koeberg plant was built (a straight up Turnkey LSTK), and thus needs to find the most appropriate and feasible contracting model to ensure these mistakes are not repeated again. The complementary procurement strategies will also have to be well thought through – unlike before. Learn from history.
(4) Risk needs to be mitigated and hence risk mitigation strategies need to be developed when contracting with local suppliers. Understanding the local suppliers' capabilities will hold Koeberg in good stead when devising risk mitigation strategies. Local is not always more expensive, as the PTR Tank Replacement Project (and other commodity supplies) has shown us. Koeberg has saved hundreds of millions by breaking down the scope for local supplier participation as the foreign component amounted to only 5% (licencing component). And then there are also the benefits of the multiplier effect when localising.

4.6.6 Recommendations

The following summarises the respondents' recommendations for *Contracting Sustainably* theme.
(1) Urgent clarification, together with the Eskom legal team, is needed to identify which of the IP or 'exclusive rights' are applicable to plant OEMs who source the actual spares and components from the manufacturing OEMs – as part of their global supply chain – or not. We need to access the IP for these procurement specifications so that we are permitted to manufacture the components locally.
(2) Continue with technology and knowledge transfer arrangements via the TLIU and OEMs or large corporates to capable local suppliers – by actively leveraging

the procurement spend by utilising their SD&L contractual commitments as the means to achieve maximum local developmental impact.

(3) Using the appropriate procurement lever will go far in realising this vision. For the NSSS (nuclear island where the reactor is housed), Government should use Direct NIP with the successful technology vendor. The NIP offset obligation of 30% of the imported content should be used to be invest in the local nuclear industry. This will greatly help local suppliers to comply with stringent quality levels. If the complementary contracting model permits Eskom or local South African industry a shareholding equity stake in the NNBP, progressively South Africa will gain more of the needed technology and knowledge transfer needed to ultimately sustain itself (by providing the majority of its plant maintenance and operations goods and services) as the fleet procurement progresses. For the Owner's Scope, the CSDP should be followed, as there will be a created industry, with a greater number of suppliers, who may partake in the NNBP.

(4) Formulating risk mitigation strategies will go far to minimise and manage risk that comes from procuring with local suppliers. These include training local suppliers on aspects such as Human Performance Tools and traits of nuclear safety that we are supposed to adopt. Importantly, it includes using a graded approach for components that are designed for local. As one respondent indicated, foreign suppliers have also failed in the past, costing Eskom dearly as a result.

The working groups should look at how to best develop procurement specifications to address gaps in the local suppliers' capacity with regard to equipment classification, e.g. additional controls during manufacture and quality control plans. This would truly be the start of 'design for local'. Eskom should utilise EPPEI's post-graduate engineering students to write the procurement specifications for the local suppliers in the NNBP. It will be a triumph for South Africa to grow its own knowledge base, with a view of potentially developing its own IP in the future.

4.7 Theme 5 - Supply Chain Interventions

The *Supply Chain Interventions* theme embodies the 'how' to sustainably change. It concerns the need to implement engineering processes that institutionalise sustainable transformation of the supply chain. It particularly focuses on transforming foreign to (transformed) local spend.

The following lists key issues relating to the *Supply Chain Interventions* sub-theme in the dataset.

(1) Mechanisms or means to implement engineering processes at Koeberg in order to institutionalise the TA at Koeberg included: adopting SCATT; envisaged WGs will provide a deeper localisation focus that singularly with SCATT; getting the work breakdown structure right in projects so more local vendors may tender; and conducting meaningful capability assessments of local industry.

Respondent 1	The how you do it, is to entrench it in the DNA of the organisation. The opportunity matrix is the start of the DNA – it starts the thinking process.
Respondent 2	So, on a high level you can use it, but it needs a deeper focus, like the working groups and the one we had for the casks.
Respondent 5	I think the key issue is getting the work-breakdown structure right, so that local vendors can participate.

(2) Collaboration with others, such as private industry and government entities – notably the TLIU - was often mentioned as a critical intervention, as the KOU's individual impact is limited.

Respondent 8	Koeberg, on its own, cannot sustainably transform the local economy around Koeberg...hence, the importance of collaboration between corporates.
Respondent 10	We will need more people to help identify what the local

	suppliers' technical engineering capability will be...this is also how the TLIU database could help.

(3) Updating localisation studies for greater relevance of current industry capability.

Respondent 5	So, I think it (localisation studies) needs to be redone…already limited scope so we need an update. The further TLIU studies would be excellent.

4.7.1 Sub-theme - Engineering as Lead

The *Engineering as Lead* sub-theme places due emphasis on the change mechanism needed to lead change in the engineering work processes at Koeberg. The following is a list of key issues that relate *Engineering as Lead* in the dataset.
(1) There are great expectations that the envisaged SteerCom and WGs will bring the desired changes to internal engineering processes and practices, as well as entrenching the 'design for local' practice. Focused consideration (relating to 'design for local') is given to Koeberg's secondary plant and balance of plant commodities. This is in an effort to consolidate demand with the rest of Eskom's conventional power plants, to raise sufficient demand for the local supplier market. It is envisaged that it will sustainably entrench the TA into the DNA of the organisation, and result in greater localisation successes.

Respondent 5	With engineering's support, things are starting to turn, and the much-needed engineering intervention is on-board and happening. So engineering needs to determine where we intervene and where we don't; Upfront planning and planning interventions is only starting to happen now, with engineering support; It's *(design for local)* entrenched in the procedure *(P&SCM),* though not in practice – but isn't well practiced under the execution, particularly not on the

	tactical *(for plant)* procurement side.
Respondent 7	But we need to go and change the processes, I think internally as well. And that's where this oversight committee (SteerCom) and the working groups that we wanna set up will hopefully help…
Respondent 10	We've changed our approach – because we could see that localising for nuclear would be tough – and so we decided to focus on the secondary side of the plant and the balance of plant, where the supply is closer to the rest of the Eskom generating fleet, the conventional power plants.

(2) Barriers to entry in the engineering space (stringent technical criteria and quality requirements) is very high. These barriers are: 'heaviness of procurement'; the stringent quality and technical criteria requirements; and tough competition from other suppliers (from the 'usual suspects').

Respondent 2	Existing suppliers make other potential suppliers afraid of nuclear requirements
Respondent 5	So, the issue with RD-0034 isn't the standard, it's more the economics.
Respondent 6	There's an additional burden on suppliers to 'qualify' or comply with RD-0034
Respondent 7	They key issue really is around the quality requirements around suppliers and products that we use. And it's quite a rigorous process to be qualified, to meet the requirements and many companies don't really wanna spend the money.

(3) Separation of the Line – meaning that end-users and engineering are prohibited from engaging with suppliers outside of being awarded a contract. As a result, the Line has become increasingly disconnected with industry and do not fully know their capability to supply, impacting FEP.

Respondent 2	We need to assess, with the likes of TLIU…what the local capability is out there; When we visit suppliers, mostly manufacturers' sites, we check what they can do and the processes they use. After we have an understanding of what they can do and what they can offer…we can make informed decisions about local supply and alternatives out there…

4.7.2 Current Status

The current status of the TA implementation at Eskom, Koeberg as it relates to the theme of *Supply Chain Interventions* (derived from the dataset) is listed below.
(1) The SD&L Opportunities Matrix Tool (SCATT) is not entrenched as an aid to assist in FEP.
(2) Greater collaboration with other government departments, such as the TLIU, is desired. Updates on the localisation studies have also been requested.
(3) Design for local is currently not entrenched as a practice in engineering.
(4) Recognition that engineering interventions must lead KOU's transformation of the supply chain.
(5) The *Separation of the Line* (and engineering) from visiting suppliers and factories' premises (manufacturing industry) by Commercial's procedures is seen as inhibiting knowledge of the local supply chain, and what their capabilities of supply may be. Not knowing or understanding industry's capabilities is largely detrimental, as completing the SCATT and planning for local industry participation upfront becomes very challenging, as knowledge of industry is largely a pre-requisite for unpacking the SCATT and hence maximising local development by leveraging spend.

4.7.3 Learnings

The relevant set of learnings from the *Supply Chain Interventions* theme, as established from the dataset, is indicated in the points below:

(1) The SCATT Tool has assisted the projects team and nuclear fuel team to find meaningful local participation and maximising local developmental impact, as it breaks down packages to find opportunities for local suppliers to either provide works, goods or services. A big learning has been not finding a way or the means to meaningfully entrench the SCATT, until the request from the GM NE to include it in the works processes of the engineering and projects team.
(2) The TLIU has assisted with finding capable local vendors that may be developed further for the nuclear graded valves, transformers, pumps and cables that meet designation (and NNR) requirements. They provide great assistance packages to assist local suppliers to develop, where they possess a database of vendors whose entire capability and potential supply is contained. This is in stark contrast to Koeberg's ASL and the NT CSD. The capability assessments done by the OEMs have assisted Eskom with what is localisable – but more independent studies, such as the update on the 2011 WorleyParsons heavy components study is needed – in order to have a truly unbiased view.
(3) Without engineering as lead, and without engineering interventions leading the transformation of the supply chain at Koeberg, there will be no sustainability to the TA objectives being entrenched.
(4) The *Separation of the Line* has caused the end-users and engineering in particular to lose touch and knowledge of local industry's capabilities, as *"you don't know what you don't know"*. This leads to deficient FEP, where the 'design for local' will be lacking as they do not know the local supplier industry's capabilities.

4.7.4 Recommendations

The following summarises the respondents' recommendations for *Supply Chain Interventions* theme.
(1) The SCATT Tool needs to be adopted into the engineering work processes and procedures. Training on the tool is essential and needs to be rolled out to all applicable contract and project managers, as well as the larger cross-functional

teams. The WGs need to find a way to adapt it for more meaningful inclusion in the plant procurement items and services.

(2) Include the TLIU programme manager based in the Cape Town office in the planned SteerCom as a visiting and contributing Subject Matter Experts (SMEs), in an effort to advise Koeberg of current local supplier capabilities, and as part of the WG for increasing local participation.

(3) Engineering as Lead, and as the 'source' means that engineering (who determine the requirements to support and maintain the Design of Plant) must lead the change processes within its internal organisation in order to effectively make sustainable changes at the KOU.

(4) Creative and collaborative efforts are required to overcome the 'Separation of the Line' issue in engineering and on plant. A means of countering this challenge is via engaging with Commercial, who in turn engages the TLIU, to commence market intelligence/research activities for local supply. These include Expressions of Interest (EOIs) and Request for Information (RFIs), targeting potential local suppliers. In this manner, the procurement process is kept 'fair', albeit a lengthier and involved process. Commercial functionaries within WGS would ensure 'commercially compliance'.

4.8 Summary

The data analysis undertaken delivered rich data, based on the respondents experiences, perceptions and understanding of the implementation of the transformation agenda at the KOU. The respondents' accounts were contextualised by the researcher, who followed a combination of inductive and deductive thematic analysis in the data analysis method.

The reliability and validity are further addressed in Chapter 5, section 5.9.

CHAPTER 5
DISCUSSION

5.1 Introduction

The discussion of results aims to illuminate the themes and findings, as detailed in Chapter 4, in the context of the literature review undertaken in Chapter 2. Additionally, a critique of the research process and the results is undertaken - by examining the reliability and validity of the research, with key consideration given to whether the study's research question has been addressed and answered, and whether or not the study's research aims, and objectives have been met.

The themes and findings derived in Chapter 4 will be discussed in the headings to follow, as they reflect the research objectives. It will include comparisons, and linkages, with the literature review undertaken.

5.2 Current status of the transformation agenda

5.2.1 Entrenching Transformational DNA due to little buy-in

The overarching theme, 'Entrenching Transformational DNA' states the primary issue with the TA at the KOU in that it has not undergone any transformational change management whereby its legitimacy and right to existence and action is left undisputed. It is significant because the current status of the implementation is that it has received little *buy-in* by those who can make the most difference - namely the employees at the KOU - and hence it is determined that Koeberg is still at the beginning of the transformation agenda journey. The SD&L mandate had not been meaningfully entrenched - not by Group Commercial and nor by Koeberg.

5.2.2 Driving Transformational Change by communicating the TA imperative

There have been no change management processes followed, with siloed thinking being practiced by many departments. SD&L is still very much viewed as a nuisance and irritation in the business. There appears to be a major mental

roadblock in local suppliers' capabilities. A mandate for change has been signed off by the Nexco team and the CNO in 2018 but has not been issued to the business yet. Thus, there is still no communication about the change at Eskom, Koeberg.

5.2.3 The need for a changing Role of Leadership

There seems to be an element of what Bass and Avolio (1990) describe as laissez-faire leadership. A dominating descriptive definition of laissez-faire leadership is, *"…the avoidance or absence of leadership and is, by definition, the most inactive – as well as the most ineffective according to almost all research on the style"* (Bass & Avolio, 1994, p. 4) that violates the legitimate interests of the organisations and their employees by undermining organisational objectives (Einarsen, 2007). Evidently, this was the experience of some Koeberg participants (with one participant indicating 'zero leadership'). Laissez-faire leaders tend to behave as if they are abdicated from the responsibilities and duties assigned to them (Lewin, Lippit & White, 1939). The role of leadership theme showed that a 'laissez-faire' style of leadership, when practiced, was highly ineffective for the effective implementation of the transformation agenda at Koeberg. Given that laissez-faire leadership styles demotivate and deflate those who desire change and are excited about it, that there can be no role for it in change management.

Nexco is currently grappling with change. They have not moved, as there is no visibility on the ground. However, there are very influential leaders among them who do support change in their respective areas, notably the General Managers – the PSM and Engineering. There is also an acknowledgement of leadership shortcomings and failures regarding the adoption of the TA as a strategic business imperative in Eskom. There has been a noticeable shift in perspectives, with Nexco members to start taking ownership of the TA outcomes.

5.2.4 Barriers to entry inhibiting Maximising Procurement Transformation

The barriers to entry of new entrants in the designated groups (DGs) are significant. New DG SME entrants find it a difficult task to navigate the often very frustrating and immense 'heaviness of procurement' process at Eskom, Koeberg. EMEs in particular view doing business with Eskom, Koeberg as difficult – given the very stringent technical and quality criteria requested in tender functionality criteria. Koeberg is currently seen as not actively developing suppliers, with both the PPPFA and Eskom P&SCM procedure effectively cited as barriers.

5.2.5 Empowerment legislation not well understood

The procurement empowerment legislation is largely viewed in a positive light, but implementation by procurement practitioners (buyers) appears to be haphazardly applied. Some of the respondents rightfully noted that if buyers do not understand legislation and the TA, it serves to reason that they in turn cannot advise their end-users and contract managers either.

5.2.6 Leveraging spend found lacking

Most of the successes in TA implementation space appears to be emanating from the Projects and fuel procurement space, where time taken, and engineering focus and effort is immense. On the other hand, successes in the Plant's procurement has not been in the localisation space at all. Instead, its contribution is by way of narrow black economic empowerment. That is, a few local suppliers that were developed back in the late 1990s and early 2000s by the former Koeberg senior managers. Many of them have since transformed from traditional (white owned or foreign owned) suppliers to black empowered.

Thus, the achievement of Koeberg's B-BBEE SH/C KPIs is chiefly a reflection of the contracts placed and spend attributed to these B-BBEE suppliers. It is narrow

based empowerment as it tends to be a highly concentrated market, with only a few players seemingly being awarded the same or similar contracts. The lack of new entrants is evident in the lack of DG suppliers in EME space. As a result, it would appear that Koeberg is currently not maximising the leveraging of its spend. This is not in accordance with the TA objectives and certainly does not bode well for radical economic transformation or the black industrialists programme.

Intellectual property rights and ownership regarding OEM spares and equipment are currently still not clarified at Koeberg yet, although over forty years have passed since the signing of the original NNB plant contract for Koeberg. Koeberg is currently engaged as sponsor in a pilot supplier development programme to localise four dti designated commodities with an OEM supplier and the TLIU.{This emanated from an SD&L contractual agreement with the OEM, who was required to conduct commodity localisation studies, and this has subsequently resulted in a pilot supplier development program.}. This is a major step in the right industrialisation direction.

5.2.7 KOU risk averse in localisation approach

Currently, KOU is very risk averse with its approach to localisation, which is coupled with the lack of confidence in local capabilities, as participants noted. This adds to the Koeberg employees' negative perception of localisation, as they perceive it with greater risk and hence an increase in costs. This also ties in with the mindset that South African products and services are somehow inferior to imported ones. Employees' view of localisation as a risky endeavour is considered a key finding. This is exacerbated by the nuclear industry's general risk averse approach. The fact that they are risk averse when considering localisation, is a key factor when considering the lack of impetus and success in the transformation agenda implementation at Koeberg to date.

5.2.8 SCATT and front-end planning is not entrenched in practice

The SCATT is currently not entrenched in end-user and procurement processes as a critical mechanism to facilitate FEP when procuring items at Koeberg. Collaboration with other SOCs, stakeholder organisations and government are ad hoc and random, instead of modus operandi. There is also the 'Separation of the Line', i.e. prohibitions placed on end-users and engineering from engaging in any discussions (that could be viewed as commercial activities) with suppliers, prior to contract placement.

5.2.9 SD&L operating in real-time procurement space

SD&L is currently situated in the Nuclear Commercial department, which is in the execution or 'real-time' phase of the procurement process, and hence has limited influencing power.

5.2.10 Transformation agenda implementation is still at the beginning

It is therefore evident that the current status of the Koeberg TA implementation is still at the beginning.

5.3 Learnings established from the implementation

South Africa has positioned itself as a developmental state, defined in developmental state studies as a condition where the state claims to exist according to *"...when the state possesses the vision, leadership and capacity to bring about a positive transformation of society within a condensed period of time'* (Fritz & Menocal, 2007, p. 533). The NDP envisages building a capable and developmental state for South Africa and aims to use its state-owned entities, such as Eskom, in pursuit of national goals of social and economic development.

5.3.1 Lack of buy-in

The implementation of the TA at Eskom, Koeberg had occurred but there was no change management that supported this. A key learning as a result, is that the TA implementation was ineffective and had considerable little, if any, buy-in by the KOU employees.

5.3.2 Prevalence of siloed mindsets

Readiness for change is the cognitive precursor to the behaviours of either resistance, or support for, a change effort (Armenakis, Harris & Mossholder, 1993). Here, the concept of readiness for change consists of a resistance to change and support for change as a continuum with readiness on one front and readiness for change on the other. Individuals (employees) are the most important units in organisational change (Graetz & Smith, 2010), and so successful implementation of organisational change requires their acceptance and support (Fedor, Caldwell, & Herold, 2006; Miller et al., 1994). That is, employees' positive attitudes and supportive behaviour are a necessary condition for successful planned change (Fedor et al., 2006; Meyer et al., 2007; Miller et al.,1994; Parish et al., 2007).

This train of thought reflects the prevalent view of employees and their departments thinking in silos at Koeberg. Holistic thinking is generally not practiced as everyone goes about their day to day activities with little thought of Eskom's larger *developmental role* in the country, and hence how their individual role contributes to the bigger picture. Of course, silos are not physically manifested in organisations, but instead are present in the minds of employees who have a shared impression of its reality (Diamond & Allcorn, 2004, 2009). Silos are narrow-minded perspectives that fragment organisations and create barriers and block opportunities for effective management of creativity and innovation within an organisation, individuals and disciplines (Stone, 2004). Such a silo mentality not only makes boundary crossing difficult, but often causes major anxiety in employees having to engage with other departments and their

processes. And so, is the view of the transformation agenda at Koeberg. The silo mentality of 'us and them' prohibits employees to think beyond their own job functioning within their functional departmental at Koeberg.

5.3.3 Lack of TA performance management

There are no performance management KPIs to address the TA (including SH/C KPIs) in individual employees' job performance compacts. There is agreement amongst respondents that should there have been TA KPAs in the individual job compacts – and not higher up at business unit level and above. The inclusion of SH/C KPIs and other SD&L indicators in these job performance contracts at Koeberg would also have created a sense of importance with regards to the TA as an Eskom strategic business imperative.

5.3.4 SD&L incorrectly viewed as a separate function

Key lessons learnt relate to the fact that although the SD&L was primarily set up as a function to support procurement to give effect to the TA's 'leveraging procurement spend' mandate, it was and is largely viewed as a separate function. It is regarded as a 'nuisance and irritation' – a siloed and narrow-minded approach of not understanding that the TA is part of Eskom's dual mandate. Hence, the development role and mandate of Koeberg's employees regarding the TA is not known to them.

5.3.5 Mental roadblocks in local supplier capability

Further learnings related to the TA implementation having limited impact is the challenge that with localisation is having the mindset and confidence that it is actually achievable. The lack of confidence in local suppliers is a deeply entrenched issue. Coupled with this, are the very real and major negative mental roadblocks in local capabilities.

5.3.6 Effect of absent TA change management

There is much to suggest that even if KPIs had been instituted as part of the employees' individual performance compacts, this may still have had little effect on successful TA implementation, given that no change management had ever taken place in this regard. Even though the TA is considered a strategic business imperative as part of Eskom's dual mandate, achieving the TA had not trickled down into the business in a meaningful way that affects Eskom employees' day to day jobs and purpose. The Koeberg employees have a very siloed approach in their day to day operations, which does not lend themselves to seeing the big picture of what Eskom's role as an SOC entails.

It was learnt that the change required for TA to be implemented has only reached Nexco – hence the 'strategic level'. That is, the sharing of the SH/C KPIs and the TA imperative with Nexco (in 2017) during successive iterations. Concerns were shared with Nexco that the SH/C KPIs were in jeopardy of being achieved if Koeberg did not change their approach to the TA and start fully implementing the practice throughout the business. The change message still needs to trickle down the organisation to the middle management and operational levels.

The implementation of change is much more complex and unpredictable than the initiation and planning for organisational change (Brunsson, 2009). This may be especially the case in public organisations, as their environmental and structural characteristics arguably further increase the difficulties that are associated with implementing organizational change (McNulty & Ferlie, 2004; Van der Voet, Groeneveld, & Kuipers, 2014).

5.3.7 Change strategy creates excitement and shared vision of success

With the development of a change strategy, communication will no longer be managed in silos where employees do not understand or have an overall vision, whereby the leader's role is highlighted to that which drives transparency and organisation units to the overall company strategy as well as to inspire and create

a vision of shared success (Katz & Miller, 2014). First, change starts with communicating the change and creating excitement about what the KOU has achieved locally.

Thus, communication is vital to the effective implementation of organisational change (DiFonzo and Bordia, 1998; Lewis and Seibold, 1998; Schweiger and Denisi, 1991). Poorly managed change communication results in rumours and resistance to change, exaggerating the negative aspects of the change (DiFonzo et al., 1994; Smelzer and Zener, 1992). Communication's importance during an organisational change effort is demonstrated by the model of the dynamics of planned organisational change (Robertson et al., 1993) - where the change effort is dependent on the ability of the organisation to change the behaviour of individual employees. So, if the implementation process is based on high quality communication, there will be few surprises and uncertainty regarding the changes being implemented (van der Voet, 2016).

In order for this to happen, *a common message* that communicates the change is required – as business imperative linked to Eskom's core purpose of strategic building of a developmental state needs to be shared with the employees. So, if organisational change is about how to change the individual tasks of individual employees - communication about the change, and information to these employees is vital. Communication with these employees should be an important, and integrative part of the change efforts and strategies.

5.3.8 Drive and lead an authentic transformational change

Since change management was not present in the 2012 implementation and to date, many participants shared their view that the next step would be to drive and lead an authentic transformational change internally at Koeberg as a matter of urgency. Urgent and formal communication of change is to be done by the Chief Nuclear Officer (CNO) that will serve to entrench the TA in its DNA. Reducing costs must be driven as a huge driver for localising.

5.3.9 The Role of Leadership is the key learning

A key learning was the importance and effect of influential leadership to the success of the TA implementation at Koeberg. Since its inception in 2012, SD&L and the TA was viewed with great antagonism and aggression by the former CNO. The role of leadership is considered as the big learning for the failure of the TA to be successfully implemented at Koeberg.

Much has been lauded about how transformational change leadership can help transform a lack lustre and often dismal view of the TA by the employees. Interestingly, the respondents also shared theirs views that *leadership's willingness and wanting to transform becomes key,* and hence that they need to drive the change approach directly themselves.

A key learning is that it will take a great transformational change leadership effort to start changing negative, siloed mindsets into collaborative problem solvers by allowing them to see the vision and benefits that change can bring to Koeberg in terms of potentially greater cost savings and therefore greater job security and job progression that results from reduced costs.

There are studies that show how transformational leaders transform followers to go beyond their individual motivations and interests, thereby indirectly stimulating them to support organisational change (Bass, 1985). Change leadership behaviours are specifically aimed at furthering the implementation of an intended, planned organisational change initiative – such as what is planned to happen at Koeberg.

The CNO, Nexco and the leadership at KOU need to realise that change management involves adapting to the change and monitoring the need for the change within an organisation - starting that change and then controlling it (Hiatt and Creasey, 2012). Adopting this mindset will assist these leaders to understand that change is a process (and not an event) and that change management needs to

be adaptive to both the organisation's needs as well as the employees as the internal stakeholders.

With reference to a public sector environment, Gill (2002) reasoned that the human and political aspects of change are not always thought through when confronted with change management initiatives. Furthermore, Gill (2002) asserted the so-called 'yin and yang of change' which serves to cement aspects related to both emotional considerations of leadership, as well as the technical aspects related to managerial activities. In effect, it means that for leadership to effect lasting change, they need to be mindful of their pivotal role in obtaining the absolute necessity of the buy-in of the employees within the KOU.
Current senior engineering leadership recognises the importance of effecting changes to the engineering work processes as a means to institutionalise TA in work processes in engineering. This in effect may be viewed as one of the traits of transformational leadership. Respected and influential Koeberg leaders will be needed to pass the TA implementation change baton forward – without such visionary and inspirational change leaders, the impact, effect and sustainability of any change management endeavour will not be sufficient.

Indeed, a key learning is that change is expected from the top down regarding Koeberg senior leadership, whereby the CNO and Nexco in particular need to be seen to both support actively drive the TA implementation at Koeberg in order for it to be regarded as a business necessity that will ensure sustainability into the future for Eskom and South Africa.

5.3.10 Leveraging procurement spend critical to further industrial policy ambitions

Leveraging government spend is not a unique concept to South Africa. However, given the legacy of our past and the goal of attaining socio-economic objectives, the leveraging of Koeberg's sizeable spend is essential in our order to meet the NDP's goals of tackling unemployment, poverty and inequality. It is essential that

SCM officials and the sourcing teams involved in the procurement processes at Koeberg are adequately trained and equipped to execute on the TA (SD&L) mandate.

Industrial policy is one that is pursued by the state, and/or its institution with the aim of positively affecting the performance of industry (Chang, H.J., 1998). The South Korean case study centered on how the Korean government used industrial policy since the 1950s, as a means to achieve economic growth and become a self-sustained 'Asian Tiger'. In South Africa's aspirations of being a 'developmental state', industrial policy has much relevance – and is most certainly headed in the right direction by using public procurement as an industrial policy instrument. The IPAP consists of direct and transversal (cross-cutting) interventions aimed at improving the competitiveness of the local industrial sector. In addition, the IPAP elaborates on industrial policy by focusing on, *inter alia*, growing the economy and strengthening efforts to raise aggregate demand, which for Eskom as SOC is through the localisation of public procurement.

5.3.11 SA industrial market has high barriers to entry

The South African industrial (market) sector tends to have high barriers to entry with new entrants and DG vendors experiencing many challenges that include: lack of funding; high transaction costs and an inability to simply access markets and having a lack of capacity to penetrate established markets (BIP, 2015). The BIP (2015) proposed key interventions regarding the access to finance and markets. These initiatives include leveraging public (SOC) procurement through the PPPFA and targeted procurement.

However, barriers to entry of new entrants (suppliers) are a significant factor that bars many designated groups from tendering at Koeberg, especially transformed EMEs, and QSEs. These barriers to entry include genuine (lack of technical and quality requirements to meet gatekeeper functionality requirements) and artificial prohibitions placed on the sourcing of new vendors. In the latter case, this means

that there appears to be continued support by the end-users and contract managers for the utilisation of the status quo, or *'the usual suspects'.* These suppliers are repeatedly awarded contracts for services, works and goods at Koeberg. This practice clearly negates the TA's objectives of shared, inclusive growth that is broad based empowerment – and divergent from procurement empowerment legislation. Instead, it fosters rent-seeking and narrow BEE endeavours.

As one respondent indicated, there is also the case of DG suppliers that view *'the heaviness of procurement'* - regarding all the paperwork and requirements that need to be adhered to by suppliers when tendering to Eskom - as serious deterrents. This has led to the challenge of non-responsive tenders, where tenders are issued to the market several times before getting any sort of response – and then perhaps it is not to the DG suppliers that are awarded contracts in the end. These DG suppliers unfortunately often find the difficulty of doing business with Eskom not worth the effort and cost. Hence, the reluctance to tender on their part, as it is not a worthwhile endeavour.
These barriers to entry at Koeberg have proven to be fairly significant and the leveraging of spend is therefore not maximised by sourcing teams.

5.3.12 Plethora of public sector procurement legislation

The plethora of procurement legislation causes it to be fragmented, causing widespread interpretations and practices by procurement practitioners. This fragmentation largely lends itself to practitioners' lack of knowledge, comprehension and application of their TA mandate as Eskom SOC buyers. The combination of abundant procurement legislation, government industrial procurement policies (such as CSDP and IPAP) and internal Eskom P&SCM policies and procedures greatly intensifies these practitioners' inadequate comprehension and utilisation of empowerment and industrial procurement in tenders.

There were some criticisms of the PPPFA, and challenges experienced in its application. However, a number of respondents (including more critical ones) had indicated that the PPPFA does assist us in our TA aspirations – albeit via limited empowerment – and that it does improve the procurement process and its transparency.

However, it was clear that sourcing teams, led by the SCM practitioner, do not automatically include the PPPFA pre-qualification criteria when stipulating tender requirements. This is therefore regarded as a large 'SD&L leakage' as it does not leverage spend. The PPR 2017 permit pre-qualification criteria to be applied in tenders, yet buyers are seemingly reluctant to include them in tenders.

Furthermore, PPR 2017 is conflicted legislation. It purports to increase empowerment objectives by permitting pre-qualification criteria to be included in tenders, namely to: minimum status of B-BBEE levels; EMEs and QSEs and 30% sub-contracting to EMEs and QSEs - but simultaneously limits set-asides to Black Owned or South African based suppliers. The PPR 2017 also does not provide preferential points for increased local content by tenderers – and instead relies on a few designated items to enable a measure of local content.

Engineering, and the previous Koeberg leaders are evidently responsible for the SD&L successes and gains that are currently reflected in the SH/C KPIs (B-BBEE Scorecard), and not the current sourcing teams or SD&L or commercial department. The learning that follows is that unless there is credible and sufficient FEP that caters for 'design for local' to be done - that necessitates applying an early engineering led intervention - sustainable localisation and empowerment initiatives and changes will not be realised.

Supplier development at Koeberg has not been actively done since the late 1990s and early 2000s. The five constitutional public procurement principles are seen to be hampering engagement efforts by the Line (end-users and engineering) with particular suppliers (or groups of suppliers) prior to contract placement, on account of transparency and fairness in process. Finding a just and workable

means to overcome this impediment to meaningful supplier development is the key learning in this instance. Unless this can be resolved, there will be very limited progress in achieving meaningful transformation and localisation – beyond the obvious narrow B-BBEE scorecard approach.
Interestingly, there is also no direct SH/C KPI that measures enterprise or supplier development.

5.3.13 IP rights or ownership required to deepen localisation

The failure to provide IP ownership or rights regarding plant procurement specifications at Koeberg from the main plant contract vendors OEMs and OESs, operable during the operations and maintenance phase of the envisaged NNB plant, is a critical and key learning.
A key lesson from Koeberg's operation (OE), which is the main shortcoming in the plant's design is that there was no foresight into the O&M procurement specifications and IP area in the 1970s, which is when the plant contract was drawn up. As a result, imports are inevitable at Koeberg, and localisation of these items is therefore limited.

However, Koeberg has identified a number of components (twelve), in line with the designated sectors, that it wishes to pursue, in line with the CSDP 3 goals. This may very well lead to the establishment of a Black Industrialist in nuclear graded commodities for local supply, that are currently imported. Hence, Koeberg is collaborating with the TLIU and various plant OEMs to progress this. In fact, the commencement of the valve pilot programme in collaboration with EdF and TLIU is, arguably one of the plant's largest CSDP successes to date.

5.3.14 Collaboration key to unlocking maximum local development impact

A key lesson learnt here is that by collaborating with an OEM and the TLIU, Koeberg has started a journey to realise building globally competitive capabilities in local suppliers that operate in a high technology industry. Koeberg approached

the TLIU to provide the technology support for local valve (a dti designated sector) manufacturers, and the OEM the needed technology transfer and supplier development. Indeed, the road to re-industrialisation will be one that no one SOC or government entity will achieve alone. Partnerships and collaboration are key, as envisaged in the NDP (2012).

The SD&L deliverables in contracts at Koeberg are currently being monitored and controlled by SD&L centrally at Group Commercial at Eskom MegaWatt Park. Since the CRQ is concerned with identifying lessons learnt for the NNB implementation, it was more relevant to discuss the contracting approach in the NNBP – but to use the extensive contract and project management experience gained at Koeberg currently – to directly address this aspect.

5.3.15 Direct NIP procurement lever for first NSSS in NNBP

The nuclear island procurement should be done by a foreign nuclear technology country vendor. It was found that the Direct NIP procurement lever will be engaged, in order for the government to obtain sufficient funding (emanating from this procurement offset programme) for the programme to follow. This is based on the presumption that – even with a fleet – the whole primary circuit will never be a competitive industry (WorleyParsons, 2011). There are only a few select vendor countries that offer fully licensed commercial NSSS technology in the world today. These are very niche markets - whose enabling technology require enormous funding, and much time that often span decades - to bring to commercial fruition. The CSDP would be used for the secondary and balance of plant. Eskom's local development commitment is created by uptake of the nuclear industry created.

5.3.16 NNBP contracting model to maximise industrialisation and localisation impact

In Yelland's (2017) interview, the CNO stated that Eskom would like to secure the rights to build the plant themselves – where in due course SA will be able to

export locally manufactured nuclear components, and even the entire plant, at some stage. He indicated that this was the route taken by the French, Chinese and Koreans in technology transfers which they got from different countries to build their own nuclear power industry capability. He indicated that owning IP does not necessarily mean license-free ownership, and there might be a license agreement for a portion of the project (Yelland, 2017). The CNO indicated that a view envisaged was that the successful bidder forms a company to be the EPC main contractor, with the key contractors – such as the reactor plant vendor, turbine plant vendor, civil works contractor and others - as shareholders or joint venture (JV) partners. Classically, the risk (in the form of performance guarantees to the customer, Eskom) would be carried by the JV company, and therefore also jointly and severally with the other key parties.

However, Eskom would like these principle vendors to create a proper EPC contracting company – which is staffed by South Africans and does the physical work in the country, as the local contracting agent. It would be desired that the ownership of the EPC company be split between Eskom, and the other vendors. At first, the vendor would hold the majority ownership of shares in the EPC company, say 74%, with Eskom or another SOE, holding 26%. This would prove to be key to the Intellectual Property (IP) – as this would be transferred to the EPC company by the vendors at the start of the process. This would allow the EPC company control of the IP, and Eskom, as a minority shareholder, would have access to it.

Since a fleet procurement approach will be followed for 9.6 GWe – where Eskom will add more reactors later on – Eskom would want a greater stake and shares in the EPC company– with the goal to move ownership and control of the IP progressively from the vendors to Eskom. He indicated that this is one view that Eskom has of doing things (Yelland, 2017). In an endeavour to commence with localisation and industrialisation of certain industries in SA, Eskom has realised that focusing on too many commodities in a five-year CSDP planning horizon has been to its detriment (Langenhoven, 2017). As a result, the CSDP Plan 3 takes a more sober and realistic view by focusing on a few commodities at a time.

To realise the CSDP and IPAP objectives linked to industrial growth leading to economic growth, it is imperative that South Africa devises and negotiates a nuclear localisation strategy that maximises local development impact in the NNBP. A suitable contracting model is critical to achieving these aims. A review of the literature, as well as confirmation from one of the respondents sharing the CNO's views - later confirmed in a newspaper interview (Yelland, 2017) - shows that Eskom as owner/operator is favouring a variation on the Multi-Prime model approach (the China Model) as the traditional approach/model. Whilst cognisant of an array of other variables at play as well, the BOOT model may be a good alternative contracting model consideration.

As a result, the key learning is to select the most appropriate contract and localisation strategy when compiling the procurement strategy for the NNBP.

5.3.17 Short-term versus long-term benefits and drawbacks

From the discussion on the short-term versus long term benefits and drawbacks, most respondents were overwhelmingly in favour of localisation and understood that it is an imperative for economic growth and development in the country, which is encouraging. Some indicated that it is essential that we become competitive in order to survive in the global scenario.

The *country multiplier benefits* – that concern the economic benefits associated with growing local industry production - were noted by a few of the respondents. For example, the *country multiplier benefits* may be explained by reference to an economic impact assessment (EIA) on the broader economic impact of Koeberg Nuclear Power Station (KNPS) as prepared for Eskom by KPMG (2017). The study claimed that between 2013 and 2016, KNPS contributed R29 billion to the GDP of the Western Cape Province (WCP) - 1.4% of the provincial GDP - and R23 billion to the rest of the South African economy. Thus, with so many linkages in the economy through its various activities, the Koeberg study illustrated its important role in *country multiplier effects* that contributed both to the county's energy needs and economic growth, more broadly. Should this be extrapolated to

the 9600MWe NNBP - where deepened localisation is a non-negotiable - the *country multiplier benefits* would increase dramatically, which is particularly noteworthy within the context of SA's aspirations as a developmental state.

In addition, a key learning when localising is to understand the local suppliers' capabilities before commencement with contracting and procurement strategies. Failure to do so may be a very costly and time-consuming endeavour that puts both the plant and the supplier at risk – as well as the country's economic growth.

5.3.18 The SCATT Tool

The SCATT has greatly assisted the projects team – although room for improvement is recognised – to increase participation of local vendors. It had done so by breaking down the procurement packages' scope of work within the CFT, prior to issuing its tender. In this manner, many strides have been made towards the objective of maximising local developmental impact with these projects.

Collaboration with the TLIU, who provide technology support to local suppliers in support of the CSDP, is proving to be very helpful in attaining capable local suppliers, as well as those vendors who need further development – in meeting Koeberg's stringent quality and technical criteria - before being considered for tenders. It was shared that the TLIU conduct complete capability assessments on vendors' capabilities when visiting their premises. This is in contrast to the current practice by Eskom, Koeberg's PQE when conducting supplier capability assessments. That is, PQE's capability assessments only focus on particular aspects that are under consideration for the tender evaluation.
Hence, the Koeberg ASL database of suppliers is possibly an underrepresentation, or an incomplete picture of what these suppliers capabilities may be – resulting in missed opportunities when identifying scopes of supply for local vendors or when attempting to 'design for local'.

5.3.19 Updated nuclear localisation studies

It was also found that nuclear localisation studies are somewhat outdated (dating back to 2011), hence subsequent knowledge on local vendor capabilities will not be reflected in officially commissioned localisation reports.

5.3.20 Engineering led interventions key to transforming the supply chain

A key learning is that without engineering led interventions, there will be no sustainability regarding the transformation of the supply chain and TA imperatives at Koeberg.

The TA successes in projects space and fuel at Koeberg were all as a result of engineering led interventions – and not commercial. The impact on nuclear commercial regarding conflicting KPIs on the depth of localisation was noted, i.e. the turnaround lead time required by the plant (tactical sourcing) versus obtaining TA objectives.

Since SD&L was implemented in 'real time', meaning in procurement execution space, FEP was severely limited (if done at all), and hence lost SD&L opportunities or 'SD&L leakages' seeped in.

5.3.21 Separation of the Line challenges

The 'Separation of the Line' has inadvertently caused engineering and end-users (such as maintenance) to lose touch and knowledge of local vendors' capabilities and technological improvements and know-how.
This lack of knowledge impacts the attainment of the TA as engineers and end-users cannot compile demand plans or perform meaningful FEP geared to the local supplier industry if they do not know what the local supplier capability is.

5.4 Recommendations for implementation in the NNBP

The TA will only become part of day to day operations once it has been accepted as an imperative that Eskom must drive and achieve, as part of its SOC dual mandate. The present-day KOU is regarded as the ideal commencement of entrenching TA objectives in nuclear, for the future NNBP. The recommendations are therefore formulated with that representation in mind.

5.4.1 SteerCom and Working Groups to be urgently constituted

In the context of the KOU's local developmental impact mandate, it is recommended that the Transformation of the Supply Chain Steering Committee (SteerCom) and its sub-committees, namely the localisation and empowerment working groups, be constituted as a matter of urgency to entrench these envisaged working groups. The fact that Eskom, after many years, has as recently as 2018, only started to place the add on of 'local development, transformation and B-BBEE' into its Mandate may be the springboard this committee needs to action Eskom's dual mandate.

5.4.2. Performance alignment of the TA KPIs

Performance alignment regarding the achievements of the TA and SH/C KPIs, as specified in the Shareholder's Compact – with application to relevant employees who leverage procurement spend – need to be addressed in their annual (performed quarterly) performance contracts.

5.4.3 Communicating change and breaking silos

The Shareholder's Compact requirements must be communicated to the business in a manner that shares and clarifies the expected outcomes pertaining to the attainment of the TA as a 'strategic business imperative' (Eskom Corporate Plan, 2019, p.143) by affected Eskom employees.

Unfortunately, there is still much siloed and fragmented thinking and practices at Koeberg. Communicating Eskom's mandate, as well as adopting a change management approach by commencing the change journey and by the CNO and team, must be done in a shared common message. Communicating the change by means of the CNO's Directive, together with a unified senior management team, will serve to create the needed excitement and a willingness to change, for the better of the organisation and the country as a whole.

5.4.4 Proudly South African and Buy Back SA drive

Koeberg cannot be looked at in isolation when it comes to the concept of a lack of national pride related to locally manufactured good and spares. In an effort to promote the Proudly SA and Buy Back SA localisation drive – as lessons learnt from South Korea have shown – the sharing of localisation successes will go a long way to showcase local capability. Positive reinforcement of what South Africans have done and are doing at Koeberg will start to whittle away at the prevalent negative mind-sets regarding these local suppliers.

It is recommended that the envisaged SteerCom, in conjunction with Stakeholder Management at Koeberg start conducting campaigns that showcase local capability success stories at Koeberg. Also, the 'Buy Back SA', 'Proudly SA' roadshows may also be good ways to drive this idea and concept across – whilst being mindful that changing mindsets is a deep-seated challenge.

5.4.5 Localisation drive underpinned by Eskom's cost reduction imperative

Within the narrative of Eskom's most challenging circumstances in its 96-year history, whereby its very survival as a Going Concern is facing serious financial, operational and structural challenges, the dire need for cost containment is essential. To contextualise the size of Eskom's financial challenge - as measured by financial ratios on the interest coverage ratio at an unsustainably low 0.98% at February 2019 (Eskom, 2019c) – means that it has to continually borrow at

increasing amounts to simply meet its debt obligations (in addition to NT bailouts to simply keep it afloat). Clearly, this situation is unsustainable and highly undesirable. Hence, the critical need for cost savings by Eskom employees is the order of the day. Reducing costs is a key objective of the CSDP. This is accomplished by reducing the dependency on expensive imports and foreign exchange exposure (also CSDP objectives). It is strongly recommended that the communication of the change needs to be coupled with an urgent need to save procurement costs and leverage spend accordingly.

5.4.6 The critical role of transformational leadership

The focus of many studies is attributed to the importance and role of leadership to overcome the difficulties of organisational change in the public sector (Fernandez & Rainey, 2006; Hennessey, 1998; Stewart & Kringas, 2003). And the KOU is no different.

In order to make recommendations about how to approach the change that comes with the full implementation of the transformation agenda at Eskom, Koeberg, aspects related to the largely negative and damaging past role and experience of its leadership and its effects on the TA implementation is worthwhile to be considered.

It is clear that The Role of Leadership, in the form of the former CNO, had misaligned organisational values pertaining to the TA and the transformation of the supply chain. He did not believe that it belonged in Eskom and hence was not supportive of it. He was a very influential leader who convinced his followers – notably Nexco and other influential managers – of his view and was intolerant and not supportive of the TA at the KOU. This is one of the reasons given for the negation of the TA implementation at Koeberg. In a way, he was abusing his leader power. Furthermore, it was also asserted that the role of leadership is the big learning for the failure of the TA implementation at Koeberg.

It is clearly time for the current leaders to step up. The current CNO and PSM are supposedly strong supporters of the TA. The rest of the Nexco team will need to follow suit. And this will include the Senior Commercial Manager who has seemed to have taken a back seat – at his own admission – to driving the TA.
As the literature has shown, it is recommended that the CNO must sponsor the change efforts himself, in order for the rest to follow. The need to display transformational change leader behaviours is critical in order for the TA implementation to have a successful start. The CNO and Nexco team must take a collaborative and integrated approach to break siloed thinking.

Leadership must visibly drive the TA by being seen to take ownership and accountability for the localisation and transformation decisions. They need to include influential plant leaders to gain momentum in the change process. And this starts with the issue of the change Directive to the business, where the SteerCom is used as the start of the guiding coalition for change. Leadership should embody what change leaders and transformational leaders are about – getting others excited and committed behind a changed vision.

5.4.7 Rationalise the eighty-procurement legislation

As an SOC, Eskom is expected to leverage its procurement spend in order to meet the government's TA objectives - in pursuit of building a capable and developmental state, as addressed in the NDP.
There is an urgent need by government to rationalise the eighty-procurement legislation into the Procurement Bill. The myriad SCM legislation may also be viewed as enabling corruption to creep in, as having so many laws and rules to comply with lends itself to creative interpretations and unsavoury practices.
Thus, the overhaul of the SCM regulatory framework, and introduction of the moderated Procurement Bill, must succinctly underpin procurement rules that foster good governance with a stronger compliance culture where officials are motivated to act in good faith and in the best interests of the SOC that they serve.

This will serve to deal with the complexity and varying interpretations that SCM officials currently muddle with.

The plethora legislation is also *highly fragmented*, arguably poorly drafted and contradictory. For example, procurement practitioners are required to adhere to the confines of the PPR 2017 and Section 217 of the Constitution that compels us to procure iaw the five Constitutional principles of public procurement: namely fairness; equity; transparency; cost-effectiveness and competition. However, localisation and industrialisation of high technology components requires a certain level of creativity and innovation, but the legislation often prohibits us from doing so, as we need to stay within the confines of the procurement law.

The literature supports this, as South Korea was able to create new industries, value chains and export markets through specific support to national industrialists that included the access to high technology and research and innovation (BIP, 2015).

The contradiction is amplified when one considers that Eskom's culture (as SOC) with regards to procurement rules compliance is still process rather than substance focused. These SCM practitioners are orientated to be programmed to adhere to compliance – whereas industrialisation, like the South Korean success story bears testament to – requires deliberate actions that are innovate and creative (Langenhoven, 2017). Thus, the current SCM legislation is in conflict with the industrial policy prescripts of the dti and DPE to industrialise and transform our spend from foreign to local, whilst empowering our black industrialists.

5.4.8 Industrial policy levers for industrial development

The South Korean case study centered on how the Korean government used industrial policy since the 1950s, as a means to achieve economic growth and become a self-sustained Asian Tiger. In South Africa's aspirations of being a 'developmental state', *industrial policy* has much relevance – and is headed in the right direction by using public procurement as an industrial policy instrument. Industrial policy is one that is pursued by the state, and/or its institution with the aim of positively affecting the performance of industry (Chang, H.J., 1998).

5.4.9 Public procurement levers for industrial development

The IPAP elaborates on this industrial policy by focusing, *inter alia*, on growing the economy and strengthening efforts to raise aggregate demand. For Eskom as SOC, this needs to be achieved through the industrialisarion and localisation of its procurement endeavours. Indeed, it is recommended that sourcing teams include PPPFA pre-qualification criteria, as empowerment endeavours in their tenders, if feasible. In instances where desktop market research (e.g. consulting NT's CSD database and internet searches) cannot determine the availability of capable designated groups suppliers, formal market research endeavours need to be pursued by issuing Expressions of Interest and/or Requests for Information, in order to inform the utilisation of pre-qualification criteria, as well as front end planning in procurement strategies.

It is to be noted *that industrialisation cannot be sustainable unless there is genuine broad-based transformation* as part of procurement strategies (Langenhoven, 2017) - as the ultimate goal of the CSDP is to contribute to the NDP aims. It is therefore recommended that all SD&L endeavours must include both localisation and industrialisation wherever feasible.

In order for SA to re-industrialise, we need to develop economically active and competitive market participants that assist the economy to grow. This can only occur by expanding and increasing the productive sectors of the economy. Certain Koeberg contract managers who tend to favour the 'the usual suspects' - a term coined and tabled by one respondent – meaning the same suppliers are awarded contracts. This practice is regardless of genuine functional merit and must be condemned in the strongest sense. It is where corrupt behaviour starts to creep in and rent-seeking behaviour takes root. This practice will not enable Koeberg to leverage its procurement by meaningfully expanding and securing its supply.

The NT has recognised the need to *improve skills and SCM competencies, processes and systems* as critical reforms for a well-functioning SCM system (NT,

2015). Central to this is *improving governance within SCM.* This means emphasising accountability, transparency, personal integrity, competence, efficiency and sound decision-making for all SCM officials and cross-functional procurement team members alike.

It is therefore recommended that CFTs at Koeberg – led by the buyer and aided by SD&L - scrutinise all functionality and quality requirements in tenders, with the aim of sifting the genuine and justified barriers to entry from the artificially created ones. This must be a pre-requisite for the issuing of tenders to the market.
Whilst Eskom is awaiting the long-anticipated issue of the Procurement Bill, it is recommended that Koeberg capacitate its Nuclear Procurement Centre of Excellence function (CoE) by providing training and coaching sessions with SCM officials and contract managers on the SD&L mandate. This should include the sharing of operational experience gained on transactions, as well as imparting skills and knowledge regarding how to maximise the leveraging of procurement spend in transactions.

5.4.10 Entrenching SCATT methodology

It is recommended that the TA objectives, as outlined by the SD&L imperatives, be entrenched in proactive FEP and 'design for local' contracting processes. As a result, it should be compulsory for all SCM officials and contract managers to be trained on the SCATT methodology at the KOU.
The SCATT training is recommended to form part of the current contract management training requirements (NEC and Managing Contracts in SAP) in Eskom, Koeberg. Only upon successful completion of the SCATT training intervention, should these contract managers be permitted to engage in procurement activities at Koeberg. Such an initiative will be far-reaching in entrenching TA objectives as part of day to day operations for these officials, as well as promoting good governance.

5.4.11 Leveraging spend to be maximised by TA re-implementation

It is clear that the KOU is not leveraging its spend in a manner that maximises local developmental impact, as there are too many leakages and non-conformance to the legislation prescripts of what should be driven when spending public money. It is therefore recommended that leadership enact change management processes urgently across the KOU. Given the lapsed time and time lag of this endeavour, it is further recommended that the Senior Nuclear Commercial Manager provide an urgent intervention/work stoppage of all procurement practitioners. Aided by his management team and SD&L manager, the TA must be re-implemented as SOCs have a critical role to play as enablers and drivers of industrial development – specifically to leverage public expenditure (the dti, 2017).

That is, as Eskom's P&SCM 32-1034 states, SD&L is not the sole responsibility of the SD&L function. It has merely been set up to *"...operationalise all governmental socio-economic requirements…the role of the SD&L as subject-matter expert is primarily to facilitate and give effect to the legislative and policy framework as it pertains to the socio-economic imperatives of the country through common links with industry associations as well as government departments involved with legislation / policy development relating to socio economic imperatives* (Eskom P&SCM, 2018, p.18)". The leveraging of spend needs to occur in the engine room of commercial transactions, i.e. with procurement practitioners mandated to procure on behalf of Eskom, Koeberg.

5.4.12 Collaboration and technology support key lever for local development

Supplier development at Koeberg must encompass a collaborative approach with other governmental entities, such as the TLIU (who supports technology-intensive localisation of SOCs), the private sector (including OEMs where applicable) and community organisations (such as NGOs) if it is to succeed. The aim is to create sustainable job creation that will alleviate dire socio-economic conditions

prevalent in SA. However, this will require intensive co-ordination for the TA re-implementation to be successful.

5.4.13 NNBP South Africa's greatest opportunity to leveraging spend

In the South African scenario, the project owner for its intended nuclear new build fleet will be the DoE, who has already identified Eskom as the owner/operator of the fleet.

An investigation was undertaken to determine how to leverage spend that results in maximum local developmental impact, as contained within contracts with suppliers for the NNBP, characterised as a programmatic procurement transaction of strategic procurement. Given the level of complexity of this ambitious programme, the industry/technology nexus needs to be employed by selecting the most appropriate procurement levers to support the NNBP.

5.4.14 Direct NIP procurement lever for NNBP

It is recommended that the government contract directly with the nuclear technology vendor (for the reactor technology), in order to identify local nuclear industry champions upfront (first phase of the FEP planning) for the first of the NNB. This would enable government to fund, set-up and develop local industries in the nuclear value chain, as well as related industries related to the dti's designation of items. As a result, Direct NIP as an import offset programme, is recommended to be selected as the procurement lever to obtain the required funding emanating from for such an ambitious and capital-intensive endeavour.

That is, the NIP obligation created by the nuclear vendor (30% of the imported content) is deemed to be highly significant for a combination of support mechanisms that will be required to be invested in the nuclear industry. These mechanisms include a combination of: investment, export sales; research and development; technology transfer and transformation of the industry value chain (sector) (dti, 2013). However, for Direct NIP to be effectively applied, the

identification of strategic industries by Government, Eskom, the TLIU and within industrial policy must be done early on.

5.4.15 CSDP procurement lever for secondary plant and balance of plant in NNBP

It is additionally recommended that the CSDP procurement lever be utilised for all the secondary plant and balance of plant procurement. This will include the secondary plant and balance of plant procurement needed. Eskom will further support the creation of the nuclear industry vendors by leveraging its spend with them. These vendors will need to meet the definition of black industrialists in order for transformation (empowerment) to be realised at the same time as industrialisation. It will also serve to limit the use of narrow black economic empowerment (relying solely on B-BBEE status level) and rent-seeking endeavours, as these BIs will need to in the productive sectors of the economy, such as manufacturing.

5.4.16 Targeting opportunities for Black Industrialists

The dti recognises the *"…spectrum of challenges facing black enterprises, such as skills development, standards, quality and productivity improvements…"* (dti, 2015, p.6) and various platforms recognised that access to funding and market access for black enterprises as major stumbling blocks and barriers to entry for their sustainable development. These factors or barrier to entry constituted the BIP's initial focus on financial and market access support in collaboration with the private sector. This is why the BIP is marketed at promoting industrialisation, sustainable economic growth and transformation by supporting black owned entities in the manufacturing sector (the dti, 2015). It is recommended that Koeberg heed the call and start targeting black industrialists in their procurement activities.

5.4.17 Contracting model in NNBP to enable self-sufficiency in O&M phase

Maximising local content must be pursued in the NNBP, whereby much will not be a competitive industry at first (WorleyParsons, 2011). A long-term view that foresees a self-sufficient future - where commercially viable – must a pre-requisite for the NNBP. The contracting and localisation model must enable the relevant SA industries to be trained in the Operations and Maintenance (O&M) phase of the plant's lifecycle - in order to ultimately take over the running of the plants. To re-industrialise, Eskom, Koeberg needs to use the key lesson learnt in the original Koeberg NNB plant contract from reoccurring.

5.4.18 Contract strategy supported by sound contract management in NNBP

Regarding how the TA should be implemented in the NNB, it is recommended that a clear strategy that is documented and signed at all levels of the organisation, is in place prior to commencement of any commercial endeavour (including EOIs and RFIs). Furthermore, as one respondent indicated, 'the contract must be in place, together with the KPIs and penalties therein, in order to ensure that the deliverables are met. The contract clauses need to be utilised in order to ensure that this is done'.

Sound contract management should support the clearly set out strategy and plan, in order to ensure that the TA deliverables are met. It is additionally recommended that a localisation organisation/body be established that monitors and reports on the localisation and other TA objectives, as well as a larger oversight body to ensure its success. This would be an internal Eskom organisation that should also be represented on the NNB's NEPIO. Perhaps the internal Eskom structure or body could also be a higher-level oversight body, into whom the NNB working group will be accountable to.

The SD&L deliverables in contracts at Koeberg are currently being monitored and controlled by SD&L centrally at Eskom's head office in Mega Watt Park (MWP). Hence, since the CRQ is concerned with identifying lessons learnt for the NNBP

implementation, hence it was more relevant to discuss the contracting approach in the NNBP – but to use the extensive contract and project management experience gained at Koeberg currently – to effect this.

5.4.19 Critical value of sound project management skills and risk management

The main takeaway from the discussion on *risk* is that when localising, there is added risk. This is due to the client (Eskom) needing to manage the contracts and outcomes that relate to the contract work scope outcomes directly – which is a consequence of breaking down the work scope for multiple contracts. In an EPC / turnkey scenario, the EPC contractor would take on more risk, as they are required to deliver the end project within the time frame agreed to. However, this severely limits the outcomes of the localisation penetration – as they will not necessarily sub-contract in the manner that we may want them to – as they are liable for the risk taken.

It is recommended that sound project and contract management skills be utilised that understands the value proposition emanating from careful upfront planning (FEP) that will serve to reduce risks and hence costs.

It is recommended that Koeberg recognise the inherent risks associated with introducing new – local and transformed – entrants in the supply chain. Risk management and risk mitigation strategies must be strongly encouraged and shared at Koeberg. This will greatly augment Koeberg's safety culture enhancement programme as it gains operational experience in the mitigation of supply chain risks associated with introducing new players in its supply and value chains.

5.4.20 Entrenching FEP and 'design for local' in engineering processes

Entrenching Front End Planning in projects, which is seen as a key driver that lowers costs in a project, will translate in a substantially better position to minimise risk. But risk is inevitable with anything. And as one of the participants

indicated, there are failures with foreign suppliers as well. And nuclear safety ones at that. Risk mitigating strategies must be part and parcel of any project and any business case that comes up. And key management of those risks will be imperative.

In an effort to reduce costs when localising, the formulation of risk mitigation strategies that take into account taking on too much risk too quickly –without understanding the local capabilities first, and without supplier development interventions – need to be strongly recommended. This approach proved successful in projects who have managed to take a lesser approach to risk successfully.

A key recommendation is to entrench FEP in the engineering work processes at the KOU - along with the procurement interfaces and the SCATT methodology.
This will enable the 'design for local' imperative, as it is only to be realised by engineering-led interventions and processes. This is the key reason why a number of the respondents felt that SD&L should be engineering led. However, regardless of where the SD&L function is located, it is clear that the TA needs to be driven and that the TA outcomes be achieved. This may only be realised by entrenching FEP and 'design for local' practices in the engineering processes.

5.4.21 Proposed NNB localisation and contracting model to maximise the TA outcomes

With regards to the NNB localisation model and contracting model, one model that's been proposed is that the international nuclear vendor form a special purpose vehicle (SPV) company with local South African partners, whereby the international vendor has a majority shareholding in the SPV, and as time goes by, the ownership shifts from the foreign supplier to the local companies. The use of Direct NIP for the first round of NNPs will still be applicable.
However, the foreign international vendor always retains a minimum agreed shareholding percentage, and enough that it makes it viable for them to continue

its interests in the SPV, and especially the outcomes of the TA localisation model - so it is a means of them retaining interest, whilst South African suppliers actively manage the TA objectives from within the SPV as it will be a requirement for the foreign international vendor to impart skills by way of knowledge and technology transfer to the nominated, successful local vendors. Any update in technology is fed back into the model.

Most importantly, though, it's a way to keep the foreign vendor vested in our localisation objectives. The entity continues to operate (stays), but perhaps morphs as time goes by (perhaps no longer considered to be a SPV and instead a corporation. The foreign vendor continues to be paid its royalties (emanating from IP rights) and from the company itself by way of dividends - only the ownership shifts. In this manner, as the project progresses, and more experience is garnered, localisation is truly deepened, and all the boxes are sustainably ticked regarding the TA implementation in the NNB. This appears to be a viable model. Most importantly, though, it's a way to keep the foreign vendor vested in our localisation interests. [Note: If foreign partner is a partner in the SPV 'company' then they will ensure that outcomes are met as they retain a minimum shareholding percentage that negates their lack of interest in making the localisation model a success - as it is a continuous stream of revenue for them].
It is recommended that this localisation and model is pursued in the NNBP. Regarding the contract(ing) models that would suit this kind of localisation strategy, the Multi-Prime (China Model) pertaining to the more traditional approach, and the BOOT contracting strategy for the alternative contracting and ownership approaches for the NNBP could be considered.

However, it is further recommended that the viable contracting approaches be considered from a country perspective, as financing of such an immensely capital-intensive strategic procurement programmatic transaction that constitutes NNB will not be enabled from Eskom's balance sheet from an affordability perspective. Neither will it be enabled from a country (sovereign) perspective. Although financing the NNBP falls outside the scope of this report, it is prudent to mention

that the affordability aspect critically informs the procurement (including localisation) and contracting model chosen. The lessons learnt from the KOU's TA implementation should be taken into consideration when negotiating with the preferred nuclear vendors. However, it is clear that whichever model is ultimately chosen, South Africa cannot afford to lose the opportunity to re-industrialise itself.

5.4.22 NNBP great opportunity for economic growth

The envisaged NNBP will possess a colossal leverage value as the single largest programmatic procurement transaction since the dawn of democracy in South Africa. That is, by virtue of its sheer scale, it will enable Eskom and government the opportunity to negotiate sustainable supplier development initiatives that will leveraging spend and create economic growth.

5.4.23 Invest in local skills and knowledge development for NNBP

It is argued that in order for South Africa to realise its very ambitious industrial nuclear ambitions, that it starts initiating and expanding on educating its local workforce and investing in knowledge transfer programmes upfront. Hence, SA should currently invest in local nuclear skills and knowledge, by leveraging spend in critical nuclear skills areas. At present, this is augmented by leveraging spend with OEMs in technology and (limited) knowledge transfer opportunities in contracts. However, it is recommended that much more needs to be done by government – a strategic investment – in suppliers and people in order to meet its local nuclear developmental objectives to ultimately be self-sustaining in the future.

Although the future application of the NEP is left unanswered, if SA is to eventually realise its very ambitious industrial nuclear ambitions, it is clear that it starts initiating and expanding on educating its local workforce and investing in nuclear technology and knowledge transfer programmes upfront.

5.4.24 EPPEI students' envisaged key role

A key lesson that was learnt from Koeberg's operation – which is the main shortcoming in the plant's design is that there was no foresight into the O&M procurement specifications IP area in the 1970s, which is when the plant contract was drawn up. As a result, imports are inevitable at Koeberg, and localisation of these items is therefore limited.

Given Koeberg's OEM/IP issue, the most viable means of localisation of systems, structures and components (SCCs) would be obsolescent ones that are not tied to IP. Obsolescent items are where many OEMs no longer support warranty and equipment services, or have terminated production of its SCCs and their spare parts. Some strategies to resolve these obsolete SSCs include reverse engineering, replacement with newer models and modifications or finding parts from other systems or suppliers. It is in the reverse engineering and procuring from alternate sources space, where opportunities for local supply will most likely lie. A Koeberg engineering *supply chain intervention* would be to employ an Electric Power Research Institute (EPRI) approved Commercial Grade Dedication (CGD) process (an acceptance process undertaken to provide reasonable assurance that a Commercial Grade item to be used as a basic safety-related component will perform its intended safety function), by contracting with a foreign licensed technology partner.

Hence, the Eskom Power Plant and Engineering Institute's (EPPEI) students and other design engineers could assist in the compilation of procurement specifications, and meet the desired '*Design for Local'* objective in the current Koeberg Front-end Planning processes. Such application will not only lead to great practical application for these students, but moreover a triumph for South Africa. That is, we would be able to grow our scarce skills resources by increasing our knowledge bases. Such an endeavour could also enable the development of South African scarce nuclear skills in the compilation of procurement specifications for the involvement of local suppliers in the envisaged NNBP.

5.4.25 Localisation of designated and other commodities

To gain needed momentum into the localisation of commodities - as indicated by one of the respondents - it is recommended that the KOU continue in its endeavours to localise, commodity by commodity, until the list of viable commodities is exhausted.

Cognisance must be given to one respondent's view that Koeberg should collaborate with the other Eskom power plants on localising shared commodities and components on the secondary plant across the fleet. In this manner, Koeberg will continue to gain significant 'OE' from its international associations of NPPs on (nuclear) plant reliability issues, whilst meaningfully contributing to localisation and industrialisation endeavours.

The more successes emanating from the programme will also give impetus to the industrialisation and localisation drive, whilst reducing costs in the long run. What is clear though, is that government should continue designating items for local supply so that it can ready industry for the NNBP ahead.

In the interim, it is also recommended that the envisaged 'Procurement Commodities WG' (to focus on short term wins for the localisation of commodities) and the 'Component Localisation WG' (to focus on medium to longer term localisation that consider nuclear qualifications and obsolescence issues) urgently need to be constituted.

5.4.26 Country multiplier benefits result from TA in the short-term and long-term

From the discussion on the short term versus long term benefits and drawbacks, most respondents were overwhelmingly in favour of localisation and understood that it is an imperative for economic growth in the country, which is encouraging. Some indicated that it is essential that we become competitive in order to survive in the global scenario.

The country multiplier benefits were noted by a few of the respondents as well. That is, an important concept to understand when considering paying a premium for localisation, is the concept of *country multiplier benefits*, as discussed.
And saving costs, as one respondent indicated, is not a pipedream. There are massive cost savings to be had. The Replacement of the PTR Tank at Koeberg is such an example. Budget estimates – when first considering the EPC or turnkey route - were a few hundred million rand more than what we ended up paying for it by localising. The same goes for a great many other consumables (such as the M10 nuts).

A key risk is the lack of *supplier diversity*. Having a pool of capable and competitive local suppliers should be seen as a strategic benefit – as it will assist Eskom to not be at the mercy of one or a few (foreign) vendors only. We would also be benefitting from a skills perspective, for the country's betterment.

It is recommended that Koeberg contracts with certain overseas vendors to enable SA local suppliers to have greater 'know how' capability, as it will go a far way to enhancing our knowledge and technological expertise.

5.4.27 Collaborative partnerships with OEMS to develop niche export areas

Key objectives of the CSDP is to reduce the SOCs dependency on imports and foreign exchange exposure. In line with the dti and CSDP Industrialisation prescripts, Eskom is building collaborative partnerships with global nuclear OEMs focused on transferring technologies and IP with an end state view of growing our exports in OEM value chains.

This alignment to include the local supply base is in accordance with the CSDP's objective to develop niche export areas.

5.4.28 Additional capability assessments and updated localisation studies required

Further capability assessments on potential suppliers should be used to develop local industry (localisation plans) going forward in the future. This will also be used to align with the envisaged NNB programme. Given the high technology and quality standards attributed to procurement at Koeberg, it is recommended that the TLIU database be made available to procurement practitioners. It contains more relevant information about capability assessed local suppliers who could potentially offer their services and goods to Koeberg.

It is recommended that updates on nuclear localisation studies will be needed to understand what the current local offering may be (and whether the subsequent iterative IPAPs and TLIU interventions have resulted in deepening, or increasing, local vendors for Koeberg). Once NNBP has taken off, volumes will be created and a re-look of the current list of localisable commodities will be necessitated to identify additional opportunities. The planned SteerCom and Working Groups are ultimately to align to this initiative.

The greater challenge will be to realise the envisaged public-private collaborations, in pursuit of a successful development state.

5.5 Reliability and Validity

Triangulation was employed by the researcher, who is a subject matter expert (SME) in the Supplier Development and Localisation (SD&L) department since its inception at Eskom, Koeberg in 2012. The researcher's insights are deemed to be one of the study's main strengths.

The researcher has an intimate working knowledge of the subject at hand and a genuine intent to unravel the complexities that abound in the transformation agenda at the KOU. She is, however, also aware of potential scotomas that may be

present – as well as bias - that may mar her insights and perspectives as it pertained to the perceived shortcomings of the transformation agenda implementation.

As a result, the researcher used triangulation, referred to in Leedy & Ormrod (2015) as a collection and comparison of multiple data sources or kinds of data, with the aim of locating consistencies or inconsistencies among them. This was done to establish the necessary rigour and truthfulness in approach. Essential criteria for quality (Lincoln & Guba, 1985) in qualitative research are concepts related to terms such as Credibility, Confirmability, Consistency and Applicability were duly held in the researcher's mind when opting on triangulation of methods.

With that in mind, the researcher sought to explore a number of data sources in search of common themes. The theoretical conceptual framework aided this, though no *a priori* hypotheses was formulated. The Braun & Clarke (2006) six-step method of thematic analysis employed immensely aided the study's rigour.

Reliability is about good quality in qualitative study. The triangulation of methods chosen vastly enriched the outcome of the research results. These included a thick description of the data analysis, aided by the rich data obtained from the dataset as a result of the organic (iterative and complete) coding employed.

There was peer checking (feedback from others) employed, as the researcher's industry mentor/supervisor was also one of the key participants in the study with extensive industry knowledge of the subject at hand. In addition, respondent validation was also employed that proved very helpful in building a complete narrative, especially when dealing with apparent contradictory material or occasions. The consensus attained in this manner greatly enhanced the Confirmability and Applicability of the research effort.

CHAPTER 6 – CONCLUSION AND RECOMMENDATIONS

"To achieve our mandate, we need to balance three roles: supporting socio-economic improvements, ensuring regulatory compliance and maintaining commercial viability" (Eskom, 2018, p.32).

6.1 The CRQ and objectives in summary

The Critical Research Question, *"What recommendations can be made for nuclear new build based on the lessons learned from the implementation of the transformation agenda in the procurement processes at Eskom, Koeberg?",* was adequately addressed resolved by addressing the research objective, as indicated below. To recap, the primary research objective related to making recommendations from the investigations and analysis at Eskom, Koeberg, regarding the lessons learnt from the implementation of its transformation agenda in the procurement processes to assist NNB. In summary, the primary objective was addressed by the following three aspects regarding the implementation of the transformation agenda in the KOU procurement processes as follows:

1. Determining the current status of the Koeberg TA implementation in the KOU procurement processes.

It was established that the TA implementation is still at the beginning of its journey and that the SD&L mandate is not entrenched within Eskom, Koeberg. There has been no communication of change related to the TA to date, with fragmented, siloed thinking the order of the day. However, the TA has gained traction, with discussions regarding the TA at Nexco resulting in their grappling with the change themselves, where many key influential leaders are in support of transformation and localisation. The barriers to entry and high, and market concentration of the 'usual suspects' are very high. The KOU is not adequately leveraging its spend in relation to the SD&L mandate, and the SCATT is not entrenched in procurement processes to facilitate FEP. Risk aversion is seemingly

the default position at the Koeberg operating plant, which mars the TA objectives from being met.

2. Establishing the relevant set of learnings from the implementation in the KOU procurement processes.

There was little buy-in to the TA from the KOU employees, who mostly operate in and think in silos. There was no change management to support the TA implementation, and nor were there any KPIs. These negatively impacted the perceived importance of the TA as a strategic business imperative. Negative mindsets and lack of confidence by KOU employees in local suppliers' capabilities were found to be major stumbling blocks to achieving localisation at the KOU. High barriers to entry create 'SD&L leakages' and lost opportunities. The plethora of procurement legislation causes it to be fragmented, leading to differing interpretations and applications. Front-end planning is a pre-requisite to achieving 'design for local' aspirations that would necessitate an early engineering-led intervention. Failure to entrench engineering-led interventions in work processes would lead to little sustainability of the TA. Collaboration with other government technology partners, viz. the TLIU, OEMs (technology enablers) and local supplier industry leads to key CSDP (industrialisation) successes, such as the KOU/EdF/TLIU valve pilot localisation programme. It would be imperative to select the most appropriate contract and localisation strategy when compiling the procurement strategy for the NNBP. Localisation leads to country multiplier benefits that are essential for economic growth. The impact of conflicting KPIs on nuclear commercial led to many SD&L 'leakages'. The 'Separation of the Line' has led to a lack of knowledge of local suppliers' capabilities.

3. Making recommendations that can help determine the most feasible/appropriate means of implementation in the NNB programme in the KOU procurement processes.

The TA will only be adopted as part of day to day operations once it has been accepted as an Eskom strategic business imperative and part of its dual developmental and commercial mandate. For that to occur, the SteerCom and WGs require urgent constitution. Performance alignment with the TA SH/C KPIs should be immediately communicated via the CNO's Directive. Localisation should be punted as a means to provide reduction of costs, given the urgent need for cost savings in Eskom. The role of leadership in driving an authentic transformational change internally would be critical for success.

Nuclear Commercial should train SCM officials to be substance rather than process focused. Industrialisation cannot be sustainable unless there is genuine broad-based transformation as part of procurement strategies. Rent-seeking behaviour should not be practiced or tolerated at the KOU. A strong collaborative approach with TLIU as a technology enabler should be followed to achieve maximum local developmental impact. A strategic investment in local nuclear skills and knowledge is required by leveraging spend in critical skills in contracts. The 'Design for local' imperative can only be achieved by entrenching front-end planning in engineering-led interventions and work processes, and by utilising the SCATT methodology. Updated nuclear localisation studies are needed to understand current local capabilities and to prepare accordingly for the NNBP.

It is clear from the investigations that Eskom as an SOC must pursue the overall NDP goal of 'build a capable and developmental state' by delivering on its dual mandate. This requires intentional interventions to achieve, as outlined in the lessons learnt and recommendations above.

Although the TA implementation at the KOU had not resulted in great success and maximising the leveraging of procurement spend, it had some notable impacts. The KOU needs to build on what has already been achieved – as there have nonetheless been clear progress – but document and share its successes. It will build confidence and slowly bring about the mindset change that must be adopted, in order to achieve sustainable economic growth.

There should be a strategic investment in the capabilities of our local suppliers and fledgling nuclear industry in South Africa. Eskom will not be able to achieve maximum local developmental impact without Government's assistance. Many lessons are to be learnt from successful states such as South Korea, who followed a difficult and often perilous path on the way to sustainability and self-reliance.

The KOU is still at the beginning of the change journey of implementing the TA. Should Koeberg succeed at this, they will be true pioneers in Eskom, and bode well for TA success in the NNBP. The next generation would be able to look back at the KOU's journey and be cognisant of the many challenges faced, despite enormous obstacles and naysayers along the way. The true lessons learnt will be to know that with true grit, determination and the will to make difficult changes, realising a future where SA is a prosperous and well-developed nation state is achievable.

6.2 Recommendations for further study

The following three aspects for further study may prove useful in the NNBP:

I. An updated qualitative research study within five years of the TA re-implementation to determine the efficacy of the implementation of this study's recommendations. Documented OE would be useful to determine the implementation recommendations followed by the KOU.
II. To assess the level of maturity and success of programmatic procurement within Eskom to determine lessons learnt pertaining to leveraging procurement spend and maximising local developmental impact. This could be incorporated into the overall OE on lessons learnt on localisation and industrialisation for the NNBP.
III. Assessing the growing number and local developmental impact of new Black Industrialists that are emerging from the dti's Black Industrialists Scheme, currently operating in the nuclear industry at KOU on the Western Cape economy. This is to be measured by the number of jobs created and other quantifiable multiplier benefits.

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APPENDIX A

Given the nature of the semi-structured questionnaires emanating from the qualitative research process, these questions will mostly serve as a guideline for questions, as they may also not be applicable to all the respondents. A brief background of the transformation agenda aspects will be provided to the respondents.

Guideline questions to be posed to the Eskom, Koeberg respondents, are indicated below. The Participant profile will only include the relevant section or department represented by the respondent.

1. Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.
2. What is your understanding of the transformation agenda in Eskom, Koeberg?
3. What are your thoughts regarding the manner in which the implementation was done? (*additional questions related to the role of leadership and change management will be covered here as well*).
4. Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	2	3	4	5

5. What do you think of the role of leadership (particularly Nexco, as the most senior management team) in driving the transformation agenda at Eskom, Koeberg?
6. How has Nexco championed the change management process related to the transformation agenda in Eskom, Koeberg?
7. How would you describe the current status of the Koeberg implementation of the transformation agenda?

8. What do you think has been the major roadblocks or problems associated with the Koeberg implementation (perception)?
9. What are your recommendations on how the transformation agenda should be implemented in the nuclear new build (NNB)?
10. How cognisant are you of considering aspects related to the transformation agenda (bar the functional requirements) when you consider criteria to be included in tenders? Please elaborate.
11. What kind of challenges have you experienced with implementing the transformation agenda in your area?
12. How have you ensured that the 5 SD&L objectives, in respect of the transformation agenda at Eskom, Koeberg, are addressed within your requirements?
13. What are your main challenges in ensuring that the 5 SD&L objectives are included in your requirement?
14. What do you think are the long-term effects or benefits versus the short-term effects / impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.
15. Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	Always
4	Sometimes
3	Seldom
2	Not often
1	Never

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16. Which of the 5 SD&L objectives (transformation agenda elements) have you implemented or have you had success with? Kindly share your experience, positive or negative.
17. Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements?
18. During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

1	Yes
2	No
3	Not Applicable

19. The development of local industries can be maximised through the Design for Local concept, which implies "front end loading / planning" (FEP) (which is essential to the impact that SD&L has on a commercial transaction as well as the local supply industry as a whole) to be in place. Is this FEP practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.
20. Additionally, please explain how else you can ensure that "design for local" strategies are included in the commercial strategy of your requirement.
21. Do you consider the SD&L Opportunities Matrix tool / approach employed by KOU SD&L effective when considering "design for local" FEP strategies? Please explain or elaborate.
22. What are you perceptions of how the SD&L imperatives within the transformation agenda align with RD-0034?
23. How has the government's legislation and policies, as it applies to transformation in SOC procurement (KOU implementation), assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?
24. What would you like to see being done differently regarding the current implementation of the transformation agenda in Eskom, Koeberg?

25. Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.
26. What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?
27. Are there Key Performance Indicators (KPIs) included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success (of the transformation agenda) in Eskom, Koeberg? Please explain.
28. How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives (SD&L) at Eskom, Koeberg? (Will briefly explain 'procurement transformation' as it relates to empowerment (objectives) to black persons and associated economic growth).
29. [See question 20 – related] What do you suggest could further be done about ensuring that the "design for local" imperative is fully maximised when procuring items on the open market?
30. How do you suggest that we go about / engage OEMs / OESs on the transfer of their intellectual properties (IP) rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?
31. What can be done to improve on the manner in which market analyses (of KOU supplier base) - for local content requirements in tenders - is currently being done at the KOU?
32. What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List (ASL)?
33. How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons.

APPENDIX B

Interview with Respondent 1

Interviewer = Researcher

Interviewee 1 = Participant 1 (Respondent1)

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 1: It's simple, it's legislated to use Eskom, who's the biggest spender. Why shouldn't we use Eskom to develop our country, and why should we give our money away when we can develop our own capability?

[Interviewer: So you do agree with the statement?]

Interviewee 1: So, yes, Eskom should be used to further the government's local developmental goals for SA. How did the French nuclear programme come together? It's found nowhere in literature.

[Interviewer: That is an interesting question and perhaps something to explore.]

Interviewer: What is your understanding of the transformation agenda in Eskom, Koeberg?

Interviewee 1: There are the elements of SD&L, but in the main, it's about localisation and transformation or empowerment.

Interviewer: What are your thoughts regarding the manner in which the implementation was done?

Interviewee 1: Okay, so from 2012 onwards, I'd say the implementation was sporadic and linked to Supplier Development Plans. There has been a major learning curve. It was susceptible to who was leading it at the time, different opinions etcetera, and whoever was leading it at the time in had their own opinions, which then swayed the implementation. It hasn't been effective as there's been no buy-in and this can only be done once leadership adopts it as part of the core business, okay. Look at the pillars of Eskom's recovery plans as it currently stands. It was must be adopted as a day to day function first.

Interviewer: Are you referring to Corporate SD&L or at Koeberg level?

Interviewee 1: Both. I mean, interpretation is diverse, to say the least. But we at Koeberg are the biggest culprits. If you go through our history, our most senior person at Koeberg at the time, Karl de Klerk, who was also the former Chief Nuclear Officer, told me straight to my face that it doesn't belong in Eskom.

[Interviewer: When did he tell you that?]

Interviewee 1: He said it to me in Nexco when I took the valve pilot project to them for funding and support. He said it's government's problem and not Eskom's, even though the thing is legislated and we must do it. So if you ask about the role of leadership in the implementation, I'd say there was nothing.

[Interviewer: Okay, so what did you do about the valve project?]

Interviewee 1: Karl said go away and so I did. I took it government, the TLIU, and they have progressed it. Areva were also asked for one of their SD&L commitments to do studies on it and some other commodities, but we still provide input into the thing but no money.

Interviewer: Okay, I'll have to check how far that's come along. Can you tell me some more about what you think about the SD&L implementation from 2012?

Interviewee 1: People don't understand their jobs and why they are at Eskom. In all the years I've worked here, when you ask them, "*What is Eskom's core business*? Then they give you a story about providing cost effective electricity and all the rest. But then you say to them, '*What is Eskom's core business being a SOC?*' The response will never be the add-on about the use and development of local industry into its core industry. So, how're we ever going to win this thing? That is what has happened.

[Interviewer: Wow, that is enlightening. What do you think were the fundamental issues with the implementation? You said earlier that it was sporadic?]

Interviewee 1: The way this thing was implemented from Corporate was very problematic and made no sense and this was the first problem with this thing. Koeberg was initially not included in SD Plan 1 cos we were involved in the Nuclear 1 commercial process in 2008. A few years later, the updated SD Plan 2

was based on the spend profile of 42 commodities, of which Koeberg was one, even though it isn't a commodity. So, we had to do a mini-Eskom on Koeberg and on spend profile, we were highly focused. So the Koeberg approach was to look at the big projects linked to it, and that's why we didn't focus on 'tactical' everyday stuff and spend and related components. I think SD Plan 3 now takes a more balanced approach cos we don't attempt to do everything at once and focus on a few commodities over the next 5 years instead, like the valves and other designated items.

And the second problem is that there wasn't any in-depth analysis done on site. It's been very difficult to negotiate our KPIs more realistically. What we're now implementing is that we'll be leaders for the programme in Eskom as a whole, cos no-one else in Corporate has done it. In fact, SD&L corporate 'sucks' even more!
[Interviewer: Thanks for that. And can you think of any other implementation challenges?]
Interviewee 1: The third problem was with not being able to entrench the opportunities matrix methodology and total lack of change management. When I introduced the SD&L opportunities matrix into the Koeberg business, it never filtered down to cost centre level. There wasn't a focused approach to drill down into what we're buying. There was no change management approach on how to deal with it. No real support from Barney either. It is directly linked to the SD&L mandate. So if we can't take it down to the level where the money is actually spent, then we've lost the battle already.

Also, the SD&L shareholder's compact is addressed at too high level instead of where money is actually spent, which is at the cost centre level.

There has been a major learning curve. It hasn't been effective as there's been no buy-in, and can only be done once leadership adopts it as part of the core business. It is included as part of Eskom's Corporate Plan. When one looks at the pillars of Eskom's recovery plans as it currently stands – it's there. It should therefore be part of a 'day to day' function.

There is no alignment as people don't care and that's been the biggest problem all along. Until people give a shit, SD&L won't work.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	2	3	4	5
X				

Interviewee 1: It was zero, none. It was the start of the process. So there was nothing or very little.
In actual fact, if we use Medupi and Kusile as the example, cos that's actually where this stuff started being applied, I don't think that they got it right. I don't even think it existed in Koeberg. It was a retrofit cos it didn't even exist here. So there was nothing, or very little.

Interviewer: What do you think of the role of leadership, and particularly Nexco, as the most senior management team in driving the transformation agenda at Eskom, Koeberg?
Interviewee 1: Okay so what did Darren say to you? No seriously, I want to know.
[Interviewer: You know I can't tell you about that, but actually he didn't agree to the interview.]
Interviewee 1: Is that what we think their role should be, or is?
[Interviewer: What do you think of the role of leadership should be?]
Interviewee 1: Oh, then that is simple. It's to create the environment for it this thing to succeed. That's all there is. Which is what we are trying to do now..

Interviewer: How has Nexco championed the change management process related to the transformation agenda in Eskom, Koeberg?
Interviewee 1: It hasn't. You must remember that John predecessor, to my face, told me, '*this doesn't belong in Eskom, take it back to government*'. Those were his words. And unfortunately, there were a lot of Nexco members that were

mentored by Karl. He is a good example of not accepting the change, although he was a very clever man – but he didn't belong in the organisation. He also drove a Karl philosophy of the HR transformation too – it wasn't an Eskom philosophy. It was a Karl drive. You must remember that he was one of the only guys that actually worked in every department in Eskom, and you must remember that his wife is a psychologist, and now he needs to be a psychologist. That's it

Interviewer: How would you describe the current status of the Koeberg implementation of the transformation agenda?
Interviewee 1: We're still at the beginning. It had to take some serious crisis from the DPE minister, to put her foot down, and say, *'Eskom do your job,* so put us in crisis mode and told us, '*go and sort out your crap*'. This thing had to explode.

Interviewer: What do you think has been the major roadblocks or problems associated with the Koeberg implementation perception?
Interviewee 1: This thing has always been regarded as a 'separate' silo and it's not entrenched in the DNA of the organisation. How's that for short answers?
Interviewer: What are your recommendations on how the transformation agenda should be implemented in the nuclear new build?
Interviewee 1: Look, the things is very, very simple. We suck at this game, as Eskom. One of the problems we've always had is that our local industry has always been handled at arm's length. They are always there. We sit in our ivory tower, and we think we know what goes on there. And we dictate to them, which is not going to work for those people. Industry need to come to the party and tell government what they want out of this program.
Then we need to use the mechanism of NIP, where the contract is between government, the vendor and linked directly to industry. It's like a self-designation process, or in NIP terms, it's called direct NIP.

What does it do for transformation? All of a sudden, there is a huge opportunity for government to get its black industrialists programme off the ground, without interference. Direct link to industry and the vendors, to create that industry.

Without having to procure it – without having to manage what you've procured, it's an automatic separate contract. But whoever the procuring agent is, which is currently Eskom, they have to commit to procuring from it, as those things develop. That creates the sustainability. That's the commitment from the procuring agent.
One, to establish it under NIP, and 2, to commit the procurement from those industrialists – this creates the sustainability.

For the owners scope, we need to do it under the opportunities matrix, which is the mechanism. That's exactly how you implement it. Once you've understood it, once you unpack things – remember, you need to take this thing back to the shareholder compact – you gotta ask yourself the question, *'how do you get a company involved in the program whose turnover is less than R10M a year, how do you get to that level of detail, unless you unpack the project?*
The how you do it, is to entrench it in the DNA of the organisation. The opportunity matrix is the start of the DNA – it starts the thinking process. I've never explained that thing to you, have I?
[Interviewer: No, you have, many times.]
Interviewee 1: No, no. What I built it on? I took two basic foundation blocks. systems engineering is the foundation block of anything that is man-made – nothing in life that is manmade does not go through that process. I am yet to find a thing that is not linked to that process, okay. Yes, even your fancy high heel stilettos do. I said to my myself, yes, it's got to be designed, whatever choice of material that works, you've gotta find a way to manufacture it, to fix it, to install it, to replace it. There is nothing that I can think of, that doesn't go through that process. Now, remember, what does it got to do with localization? That represents industry. There are industries that design, there are industries that manufacture, you understand what I'm saying? So, we don't link it back to local industry. It should be any industry, anywhere in the world. Okay, so that's the link to localisation.
So the second part is, I took the principles of project management, which is linked to; the scope breakdown; what are we doing on a project; when we put together a

project or whatever; a bill of materials or quantities - or any one of those concepts - and then if you take the systems engineering thing, and you link it in, so you create a matrix.
You can then identify, if you understand who your industry is, you can then link your industry to one of those little blockies for one part of the component or part of the system, or whatever the case. That's the marrying of it. You can then price it – which is a project management thing – you can put timelines on it – which is a project management thing – you can put a quality thing - which is a project management thing. You can then list the things that you need to put in there.

All I have done, is add in the elements of SD&L, which is do we have the right skills? I've added in the transformation block, okay – that's how I've built the thing. We drive localisation and transformation through money. If the money leaves the country, we have an opportunity to sub-contract it somewhere back into the system. If you leave the money here, you can do the localisation and transformation stuff as you have the money to do it. It's all I did with that thing. That's all it is.
You tell me that project management don't unpack a project – no, they don't actually– some of them do. That's all that thing is. It's not some fancy Piet idea, or Piet's philosophy. I'm just saying that's how it came together.

What you can then do, is link, and this is the key – you asking about the implementation - once you've got that picture is in place, okay, and you understand how we currently procure, which on bigger projects is normally an EPC thing, in other words, we don't want to touch it, we'll give it to somebody, we want to guarantee this thing, okay. 99% of the time it's linked to an overseas supplier. That's why we suck at localisation.
[Interviewer: So you don't want us to go with EPCs?]
Interviewee 1: No, no. You can call it what you want to, it's maybe an EPCM process, okay, we identify what it is that we want to manage. And so, if localisation is what we need to manage, then we need to find a way of how we build it in.

You can't give it to someone else to do it for you, okay. We have experience and there are numerous examples of it, where we have been screwed over by giving it away to a foreign company. They have no interest. Even if you contract it in, they find ways not to do it. We have to manage it.

[Interviewer: What are you recommendations about how to implement this going forward?]

Interviewee 1: Just go to the last presentation that we took to Nexco the last time. There's your answer. The entrenching in the DNA is a directive from Nexco. Leadership need to provide the directive. The oversight committee is probably one of the best things that's ever been offered, okay? Reason for that is that whole concept of working groups, okay?

You can take this new build program and divide it up into systems, whatever you want to do with it, or like a – look the new build thing currently, I think, has 14 packages or whatever the number is. It's been broken up into packages.

One is the nuclear power plant, and the other is what they call the owner's scope.

If you take every single package and you create a working group for each package, and everybody works – we need to find a different word for that opportunities matrix – if you work that methodology, and you tick all the boxes of the different disciplines, you understand what I'm saying - then everybody develops the same song – let's put it that way.

And look, the other thing that you gotta remember, that people don't get their heads around, people don't understand legislation, okay? I think we are one of the few groups, and I'm talking about only us, and in actual fact – I'm talking about only you and me – and maybe Bertus, to the extent where we've looked at this whole thing, we've looked at this picture holistically, and we've said, *'how do we make this work?'*. Think about it. You can ask Barney, he doesn't understand it. Ask Heidi, she doesn't understand it. And these are the leaders. Gordon might be the only other one. But you understand what I'm saying to you? So, people still think in silos. And then the other thing about all of this is, inexperience. There are people in leadership roles who are not experienced.

[Interviewer: So what will make people understand legislation?]

Interviewee 1: It's got to do with – I've tested this thing - what people understand what Eskom's core business is. You can ask anybody in Eskom "*what are we here for/what's our business*". And you'll get an answer that is something like the following, '*it is to provide cost effective electricity through generation, transmission and distribution for the country's benefit - existing and new*', okay. In the ten years that I've been here, okay, let me follow the concept. We're a non-profit organisation - but if we were a private organisation - then you would add that, and one other thing which would say, *'and to make money'*, okay. But, we are not a private organisation, so the '*making money*' thing falls away. However, we are a state owned company, okay. So the add on is not profit, the add on is, maximise the input of local industry, okay. I've never heard anybody in this organisation, add that on, okay. It comes back to the DNA. It's not in our DNA.

[Interviewer: Do you believe that senior management in new build think the same?]

The thing is that people pay lip service to this thing, they've never industrialised shit in their lives, do you understand what I'm saying to you? Find the people who are committed to this country's future, and not in it for self-gain. If we don't fix this, we'll bankrupt this country. I think also, that people don't have the concept of this thing right in their brains. It's not about the nuclear power plant, okay. Yes, it's what Eskom needs to drive, cos that's what we're going to use to continue our business, generation, and blah blah blah.

But if you just go back to that definition. If we don't have a generating plant, what is your core function? If you are busy establishing a generating plant, for example, so it doesn't exist yet, what part of our core business then applies? If you don't have something to generate electricity with, then obviously the other part of it should be the driver, which is maximise local industry, '*what is your core business when you are establishing a plant?'.* You are driving local industry and that is your purpose as Eskom. That's actually what this program is about.

Interviewer: How cognisant are you of considering aspects related to the transformation agenda, bar the functional requirements, when you consider criteria to be included in tenders? Please elaborate.

Interviewee 1: I am not directly responsible but am always cognisant.

[Interviewer: You are right – this question is meant for the end-users.]

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area? *I think you have already covered this though, so no need to answer.*

Interviewee 1: Yes, I have.

Interviewer: How have you ensured that the 5 SD&L objectives, in respect of the transformation agenda at Eskom, Koeberg, are addressed within your requirements? This is not applicable to you either.

Interviewee 1: No, it's not, but see my comments about the opportunities matrix.

Interviewer: What are your main challenges in ensuring that the 5 SD&L objectives are included in your requirement? Again, you have covered this already.

Interviewee 1: Yes, I have.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects or impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 1: The short-term approach has hurt us badly, okay. It's linked to lack of opportunity. Look at the New Growth Path – we have it but yet to implement it. So, all we're doing is replacing the 'old' suppliers with new transformed industry, who do not yet have the experience or know-how. The key here is lack of experience. We are simply throwing money at something that is not going to work. We can't transform everything. We've got to find sustainable industry and choose our fights. So, because there is a lack of opportunity, we're doing a replacement process, instead of adding on. And what're we doing about unemployment? We're simply rotating the employment of people, okay? We're

taking the employed people and making them unemployed and vice versa. People who have bought into the transformation agenda, are bringing in people that're increasing the costs of running their business). It should be, localise before you BEE'ise. Choose your fights, cos every situation is different, okay? Don't apply one rule to everything blindsidedly. It hasn't worked as people are putting their own agendas in the mix, like radical economic transformation, and linked to this is the corruption and state capture issues. If you're not setting the example, then don't expect it to come together, okay?

Also, we have neglected industry. We've never asked industry, '*what do you want out of this thing?*', so if we can't fix it in the short-term, then we can't achieve it in the long-term.

It comes back to my point, have we ever asked the question about what the South African industry want out of this thing? Des Muller is now setting up a work session with industry leaders in February, that'll be hosted by NIASA, and there is one question to be asked, '*What do you want out of the new build thing?*. And then we can NIP, where government and industry contract with the nuclear vendors.

Interviewer: Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	Always
4	Sometimes
3	Seldom
2	**Not often**
1	Never

Interviewee 1: No, it's not often. So, because of the silo effect, and it comes back to the DNA thing. If people think about it, it will then be automatic. Localisation and transformation should be like you breathe. The end-users want the easiest way

to get things done. Their DNA is "*how do we get this plant to run?*" And so this is where we get the SD&L entrenched. So what do

I mean by that? They should be thinking about front-end planning. So maybe instead of thinking of the design for local concept, they should be thinking about using a strategy for local.

The input of SDL must be in engineering because that is where the opportunities lie. There's a think we've got to remember, and that's that all the positives, and success stories that happened here, is because of the engineering input.

Interviewer: Which of the 5 SD&L objectives, or transformation agenda elements, have you implemented or have you had success with? Kindly share your experience, positive or negative.

Interviewee 1: Indirectly, on all them, but mostly on localisation. What comes to mind are the SGRs and PTR Tank, and also what we're trying to do now with the self-designation stuff of the casks, cos that's going to be huge. We've also had successes on the nuclear fuel side. Those localisation studies with Areva and GE will also make a big impact on what we can localise now and for the new build. Also, the work we do with TLIU and the valve pilot project. For transformation there are many examples on site.

Interviewer. Listen, I know that there will be many questions left that we have either covered already by your comments earlier, or that are not applicable to you as you are not an end-user, but I'll mention that anyway, just to give you an idea of the type of questions that I am asking them. Is that okay with you?

Interviewee 1: Yes, it's okay, I'm a bit curious to see what you gonna ask them.

Interviewer: Thanks, I'll go ahead then. Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements? This is not applicable to you, it's for the end-users.

Interviewer: During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

Interviewee 1: It is number 2, no, they are not considered.

1	Yes
2	**No**
3	Not Applicable

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies "front end loading / planning" (FEP) (which is essential to the impact that SD&L has on a commercial transaction as well as the local supply industry as a whole) to be in place. Is this FEP practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement. Okay, this is also not aimed at you either, but I have noted your earlier comment that it is not entrenched in the business.

Interviewer: Do you consider the SD&L opportunities matrix tool / approach employed by KOU SD&L effective when considering "design for local" FEP strategies? Please explain or elaborate. Okay, we have discussed the opportunities matrix at length too and this is an end-user type question.

Interviewer: What are you perceptions of how the SD&L imperatives within the transformation agenda align with RD-0034?

Interviewee 1: The opportunities matrix is aligned to RD-0034 as it says that the NNR can visit any part linked to items, and so that's linked to traceability.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement, the KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?

Interviewee 1: It's too complicated. If you've got 22 pieces of legislation and policy, okay, driving the same thing, it's like opening up a can of spaghetti, okay. And then trying to figure out what each strand of spaghetti means. It's totally messed up. Why can't we just have one thing, huh?

You know, if you sit down and you unpack all this legislation, let me explain to you. What do we actually do? A business consists of a facility to do something, and the people that make it happen. Localisation and transformation is that we

want it to be South African, transformation part is that we want it to be black South Africans. Now, we have 22 pieces of legislation that tell you that, hmmm?
It comes back to this think of panic mode. We established that department a few years ago about small business. All that legislation and policies come out of different government departments. They all want money to function. So, we have already, through legislation, fragmented our approach. Duplication, triplication, non-existent, all play a role here.
[Interviewer: So what would you recommend gets done?]
Interviewee 1: Streamline legislation, take it back to basics, apply the basics of people and facilities to the process and have 1 piece of legislation or policy driving the thing.
[Interviewer: Which is what they're saying National Treasury is attempting to do with the passing of the Procurement Bill?]
Interviewee 1: Ja, but it doesn't mean to say that all this other legislation is going to go away. And remember, that bill is going to have a huge influence from trade and industry. No, it'll potentially help.
Oh, and maybe that will also help this corruption thing a little bit, because at least then you can control it. Better logic. You see the problem with all this legislation is that people interpret it differently, for different application. I mean, why do we have to add in all these added stuff, if you want to be accredited B-BBEE supplier, you have to do skills development.
[Interviewer: Yes, I agree, why add in over and over what they're already doing? We should just make sure they are compliant to the B-BBEE Codes.]
Interviewee 1: It's just a matter of enforcing stuff.

Interviewer: What would you like to see being done differently regarding the current implementation of the transformation agenda in Eskom, Koeberg? Yes, this has also been covered earlier.
Interviewee 1: We've just said it.
Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation. You have answered this.

Interviewee 1: We've spoken about this. It's in there. It's very simple, we need to do it differently.

[Interviewer: Yes, it is.]

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?

Interviewee 1: I'm not even gonna answer that, you know the answer.

Interviewer: Are there Key Performance Indicators included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.

Interviewee 1: Well, the shareholder's compact is the start of it. I'm gonna explain something to you, let's logically follow a process – our boss is DPE, how does DPE manage us? They put performance management stuff in place, '*you need to…blah blah blah',* a whole list of things is our compact. A part of that compact is our B-BBEE scorecard, it's not the full list.

[Interviewer: It's called procurement equity and they put a list of things under it.]

Interviewee 1: Yup, correct, it's only part of it. And then it filters down into our corporate plan, and then it filters down into GE level. And that is where we measure it, okay. How do we measure it? It's a bottom up collation of information that affects, like example, what affects generation. Each power station's performance and how it spends its money. And hence we get a Koeberg line, *'but because it's only recognised at that level',* okay, cos remember how a performance contract comes together, okay – from Gx level downwards, there's a vacuum. And so then we have a vacuum of what we have at Gx and how this thing actually functions. So you're not gonna find this thing in anybody's individual performance contract, okay, because we haven't physically taken it to that level. So, the vacuum is between Gx and the operations, okay.

That is why we are putting together this directive and oversight committee (SteerCom), to close that gap, okay. So, we don't have to worry about this thing – meaning the people on the floor – because it doesn't impact us.

Interviewer: How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives SD&L at Eskom, Koeberg? What do you suggest could further be done about ensuring that the "design for local" imperative is fully maximised when procuring items on the open market?

Interviewee 1: The only thing you can do there is follow the PPPFA principles. We've gotta follow legislation and what sits in the PPPFA and the mechanisms they have given us to follow. But if we take it out of that space, and we move it forward, then there's a lot more we can do, okay, to get to understand what we can do, okay.

The opportunity, link it to the legislation, you know what I'm saying to you – currently, there's a vacuum. We don't understand what we want, okay – so how do you procure it? That's what PPPFA says to you – understand in detail what it is that you're procuring. Okay, those 4 slides, especially that one slide – that comes back to that EPC process, why we miss the opportunities – it's because we don't understand the detail of what we're buying. We can't link it to a local industry, cos we don't know who the local industry is, okay.

Until the cross-functional team have sat down, worked this thing through, understood what it means that we're buying – I mean, we sit with an approved suppliers list, the ASL, which is dysfunctional. So we need to fix the basics. There's enough room, there's enough leeway. There's enough room in our procurement process to accommodate this transformation. Okay, there're enough tools, but we can't use the tools, cos we don't know what we're buying, in the right format. Remember, PPPFA is very lenient, and is very pro small business.

[Interviewer: What do you suggest could further be done about ensuring that the design for local imperative is fully maximised when procuring items on the open market? Okay, I think we've already done that one already.

Interviewee 1: Yes, it's done.

Interviewer: How do you suggest that we go about or engage OEMs and OESs on the transfer of their intellectual properties rights attached to relevant imported items, given that this endeavour is potentially costly and difficult to achieve?

Interviewee 1: The tools are there, the tools exist. Localisation plan linked to an OEM, that's one initiative. The other thing is that, in engineering space, group technology, where the guys actually have money to buy IP.

We don't do (buy) it, cos we don't understand what we're buying, okay? So we don't understand what it takes to localise, okay. As I said before, it's all to do with the facility and the people. People are the IP. We're too lazy in this country to think, okay. I mean, it's great that we've sent all these okes overseas, etcetera, what's the message coming home? Those okes work differently, as we heard yesterday, okay? What isn't coming out that guy's mouth is that those guys educated themselves – they have a process where they put youngsters in – and the old guys mentor them, okay. Therefore, what do we need to do to increase our IP? Go and get ourselves educated properly and go and practically implement it, you understand what I'm saying to you? You can't buy my brain. You understand what I'm saying to you – what are you gonna do about increasing your knowledge base? There's only 2 things you can do – it's a theoretical approach and a theoretical approach, okay. Unfortunately, theory must become practice some point in time. The only way you can get the practical into your brain is by getting your hands dirty. Going out there, making the mistakes, learning from it and doing it better. I can't tell you to do that, I can suggest it. If you want to do it, that's up to you.

IP is a willingness to develop. We are not a willing nation, you know what I'm saying?

[Interviewer: So what you're saying is that those vendor countries would be willing to see to us, but that at some point we will need to develop our own IP?]

Interviewee 1: Exactly, correct, yes. You can't buy somebody's brain. Understand the philosophy around this – there were people who were willing to burn their books, and there were people willing to patch their books – that's the willingness thing. You burn and patch your books for a reason. If you patch your books, you want to grow this. You understand what I'm telling you – the willingness thing – you want to, or you don't want to. You burn it because of a reason, whatever they are – because you want to make a statement. We're a country that are a destructive nation – I have to moer you. Now, there was a major wake-up call

when I was in China or Russia or wherever, and they were at war for centuries, with everybody. But they did a very funny thing, which I think is actually a very good thing – whether their history was good or bad, they embraced it, They will still tell you how they were defeated, cos there's a lesson to learnt from being defeated. What do we do? We have now won the war, therefore we have to kill what we fought against – now we have to take down Rhodes statue.

An institution is not gonna meet everybody's needs, but it's gonna meet somebody's needs. Put something in place then that'll meet the rest of the needs. In some point in time, if those 2 things are there, people will find a way to merge. All I'm saying is that is who we are – that's our nature. It\s actually terribly

SO coming back to the IP thing, I need to pass my exam at 30%, the institution is telling me it's gotta be 50%- screw the fact that they're trying to help your brain. I don't want to go to a doctor who only passed with 30% and put my life in the hands of this person. We need to improve on our skills development in this country, and the quality of our basic and secondary education sucks. Why can't we use Atlantis, as an example, as the nerve centre for maths and science centre? In fact, that's what I told the okes who came to see us yesterday. I just put it out there. Let's start a pilot project. It's small enough – two hundred thousand odd people. It's separate. We can put it up, learn from it, grow it. Okay, but you understand the whole concept?

Interviewer: Yes. What can be done to improve on the manner in which market analyses of KOU supplier base- for local content requirements in tenders - is currently being done at the KOU?

Interviewee 1: The mechanisms are in place but they are not being used. It's the database. There are databases available, like National Treasury, our own approved supplier list or ASL and the TLIU database. The difference in the databases is that the TLIU one reflects the systems engineering stuff of the opportunities matrix, and the others do not. The 'what we need to know' to be able to take something forward, is there. That's the difference. But it does exist. Okay, ours is not populated. There is a reluctance to get it populated by PQE. Our ASL is not an holistic thing either. Think about it. It only looks at a certain scope of work, it is

linked to what we procure and hence, you are approved to supply that. It doesn't tell me that you can do other things. I have spoken to Barney countless times before and it has gone nowhere. Maybe what we must do is take it the, let's call it the OC, the oversight committee, and give it an acronym. That should be one of the working groups, to fix our approved suppliers list or ASL. That working group thing is gonna be so powerful because we can do so many things with it.

Interviewer: And I suppose this is the same thing that we do when we issue RFIs and EOIs to the market – we are still looking for a particular thing, we are not looking holistically for more things that you they can potentially supply.
Interviewee 1: Exactly. Look, they, PQE, are going to the company in any case so why not ask the question anyway? Just get the capability on the
list. I have been in conversation with Veritas – whom PQE uses – and they do the assessments in the way that we want it and need it to be done. They asked me how do they get involved in this new build programme and I say to them, "*go to the TLIU and help them populate the database*". Again, it comes down to putting the contract in place via the tendering process. The bottom line is, its whatever. We shoot ourselves in the foot every time.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List (ASL)?
Interviewee 1: See the previous question, the CD is finished!

Interviewer: Last question! How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons. Okay, we have discussed this earlier. Thanks for your time.

End of Interview.

APPENDIX C

Interview with Respondent 2

Interviewer = Researcher

Interviewee 2 = Participant 2

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 2: Yes. To move forward, the government will need to use the SOCs to further its efforts. There's more control through Minister of DPE through the Eskom Board. Almost every country does it, but it's disguised. South Korea is an example of a great success where localisation's worked.

Interviewer: What is your understanding of the transformation agenda in Eskom, Koeberg?

Interviewee 2: Transformation is a broad term. By definition, transformation is 'a butterfly' – a dramatic change or metamorphosis of some sort. Because Eskom is such a key role player in the economy, if done diligently, the results could be great. Koeberg would like to comply with what the government wants and we need to meet those objectives. If we need to meet the Shareholder's objectives and compact, and if it has a strong transformation agenda, then we will need to achieve it, and it must trickle down the organisation. But you could also say that the transformation agenda is related to the political agenda. So like in any business, we'll have to make it work, where we can, we can use to our advantage. In Koeberg's case, it could be so much bigger, and so much more than just simply business, cos it's important to the objectives of the country.

There is also B-BBEE and other economic targets that must be met. All of these will stimulate growth – the objective is to meet these targets.

Interviewer: What are your thoughts regarding the manner in which the implementation was done?

Interviewee 2: The implementation has been too slow and ineffective to a certain degree. It is not being driven enough and as vigorously as it should be. So, even

though it looks like it's being done, it's not. When we look at the French and what they've achieved, and more importantly, in South Korea, we can see that it can be done and is achievable, but it'll require a lot of political will to achieve it here too. We need to build a lot of momentum. The framework's there, it exists but we need people who'll influence it. We need technical people, in a technical way to influence it.

We'll also need people with real influence to be converted. There're such a lot of benefits to localisation but it mustn't be seen as an easy way to make money. Corruption must not seep in. The new build shouldn't end up like Medupi and Kusile. The numbers for skills development and the like, may look good but it's not from a technical point of view. And so there's room for improvement in terms of supplier development. Often, if there is no audit book, then it's a waste of time. So we gotta contract it in properly and make sure that we want to happen, happens.

It shouldn't be seen as a gain for entrepreneurship, but as a socio-economic initiative and so we have to think and act differently in how we approach it.

So by contracting it in, we can influence it in that way. We need to steer away from *tenderpreneurship* as it doesn't benefit the greater good, but just leads to benefits for the corrupt and their cronies. All it says is that we can't do things in the proper way and that corruption is rife.

So if you now say you want to localise, people are sceptical and think that you're being dishonest.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	**2**	3	4	5
	X			

Interviewer 2: It's 2, it was done poorly.

Interviewer: What do you think of the role of leadership, particularly Nexco, as the most senior management team in driving the transformation agenda at Eskom, Koeberg?

Interviewee 2: Look, leadership's been lacking. We could have done more, and we can still do more. But, to do more, we must not only push in a silly, ineffective way, as we'll get very little back. How effective have those past Nexco presentations and NEXCO been? Not much…so that's my point exactly.

SDL's been successful in influencing thoughts in the localisation aspect of the transformation agenda. So, it needs to take it and make it happen again. Make it happen. That has been done well. And that is all. For projects it's been especially good. But across the board for the whole of Koeberg – like the plant - it hasn't been well.

There are pockets of success and excellency. In fact, I would argue that we're in a different space than the plant people, even though we have taken the lesser risk approach, instead of the no risk one. When you localise, there's risk. But there're lots of benefits when you visit factories, and many of these factories are not 'far behind' in the technical sense. But, in terms of 'paperwork', and marketing themselves, they're very far behind. So we need to look at the delta where they're lacking, and that's why I make it my mission to visit factories, cos that's the way that we'll see what they can do.

We can look at the capabilities of the suppliers in the United States then look at South Africa and look at our local capability, and then we can realise that we can do it here. And so how do we do it? It starts with bringing in the overseas expertise into the country and matching it with the local capability. These so-called 'technical' things are not purely technical, so that's not strictly true. They can be viewed as an 'art' or expertise that you get over time because of experience and know-how or even OE, or a know-how or IP.

[Interviewer: Can you provide some more details about this?]

Yes, we can request the overseas companies to come over, so that they may bring their supervision, for example over manufacturing processes, factory acceptance tests and so on, over to SA and over time, the creation of local capability will be in place. Also, we can 'force it' via contracting. Therefore, Nexco should have a

local target to monitor all the time, and not only consider it once a year in the shareholder's compact KPIs. Nexco mostly felt that some risk isn't bearable, and were worried that when we push localisation, then we'll stuff it up, and so we have to make sure that we ramp it up over time.

We should be 'marketing' SDL better and be talking about its knock-on effects. We do very little regarding supplier development, and much more needs to be done.

[So what do you think should we doing more regarding supplier development?]

We'd most frequently like to create opportunities, cos how do you expect the client to tell you how to close your gaps? If we run Koeberg like a charity organisation then Eskom's suffer even more. We're not here to help one supplier above another, as it'd be seen as favouritism, so we should just be creating the opportunities. The supplier development must first be done by having the right political will, like they had in South Korea, which is a great success story of how government provided the money to do it.

[Interviewer: Yes, it is I'll definitely be looking into.]

Interviewer: How has Nexco championed the change management process related to the transformation agenda in Eskom, Koeberg?

Interviewee 2: Nexco's been good on the non-economic side of the transformation agenda, on the HR side. This has been in part due to the Eskom Board wanting a more empowered workforce here, and so from a transformation point of view, Nexco has championed a transformation agenda and so I'll give it an average score.

Interviewer: How would you describe the current status of the Koeberg implementation of the transformation agenda?

Interviewee 2: It's what I said before.

Interviewer: What do you think has been the major roadblocks or problems associated with the Koeberg implementation, what's your perception?

Interviewee 2: There're a lot of mental roadblocks that make us think that we can't do it. We are also very risk averse and scared to make mistakes with localising. As a business, we have not bought into localisation. In the East, in

South Korea and China, there's pride in what they can do as a nation, and unfortunately, we don't see the same picture as they do as a country. And importantly, we don't have the thinking that we can localise or that locally manufactured or produced items and services are equivalent or better than the overseas imported stuff.

[Interviewer: So what will make us think differently? What about Proudly SA and all the other things like Buy Back SA etc.? Have these not made a difference?]

Look, those things are out there, and I can give you a lot of examples about the way people think when it comes to personal stuff like TVs and using equivalent local spares for other things they use – they just think it's inferior and not as good as the *genuines.* It's just *misjat* to them. So for us to succeed, we must make sure that the whole country's value chain buy-in into the idea, cos it's the concept and practice of what's good for SA Inc. that we must sell to them.

[Interviewer: So whose job is it to sell this? Who must make people aware of what we are capable of doing?]

That's where the political will comes in to make this thing work. We must go back and look at what the South Koreans were able to achieve with what they had at the time. It's basically the government's job to help the suppliers and help put together capable local suppliers. We need to assess, with the likes of TLIU and other stuff like that, including Eskom, what the local capability is out there. Where there's a gap in industry, we must create local industry and the suppliers to do it. Of course we can't do this for everything, cos it just won't make sense, if the economics, an it's not realistic. And this will require the whole country's mind-set to help us pull it off. So what I really think is missing, is the notion of National Pride and we're severely lacking in this. Like I said, we see examples of national pride when we look at the South Koreans and Chinese, and this is the reason for their success.

Interviewer: What are your recommendations on how the transformation agenda should be implemented in the nuclear new build?

Interviewee 2: I'd be very cautious about that, the reason is because we don't have the capacity to manufacture a lot of things we'll need, and especially not a lot of the heavy components in South Africa. The problem with these types of

components are that they need to be manufactured according to specific quality standards and required quality levels that we can't meet. The South African Industry is not geared up, and as an example, think of something like the reactor vessel head. It's manufactured according to very specific requirements. It'd be a disaster to think that we could manufacture it here. So rather than think about those things that we'll never be able to do, we gotta use the Koeberg projects to gear up the local supply industry for what we could potentially do, and make the industry ready else it will be a stuff up. On nuclear new build, we need to have a graded approach to how we are going to localise. This is clearly documented. This is why we also favour the fleet procurement approach for the new build.

It's also important that we mustn't be greedy cos there's a real risk of messing up the project when self-gain issues seep in. So, the new build crowd must have their eyes open and peeled, especially when you think about all the funny stuff that we saw happen at Medupi and Kusile. In nuclear, this could be a thousand times worse, it'll be so much more severe and costly.

[Interviewer: Okay, I understand the hesitation about the nuclear island, but what about the rest?]

Ja, the Balance of Plant stuff can definitely be done locally and things like the heat exchange piping and other stuff on the secondary plant. But we shouldn't be paying a premium, and we gotta make sure that it's within the 5 to 10% increased range only, or else it doesn't make business sense to do it.

[Interviewer: But what about the argument that at least the money stays in the country and that people have jobs and all the other societal benefits that comes with it?]

We're fooling ourselves to think that we can become competitive as a country by thinking that we can settle for paying more, cos then we won't be able to compete with others in the world, and no-one will want to do business with us. Like I said, it just makes business sense. Plus, other companies out there won't wanna do business with these suppliers and they can't only depend on us for support, we can't be their only customer. And the cost factor is very important to Eskom – we can't allow what's happened with the cost escalations at Medupi and Kusile to

happen to the nuclear build. It will be a total stuff up on a far bigger level cos South Africa will be left bankrupt.

Interviewer: How cognisant are you of considering aspects related to the transformation agenda, bar the functional requirements, when you consider criteria to be included in tenders? Please elaborate.

Interviewee 2:

We're very aware of this and like I said earlier, this is why there's a lot of benefit in visiting local companies and doing site visits, cos you pick up so much of what they're capable of doing. But, we need to do more of these supplier visits and we need to allow our people to see what's out there. I am very much in favour of this. We need to see how we can roll this out to the business as a whole as it adds a lot of value.

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area?

Interviewee 2: That'd be taking on too much risk and not understanding the local suppliers' capabilities. So in order to mitigate the risk, we must understand the risks as well as the suppliers' capabilities and include compensatory measures so we can sufficiently cover our risks.

[Interviewer: So what can we do about it?]

Interviewee 2: As an example, we can add clauses into the contract that provides for increased quality and so on. So as long as your eyes are open, you're ok. We know the consequences and so we need to include compensation either way.

Interviewer: How have you ensured that the 5 SD&L objectives, in respect of the transformation agenda at Eskom, Koeberg, are addressed within your requirements?

Interviewee 2: We must make it part of our contracts and make it part of our formal requirements that we can monitor and measure it.

Interviewer: What are your main challenges in ensuring that the 5 SD&L objectives are included in your requirement?

Interviewee 2: Technical capability's a major issue. We must have the required capability in order to make sure that we can consider local in our tenders. I'd say that the reactor vessel head is a good example of needing the capability.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects / impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 2: The transformation agenda is important as it will maybe normalise society. Given that so much time has passed, and people aren't necessarily better off, maybe the B-BBEE legislation and policies is not a smart way to do business. And with HR transformation, we're almost 30 years into our democracy and yet the more you speak to people, the more you find that these people are becoming even more disempowered and disadvantaged, to the extent that they feel like there's no future.

[Interviewer: Which people are you talking about specifically?]

I'm speaking about the white people. Those in my department have made it clear that they'll leave Eskom as they see us as perpetuating the idea of prejudice. But the knock-on effects mean that the next generation will be better off cos B-BBEE won't be there anymore. If were paying a premium for transformation and localisation then we're not being competitive and therefore shouldn't have a right to exist. Whenever you to try to protect an industry, it becomes complacent and uncompetitive cos productivity is especially negatively affected. The long-term effect could be that we do nothing to be innovative as we'd have a captured market.

Interviewer: Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	**Always**
4	Sometimes
3	Seldom
2	Not often
1	Never

Interviewee 2: It's number 5 cos we always do it.

Interviewer: Which of the 5 SD&L objectives, i.e. transformation agenda elements, have you implemented or have you had success with? Kindly share your experience, positive or negative.

Interviewee 2: We've had some successes on localisation and black empowerment. PTR ticked both of the boxes. But I'd say that not so much supplier development is done. The way I see it, is that suppliers are forced to do it and so it's not done by their own hand. With the other guys, the smaller ones, they often use a proxy, who then comes in at a certain quality level, to get the tender and contract. This doesn't really help them much either.

[Interviewer: Yes, that's not the ideal way to do it but what if it at least gives them the chance to work on site and learn from the bigger supplier who provided the proxy?]

But that's the thing. They don't learn cos we do find out about it and the bigger supplier is responsible from a technical and quality point of view and there's no requirement to do skills transfer while they're doing work for us. What we could do about it, is to use it in works where, for example, the USA comes in and transfer the skills to local companies who then in turn will get the credit for doing it. That's how China gets it right, they would say, as an example, 'show us' and then within 2 years own the IP.

Interviewer: Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements?

Interviewee 2: Question's been answered.

Interviewer: During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

1	**Yes**
2	No
3	Not Applicable

Interviewee 2: It's number 1, yes, it's part of the procurement strategy and so it must align.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies "front end loading / planning" (FEP) which is essential to the impact that SD&L has on a commercial transaction as well as the local supply industry as a whole to be in place. Is this FEP practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.

Interviewee 2: It's not entrenched in the business yet, but we do more benchmarking now. When we visit suppliers, mostly manufacturer's sites, we check what they do and the processes they use. After we have an understanding of what they can do what they can offer, then we have more information and can make more informed decisions about local supply and alternatives out there. We can then match it to our requirements also.

Interviewer: Additionally, please explain how else you can ensure that "design for local" strategies are included in the commercial strategy of your requirement.
Interviewee 2: Question's been answered.
Interviewer: Do you consider the SD&L Opportunities Matrix tool or approach employed by KOU SD&L effective when considering design for local in front end planning strategies? Please explain or elaborate.
Interviewee 2: Yes we do. It shapes the way you think, but you can't use it for everything but has a role to play. You've got to look at certain things on a case by case basis, and on its own merits, and that's how you attack it. So, on a high level we can use it but it needs a deeper focus, like the working groups and the one we had for the casks.

Interviewer: What are you perceptions of how the SD&L imperatives within the transformation agenda align with RD-0034?
Interviewee 2: Dunno.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement in KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?
Interviewee 2: Also dunno.

Interviewer: What would you like to see being done differently regarding the current implementation of the transformation agenda in Eskom, Koeberg?
Interviewee 2: We must look at the capability of suppliers and go into it with our eyes wide open. So, we must be an intelligent customer. You don't know what you don't know. Simple.
You must have a feel for what you're buying and know the cost of it and what the key cost drivers may be. Also, know the market price. You need to have an understanding of the technical complexities involved – or else the suppliers can easily take you for a ride and massively inflate the costs. This is what the so-called fair market price is about, so gotta know what it takes to manufacture components locally.
Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.
Interviewee 2: The full support of those in influential roles will be necessary to make a success of it.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?
Interviewee 2: Had full support.
Interviewer: Are there Key Performance Indicators (KPIs) included in your performance contract regarding the progress or outcomes of the transformation

agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.

Interviewee 2: No there aren't any, not yet directly. It's reported at a global level. But it should also be incorporated into the performance contracts for those that're involved in contractual agreements, as it's better suited there. It can then be measured and monitored. And yes, it's a good thing to have KPIs so that we can make sure that the transformation agenda is met.

Interviewer: How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives, SD&L, at Eskom, Koeberg?

Interviewee 2: I don't know. We spoke about the B-BBEE legislation earlier. It's limited and I'm not sure if it is enough to help cos it hasn't really made a big difference to people yet. I'm also not really sure about the other stuff, or legislation.

Interviewer: What do you suggest could further be done about ensuring that the design for local imperative is fully maximised when procuring items on the open market?

Interviewee 2: We've covered this and I'm not sure of what else.

Interviewer: How do you suggest that we go about / engage OEMs / OESs on the transfer of their intellectual properties (IP) rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?

Interviewee 2: We're struggling with IP. The way to do it is to show a mutual benefit. We need to show that in the long term, it will benefit them. They can use the revenue from the sales to manufacture more components back home, that means more revenue streams for them. Ideally, they could also enter into agreements with us, where we could possibly manufacture some of the smaller components for them and then we get the localisation benefits in SA, and of course more jobs in both countries – but this will be in the longer term.

So, we don't need the IP to do that. We're not component manufacturers. Buying IP will be an unnecessary cost and such cost does not justify the supposed benefits, so we must do a business case on it. It's also not ethical. We should

adopt localisation, yes, but not industrialisation. We can also manufacture components and sub-components for export.

Interviewer: What can be done to improve on the manner in which market analyses of KOU supplier base - for local content requirements in tenders - is currently being done at the KOU?

Interviewee 2: We have to conduct feasibility studies to see if or which components can be localised. We need to start picking our battles.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List (ASL)?

Interviewee 2: We somehow have to take away the 'scary cat' factor from nuclear. Existing suppliers make other potential suppliers afraid of 'nuclear' requirements, for example, they don't know how our quality systems work and so on. The problem is though that Koeberg often pays a price premium in these cases, as we can see from our tenders.

[Interviewer: So how do we get them to tender?]

We must continue the engagements on our requirements with the smaller guys, like those that we invite to our supplier forums, and those that show interest, and start inducting them in this way. They could also be introduced into the Koeberg supply chain by the way of partnering – maybe as joint ventures and so on. The best way would be for them to start off on smaller projects, either by tendering alone or with a kind of joint venture partner. Also, they can adopt sub-contracting, but to a lesser degree.

As Koeberg, we also have to re-look at our functional requirements and ask ourselves why the same companies keep on tendering and getting the work.

Interviewer: How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons.

Interviewee 2: Theoretically, I don't know yet. Need to see the benefits of it first.

End of Interview.

APPENDIX D

Interview with Respondent 3

Interviewer = Researcher

Interviewee 3 = Key Participant 3

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 3: Yes, but with the rider that it should be used responsibly and in the spirit of state development. And I think you know what I mean by that.

[Interviewer: Are you referring to the corruption and state capture bits?]

Interviewee 3: Correct, for example the Guptas. So I think that because government is the leader of the company, it has an example to set to the state owned enterprises to give a boost to the people through the SOEs.

What are your thoughts regarding the manner in which the implementation was done?

Interviewee 3: I'm not completely familiar with the legislation, but I know the just of it. Look, my experience is through PTC, so generally my experience has been that it's an initiative that we need to force on to suppliers – and I am deliberately using the word force on purpose - cos generally it's not something that's happening naturally. So, I generally find that we need to speak about it when we're issuing a mandate to negotiate and generally we need to specify there, 'look, make sure that you get the SD&L aspects properly negotiated so that we can get the best benefit out of it. So I'm seeing it in that context. I'm not sure how the implementation was done but it doesn't seem to be proactive, and I can't say that's it reactive either.

I think it's done when we're requiring the placing of a contract, to see what best we can get out of that contract. Not necessarily at the end of the process, I think that we're just trying to leverage our money – which is part of our mandate – but you know, there's a way of doing things, and there's a way of doing things. So

you can just live by the rule, and do things for the sake of doing it, or you can go the extra mile and do it with some initiative.
Now what I mean by some initiative is, for example, we could most probably develop contractors to meet our standards and things in advance, and we could team up experienced contractors with less experienced contractors in practice, so there's transfer of skills and such in that way. Of course, again, we would need to facilitate that based on the leverage of our money, but it's more proactive than now.

And I think there's a case of us asking for that to be done this year at PTC.

Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	2	**3**	4	5
		X		

Interviewee 3: Number 3. Not sure, and I don't know. It's sad because I'd think that as I'm part of PTC decision-making, I'd know what's been implemented. Also, it depends on what the plan was, and what we implemented. So I can't say the implemented has been x or y – cos I don't know what I don't know.

How has Nexco, in their role as the executive management team at the KOU, championed the change management process related to the transformation agenda in Eskom, Koeberg? What are your thoughts related hereto?
Interviewee 3: I've only just become a member of Nexco. So I don't know, I'm not aware of anything.

How would you describe the current status of the Koeberg implementation of the transformation agenda?
Interviewee 3: Same as before – see PTC comments.

What do you think has been the major roadblocks or problems associated with the Koeberg implementation, the perception of it?

Interviewee 3: Look, one thing that probably hampers us is the procurement process, its generic rules of the commercial process, where you're not allowed to favour any supplier – and I agree with that, we're not allowed to favour any supplier – but then we need to find a way around the way of developing suppliers, without favouring them – which, I think, is quite a tall task. And so it's a bit complex, cos if you change the rules, you become vulnerable to abuse. So how do you now, develop suppliers, and give them preferential treatment to develop them?

What I'm specifically speaking about, is supplier development, I haven't even come to localisation yet. Do you know John's take on how they wanna do it for new build?

So John's view or plan is there should initially, when a supplier comes through, he forms a company in South Africa, where the overseas supplier has majority ownership of the company, and somehow as time goes by – so there are other South African companies that also become part of this company – it's a conglomerate – and as time goes by, the percentage of ownership shifts from foreign companies to local companies. But, the foreign company always owns a minimum shareholding, to make sure that they continue to get their royalties and what not out of it, but the idea of the conglomerate being a mixture of South Africans and foreigners.

So the idea is that you get skills transfer and you get technology transfer as well. So the entity always stays, but it's just the ownership that shifts, as the project progresses and as more experience is gained. So that's his model of how we should be doing localisation.

What are your recommendations on how the transformation agenda should be implemented in the nuclear new build?

Interviewee 3: Look, we've tried the classical stuff here in South Africa, trying the whole Hitachi story and all of that and I don't think that's worked out very

well. This model that I spoke about now will be a more practical in that it can benefit more parties, and I think that that's why it can have more success that the normal model, because the parent company never loses their percentage of ownership and the benefit that you get then is any update in technology as well, it can be fed back into the model. So I think it's a very viable model that we should use.
So that's one way of doing it, and then maybe where there's high technology and high skill involved, where it's maybe from a skill point of view, maybe the other training mechanisms will work like partnerships can work, where companies are looking to do business in South Africa, but of course, bringing in large amounts of foreign labour and so on becomes very costly. So, they would use a South African contractor and develop them. And in that way, imparting skills on them on well. So I think it should be like a graded approach to the new build.

I don't think there're too many models in the world anyway, as in how this is done.

How cognisant are you of considering aspects related to the transformation agenda, bar the functional requirements, when you consider criteria to be included in tenders? Please elaborate.
Interviewee 3: I'm sorry but we don't issue tenders, not yet. I can't answer that.
[Interviewer: No problem, I know that you don't issue tenders and that many of the more end-user type questions won't be applicable to you, but I value your insights into the new build as well as from a holistic perspective as a PTC member, so will just mention the question, but if you feel it's not applicable to you then please just say so! Thanks!]
Interviewee 3: Okay. I hope that I can be of help.

Interviewer: Of course you can, like I said, your contribution is valued.
Back to the interview then! What kind of challenges have you experienced with implementing the transformation agenda in your area? That's the question – again, it's likely not applicable to you, please advise.

Interviewee 3: Yes, it's not applicable.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects or impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 3: So, I think the longer term benefit's that we have more accessibility to suppliers, so that is a critical benefit, and so we're not at the mercy of one supplier – so that's strategic. And of course, for Eskom, is means competitive pricing in the market. It also means from a skills point of view, Eskom would be less vulnerable to losing skill, such as it had experienced with the UAE or to similar type projects. Indirectly, it establishes an industry, that then enables us to more cost-effectively, run out plants. And it will directly affect the price of electricity. I said indirectly there, but I think that it's direct.

[Interviewer: Yes, I think so too. But it can also be indirect, but it has a major impact, yes.]

Interviewee 3: For long-term drawbacks, I was thinking there could be a possibility of IP risk – but then we don't have any other competitors, so that can't be it. Maybe nuclear security due to greater knowledge out there of your plant and your design by others.

We have cases at Koeberg of being vulnerable because of single source suppliers. And, that pretty much have us at the short and curlies. I mean, when I think of the guys like – apart from the OEMs – the PCTs, etc.

[Interviewer: But we created that sole source, PCT.]

Interviewee 3: I think sometimes it's just because of the – I'm trying to relate the hardship of trying to put a contract in place – connected to – no it's a reality, it takes us 6 to 9 months to put a contract in place. Connecting then, to a limited number of suppliers, do you really wanna go through the pain of adding more suppliers, when you've already got such a heavy process – not hard – such a hard process, I should call it. It's a process burden.

Interviewer: Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	Always
4	Sometimes
3	Seldom
2	Not often
1	Never

Interviewee 3: I don't know.

Interviewer: Which of the 5 SD&L objectives or transformation agenda elements have you implemented or have you had success with? Kindly share your experience, positive or negative.

Interviewee 3: Also not applicable to me.

Interviewer: Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements?

Interviewee 3: Same as before, not applicable.

During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

It's number 3, not applicable.

1	Yes
2	No
3	**Not Applicable**

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies front end planning to be in place. Is this

front end planning practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.

Interviewee 3: So front end planning is design for local, okay. I'm not sure how well we do this and I'm not sure to what extent, when we design, we look for components that are manufactured locally, because it's difficult to tell. I mean, if I'm going out, for example, use a pump, in a design, then I look at the best specifications for the design. But when I go out to supplier, I'll look at different pump characteristics and I'll choose one that best suits the design. I don't know that, if I go out into industry, if I'll find out what's manufactured locally or not. So we don't really know what's out there. We don't know the local manufacturers. And I'm not sure about the guys on the floor. We need to connect the market to the end-user. Isn't there a database of sorts?

[Interviewer: There's the TLIU which is the best that manufacturer database we have for our requirements.]

Interviewee 3:Okay, but how do we match that to the end0user and say, 'listen this is what's out there in the market? Or this is what we can get from market – and here is the link if you need to use the stuff, or if you're designing something – speak to them and they will find you the component or something like that. Or, here's a list of components that they have that you can use.

Interviewer: Additionally, please explain how else you can ensure that design for local strategies are included in the commercial strategy of your requirement.

Interviewee 3: I'm sorry, also not applicable to us.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement, regarding the KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?

Interviewee 3: Look, I think that the government legislation is good because it forces you to do something, to localize stuff. But I think that 'how' part is left to us, but I think the legislation clashes. So example, if you look at, probably PPPFA and if you look at localisation – I'm just drawing the conclusion that they must be clashing because of how heavy the procurement process is, which doesn't really

allow us to develop the suppliers. So, you can leverage your money and ask one supplier to develop another supplier, but we can't do it. We don't do it. I think it's because we can't do it, because of legislation. We'd be seen as favouring suppliers.

But there's where the clash is.

Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.

Interviewee 3: So look, in the interim while we can't develop suppliers, we need to leverage suppliers that we have, to leverage our money to get the best for SD&L. So, we need to - and there's a bit of a conflict here. So if you're a large supplier to Koeberg, or if you are an OEM supplier to Koeberg, you don't really want to part with your IP, and don't really wanna train somebody who will become a competitor to you, it becomes a risk to your business. So that's a little bit of a challenge on how we're gonna do that. And I don't think we pretty much know yet how to handle it. So, I mean you're asking a supplier to develop a competitor to themselves. In essence, that's what we're doing. So that's one thing.

The other challenge is, where there are suppliers, the business case for them is difficult. So, there aren't enough volumes for them in the high technology areas. So I think with us going into a scenario of the fleet approach, there might be a scenario of bigger quantities. And the other thing we could most probably, leverage the quantities of Eskom. And I'm not sure if we do that well enough. I'm not sure that we participate collectively as Eskom in drawing from the market. So Koeberg might want to buy some stuff from a supplier, and maybe Peaking in the Western Cape, and maybe even others also want some stuff from a supplier in the Western Cape.

So, we could maybe buy volumes. And we could maybe strategically divide volumes up and say, certain parts of the Eskom business must come to the Western Cape and certain parts stay in Gauteng – and we could transport the stuff – I mean we're transporting it from overseas anyway, I mean we're paying for it indirectly. So, that could be one thing.

Two, I think there's suppliers who are supplying to us through other suppliers. And they're most probably not recognised because they don't have the systems or quality aspects in place, and they're working to somebody else's quality system. Or, we are buying through somebody else's quality system. So, I've got an old family friend that was actually supplying an intermediate to supply Koeberg, So he asked me, *'listen, how do I get involved supplying directly to Koeberg?'* – so well, I gave him procurement's details and I'm talking about 5 to 8 years ago, and I said, '*look, I can't get involved cos it'd be a conflict of interest, but here's the people to speak to',* and I don't know what happened eventually as I stepped out of it.
So, I think there's opportunities out there, low hanging fruit, where we could look through the suppliers with some savvy, and be able to get to, where are the actual people doing the work and not the intermediaries. Just look through our supplier chain – are they the intermediary or the manufacturer?

Look, a lot of these smaller suppliers do have a quality management system of some sort, but maybe not in the way that we want it. So it's about helping them how to document it, and showing them how to do it.
[Interviewer: So how do you think we could do this, cos it could benefit a lot of small black companies that we're looking for, or EMEs?]
Interviewee 3: We as Eskom should be allowed to go out there and do the capability assessment, check the gaps and advise them on how to close the gaps. Meet the requirements, and at the next tender, you'll become eligible to tender for this.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?
Interviewee 3: It's not applicable, we aren't in the procurement space yet.

Interviewer: Are there Key Performance Indicators, or KPIs, included in your performance contract regarding the progress or outcomes of the transformation

agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.

Interviewee 3: No. It's not really applicable to me. But where maybe the KPIs and KPAs are applicable, are the people who actually soliciting suppliers, so there's people like – it has to be procurement, it has to be your project managers because they're buying stuff, other contract managers and end-users. So not necessarily contract managers, but I think it's end-users, cos I think they influence things.

Well, he should have a twin KPI that says, '*how financially competitive is it what you're doing, are you applying yourself to the benefit of the company*?'.

Interviewer: How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives at Eskom, Koeberg?

Interviewee 3: We spoke about this earlier.

Interviewer: What do you suggest could further be done about ensuring that the design for local imperative is fully maximised when procuring items on the open market?

Interviewee 3: So I think that's related to connecting what's out there to procurement – and I'm going to leave the end-user out of this, because remember we said that the end-user cannot specify a particular product. So, it's procurement knowing what's out there, and linking it to the user – the user requirement. Look, and in some cases, I think the heaviness of our procurement process, inhibits suppliers sometimes – a lot of requirements, a lot of paperwork. You have to invest a lot of time and money to put a tender through. And I think some companies weigh up the hardship versus the benefit, and say, '*well, is it really worth it?'*, I mean typically with this rigging story. So we don't get responsive tenders, so it's things like that that we need to look at.

Interviewer: How do you suggest that we go about or engage the OEMs and OESs on the transfer of their intellectual properties rights attached to relevant

imported items - given that this endeavour is potentially costly and difficult to achieve?

Interviewee 3: So there needs to be some sort of benefit for them, because they invested in this IP, so there needs to be some sort of pay back – you can't just take somebody's IP. So, what we need to look at is manufacturing under license as a viable option for them – royalties.

As an alternative to that we could also look at reverse engineering – but I don't know how ethical that is though – but for obsolete items, it's the best way to do it. You could qualify it, and say that when an item becomes obsolete, reverse engineering is the only way. But I think the payment of royalties is pretty much an accepted process around the world.

But if you're going large scale, look I'm not talking about Koeberg where the volumes may not necessarily be enough, but if you do it large scale, then most probably partnerships could work – either as a joint venture or on their own – where the 2 suppliers now becomes partners, or some other means, where it's beneficial for both parties – the moment it doesn't become beneficial for one of the parties, there's no point to it. But we need to be able to create the volumes as well, and do a business case. If a business case is not, and there, the local companies will fall down.

And maybe another thing we haven't spoken about is the local companies being used to boost the volumes and forming part of the OEM vendor's international supply chain, and then their business case will look a lot better. And if the local suppliers can be competitive, then there's more reason for the OEMs to use them in the international market. So they export sub-components and components to the OEMs other market.

Look and with the other thing is that in new build, we talking about buying the IP – in that case, we own the IP, then we'd be able to manufacture – then we'd be able to get the South African suppliers to manufacture the components for South African market – I'm not sure of how the IP on the international market would

work – if we could export it. So if we own the IP as SA and it could be that they tell us the IP is only for utilization in South Africa. So what we should most probably do is negotiate and say, *'okay, sell us the IP so we can use it in Africa'*, and I think that's good middle ground negotiation. So we won't touch the world market, so give us the African market.

Interviewer: What can be done to improve on the manner in which market analyses of the KOU supplier base, for local content requirements in tenders, is currently being done at the KOU?

Interviewee 3: I think that if we're savvy enough, and look at where the goods that we buy are coming from, for example is it coming via an intermediary, or is it coming directly from the manufacturing supplier? Then, that market intelligence will tell us where our goods are coming from, and where the capability lies – the actual manufacturing capability, not the intermediary.

But when market anomalies happen, like for the DEG project, where the intermediary is cheaper than the manufacturer refrigerant, we need to investigate – when it's the other way round, and what lessons we can learn from that. That's market intelligence.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List (ASL)?

Interviewee 3: Or maybe we should ask ourselves, how relevant is the ASL? Because, we're forced to go open market and open tender, probably 95% of the time. Capability assessments must be done on all vendors, unless we use emergencies. So I suppose the ASL would be beneficial when you do have an emergency. But in terms of putting people on the list, there is no other way than to go and do the capability assessment. Or, maybe, to advertise and to say that we're looking for capabilities in the following areas. But not only when we need a tender. Outside of a tender, we can go and advertise and say, '*right, what's market capability?'*.

[Interviewer: Like with a pre-qualification?]

Interviewee 3: I think it can be done proactively, so I don't think we have a handle of handling contracts. So I think we wait for contracts to expire, then we go and do something. So I think if we have these contracts that are expiring, we could, a year or so beforehand, start engaging the market for that particular scope of work. We can then check the capability in the market. I'm not sure we're savvy to the market, when putting out a tender to the market. So I think there could be more work done.

Interviewer: How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons.

Interviewee 3: There's been no training as yet, so I can't comment.

End of Interview.

APPENDIX E

Interview with Respondent 4

Interviewer = Researcher

Interviewee 4 = Key Participant 4

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should
be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 4: Yes, as private companies don't have the state's objectives in mind. When we look at the New Build before, in 2008, basically nobody could enter the market because of pricing difficulties, and so it's important to use the SOCs as a means to drive the government's developmental agenda, who must be allowed to run themselves without the government's interference.

Interviewer: What is your understanding of the transformation agenda in Eskom, Koeberg?

Interviewee 4: The transformation agenda is an agreed objective that has been set and bought into by all the staff and everyone meeting it. But, everyone here has their own agenda. The transformation agenda is collectively not well-understood and it hasn't been well communicated.

Interviewer: What are your thoughts regarding the manner in which the implementation was done?

Interviewee 4: I've seen none of it. It's an afterthought and not in everyone's mind. Nobody really cares about it and it's a 'sidebar' issue. It's not foremost on people's agenda. They don't understand its intent.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	**2**	3	4	5
	X			

Interviewee 4: It's number 2, it was poor.

Interviewer: What do you think of the role of leadership, particularly Nexco, as the most senior management team, in driving the transformation agenda at Eskom, Koeberg?
Interviewee 4: I've not seen it, it's been delegated to the senior manager commercial.

Interviewer: How has Nexco championed the change management process related to the transformation agenda in Eskom, Koeberg?
Interviewee 4: Same as number 5, no support seen.

Interviewer: How would you describe the current status of the Koeberg implementation of the transformation agenda?
Interviewee 4: It is still poor.

Interviewer: What do you perceive to the major roadblocks or problems associated with the Koeberg implementation?
Interviewee 4: It's a lack of ownership, everyone doesn't understand the country's objectives, and then it isn't considered. They all seem to think that they need to pay for it. The intent of the B-BBEE Act and Codes is brilliant, the legislation is excellent, yet it's not understood by the people who must use it. The SD&L champions don't take or make an effort to take it down a path. SD&L should be engineering led, as this is purely from a guidance and technical point of view.

Interviewer: What are your recommendations on how the transformation agenda should be implemented in the nuclear new build?
Interviewee 4: We need to have a clear strategy that's documented and signed at all levels of the organisation. The contract must be in place, together with the

KPIs and penalties therein, in order to ensure that the deliverables are met. The contract clauses need to be utilised in order to make sure that this is done. There must be an organisation in place to drive and measure it, as well as see that the necessary oversight is in place to ensure its success.
I have not seen a structure for how the transformation agenda will be implemented in the New Build, and don't know how it will function as there is no strategy in place. The 'action' and 'do' part is missing.

Interviewer: How cognisant are you of considering aspects related to the transformation agenda when you consider criteria to be included in tenders? Please elaborate.
Interviewee 4: It is always in place on my mind and in my section's.

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area?
Interviewee 4: Nothing. It has to do with the will to do it. That's all.

Interviewer: How have you ensured that the 5 SD&L objectives, in respect of the transformation agenda at Eskom, Koeberg, are addressed within your requirements?
Interviewee 4: It's not applicable.

Interviewer: What are your main challenges in ensuring that the 5 SD&L objectives are included in your requirement?
Interviewee 4: There aren't any. If you have the will to do it, it'll be done.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects / impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.
Interviewee 4: The benefit isn't necessarily for Koeberg, but for the whole country. The reality is that for Koeberg, with its current size in nominal terms, it

only has 2 generating units of 1800MWs, and is too small to sustain an entire industry, including nuclear components and sub-components. The challenge then is to get those interested suppliers to become sustainable in the long-run. In the short-run, it is counter-productive, especially for the black industrialists if we consider that the supply will only be for Koeberg.

Conversely, for the nuclear new build, this picture changes from the former. There will be a world class, strong and competitive industry that will attract only the best suppliers out there, but for that to happen, supplier development must already have taken place, since it takes time to develop the industry to a particular level, from a quality point of view, amongst others.

Interviewer: Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	Always
4	Sometimes
3	Seldom
2	**Not often**
1	Never

Interviewee 4: Number 2, not often. They often don't understand what they need to do.

Interviewer: Which of the 5 SD&L objectives, or transformation agenda elements, have you implemented or have you had success with? Kindly share your experience, positive or negative.
Interviewee 4: I've helped develop one of our biggest suppliers at Koeberg, and that's the biggest success with it for me on a personal level.

Interviewer: Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements?

Interviewee 4: There wasn't any impact, and there doesn't need to be if you have the will to do it.

Interviewer: During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

1	**Yes**
2	No
3	Not Applicable

Interviewee 4: Number 1, yes, but it depends on the project manager. If there was a uniform understanding, it'd be good because there's different interpretations of what's required, and so on. Funny thing is that everyone defaults to training or skills development, instead of thinking globally about things, in the area where the best value can be added. There's very much a 'check-box' exercise done on S&L.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies front end loading or planning to be in place. Is this FEP practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.

Interviewee 4: We're not currently in the market (for tenders). But, if we were to be, we'd be catering for it for the future.

Interviewer: Additionally, please explain how else you can ensure that 'design for local' strategies are included in the commercial strategy of your requirement.

Interviewee 4: You need to see the HPC contract and what was EdF's approach. A vendor didn't know the term 'localisation' in 2008 for the Nuclear 1 tender. Thanks to our intervention, now the IAEA knows about it and it's become part of international practice.

Interviewer: Do you consider the SD&L Opportunities Matrix tool or approach employed by KOU SD&L effective when considering design for local strategies? Please explain or elaborate.

Interviewee 4: I've not seen it. But, it is good if it's there as part of a structured approach to industry for more local participation, as well as part of the capabilities assessment for the industry.

Interviewer: What are you perceptions of how the SD&L imperatives within the transformation agenda align with RD-0034?

It isn't applicable.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement and the KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?

Interviewee 4: It's clear, and it's good, which puts us on a certain trajectory.

Interviewer: What would you like to see being done differently regarding the current implementation of the transformation agenda in Eskom, Koeberg?

Interviewee 4: There needs to be a clear plan in place.

Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.

Interviewee 4: Everything I've mentioned before. There needs to be a clear plan in place, and we need a proper strategy and guideline on how it'll be achieved.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?

Interviewee 4: It's not applicable here. We do what we need to do. I'm supportive of what must be done, then we do it.

Interviewer: Are there Key Performance Indicators, or KPIs, included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.

Interviewee 4: I haven't seen it. It'd help if it's clearly understood. It all comes back to clear KPIs that are actively managed. SD&L should be there, and it must include the contract managers. This goes back to contract management and controlling deliverables.

Interviewer: How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives at Eskom, Koeberg?

Interviewee 4: Procurement must understand it as they aren't providing the requisite guidance to the end-users and contract managers as they need to. If the buyers don't understand it, then we're at a serious loss of ensuring that it gets addressed in the commercial process.

Interviewer: What do you suggest could further be done about ensuring that the design for local imperative is fully maximised when procuring items on the open market?

Interviewee 4: My department is an example of maximising the design for local imperative. It simply goes back to active management and being involved with it. If it's not measured, it simply won't be done. It's frustrating as it becomes a line responsibility, which seems to be a trend in Eskom, but the line shouldn't be held accountable for the outcome.

Interviewer: How do you suggest that we go about / engage OEMs and OESs on the transfer of their intellectual properties or IP rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?

Interviewee 4: We have to make peace with the fact that we'll initially be paying a premium for localisation, and it must be contracted into with the main

international vendor. We need to ask ourselves what we're prepared to pay for it, though. People seem to think it should be free and somehow the vendor should absorb it. As a SOC, it's our own responsibility to absorb the premium. The private sector won't do it – the reason for that is cos localisation is counter-intuitive. Our job as an SOC and as Eskom is not to make major profits, cos we're a state-owned company. Part of the SOC's problem is the private sector leeching off Eskom, to the detriment of the country. Why must Eskom contracts cost so much more? Why are they bleeding us dry when the money must come from taxpayers? It's pathetic.

Interviewer: What can be done to improve on the manner in which market analyses, of the KOU supplier base, for local content requirements in tenders is currently being done at the KOU?

Interviewee 4: It's much like the stadium analogy with the World Cup, or the toll roads. It's related to inflated pricing linked to government contracts. If government picks the partner, then we'll have a different dynamic. But, Eskom and the local partners must be on the same side, and then we'll have a better cost trajectory. South Africa's nuclear industry must become competitive. We can learn from the UAE success and what they're doing.

The PPPFA doesn't meet the local content objective, or very minimalistically does. The exemption process is counter-productive. It should be the law, so why go ask for permission?

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List?

Interviewee 4: We first really need to really understand the capability and, or availability of the local industry. And we also need to understand that our procedures are costly, and maintaining it will be costly.

Interviewer: How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons.

Interviewee 4: I'm not too familiar with it but sounds good. We've not received training on it yet. We have to be cautioned of possible corruption or collusion of suppliers who are party to the process.

End of Interview

APPENDIX F

Interview with Respondent 5

Interviewer = Researcher

Interviewee 5 = Participant 5

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 5: Yes, definitely. As a state owned organ, the funder is government, who in turn is owned by the citizens of South Africa. So there are national imperatives that we need to be progressed, I'm okay with this but I do have an issue with political agendas. As long as it goes through a robust political debate in parliament, given our democracy.

What is your understanding of the transformation agenda in Eskom, Koeberg?

Interviewee 5: It's going back to the NDP. The transformation of the workforce and supply chain is two aspects that are related to it. And so there's 2 aspects there, the first one is transforming the foreign to the local base, and the other is to focus on non-transformed South African companies to become empowered suppliers. And the third leg of it is to upskill the workforce and educational workforce, by giving opportunities to learners.

Interviewer: What are your thoughts regarding the manner in which the implementation was done?

Interviewee 5: The implementation goes back to Eskom leadership and Karl, and leadership was weak. It wasn't owned or driven, I think from the outset, that was the issue, and I think the change stepped up when there was awareness created by the Board coming down here and giving us clear direction and their expectations and Mandate Molefe specifically, ran workshops to help - which in retrospect were change management workshops - but it was helping people understand, and unpack the transformation ideas. So it was effective on the people side of the transformation but the supply chain is lacking and static. I want to qualify that,

and say that it has progressed at Nexco but it hasn't been as aggressive as it could've been. So it hasn't been static going back, but more could've been done.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	2	**3**	4	5
		X		

Interviewee 5: It was average – as learning increased, it moved to a 3. And I'm relying on our KPIs in the shareholder's compact, last year's one.

Interviewer: What do you think of the role of leadership, particularly Nexco, as the most senior management team, in driving the transformation agenda at Eskom, Koeberg?

Interviewee 5: We've discussed this but there's a lot more to say. Before my time, some good stuff have happened. So even before we got involved, there was active engagement with the local suppliers, and it's more of the nuclear issue. There has been an active push, particularly from Henry and Chris to go local. So granted it wasn't always about transformation, but there was a push to see what they could get from Atlantis and from Cape-based industry. And that led to some entrenched local capability, and the important thing is that it's also nuclear, which is what I was quite surprised about. And so in those early interventions we, as SD&L relied on, which were things that we can't really take credit for. It was driven by engineering and plant. Examples of these are scaffolding, rigging and welding. And we see the effect of these in our KPIs for black owned, which is good. The role of leadership was also to push the people and supply chain transformation agenda from a legislative point of view.

Interviewer: How has Nexco championed the change management process related to the transformation agenda in Eskom, Koeberg?

Interviewee 5: For the people transformation, Nexco has, and on a department level, some departments were more active than others, such as Chris's team. And also Albert, as the new PSM, is supporting and continuing the transformation.
So, when considering the supply chain transformation, the PSMs and nuclear new build will be crucial in driving the transformation agenda. Regarding the 'design for local' aspects, there is not so much progress even though we have done the supplier workshops, and created awareness with the supplier forums with that focus and theme. At one supplier forum we even had New Age Welding, who is a black owned vendor, to do a presentation on the theme and how they got to be successful. But ja, we have done some stuff, but we have not done as much as we could have, or should have. Okay, so we're well aware of some contracts where we've intervened, about the impact of RHM and New Age Welding, and there were hard discussions with the end-users and the guys that run it. But when you look at the stats, that's just a couple of percent of the KPIs – so there's some done, but not enough. So ja, more could have been done. So that's on the direct side.

As you know, for the nuclear side, on the PQE or quality side, the nuclear island side, there's not a lot available on the capabilities. So, we have done quite a bit of sub-contracting, like on the projects, and on the fuel and on some of the tactical stuff. We've done international contracts, but insisted on local sub-contracting and that hasn't been measured or directly represented. But there's 2 things – on the contracts side – so the way the contract's written – it should be a condition of contract or penalty or non-payment if it doesn't happen. My gut feel, and if you interrogate that, the contracts have been executed well, such as with the SGR. They were contracted well, and hence executed well, especially the Skills Development element. So, my hunch is that if we go back to all these type of contracts with the SD&L conditions on them, we'll find a 80% to 100% delivery on them. But that's my gut feel.

Interviewer: How would you describe the current status of the Koeberg implementation of the transformation agenda?

Interviewee 5: Okay, so you guys have been pushing front end planning for at least 2 years, and only now are we getting Nexco endorsement, or some success now. So we are behind, on the backfoot. So I think the key thing, like I said in the other statements, is what's been done is the loading of the fuel spend contract, the project spend, the fuel spend, things with long lead times and things that affect B-BBEE procurement, at the end of the procurement cycle. But, the upfront planning and planning interventions is only starting to happen now, with engineering support. And that doesn't mean all the time, but ad hoc. Other 'success' areas are the investigations into the valves and the C&I cards the regarding localisation element.

Interviewer: What do you think, which has been your perception , of the major roadblocks or problems associated with the Koeberg implementation?

Interviewee 5: So, the main roadblock was cross-functional buy-in and commitment, it has been lacking, and too much short-term, production plant focus. And I think the key issue is our procedure, 32-1034, it defaults the buyer too much to the OEM, unless if there's an engineering intervention. So, in the urgency of the situation, there's a default to the OEM, to the existing overseas OEM. But now with engineering's support, things are starting to turn and the much-needed engineering intervention is on-board and happening. So engineering needs to determine where we intervene and where we don't. The reason we've been more successful on projects is because of there's enough time lines to do it. Like with the casks, you guys can approach the dti and request exemption – but this takes 60 days, and the production guys don't have 60 days, so we need engineering to come, and show us how we can meet the short term needs, and in the long term, do the transformation.

Interviewer: What are your recommendations on how the transformation agenda should be implemented in the nuclear new build?

Interviewee 5: So doing what you're doing at Nexco, I think that's the right direction. There must be upfront planning with engineering oversight and project management. And they need to strategize – so I think the key issue is getting the

work-breakdown structure right, so that local vendors can participate. So, when I think of things like the PTR tank, you either bundle it as a, no-risk to Koeberg, with someone coming and doing everything, most likely an overseas OEM will take the business. Or, like they did with PTR – they broke up the work to see what could be done by locals. So they issue multiple packages, so there's a portion that SOC X can do, there's a portion that a construction company can do, and so on – but then there's still a licence component behind it - and that's with the overseas OEM - but it's now 1% of the scope instead of 100%.

Interviewer: How cognisant are you of considering aspects related to the transformation agenda (bar the functional requirements) when you consider criteria to be included in tenders? Please elaborate.

Interviewee 5: Ok, so I do look at it, and I am aware of it, but I don't always have the technical insight. So what you would need is a break down, so the 'macro' stuff I can do like the scaffolding and rigging, but on PTR tank I don't know, e.g. the valve interface. This is where I would rely on the SDL opportunities matrix for guidance.

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area?

Interviewee 5: In the breakdown, where we do include the local vendors in the tender but they don't pass functionality or other requirements that are in place or required – such as quality.

Interviewer: How have you ensured that the 5 SD&L objectives, in respect of the transformation agenda at Eskom, Koeberg, are addressed within your requirements?

Interviewee 5: That's an easy one, I rely on my SD&L team!

Interviewer: What are your main challenges in ensuring that the 5 SD&L objectives are included in your requirement?

Interviewee 5: In addition to what we've already discussed, I am aware of some challenge, with targets, but then we don't have anybody responding to the tenders, or when they do respond, they don't get through the tender process, cos they, on the paperwork, they are non-compliant and don't get to pass through functionality.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects / impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 5: So the short-term, can be positive or negative. In the short-term there is added risk because of the way in which the work breakdown structure is packaged, like I mentioned earlier, that there's more interfaces. If you go to the SGR's, it was broken into 3 packages, to make the implementation very localizable. The Board didn't like the additional risk between all the interfaces because of what they experienced at Medupi and Kusile. So they changed the strategy and said they wanted one contract, and that was to the detriment of localization – well it will still happen, but it's in the sub-contracting component and not in the direct packages like we had. So, a lot of it goes round the risk balance. The result is demand for more resources at Koeberg and potentially more budgets and contingencies to address. There is a real risk to manage.

But in the long term, we then end up with more capable local suppliers, that both in the short term and long term, can be more cost effective. We have seen it happen when we do localisation, it's not a wish list – when we do localization it is 90% cheaper than doing it foreign. So, it's having the skills base locally, the cost base lower.

There's another long-term risk, the volume at Koeberg isn't always there to keep the vendor afloat, and then the local vendor goes out of business. And just to illustrate that, we've localised turbines across the power stations and it wasn't enough to keep the local vendor afloat, and the end result is that Eskom took it over and it's now called Rotek.

So if you can't do it with many power stations, how will you do it with just one power station?

In the short-term, yes, we are prepared to pay a premium. But even in the medium term for business sustainability of the local vendor, I think that it's still valid. The debate is, at what quantum is this capped? So I'm quite comfortable with a 10% premium, but I think 20% is too much. The 10% is a cap, there's still market competitiveness, so we get a competitive price, within a 10% premium.

People in the business keep on evaluating on price but they should look at the business case, so you might be localising at a higher spot price, but the shipping costs is less. So, the premium can be absorbed in the business case – there are pros and cons- and also in product lifecycle considerations, for example: the shipping and local labour; construction labour and local to site. That's why construction companies use local labour. They use local to site labour cos then the nett costs end up being lower, for example at Medupi. Construction labour – local to site. These things are organic to these localization studies – it's natural localization vs 'forced' localization.

Organic to the new build are the natural localization things, then the debate is, to which level are the other things? . A debate question: "What should we do on the next level? What percentage do we do?

So, the top four studies: natural localisation like civils, then middle end, forcing industrialisation that is not going to happen on the top tier and therefore not effective or cost-effective. Therefore, for localisation, we should focus on natural localisation.

Interviewer: Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	Always
4	Sometimes
3	**Seldom**
2	Not often
1	Never

Interviewee 5: I'd say # 2 to 3 (Not often to seldom). The impression is that it's not from the end-user, because they concerned about production needs, and they actually just don't give a shit.

Which of the 5 SD&L objectives or transformation agenda elements have you implemented or have you had success with? Kindly share your experience, positive or negative.

Interviewee 5: So on the supply chain, tactical, it's welding, scaffolding and rigging, as well as sub-contracting OEMs to include more local content and local sub-contractors. The people stuff. The PTR Tank is a good one. There have been good lessons learnt. The benefit for us is that in the long-term, in the nuclear new build, we have a construction company who is 'up to scratch' in terms of quality levels required. But, it still came in cheaper than foreign.

Interviewer: Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements?

Interviewee 5: Production related, and waiting longer for requirement. PTR tanks a good example of lessons learnt with long-term benefits who know the standards we work to – as discussed. But, it's still cheaper.

Interviewer: During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

1	**Yes**
2	No
3	Not Applicable

Interviewee 5: Yes, we do, it's 1. Caleb's team very effective at this. Normally we'd put in an EPC for PTR but the licencing component only came in at 1% and so the rest of the work scope was divided into 4 major packages where the foreign licensing component is done by the OEM and the rest is done local. But this is just

an example, there's been others. Many times on projects the equipment is imported but the installation is done locally.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies front end loading or planning to be in place. Is this FEP practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.

Interviewee 5: It's entrenched in the procedure, though not in practice – but isn't well practiced under the execution, particularly not on the tactical procurement side.

Interviewer: Additionally, please explain how else you can ensure that design for local strategies are included in the commercial strategy of your requirement.

Interviewee 5: The template for the procurement strategy document used does have a section for, and addresses localisation and empowerment imperatives. The level of interrogation requires more details from the end-users and the cross-functional team in order to populate it as needed.

Interviewer: Do you consider the SD&L Opportunities Matrix tool or approach employed by KOU SD&L effective when considering design for local strategies? Please explain or elaborate.

Interviewee 5: It's been effective on the long-term procurement items such as fuel and projects. The plant constraints means that for tactical procurement it's not perhaps effective, given that the turn-around time for these type of requests are too short, but it's the best that we have for now. I don't see an alternative except for the obsolescence process. But I think what's missing is the market understanding and capabilities of industry. So when you try to do the breakdown, we need to know the market participants. Added to this, for the spares, I don't think the end-user knows who can manufacture the valves he needs locally, and so on.

This tool should therefore largely be used in the specifications engineering and obsolescence space. The bit that they need, or is lacking, is market information about what can be done locally.

Interviewer: What are you perceptions of how the SD&L imperatives within the transformation agenda align with RD-0034?

Interviewee 5: There is no direct correlation or alignment as these are 2 separate systems – so they not considered with each other. In some they can be aligned. In fact, in all cases, but I don't think there's been an effort in that direction. So the issue with RD0034 isn't the standard, it's more the economics.

[Interviewer: The focus is more about the breaking down of the scope and the local participation in accordance with industry like manufacturing and design, etc.]

Interviewee 5: Okay. Where my head was at is that SOC X can do some stuff so we shouldn't be using the RD-0034 as an excuse, it must be considered in the process, and I think where is falls flat is the economics, because the guys can do RD0034 but the cost and volumes that we give them don't justify it cos it leads to costing issues. But RD0034 is an additional requirement. But I agree that for sub-contracting, there is a time lag effect, cos there aren't necessarily vendors that are ready in those categories that they can use. As I said, it doesn't preclude them, and over time it can be developed, but in the short-term there aren't necessarily suppliers available.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement, KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?

Interviewee 5: It has helped in having a standard and a level, but it hasn't helped as they are thin and lacking on the details regarding the how, or the practical application, or execution of it. And so it's been left up to us to creatively fill the gap. And I think the frustration with government is that when they are not seeing the intended outcomes or benefits, they change the legislation. So we have the problem of shifting legislation over the past 8 years, which hasn't helped industry to properly gear up. What I'm talking to is the B-BBEE Act and the Amended Codes. These changes have been very expensive for the suppliers and this cost has largely been passed onto us. It's also impacted us cos Eskom is now a Level 8 and so isn't a good role model.

Interviewer: What would you like to see being done differently regarding the current implementation of the transformation agenda in Eskom, Koeberg?

Interviewee 5: The Nexco presentations - outlining the interventions that are needed to be done regarding the transformation of the supply chain at the KOU and the associated Shareholder KPIs that are in jeopardy of being achieved – are pivotal in ensuring that the momentum gained with engineering and projects are enforced within the KOU and on the plant. So what's different is to ensure that there is a cross-functional buy-in. The key is integration and that the common message is spread and shared, instead of a 'silo' approach. And more commitment and support at the high levels.

Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.

Interviewee 5: So it's what we did at Nexco, the leadership buy-in, also the common message and breaking the silos, and it may be good to get Mandate Molefe in to do a few sessions. But the main issue is to get change management happening, that is critical. Importantly, there must be a common understanding of what the transformation agenda is about and the outcomes we want. The 'know how' is often lacking.

Change management is critical, as touched on.

The transformation of the supply chain awareness training to everyone and getting the upfront planning, and the hence upfront engineering interventions. We can see how the Mandate Molefe people transformation was Nexco led.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?

Interviewee 5: So there was a lot of 'verbal' support, but the action or follow-through wasn't evident. But, for the main guys, they do support it, but they need to be led and need to know what to do – they need a strategy and direction on how to implement it. He (Piet) needs to get it into the system, and they need something tangible and measurable.

Interviewer: Are there Key Performance Indicators, or KPIs, included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.

Interviewee 5: There's the shareholder compact, but I think that perhaps that's managed at too high a level, so it won't modify people's outcomes as it is – short answer is that it is there – but my issue with it is that it's being driven top-down, without consultation. And with the B-BBEE Codes changing, there was no consultation or realignment.

So, these KPIs are there at the high level, as stated, and they are being tackled and measured at KOU, as well as via the 'action plan' provided to corporate. It is very much a 'top-down' approach without engagement with those that need to ensure it gets implemented and actioned.

Actually, even Eskom dropped to B-BBEE Level 8 with the amended B-BBEE Act and Codes coming into effect! Does this mean that Eskom is not considering the B-BBEE Codes, nor implementing them?

Interviewer: How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives at Eskom, Koeberg?

Interviewee 5: There are shortcomings in the PPPFA, that's the ring-fencing and the local to site concerns, although it does allow you to ask for exception or deviation, the problem is that process will take at least 60 days. This is too long for the tactical side, as we discussed cos the response times are shorter, but it will help on the long term stuff like plant modifications and fuel. But has helped with the 80:20 and 90:10 and it will further help with the sub-contracting more than R30M. But further to that comment, that although the PPPFA is helping, it is does not materially help the supply chain, and that's cos it's a competitive process and the vendors have been responsive, so it's driving the right behaviour regarding empowerment.

So we're not necessarily obtaining more vendors, but more empowerment and industry's transformation. But it hasn't helped Eskom because we dropped to a B-BBEE Level 8.

Interviewer: How do you suggest that we go about or engage OEMs or OESs on the transfer of their intellectual properties rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?
Interviewee 5: Okay, so it is a negotiation parameter, but the vendors do see it as a competitive advantage. So some have allowed some transfer – so I'm thinking specifically Koko, they spent some money on it, but we haven't. But generally we allow the vendors to keep their IP but for them to do local development, an example is the casks, where the vendor who is doing the work is investing in this country and setting up local capability on their processes. So it's not necessary to buy IP to get the outcomes that we want. Set up industry, such as in the motor industry, like VolksWagen – they keep their IP but invest locally.

Interviewer: What can be done to improve on the manner in which market analyses, of the KOU supplier base, for local content requirements in tenders - is currently being done at the KOU?
Interviewee 5: So I think it (localisation studies) needs to be redone cos the last one we have is the WorleyParsons study in 2010 and the Tsapro report in 2006 before that. But in fact, there're 3, more recently, there localisation feasibility studies done by Areva/EdF on valves and pumps in South Africa, and cables and transformers. But you can see that's already limited scope so we do need an update.
The further TLIU studies would be excellent.
More RFIs and other market analyses need to be done as these would help tremendously – generally with the projects, there's scope and opportunity, such as also on new build.
We could achieve and do more through market analysis. We need more and further engagement with the West Coast Chamber of Business, and others like them in the surrounding areas, and Kouga Municipalities.

And yes, we could do more. The engagements are happening, but we need a noddy guide, or a reference group and updated studies and reports. And I suppose you can also throw in the NIASA supplier working group.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List ?

Interviewee 5: There's 2 things. The first step is more vendors. More vendors need to go through shared services, through Manase and vendor management and they currently have a policy to not proactively load more vendors. That needs to be reversed, and they proactively need to load more B-BBBEE suppliers and regional suppliers. And then going on to our ASL, that's around nuclear qualification, we could do more, but this it's process thing so doesn't preclude anyone. The key thing is the first constraint with the loading of more vendors. The ASL isn't a constraint, but the first one is.

Interviewer: How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons.

Interviewee 5: PPPFA Regs 2017 do assist us, but they haven't been material, because, and it's going back to the alignment of local to site or targeted B-BBEE procurement. And the sub-contracting we were doing all along anyway. It also includes mandatory sub-contracting to in certain instances.

End of Interview.

APPENDIX G

Interview with Respondent 6

Interviewer = Researcher

Interviewee 6 – Participant 6

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 6: Yes, Eskom is a SOC and because government is the only stakeholder, it is a vehicle to achieve its local development objectives.

What is your understanding of the transformation agenda in Eskom, Koeberg?

Interviewee 6: When considering where Koeberg was in 2012, to where it is now, currently, it has come along quite a bit. Not only has there been HR transformation, especially in middle to senior management team, but Koeberg is also aligning more to the rest of Eskom. However, there are still gaps – but strides have been made. The intent is there.

Interviewer: What are your thoughts regarding the manner in which the implementation was done?

Interviewee 6: When considering 2012, and thinking of the present, as in now, not everyone is aligned. SD&L was seen as a group and there was no integration into the plant and its processes and procedures. It was seen more as a 'strategic concept' and so outside of the system. Now, it has become operational, which is good. However, the function should be part of engineering processes as the actual function resides there.

An important aspect to note is that we restricted ourselves in the 1970s and 1980s in the way that we contracted. There were no local development aspects addressed or catered for in the contract conditions with Company B1 at the time, because of the very different political agenda with the apartheid government at the time.

Regarding the role of leadership and change management, change management should always be done as a top down approach. That was not done at Koeberg. It

is a very difficult thing to entrench in a business when you want to change its culture. SD&L was seen as a completely separate thing, and not part of 'normal' business processes, and not seen as part of a fully integrated, structured approach. In fact, it is still a 'balancing act' as we still need to continue with the business of producing megawatts, while still being mindful that the way in which we procure needs to change.

With regard to demand planning, there needs to be a separate working group that caters for it. It needs to be something similar to what we had before in the obsolescence program. We have some OE that these matters need to be addressed within a committee or working group.

[Interviewer: Why did you have working groups in obsolescence before?]

Interviewee 6: This is because obsolescence and casks have a high risk to plant.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	2	**3**	4	5
		X		

Interviewee 6: It's number 3, both. I think it was average from the SD&L side, but I also don't know on the overall, because not everyone is aligned to the transformation agenda and the thinking around it. It must become part of the 'DNA' of the business. Everyone must think that way. They need to ask questions such as, 'is it worthwhile?'; 'is there enough scope to entice the suppliers?' This is what they must be thinking. And so, there's been some success with SD&L as a group and what they wanted to achieve, but Nexco's top down approach wasn't there for such a transformation to take place at Koeberg.

Look, we also have to be realistic and realise that we can't do the same as China, given the scale of their expansion . But, we can achieve a lot, especially when considering our links with the TLIU, as the SOC can't do it alone. The

government needs leverage and use all their entities to achieve the goals of the National Development Plan.

Interviewer: What do you think of the role of leadership, particularly Nexco, as the most senior management team, in driving the transformation agenda at Eskom, Koeberg?

Interviewee 6: In order to drive the transformation agenda, leadership needs to follow a top down, inclusive approach. That is how you will get buy in, it's from following a change management approach.

Interviewer: How has Nexco championed the change management process related to the transformation agenda in Eskom, Koeberg?

Interviewee 6: It hasn't done so yet. It is a work in progress as far as I've heard.

Interviewer: How would you describe the current status of the Koeberg implementation of the transformation agenda?

Interviewee 6: It has already been covered.

What do you think has been the major roadblocks or problems associated with the Koeberg implementation & perception?

Interviewee 6: Koeberg's nuclear standards are very different to other energy industry companies such as PetroSA and Caltex. Our acceptance criteria are also higher. We could have some major wins with our secondary plant. However, due to our required level of quality specifications, it will be very difficult with the primary plant. The IP is owned by the OEMs and our specifications have not been clarified. Internally, we consider the specifications and volumes required. Externally, we look for adherence to quality standards – and suppliers possibly not meeting it. But, there must be a market and demand for the items, or else suppliers won't be likely to invest in nuclear.

When we consider SOC X, it is an ASME 3 and 8 qualified manufacturer and supplier who must ensure that they maintain their certification and accreditation, which is done by ensuring that they have work. But, you still end up having doubts about what they can do, despite being able to do it on paper, the

accreditation. They do have the in-house capability, such as engineering skills, though. It is not generic and it's all about capability and human capital. These type of skills are knock-on effects of skills development, for example how Intens benefited from the SGRs.

It makes me think of a question, how have we measured our Return on Investment for the Eskom and non-Eskom skills on the skills development on such big projects? Where can I find that information? And, are these skills development candidates able to transfer any of the 'learned' skills?

[Interviewer: Yes, that information will be available if we ask the project managers about it and also at corporate level, as they have a dedicated unit in charge of what's called SD&L Monitoring and Reporting. We don't do it directly at Koeberg, or at any of the only Eskom sites. Hence, we need to ask the project managers as they feed into the larger Eskom SD&L Corporate function who in turns reports it to the Shareholder. If you want specifics on the SGR, Piet was involved in the SGRs and was the responsible person for the SD&L, so will also have a view of the return on investment on SGRs specifically. But yes, the monitoring and reporting at Koeberg is essential to start doing.]

Interviewee 6: Okay. Those are the kinds of lessons we can learn here. We need to report on the return on investment, and it must available for the people to see.

Interviewer: What are your recommendations on how the transformation agenda should be implemented in the nuclear new build?

Interviewee 6: In NNB, when you initially set up contracts, there will be a similar model such as SGR, Casks and PTR Tanks. The approach on PTR was correct and the intent was there to localise. However, the 'know-how' was not there as there were significant quality and welding issues.

[Interviewer: Wouldn't this be down to the experience curve though? I saw the presentation about that, and was impressed with the level of lessons learnt on that project by the local suppliers.]

Interviewee 6: Look, it's part of the development. For the new build project, we will have to learn from the likes of China and, even better, from South Korea. We can go directly with local manufacturers for certain scope, such as the owners

scope –but how to localise, say on the main international nuclear vendor's scope, we will have to form partnerships with the nuclear OEMs so that we may be in a position to empower our local partners.
Another question, where will the money go? Who are brokering the deals? Are we developing once-off or sustainably? That's why proper contract management will be critical.
[Interviewer: For sure, I couldn't agree with you more! We must ensure our outcomes by proper contracting and also by, as one participant said, "picking our battles" and so all that must go into the final localisation strategy that undergoes a proper IAEA type guideline. It also implies that we need to be more transparent, especially with the negative stigma of nuclear and the nuclear new build procurement!]
Interviewee 6: Yes, another thing is that once you own the IP, it won't be a problem. I mean let's look at a case in point being the UAE and how they are working together with the South Koreans. This could prove to be an interesting learning for South Africa's new build.

Interviewer: How cognisant are you of considering aspects related to the transformation agenda, bar the functional requirements, when you consider criteria to be included in tenders? Please elaborate.
Interviewee 6: Very cognisant, as I said.

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area?
Interviewee 6: The availability of local supply of spares and materials and having a proper, generic specification to issue to the open market for tendering purposes are the major challenges. And also the difficulties with the Eskom tender bulletin for open tenders. The response rate is very low for these open tenders.

Interviewer: How have you ensured that the 5 SD&L objectives, in respect of the transformation agenda at Eskom, Koeberg, are addressed within your requirements?

Interviewee 6: In operational terms, we have entrenched it in the local commercial processes. This is a "DNA" issue.

Interviewer: What are your main challenges in ensuring that the 5 SD&L objectives are included in your requirement?
Interviewee 6: I've spoken about this.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects / impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.
Interviewee 6: For the long-term objective, we would want local vendors to be locally and globally competitive. The drawback and question though is, how will they get there? There must be sufficient demand and revenue available for them. Also, in order for them to get more work, they must have a track record.
The short-term win regarding B-BBEE and BO, is that there is still a long way to go for them to become competitive and up to speed on the requirements.
And for the black industrialists, we must have the economy grow first for them to have greater opportunities.

Interviewer: Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	Always
4	Sometimes
3	Seldom
2	**Not often**
1	Never

Interviewee 6: I'd say not often.

Interviewer: Which of the 5 SD&L objectives, or transformation agenda elements, have you implemented or have you had success with? Kindly share your experience, positive or negative.

Interviewee 6: We have had success but that was a long process in the making. The success was actually with SOC X. It was on an Company B - then Company B1 – specification, because they were the original equipment supplier, of the real OEM. Because the item was obsolete, so we were forced to do it and find an alternative supplier, and this required the manufacturer to be ASME 8 qualified. Company W did the original specification on it, as it was in the time before
SOC X got their ASME 3 accreditation.

We gave SOC X the spec., as in the TRS and then we did a review of the design. It was an expensive and long process, much like the PTR tank, but it was worthwhile in the end because now it's part of operations, and has reduced costs and time.

For an operational plant, it will create lessons learnt on what has worked and what has not worked and what can be improved on. For localisation we need to focus on finding manufacturers and not just "sources of items. What we must also remember is that there is limited skills development that we can get on the OEM contracts, but we always insist on it when we do the SD&L negotiations with them.

[Interviewer: Remember that SD&L is mandatory on the OEM type sole source contracts, so we try to get the best we can, given their obligation. And I guess this is also where the localisation studies that we request them to do, comes in. Your comment about the local sources and not manufacturers is valid, cos we always aim to get local manufacturers as a first prize, but if not then at least there is a local value add when you use a distributor or agent in the value chain and the multiplier benefits that come from that.]

Interviewee 6: Okay. so not everyone can be a manufacturer but you can be a good agent, like Bon Accord, who does and can add value. But there is an issue with counterfeit items and parts. And as a result of that, issues come up as traceability is so important in the nuclear supply chain. But as long as the items have a fair price, proper quality requirements are adhered to and their paperwork

is in order, etc., then it's all good. And this is where RD-0034 will be so important. Speed and communication is very important. If we already did an assessment of them, then the quality assurance is already there, and if not, it takes time that we can't always afford on the plant.

Another example of skills development is the GE and Koeberg contract. We can't decide how to spend the money on skills development. An example is the EPPEI program where we can give it to external Eskom students to solve real life Eskom plant and technical problems. Borris, the programme manager, will need continuous funding. So we're trying to see how the contract with GE, and its funding, can be given to EPPEI to benefit the local to site students, while helping us too.

Interviewer: Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements?

Interviewee 6: There's been a definite increase in price and lead time. There is not a quick turnover and it has lengthened the procurement process and cost. There is usually a once-off 'set-up' cost, or initial cost that we don't have sight of when we include SD&L in contracts, for example with GE, as the SD&L is included in the overall price and built into the pricing. Why isn't the SD&L cost more transparent?

[It goes back to the SD&L mandate that talks about leveraging the procurement spend, they're expected to contribute, so it's not supposed to cost us more, but of course we know that that's not true and that it can cost us a lot of money. This is something that we will have to address with the shareholder, as corporate SD&L is well aware of this added, invisible cost in the contracts where skills development is included.]

So to determine the cost drivers, the only alternative we have is to go to their other customers such as EdF to see what they paid. We can't enforce our cost plus contracting. So instead we need to comply with their pricing models. According to GE, their internal 'transfer pricing unit' applies throughout their business so they aren't in a position to disclose pricing, because it's based on confidential internal

pricing amongst its different business units that serve to give them a competitive edge. So we can't see the margins as there's 'comparative pricing' that they apply to their operations.

Interviewer: During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

1	**Yes**
2	No
3	Not Applicable

Interviewee 6: Yes, Front End Planning is considered. Procurement follows its hierarchy of procurement, for example in the Koeberg design engineering spec., the 'DSG' spec. and quality levels require the end-users to 'go local' first or before they issue a tender to the international market. If there are only a few tenders, we will then go to the previous OEMs or OESs. A better way to do it is to use the KAA-518 procedure, where the request will be prepared that contains the spec. and the technical details needed – then reviewed by engineering and quality. After that, the whole package will go to the buyer, who can only determine if the PR can go to local suppliers, and it is the best way to control it.

The whole procurement cycle has slowed down and so we do need to revisit the current process and make sure it gets working better, but still considering the B-BBEE and local suppliers.

We need a mechanism to inform suppliers of our tenders, as a massive problem we have is the way that we go 'open' tender. Many of them don't see it and miss them. We just issue it on the internet and then we hope for the best response. There must be a better way. We can't notify them or else governance tells us it's unfair to the others that we don't know. So yes, a very low response rate is a problem to get the B-BBEE type suppliers to tender.

The other big problem is with SOC X. They are not any good at marketing themselves, and yet they are an SOC and we can approach them as a single source using the SSJF basis before having to issue tenders to the open market. An

example of this that I've had experience with is the RIC Thimbles. Areva's OEM supplier, via Areva, was the one who manufactured it previously, but it had a very high failure rate. But the one manufactured by SOC X didn't have that problem. In fact, the SOC X manufactured one is also nitrate hardened, which is very good. It's important to not have a high failure rate as it is used in the reactor core. The issue with SOC X is the way that they price their stuff and the quantities. On this item they want a minimum quantity of 30, but Koeberg only needed 12, before they were going to manufacture it. At the same time, they need to manufacture these type of items if they want to keep their ASME accreditation to manufacture items. So, it would've been a great win-win for both them and us. So they need to revisit their business model and how they approach things urgently if they want to stay in the nuclear manufacturing game.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies "front end loading / planning" is in place. Is this FEP practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.

Interviewee 6: No, FEP is not entrenched in our functional area. Not everyone is aligned to the 'Design for Local' concept. People want 'original' parts instead of generic or other parts. It's like wanting to have BMW manufactured parts in your car.

How do we get the organisation more aligned to 'think local', never mind to still 'buy' local? It's a way of thinking.

[Interviewer: A mindset.]

Interviewee 6: Yes. That's why we need to move it closer to those people who initiate the demand. And these people are typically the cost centre owners. It is important to note that SD&L must be driven by Engineering. So, if we plan better, then it is easier to control and manage. The goods will therefore be able to undergo proper FEP.

At Koeberg we don't have the luxury, for example, like EdF who 'pilot' their components, then use some parts before putting it in the plant. Also, EdF go

directly to the manufacturer and then cut out the OESs like Areva and GE, and instead enter into long-term contracts with the manufacturers themselves.
We need to look at SD&L as a holistic thing and not 'willy-nilly' every time we have a PR. We need to develop holistic, long-term SD&L strategies the with the OEMs.
Another question, how do we contract with the OEMs, who know that can't do without them on the plant, and ensure we're gonna get the local development we need?
I think that the answer, as an example, is to ensure that local content is ramped up incrementally on a yearly basis for a long-term, say 10 year contract.
But taken as a whole, the engineering led working groups will unpack these kind of models, strategies and focus.
Another key thing is that we can have a supply chain, but with 'different' supply chain models, where the 'now' requirement from plant is approached differently. This means that we must be flexible in adopting supply chain models that are adaptive in addressing the transformational aspects to the business's needs at the time. It can't be a 'one size fits all' scenario.

Interviewer: Additionally, please explain how else you can ensure that "design for local" strategies are included in the commercial strategy of your requirement. Okay, you've basically covered this question already. Would you like to add anything more to this?
Interviewee 6: No.

Interviewer: Do you consider the SD&L Opportunities Matrix tool / approach employed by KOU SD&L effective when considering "design for local" FEP strategies? Please explain or elaborate.
Interviewee 6: The SD&L matrix already covers all the aspects, but the way that we 'plug' it into the process needs to be looked at, because it needs a 'controlled manner' that's going to be used by everyone, and especially engineering and PQE. For example, some specs only require acceptance criteria while others require more detailed specs, but also include acceptance criteria. So, unless we have a

previous order history, we can't know the details - for example of quality plans on local vendors – who could possibly provide the items. It's only for quality levels 1 & 2 where suppliers are required and mandated to provide quality plans before manufacturing can start whose information is known upfront (before tendering).
Yes, the opportunities matrix does have a place, as it makes you consider these things. The engineering working groups will unpack the best way to place it, so that we can operationally assign our requirements to it.. So we can only do it upfront when we see the suppliers' quality plans, and then we can only fine-tune the requirements in full. There must be front-end planning and it must be part of the tender as the requirements and not included after that.

Interviewer: What are you perceptions of how the SD&L imperatives within the transformation agenda align with RD-0034?
Interviewee 6: There is no link between the two. RD0034 traceability and quality requirements don't directly align. The only possible driver will be supplier development. QA creates opportunities, for example a Level 1 supplier must have a SCEP, a Safety Culture Enhancement Programme.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement (KOU implementation), assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?
Interviewee 6: Yes, it helps. It gives direction in terms of the hierarchy of procurement. The legislation written into P&SCM 32-1033/4, as well as PFMA and PPPFA goes good direction. But, putting it into practice and implementing becomes difficult and challenging. It also does not take into account the business's needs and the macro conditions in the market.

Interviewer: What would you like to see being done differently regarding the current implementation of the transformation agenda in Eskom, Koeberg?
Interviewee 6: I'd like to see more front end planning done. It needs to happen at the upfront planning stage, and not when it's in the execution cycle, as it's

currently being done now. And I'd like to see more strategic initiatives need to be driven by Nexco.

Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.

Interviewee 6: There are definitely learnings, and many lessons learnt regarding localisation in respect of identifying requirements and local suppliers being able to meet the requirements. There's an additional burden on suppliers to 'qualify' or comply with RD-0034. Practically, in the procurement of MRO spares, this will lead to a lot more costly spares, for example NNR and Eskom must first 'qualify' these type of suppliers to be RD-0034 compliant. So, this definitely increases the costs in the short-term.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?

Interviewee 6: There was very little commitment or support seen. It was more talk and no real alignment or clear plan about how we were going to approach things. And basically, there was no action seen.

Interviewer: Are there Key Performance Indicators or KPIs included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.

Interviewee 6: No, aren't any KPIs in place. It could possibly have resulted in more success, and they would have to take a 'top down' approach though, from NEXCO down to the line.

Interviewer: How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives or SD&L at Eskom, Koeberg?

Interviewee 6: We use the Hierarchy of Procurement that is based on classification of the designated groups, like the black disabled, youth and women before others, such as the black owned EMEs. The LMEs are better geared to meeting our requirements, as it's so costly to put quality requirements in place, and they can afford to put these systems in place, and they have a base regarding their own supply and value chains, etc.

Interviewer: What do you suggest could further be done about ensuring that the design for local imperative is fully maximised when procuring items on the open market? We've discussed this.
Interviewee 6: Yes.

Interviewer: How do you suggest that engage with OEMs or OESs on the transfer of their intellectual properties rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?
Interviewee 6: We can follow the EdF model, the perennity maintenance related contract. What is in it for the OEM though? For example, in the perennity contract, EdF had given Areva a 10 year long-term contract, which is also the turbine generator contract, where they agreed via an exclusivity agreement, which often lasts for 10 to 12 years, and requires that EdF only source their spares from Areva. Only thereafter, after the 10 to 12 year period, then the IP is passed onto EdF to use the specifications from the OEM. This scenario then ensures that Areva is assured of a revenue stream for the period of the contract, 10 to 12 years, given the long-term partnership agreement. So there needs to be a carrot.
So, if we require the OEM's IP during the execution phase of the contract, we will have access to it, which is unlike now. We can, for example, also look into something similar that had been done where we used GE to capacitate Rotek, with a transfer of skills and training to Rotek on how to service the Alstom turbines within Eskom's fleet – using OEM best practices, and so on – but then to do so with other similar South African based manufacturers and service providers. This is a way that we can transfer the technical know-how to the local suppliers.

Interviewer: What can be done to improve on the manner in which market analyses of KOU supplier base - for local content requirements in tenders - is currently being done at the KOU?

Interviewee 6: Issue Expressions of Interest and RFIs. We should also use the access to the various databases, for example other SOCs and SOEs or organs of state, as well as the TLIU.

We should ask which commodities can we use to create a sustainable industry or industries in? This requirement is on various databases, for example CSD is ultimately to be used for this purpose, but it still needs to get to that level of access to information. Also, we are hoping that they read our tender bulletins.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List?

Interviewee 6: So this follows on from the previous question. You need to know who's in the market and who can do what. We can then structure the supply chain according to your supply network. It comes back to the strategic things we do to grow our South African network.

Interviewer: How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons.

Interviewee 6: The percentage sub-contracting that is required, that is mandatory, is the biggest change, and therefore the PPPFA 2017 Regulations do assist in the transformation agenda. It ramps it up more.

End of Interview.

APPENDIX H

Interview with Respondent 7

Interviewer = Researcher

Interviewee 7 = Participant 7

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 7: Yes, I think it should. As long as there's a framework to do it ethically, and it should be aligned to the national objectives of the country being a state owned enterprise, part of what any government wants, you know, they use their state owned enterprises to drive policy implementation.

Interviewer: What are your thoughts regarding the manner in which the implementation of the transformation of the supply chain or transformation agenda was done?

Interviewee 7: It was a long time ago now, but I don't think that it was done that well as it wasn't that visible. It wasn't something didn't made a big impact upon me as PSM, you know, or changing the way we do things. Other than, at some point we had this extra block to fill in on some documents, it needed to be filled in, so a check box, but then we'd also at times, sometimes we got some comments back, in terms of, you know, *'it's not supported'*, for whatever reason, and so it was in the compliance bit, that it became evident that there was a function. But it wasn't really something where we came in and we got everyone's buy-in, into, *'why is this was important?'*.

We'd actually heard that - to be honest - you know that corporate was setting up this whole SD&L function and they were really gonna make massive changes, and that things were gonna be dramatically different, we couldn't do this and we couldn't do that, but then it never really went anywhere from there. And to be honest, I didn't even know – I thought you guys reported to them.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	**2**	3	4	5
	X			

Interviewee 7: Probably, a 2 yes.

Interviewer: How has Nexco, in their role as the executive management team at the KOU, championed the change management process related to the transformation agenda in Eskom, Koeberg? What are your thoughts related hereto?

Interviewee 7: I think it was almost with the KOU leadership kind of ignoring it more than anything else. Actually, maybe Karl was a little bit negative towards the concept of localisation – for some reason - and so we never ever discussed it at Nexco, and it's only now actually that we're starting to see some changes, some ownership from there.

But you know what, I dunno who to blame, not blame, but I dunno who should've done better. It could've been something that Karl could've felt passionate about, but you were taking a chance on that. It should've been maybe the commercial manager, or maybe the SD&L team, to say, *'how are we gonna make this work in a way that makes a difference, that makes it a big deal?'*

[Interviewer: I know that Piet would say to me how you went to Nexco and asked for backing for the valves pilot project, before it was taken to the TLIU and government, and Karl basically told him to go away and get government to do it].]

Interviewee 7: Oh, so that was Karl's view, I think I might've recalled him say something like that, ja.

[Interviewer: Look, after that, Piet was like totally deflated and despondent with Nexco.]

Interviewee 7: Okay, so he got rebuffed after that.

[Interviewer: Yes, but you could say we could carry on, but ja, it was hard. So that's why we started off again with Nexco once he'd left and so on.]

Interviewee 7: Ja, if Piet were more street-smart, you could've got it done without Karl. That's a reality, but then he needed to work through other people.

[Interviewee 7: He'd say that's why he went to TLIU, for example, with the valves.]

Interviewee 7: There were some stuff that, I think Henry started, but then they stopped at some point.

How would you describe the current status of the Koeberg implementation of the transformation agenda?

Interviewee 7: Well, we are now monitoring the performance and we've got targets and get to see we're not meeting them or on some things we're doing okay, and getting a sense of where we stand, and at least there's something we're driving towards. And basically somethings that's monitored and people will wanna - it becomes visible - and people wanna see why they aren't meeting them.

The other part is, we're almost having a more top down discussion, where the leadership is taking ownership of this thing and trying to see what can be done to get transformation entering the supply chain.

I think to some extent it's a little bit more of a discussion on saving costs ,and it's maybe driving it more, and that's good, cos I think that everyone benefits if we can spend less on buying a spare that does the same function. So costs is a big driver.

But I think the change of leadership has given more impetus to it. And also, I think the other bit is, that this is not something you can just do as a pet project and if you do it, you must institutionalise it, build a culture and make sure everyone is behind, or at least has had a chance to state their views, and, you know, the valve project died fairly easily, or didn't go very far because it wasn't really supported – and it was somebody's project on the side. I think it was Henry and Amir trying to do a thing that didn't really work.

Also, I also think that John understands the imperatives. In fact he actually called me over the weekend, or was it on Friday, to talk about inverters, to say, tell me he's been googling these things on the internet, you can buyer these things anywhere, and all we gotta do now is do it. And it cost you like, the price we got overseas was like R5M, and here you can get one for like R100 0000, so why don't we buy 10 of them, and do shape testing and qualify the thing, and all sorted of things, and then, imagine - because the whole project's R200M – so if you only spend, say 20%, then you're gonna end up with R40M, saving you R100M, which we desperately need. And then you can also go with local guys, and there's a lot of them out there. And now you can bring transformation into it as well, job creation, and so on. So he gave some ideas, like design – why don't you guys do a different design and stuff – and besides the bolts that we found before. \

Interviewer: What do you think has been the major roadblocks or problems associated with the Koeberg implementation ? But we spoke about this already, so it's basically covered.

Interviewer: What are the unique risks and challenges within nuclear engineering regarding the local supplier industry?
Interviewee 7: The key issue really is around the quality requirements around suppliers and products that we use. And it's quite a rigorous process to be qualified, to meet the requirements, and many companies really don't really wanna spend the money, R100 K, or whatever rand to get to the appropriate qualifications and, or, certifications in place.

The other big one is the propriety information from OEMs, so you can only buy from them, cos they have specifications and specific materials, that may not be available locally, and those will be more difficult. So that talks to you if want to localise within South Africa, and transform, or go B-BBEE as well, you're going to not necessarily find that specialisation in the country.
There may be some, you know, but it's a matter of finding the right people to go and try and look and see where, and you know, you may think well no one does a

specific material in South Africa - but maybe they are using it - but maybe it's just in another environment and we're just assuming that we can only get it overseas. The people who know what we need far enough in advance, like the design or maintenance people, don't know what's available locally. There's just an element, also of maybe, where people have been working in a certain way all these years, and there is a bit of a culture in Eskom of *'why must we make our lives difficult to find something else?'.* And, you're taking risk, by doing that, potentially, by finding a different supplier. And it creates more work. Now you gotta go out there, and do something, you must talk to people, you must talk to procurement, get them qualified and put them on the authorised list of suppliers, whereas you can just load it on your system and then it gets done. So there's work to be done and Eskom culture isn't always about innovating.

Interviewer: What are your recommendations on how the transformation agenda should be implemented in the nuclear new build (NNB)?
Interviewee 7: One of the big ones must be to get the leadership on the project must be truly aligned behind the need for the transformation agenda, and ensuring there's a common view, so that when we deliver strategies, it talks to that.

The other one is, that we need to have people whose full time job it is to make it happen, throughout the organisation, so you can't just have a group in Commercial worrying about it, so in places like engineering or power station readiness, or project leaders, you need to have people whose jobs it is to make sure that localisation happens.
[Interviewer: would you say procurement engineering would be pivotal here?]
Interviewee 7: That's right yes, that's valid, they go out check which suppliers are out there, and qualify them, and make sure that, they know who will meet our requirements.

The other one is, and this is what I criticise Luke for, you need to get into the details and develop the process that makes it happen, ensure that your process works for you. So, if it's your job to ensure that we doing this, or whoever's job it

is, you need to make sure that the process for designer or whoever – the project management people - that their process requires this to be considered, and it almost drives it.
And if I look at the Koeberg example, or maybe let's say we stick to new build – Luke has a list of all suppliers, and was talking about breaking down the plant into each component and then we try to go and find local people, and then we can't and we say okay we give it back to the suppliers to tell us.

But, it can't just be a sort of presentation, you need to get it into the paperwork, so that when we go to the market, or a supplier, then they know that we're expecting this of them, and that we can then get a breakdown from them, so that they start early on already, this we gonna aim to get locally, even if you talk nuclear power island, then they can say, *'well, on the nuclear power island, your steel can be sourced from a local supplier for certain components'*, and some of the big vessels we can get from South African companies.

So the other one is, there must be clear expectations set our upfront, and I think there is, of what leadership expects. And so got targets of 30, 40% (localisation) for new build. The big downfall that we've seen elsewhere, though, on other projects, is that, and even on Medupi and Kusile, is that we have the targets and the vendors agree to them and they spend the money but not in a way that actually transforms the supply chain. They, the suppliers, will always tell you how well they've done, they've built this factory or built a training facility but it doesn't necessarily bring [pause] it's not sustainable.

And that's where that breakdown that Luke was talking about is important, it's the right thing to do, get them to commit.

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area?
Interviewee 7: I guess the main challenge for me in engineering is that I'm not personally -actively involved – in the detail of it, so it's an operational thing. And,

we haven't changed the processes to drive transformation, so when I see things it's almost by accident. But when I do stop, or question things, is when I'm signing as triple adjudicator or stuff that generally has nothing to do with my role as nuclear engineering manager. And then you see stuff there and say, '*so why couldn't we have followed a different route?*', so ja, I think there's - from a leadership perspective - we haven't changed that internally, other than some discussions as a team. But we need to go and change the processes, I think internally as well. And that's where this oversight committee (SteerCom) and the working groups that we wanna set up will hopefully help.
And so the other thing that I'm acknowledging with that, is the engineering processes don't necessarily make this a high priority. Zoey tells me that in spec eng they do look. But, they could be more aggressive, or maybe they look where they can, but they not gonna change things, so the next time around, things will be different.

And generally the lead times - and maybe there's another one - the lead times are long for getting ready to supply the nuclear requirements. So typically – and it depends on what you wanna do – but typically takes anywhere between 2 years to 10 years to get ready for supplying something. And you need to know whatever it is. And the thing, I'm told a project at Koeberg takes an average of 7 years I believe, and you need to know quite early on in that project what your strategy would be - so that's for projects.

But for the plant it is even harder because of the lead times. And what the plant probably needs to do, and their challenge is – even for outage planning – they generally (order) at the last minute, but you wanna get into long term outage planning, so knowing the outage plans for the next 10 years, and then you know 5 years before the time, these are the things we are gonna need. But the problem is that at Koeberg – even if it's 2 years away - that plan changes by about, it doubles in size. So you, the first fifty percent, the first half you can maybe have a chance but what comes thereafter, the late entries, and generally they struggle to get it delivered, and to get guys qualified, or waiting for suppliers.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects or impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 7: We may have to, upfront, pay some fees for people, or whatever, but we'd have to check how the procurement process is gonna do it. If a supplier's only gonna supply you with R500K worth of stuff a year, for them to spend a R1M is very difficult – upfront – to get into that. But that's more a challenge.

So in the short-term, I think you might actually spend a little bit more for certain things, but it's not a general rule. A lot of experience that we've actually had, has shown that the local suppliers are gonna end up spending you a lot less. Like on the PTR tank, when we

saw that. It's much lower than we thought it would be, and even though there's maybe been some problems, but it's still a fraction of what we were going to pay, and similarly, if we look at, like that discussion, and I know that we're still got to get the benefit, on the nuts.

But generally, in the short term I think the cost would decrease, although it could be a mixed bag, depending on what exactly we're talking about. I think it also would also force the overseas suppliers to relook at their costing, because the fact that we spent so much for a bolt to be made in another country, that is just not right, the guys have got us by the, you know… So, it provides some leverage, if they see we seriously now moving away from them and it will also - in the shorter term - lead to better bargaining power.

In the long term, it's only good, cos as you're increasing the local component, you're increasing, you're actually increasing the size of the (local supplier) pool – whether it's white or black – or whatever supplier, and you can't grow black empowerment without growing in total. And I think Cyril Ramaphosa said that, it's in his model for improvement.

And as time goes along, the benefit of localising will increasingly drive, you know, cost effectiveness, cost-reduction, because then you no longer have the

upfront fees that you need to pay, and then if there's even more suppliers that you get in locally, there's competition. The risk also sometimes, you know, I look at SOC X, they base their price on whatever it would cost overseas – so it's not related to cost of materials or a reasonable profit mark-up. It's based on what they think their competition would be and that's not helping either. And I wonder whether they're doing that because they're trying to offset other problems within their business. They know nuclear too well, I think.

Interviewer: Which of the 5 SD&L objectives or transformation agenda elements have you implemented or have you had success with? Kindly share your experience, positive or negative.

Interviewee 7: So ja, there's PTR that's an example of a success, but we haven't had that many success stories. But on a small scale now the guys are now looking in the spec eng space, or procurement engineering, to see what local suppliers there are. I think we've just bought some local filters, that used to be provided by overseas suppliers, but we're not getting as much as we should. It's kind of the consumables that are (readily) available locally. Low hanging fruit. But we need to start going after the big stuff.

[Interviewer: And hopefully this is where the Steercom and working groups will come in.]

Interviewee 7: Ja, the steering committee.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies that front end loading or planning to be in place. Is front end planning practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.

Interviewee 7: It isn't really done - though the guys do tell me that they consider it, but I don't think that it's quite entrenched yet. The key would be getting it as early as possible, that we start thinking about local – not in the time that we actually do the detailed design. So it applies to outing planning, as well as in the engineering space. But, there is some consideration given, when doing the design, can we source from a local company to this?

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement, KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg? But ok, I won't do this, it's very commercially operational.

Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation. We discussed this too.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area? Ja, we've covered this too.

Interviewer: Are there Key Performance Indicators included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.

Interviewee 7: I think it would make a difference, but it must be done in a sensible way, because people respond very badly to things that are not applicable to them. So I think that at Nexco we are now starting to get some visibility there, but it's not being cascaded down to, like Maintenance, to say '*let's see what can be done, then agree on a target and make that happen'*. Or in engineering, to say, '*let's see where we can bring that in – where we can get local guys'*.

And I mean, the one with the inverter was a good example, cos if we design for local capability, you can possibly come up with a different supplier, rather than just sticking to the OEM overseas.

Interviewer: How do you suggest that we go about or engage OEMs and OESs on the transfer of their intellectual properties rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?

Interviewee 7: I think any OEM would be stupid to give you something for nothing. And, if you asked them if you can buy it from them, they will probably charge you for it, but you won't really get what you're looking for. So the way it becomes sustainable for them is to try to get them to partner with local companies,

to bring them into their supply chain. And now they may have other drivers, like national policy in France or in the U.S. or whatnot – but that's the way it could meaningfully happen, where on certain components they get a local factory that supplies them with certain things and then they send those to France to process there – so that's the ideal scenario.
I think it's foolish to believe that anyone's gonna sell their IP, if there's value in it, and there's money to be made on it. They're not gonna sell it. If it's redundant, or old stuff, they'll charge you for it and then that would make sense.

For the nuclear new build, we actually wanna buy some IP from the suppliers. So the other way of doing it is by economies of scale. So if there's enough money in it for them, then it becomes feasible. So if you do it over a fleet, then they you commit that they transfer things and you pay this amount of money for the job, and when you're starting to talk about R500B, they suddenly become more amenable and start to work out their sums very carefully.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List?
Interviewee 7: I think it ties in with the working groups, but what I think you need to do is - I would imagine – you sit down, you look at all these stuff we're buying – and ì know that work was done previously – and then you say, *'okay, we buy R3M worth of this per year, 20 of that',* whatever the numbers are, and then you start categorising what it is, and put targets in, and you start to prioritise. And let's say its valves below a certain value, or a certain size, and then we go and actually check out the market properly. So that sort of market development where the Line is also invested in it.
I almost get the impression that guys like PQE, they keep the line away – that's their job – don't, you know, so they kinda make it something that's, the Line doesn't really see what the capabilities are out there, and especially when it's overseas.
But I guess the key issue in that is targeting what you wanna go after and building on that, so now this year we're doing valves, inverters, tanks and whatever else,

next year we now go to bigger valves, piping, whatever else – so you gotta build on it gradually. And over time, you gonna go through everything. But if you don't start…and it should pick up on momentum, as well, as things go along, and as we get competent in bringing people into the supply chain, and also the market starts becoming responsive to that, then it will go quicker and quicker.

The Nuclear Engineering Role includes:

a) *the identification of components and/or parts (using a graded approach) (with) potential for local design, manufacture and supply. What is your view of the current status quo regarding progress related thereto?*

Interviewee 7: The challenge is, that you almost have to start with a very difficult one, and winning that battle to then give yourself the confidence. You can't always just give the toilet paper and flowers to the local guys. You need to go out and do the bigger things, like the PTR tank, then learn those lessons and then, hopefully, do it better next time. So hopefully when the tanks get installed, and we sit at the end of next year, and they've both been installed, and the bill is like R300M, and we say, *'well surely, this project we were targeting R800M. We did well. Yes, it took us longer but the thing is now done and we geared up suppliers',* and even though they may partially be going out of business, at least they know what it's about, but they also know better – so if they quote again, maybe they will quote for R400M, but it still won't be R800M.

b) *Develop procurement specifications to address the gaps in local supplier capability with regard to equipment classifications, for example to include additional controls during manufacture: Quality Control Plans, Witness & Hold points and Testing methods. How far have we come in meeting this objective?*

Interviewee 7: I guess the challenge there, is to go broader, to accelerate the whole thing a little bit, and also to let them know that as management, we are okay that we do take some risks, but that we manage that well and that we the additional

(quality) controls, putting those in place. Those procedures are already there, like the graded approach.

c) *Monitor / Witness during Manufacture process. Is this adhered to at all times?*

Interviewee 7: Rather ask Zoey.

d) *To eexpand the local supplier scope to include additional services, for example. refurbishing of equipment (barrier to entry). How successful have we been in this regard thus far?*

Interviewee 7: Rather ask Zoey.

e) *Oversight committee monitoring and driving SD&L initiative.*

Qu's:

(i) *This committee has recently obtained endorsement from NEXCO to function as its sub-committee (Steering Committee) - dealing with the transformation of the supply chain at the KOU. What are your thoughts regarding the importance of this mandate and what its implications are for the attainment of the transformation agenda at KOU (and the related attainment of the Shareholders procurement equity KPIs)*

Interviewee 7: I think the key is basically going to be to cascade the questioning, the level of involvement throughout the organisation, cascade it down to the place where the general intent is not being implemented. So you want your maintenance managers to start saying, '*we know we want to go for these detectors, can we get it locally?',* before saying *'it's Areva, let's go',* but they first need to ask a question, '*can we get these locally',* and then say, *'well, let's check here, we got a template to fill in'* and so on. So, we force them to do a bit of work to make it happen.

Also, to set clear expectations that we can share with the business, and that they know that things have changed. And I think the thing of the letter from the CNO to everyone to say, '*we will not be acquiring certain things from anywhere other than in South Africa',* that kind of thing is required.

The difficulty with nuclear is that no one can really tell us where we must get our stuff from because we can always hide behind the nuclear thing. But if the nuclear people are the ones that are driving it, then we can tell the people that, *'these things must be bought from a local supplier, if you have to get an exception from that, it needs to be approved at whatever level'.* And make that the line manager's responsibility, and not SD&L's at the end of the process, to try to get it changed, cos then it'll be too late to have an impact.

(ii) Do you foresee any major roadblocks in the implementation, and or, functioning of the working groups?

Interviewee 7: Already discussed.

(iii) What do you regard as a necessity regarding the buy-in of the plant (line managers and staff) in order to make the implementation a success? (a related aspect will be the strategy regarding the engagement and communication to staff (will it be like the Mandate Molefe engagement)? Not hearts and minds issue?

Interviewee 7: I think the biggest thing with the line – and Terry actually put it nicely the other day - is that they need to see the need for a change, and to feel that they are responsible to make that change happen. That's probably it. So that's how we'll get their buy-in. And the need at the moment is driven by cost, but it could also be something about, *'it's our country, we need to get local guys involved'*, but you know the reality is that when you talk to a maintenance guy, that's the last thing from his mind, he doesn't care, that's not his problem - whether it's a million, or a billion - he just wants it, cos he needs it to get his job done. But we need to bring it back to something (tangible), that's what it comes down to. And with that, from the steering committee, the current thing that we'll probably wanna focus on, is how're we gonna communicate.

So let's say we've had a success, an example of a success, we should actually share that with our staff also, to say, '*these are the examples of where we got a local company in,* and maybe showing them some pictures of a factory and people who work there.

So the thing with Mandate Molefe thing was - it was actually forced upon us by other people, by the Board, who told us, *'you guys are…',* but they actually had a problem with Karl and they took it out on the rest of us. And that's the wrong way to it get to people. So if we drive it, as the Nexco team, and John, Albert and Chris are passionate about, and people respect that, and then people say, how do we win this thing?

So I dunno about Mandate Molefe. I don't think we outside help. So just then make a concerted effort, where we bring the Stakeholder guys in and we do some things that talk to it. We can do this well enough on our own.

We can ask the stakeholder guys to put together a communication campaign and maybe target something like the next NSA day, that we have a couple of stalls there, on things that we got available locally and talk about how it was done. That might be an idea, one of the things that we could do. The PSM could put out the PSM note to the staff, and talk about some successes and why it's important to us, etcetera.

End of Interview

APPENDIX I

Interview with Respondent 8

Interviewer = Researcher

Interviewee 8 = Key Participant 8

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 8: Just quickly, my answer would be yes. The state's money is the public money. So the answer is yes Eskom should be used to transform the supply chain because the benefits of that transformation is for the very same people, the public, through taxes, who invest in Eskom. It is for the betterment of the South African people, it should be a symbiotic relationship to ultimately uplift society.
So Koeberg is not playing its role to the extent that it should because the money leaves the country, because of imports. So in the context of Eskom, the answer is 'yes' as Eskom has to be 'Big Brother' and Corporate therefore be a big brother that says, "you shall", otherwise you can't do it.

Interviewer: What is your understanding of the transformation agenda in Eskom, Koeberg?

Interviewee 8: In layman's terms, I'm gonna use the layman's terms, it is to distribute the money equitably to all sectors of society but in a commercial sense – it's supply and demand, so the engagement with the market through an equitable way so that the economic benefit is across all spectrums of society and not one over the other. It must be broad based.

Interviewer: What are your thoughts regarding the manner in which the implementation was done?

Interviewee 8: My view of SD&L is that it was fragmented and it was a theoretical exercise that didn't have the support of the people that are actually to make that happens, which was not SD&L. So, it was something that someone else

wants, and it wasn't internalised as an imperative. It was seen as a nuisance, it's an irritation.

So at Koeberg, the view was that nobody other than the OEM type vendors have the capability of supply and hence, with transformation comes inferior. But, the key thing is that it was fragmented. It was something on a stand-alone basis, it was a thing about a couple of people who sit over there, and it was implemented in the actual, on real-time, it didn't set the team, the SD&L team, up for success.

That's because the SD&L targets or objectives that you wanted to achieve, by then it was in execution time, and so by that time, it was too late.

And hence, as recently as last year, the view of one of the user's is that SD&L will keep us back and we're not gonna get the contract placed in time if we have to include SD&L.

[Interviewer: So what can you say about change management and the transformative change – what was the role of leadership and change management at the time? What are your thoughts about this?]

Interviewee 8: So I almost want to say that leadership was non-existent in taking the lead. Leadership was selective in their support, they would pay lip service to it, but there was no action. Because of that belief, and when we talk about management or leadership, I'm particularly referring to the likes of the Nexco level.

[Interviewer: Yes, that is the level that we're referring to.]

So the view, and this is my perception., and it was led by Karl – so him and I sat in meetings with MPSG bands and he would've correlated SD&L or B-BBBEE or affirmative action, he would have linked that to inferior quality, or not capable, so the priority would be that we would need capable vendors, and that we would not have the time to educate or develop because it's a nuclear plant, and so on. So that view, he was very vocal about that view, so hence following that, any change management would have been non-existence because the CNO has that view, and Piet would probably have referred to the Mandate Molefe thing also. But you see, that was indicative of the view that leadership of nuclear did not take transformation seriously. Because, external intervention was needed. So ultimately, the change management happens with individuals, it doesn't happen

with processes, so if individuals don't change and believe in it then it's not gonna happen. I always was always of the view that the next thing that would happen, after the Mandate Molefe, was the transformation of the supply chain, is that the focus will move to the supply chain.

So my view is that they moved Jerome, to make an analogy, Jerome was moved because of lack of transformation in the workforce, and my view was that the next person that was to be moved, would be between Barney and myself, because of the transformation. But the point is that it's in leadership.

The unions want to see transformation in the supply chain and they were vocal about the transformation in the employee numbers, whether it is equity or male, female and all of that. So in the Business Unit forum, Jerome was very much focused on the lack of transformation. So it was a matter of time before they came to us – and what saved us, in the B-BBBE (*scorecard spend*), and so we weren't doing badly in the supply chain, given the fact that we spend a lot of money with the usual suspects like the Lesedis. And then, the exclusions of the foreign spend – so in the last 2 years, they were vocal about the GECI's white trainees and the thing about having contractors and taking the money away. And the fact that Koeberg is being chastised for having flowering and catering vendors, and not real transformation.

[Interviewer: But, as an aside, are you not black, as in not white? So by moving you out – always good to move around – and make room for younger, black people – but are you not regarding by the trade union as black? As in the constitutional definition of black? I understand the equity HR terms, but in the supply chain, there isn't a separation of ACIs.]

Interviewee 8: There's equity in gender – the black women owned and focus on black women owned businesses across gender. So if we apply the Eskom policy and preference, then I would follow suit after the black women in the supply chain.

[Interviewer: As a coloured male, are you over-subscribed, and so from an equity point of view you fall out?]

Interviewee 8: Coloured males in general are over-subscribed at Koeberg.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	**2**	3	4	5
	X			

Interviewee 8: For me it's between average and poor. But, given the implementation, it was poor, so it's number 2. It wasn't co-ordinated or integrated.

Interviewer: What do you think of the role of leadership (particularly Nexco, as the most senior management team) in driving the transformation agenda at Eskom, Koeberg?

Interviewee 8: Leadership must take the lead and 'lead by example'. Use the word that Chris said the other day when you spoke to him, it needs to be **'sponsored'** by them. Karl didn't sponsor it. The one thing that John did, he sponsored it, with his comments (at Nexco). You could see that day in Nexco, when he *(John)* made those comments, everybody suddenly was aligned with that, cos he set the tone, and said *'I'm even prepared to pay and throw money away to buy (local), it must happen'*. There must be clear expectations from leadership, now the one thing, and it's a pity that Albert was not at one of these Nexco meetings. He is clear about his expectations, maybe he doesn't say it in the right words, like in that mail he sent about the supplier week, where he says, he doesn't want see this thing - where there's only a small number of vendors who monopolise Koeberg. So that in itself says he is pro transforming the supply chain, pro-diversifying the supply chain and he is saying that HODs must interact and we cannot push out of the supply chain, cannot push out opportunities for SMEs. He doesn't use the word that I do, must be 'intentional', but he says in that mail the same thing.

Interviewer: How has Nexco championed the change management process related to the transformation agenda in Eskom, Koeberg?

Interviewee 8: Change Management is not yet happening as they are still grappling with it themselves in terms of that change management, so we've moved significantly in terms of getting them to that alignment, sort of transforming their thinking. And that is the other thing, the aligned thinking must be there for this thing to be successful. That aligned thinking must be at different levels, at executive levels as well as the strategic levels as well as the technical and operational level. In those 3 levels, it must be aligned. So change management, therefore, must happen at all those levels. And we are currently only at the strategic level.

With Chris, you must go with a practical proposal to influence, I think that's how I summed him up. It must not be in a presentation – it must be in a document, he's that sort of guy and that's why Piet and him don't always see eye to eye.

Interviewer: How would you describe the current status of the Koeberg implementation of the transformation agenda?

Interviewee 8: At Strategic Level, see #6 above. What Eskom (*corporate)* didn't do themselves, or do Koeberg any favours, is the way that they implemented transformation at Koeberg or nuclear cos they, as Piet always said, it was just the word, nuclear, left Koeberg to its own devices.

Then, leadership's willingness and wanting to transform becomes key. So while Karl was here, and he believed in something else, then you not gonna move. And now with Mariam, I think she is more demanding in a way, so therefore, she's actually taking leadership – we don't always agree with the way she does things – but she is showing leadership in terms of, "Koeberg, you won't be left to your own devices, you shall be part of the organisation", and I think that also plays a role. She's making Koeberg more inclusive, it's no more: Eskom, then Generation, and then there's Koeberg.

Interviewer: What do you think has been the major roadblocks or problems associated with the Koeberg implementation, what is your perception?

Interviewee 8: I've covered that. I think there're also personalities (at play). I think if you now go back and you look at who was responsible for engineering in

2012, I think it was John. Their organisation (engineering) were in flux at the time and there was no common understanding where does this transformation of the supply chain reside in from a localization point of view, from a component localization thing. Is it an engineering thing, or is it a commercial thing? Now, those factors, you have Karl, you have John, and you have Barney, now who will survive in that three, who? The expectation was that the supply chain must produce, which is with Barney, meanwhile the other 2, who's actually the decision makers – Karl didn't buy in, John, I don't know where he stood, cos he's focus was different

[Interviewer: He did say that the tank can be localized by at least 70%.]

Interviewee 8: Yes. But you see, we weren't even part of Generation at the time, so you see that stuff, we were a division on our own – we were going in our own direction – so all that stuff were contributing to this havoc, to this confusion. And then you had Chris as PSM, personality wise. And then you had the people on the operation level, and even in engineering there was a whole juggling cos they didn't agree on who must be where. So there were lots of organisational factors that contributed to the chaos.

What are your recommendations on how the transformation agenda should be implemented in the nuclear new build?

Interviewee 8: Well, fundamentally, in the model for localisation, we will have to contract right in the beginning those OEMs that build – they need to understand - they will build, then they will, over time, oversee the maintenance of it while transferring those skills to local vendors, with capability and better performance management – if that is the correct term to use - by us in the execution of it. So, for instance in China, they told Areva, China said Unit 1 will be 90% built by you with foreign resources and so on, and when it comes to unit 6, it needs to be 80% local Chinese and 20% foreign.

So the localisation and transformation strategy must be a gradual transfer of IP from construction, right to the maintenance phase. You need to foresee how the plant will be maintained, so the whole lifecycle. So, I think that with the Koeberg lifecycle, I know that there was no foresight in the 1970s – there was a different

political agenda – and hence why our specifications, as an example, are so crappy, cos it was written for the OEM. Nobody else is ever gonna maintain the plant, is what they thought. So, our strategy then, and how we contracted then, wasn't done well, and that's why there's this debate now about whose intellectual property is the specifications. I mean, we've over and over paid back that specifications. For example, they'll say that. *"that DSG spec is mine and you can't use it to go to the open market"* – we can't. So hence, initially, when you set up those contracts, you need to set it up as if what's gonna happen in the maintenance phase of it. We were cowboys back then.

The issue is, the thing is, strategically, you need to map out the value chain, in line, this whole thing of Piet's tool scenario thing, you need to lay out how you are gonna maintain this unit that you are gonna build – is it still gonna be 80% foreign based? Because we have the sole sources thing, right, that every time that we have to sign, cos we made the decision in 1970-odd that Areva is gonna be a sole source forever. So you need foresight. And that, for me, is the lesson.

Interviewer: How cognisant are you of considering aspects related to the transformation agenda when you consider criteria to be included in tenders? Please elaborate.

Interviewee 8: The answer is, I am very cognisant of the fact. So I'll be on the lookout for requirements that are Koeberg specific, so that only a vendor that is doing business with Koeberg will meet that requirement. So I'm always on the lookout for that – to prevent the specification to be like that, because then you are not giving the potential new vendor the opportunity.

For example, there are certain accreditations in maintenance that you can only have here (*in functional requirements),* so I'll be on the lookout for limiting functional criteria that will prevent open competitive tendering. So on a related point, that's actually where fraud started, fraud starts there. So the guy that there in the plant says he wasn't involved in the procurement or commercial process, so how can I be involved? But that is where you limit and eliminate competition with that. You wrote this thing for that (particular) company, and hence in the supply chain, commercial is not involved in putting up the technical requirements, but

over the years, I've involved myself with questioning the criteria, and more importantly, the scoring of it. There was a use that once said to me, "…well, if you are now questioning my integrity and my knowledge, why don't you do the technical evaluation?" and so I said, "it's not my job to do the technical evaluation, that's yours but my job is to keep you honest, to make sure that you are fair with all the vendors. If you gave vendor A 2 out of 5 for providing this document, then you must do the same with the other one, and the other one, and the other one. And what I'm seeing you is that you are not consistent, and it's about consistency". And so that's what I do.

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area?

Interviewee 8: The first challenge is linked to the fact why we say the implementation (of SD&L) was 'poor' and there was no foresight. Because, it was implemented in real time, when the demand had to be satisfied. Your hands were tied in terms of pulling back the requirement – to move from purchase requisition to purchase order. So, because of the lead time, and the need to satisfy the need of the plant now, that stifles your ability to question, to challenge, to send them back, because you are now conflicted between satisfying the needs of the plant, in terms of ensuring the plant runs (continuity of supply) when they need a spare, versus at looking at the supply chain transforming.

So it's really the conflict between production and the social pact, or social responsibility in terms of influencing the supply chain, or transformation versus focus on production. That's fundamentally the thing. So Karl them will say, "quality versus implementation of transformation", where there is the link to say that, "I cannot jeopardize production due to a lack of quality". So it was easy for him to say that. So because of that, you therefore do not have the time to prepare a potential vendor to meet the requirement, to meet the technical criteria. Because, we are unfair to them in meeting the requirements in that short space of time, so we didn't prepare them.

And then, the demand planning from the plant, so strategically, the demand planning from the plant is haphazard. Our demand planning is not consolidated.

So therefore, you can't create then sustainable business in the so-called new business, the EMEs, who need to invest in order to meet our requirements, so they need to invest to meet our quality requirements. But they can't invest if I give them haphazard business, and we give them haphazard business because our demand planning sucks. And now the funding thing came. So those are the things. So it's the demand planning, the lack of foresight, in terms of pre-planning opportunities, as you want to transform ahead of time, instead of what we are now doing - in terms of identifying opportunities parallel to hitting the market.

Interviewer: How have you ensured that the 5 SD&L objectives, in respect of the transformation agenda at Eskom, Koeberg, are addressed within your requirements?

Interviewee 8: The target setting report and strategies *(procurement)* and I know that SD&L weren't always invited to the meetings, and so on. But, fundamentally, it's there that SD&L transformation opportunities are meant to be identified, and then to ensure that it goes into the tender and then into the contract. And then that is how.

Interviewer: What are your main challenges in ensuring that the 5 SD&L objectives are included in your requirement?

Interviewee 8: The real time issues as mentioned, but back again also to the lack of the change management that happened up to the operational level. So, the cost centre owner, the end-user or the contract manager doesn't have an emotional attachment to the need and importance of transformation. They didn't go through that change management to understand that it's actually not about the colour. So that about the people in that value chain, that were not exposed to proper change management, and hence see it as a nuisance, rather than an imperative. And I'm using those words now, and we should remember those words as we move forward.

So, at contract strategy phase, the contract manager must understand, he must get his template populated already, based on the scope that they have provide. "The people that you are looking for, shall come from Atlantis", as an example. You are reminding me now of something that I'm working on with Cassie and Arthur,

for the contract management and procurement at Koeberg. This breakdown of the scope will need to be added to the contract management document in the business case. So one can add this to the requirement in the business case stage, similar to an ERA, similar to what a project will look like.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects or impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 8: So in the short term, the impact on business is gonna be more closer management in the execution of work by supplemental staff, or a service provider who is a transformed service provider. So, meaning more hands-on supervision.

So Koeberg, as an example, because of quality requirements, and the nuclear safety culture stuff, Koeberg is focused on nuclear safety culture, industrial safety and quality. Now, it's easier to do business with well-established companies who understand all of those and you can let that company – and you shouldn't, but you can do that – now if you want to move from the known to the unknown, cos that's effectively what this transformation is, then you need to be more hands-on for a period of time.

So, you need to spend more time with the new vendor. So, that is the cons in the short term. You need to understand that you might have more - there will be a higher risk of human error – but then again, it depends on how you implement this thing, but truth be told, the likes of the Areva and Alstom make just as many errors as what the smaller businesses do, even if it's not more. But, more closer management is required from the Koeberg staff, with that higher risk of non-performance or non-quality and that stuff. And in all of that, in all elements, they say being at Koeberg, the longer you have returnees, the more you have returnees vendors, the better for your safety, because they start to know your business. And as you continuously change vendors, again, those vendors must start at the bottom of the scale and you must work them up, up, up. So that's the effect of changing the supply chain.

With the long-term focus, if you prepare those vendors properly, then you can implement this thing smoothly. So if you have a proper implementation plan and it is a gradual approach, and not a shotgun approach, then you mitigate those risks of those things that happen. And it's a business imperative for Koeberg, because of the fact that we have the usual suspects, and we have sole sources, we don't have proper, real proper, competition. We rely on the so-called market, and the market is the same people we gonna go contract with again. So, they set the market, and not the market sets the market.

In the long term, we will have proper competition and we would be able to move away from a reliance on a few vendors – which that in itself is a production risk - never mind the transformation bits. And we've seen the results of relying on Alstom, of relying on Areva, and so it's not that the usual suspects don't make mistakes. Complacency kicks in, if you have this sort of relationship.
So, long-term, you suddenly have competition, they will renew themselves, from an innovations perspective, they will try to innovate continuously and we will get the benefits of innovation – but we must be transparent with them.

So, the negative view in the short-term is that you gonna spend more time. So, you as the customer, will spend more time, where you as the customer are actually outsourcing it cos you can't do it yourself. So now you gonna have to manage those – but that's the nature of our business, and the buck ultimately still stops with us, and I think some of the contract managers don't always understand this - they want to outsource everything, because then it's their problem - but it's not their problem, cos we're still accountable. So as you diversify your supply chain, you're gonna break down your scopes of work, like do Piet's thing, and as you break down your scopes into smaller portions, and as you do that, it becomes more complex to manage and so time, again, time integration. The benefit, though, is that you're probably gonna save money, cos if you do proper specifications and proper costing you'll save money. And also because the transformed vendor will inevitably be a newish type vendor, a smaller type vendor, who wants to still get into the business, his mark-ups aren't that high, or

overheads aren't that high. And I believe that from a Koeberg perspective, the sooner we transform the supply chain to have more capable EMEs and QSEs, it will impact positively on the bottom line, because just for the same service, we will suddenly pay less. Also, the smaller transformed vendors doesn't have the perspective of the other vendors that say, *"I don't accept your terms and conditions",* and then there's this power struggle, (for example) between Shell's terms and conditions, and Shell says, I don't accept Eskom's terms and conditions, and Eskom says, I don't accept Shell's ones – and the time taken there to get to an agreement, deviations, etcetera, and there's just a lot of admin – and this admin creates overhead for us – and the buyers don't get through all the red tape that we need to go through – so that's sunken costs. Those would be my thoughts in the short term.

But in the long-run, for the economy, it will have an impact on – if the money gets spread to the new vendors, in the new sector of society, then those people move up from the worker class, or whatever class to the middle class, and that middle class start using, or buy other stuff, they move into a bigger space, and create more jobs through that. So crime is affected positively, we get people off the streets, if you want to go to those extremes. (nett societal benefits).

And lastly, linking it back to the new build, the political scoring or brownie points that the government and Eskom will have if Koeberg can successfully transform its supply chain to representative of South Africa, then that is a reference that can be used. So, when people say, *"Ag, new build is not gonna create the jobs that you guys say it's gonna create, because see there – Koeberg has done nothing for us"* and whereas, here, if you've now done this properly implemented transformation of the supply chain with Koeberg, even though its only 2 units, you will be able to say, *"How much more* can we do?", so if we not successful in transforming…it'll create a positive model of what can be achieved. You need to show them that Eskom can actually localise and transform the supply chain, and if we don't do that, then its only theory – then we back in 2012.

It's exciting times we live in. We must transform towards Atlantis, ese we will get significant political pressure.

But, what is important, the last one, is that Koeberg, on its own, cannot sustainably transform the local economy around Koeberg, as an example. So hence, the importance of collaboration between corporates.

Interviewer: Does the end-user provide any inputs in ensuring that the 5 objectives of SD&L are considered for the procurement in order to meet the requirements of PPPFA? Please elaborate.

5	Always
4	**Sometimes**
3	Seldom
2	Not often
1	Never

Interviewee 8: If you want a short answer, yes, but whether its effective, it's another matter. So yes, it's number 4 , sometimes.

Interviewer: Which of the 5 SD&L objectives (transformation agenda elements) have you implemented or have you had success with? Kindly share your experience, positive or negative.

Interviewee 8: Transformation, when you look at the stats, transformation is the success. But it also depends on how you define success. So if you don't meet the target, were you successful? But we were successful in attaining a target. The 2 areas that we do make progress with is the transformation and skills development – to the point that it irritates me actually (skills development). The one thing that the likes of Areva is doing well, and is that is monitored – for example the NSO3- is that the skills development happens – whether we have the ability to capitalise on it – where we now do less work with that company, I don't think we were successful yet – as we don't see the results of it. Because, we should be able to insource with the skills development – that we are doing it ourselves. But, they are obviously doing the skills development in such a way that we keep on coming back to them, cos they're not sharing, in a way that we can't be self-sufficient.

Interviewer: Can you please elaborate on the impact of including such local development elements on the attainment of your procurement related requirements?
Interviewee 8: (This has already been covered).

Interviewer: During the front end planning phase of projects in Koeberg, is the SD&L requirements considered? If yes, please elaborate.

1	**Yes**
2	No
3	Not Applicable

Interviewee 8: The answer, again, is yes. But, the definition of front end here is at the strategy phase, and I'm saying now with this new procedure that we're developing, that it needs to be at business case phase – so if we say we're gonna outsource to transformed vendors, so that when it goes to PTC, then they aligned to it.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies front end loading or planning to be in place. Is this FEP practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.
Interviewee 8: The response when be twofold. We need to differentiate between front end planning for goods, or spares and front end planning for services. So, front end planning for goods and spares, for scheduled outages and online work is well-defined. So, it's the execution of, or adherence to, that is the problem or challenge. So to give you an example, for outages, there're milestones that say 18 months or 24 months before the start all spares have to be identified and requisitioned, which means that they have to highlight to planning – which is Bradley and them – that these are our requirements. So if they follow that, which is front end planning for the outage, we will have a fighting chance to get the

spares on time, and also to consolidate it into demand for the supply chain to procure from, in a consolidative way, from transformed vendors.

So the process is defined, if that is the question, even for services. Now, for National Treasury, as an example, we have to give procurement plans – it was due now, today – and that is front end planning. And that thing, you must now follow that thing and it's back to discipline. So there are processes, it'd just adherence to it, that's the challenge.

Interviewer: Additionally, please explain how else you can ensure that design for local strategies are included in the commercial strategy of your requirement.
Interviewee 8: The answer lies in SteerCom and working groups, that decision at an engineering, or that level, that it shall be this. These ones, local and if you put it like that into the system, in SAP, so that when that PR comes through - that information comes through - this is where it must be targeted.
Interviewer: Do you consider the SD&L Opportunities Matrix tool or approach employed by KOU SD&L effective when considering design for local strategies? Please explain or elaborate.
Interviewee 8: Yes, I do find it useful and the reason why it is useful, is because if you need to break down the scope. But, the opportunities matrix needs to be simplified because of the way it's been described. You know, his explanation of the systems engineering and project management approach, and the matrix taken as a whole, makes people think of it as a theoretical thing. And then, they equate it to 'it's only talk – show me in practice', because everyone doesn't understand what the systems approach is.
However, if says that it is key that we breakdown the scope to the smallest activity, it's almost like the 7 by 7 *(7x7)* strategic sourcing, if he links it to those steps where you need to have a full break down of the scope of what you're gonna buy or need, then it becomes more practically implementable and understandable for the end-user, because it's almost like activity based costing. Because you break it down per activity, so what is it actually that you want?

So once you break it down, you suddenly see that that there are lots of smaller companies out there that can do these smaller activities. So, absolutely, the tool works – but it must have a holistic approach. As in how we are now approaching the transformation of the supply chain with the SteerCom and the working groups. You have to decide that in this scope of work, this is what we gonna do, then we use the tool and start breaking down the activities, we batch it and in that way we can market research or availability of capable vendors, or potential vendors. You can break it down into local vs overseas, you can break it down into B-BBEE levels, you can break it down into particular designated groupings. And that is intentional, and it's transparent.

[Interviewer: Okay, thanks. What do you think about his idea of adding it on to when PQE's capability assessment? Are you favour of that as well, do you think that that would be a good thing?]

Yes, it is. But again, you first have to think that process through, what are you gonna do with it? At the SME forum, we had, in a roundabout way, one of the questions that Naledi got, regarding the company information form. So, I asked her before the time to facilitate a process - after she did the presentation – where those vendors complete the company information form, where it will cover what they are capable of. Then, PQE can do a desktop exercise on the scope of the work that those people can do and in which category, like a Q3 and through that process, we can then use to identify training opportunities or skills gap training for those people. An example would be if she does a desktop exercise and it's identified that there's a quality management system outstanding, and then we can tell that you need a quality management system, based on our assessment that's a gap – if you can fill that, and so on. So, yes, then wider than what they are currently doing. So we need to be proactive about this.

But, there's a certain way that you need to deal with Naledi, in order for her to see the light, if I can put it in that way. So between her and Piet, they don't see the light. And she was ok, and did tell me about the resources, and so on – but they're doing it anyway (the capability assessments).

Interviewer: What are you perceptions of how the SD&L imperatives within the transformation agenda align with RD-0034?

Interviewee 8: The RD-0034 is the value chain and supply chain. There is definitely a link, yes, but the link for me is actually the consequence of something else. So, RD-0034, for me, is nothing other than the imperative of the audit trail which is a NNR requirement.

Like, PQE will ask a supplier, what is their standard operating procedure, to their procurement process. Like the other day, they went to a vendor, assessed the vendors, and the vendor couldn't tell them how they procure – and it was an agent – how do they get the COC from the manufacturer, and their own receipt and inspection process.

So, internally, if the businesses focused on covering the PQE requirements for Q1 to Q3, automatically that it aligned - firstly from a quality perspective and it will be also be to prepare the vendor to provide services to a higher level - the transformed or designated vendor - cos that's a prerequisite, for Koeberg to do business with you, you must have an audit trail, and you must have a QS (quality system) that talks about that.

And again, it's really nothing to do with transformation of the supply chain but it's an inherent requirement of quality management – and the consequence of that is that you would be ready to supply items under RD0034, but probably not Level 1 initially – but with a graded approach.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement (KOU implementation), assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?

Interviewee 8: My general view is that we are well legislated. And I think they tried their best to make it practical at least at our operation, SOE level with PPPFA, and the way that the B-BBEE scoring is done is well documented. Initially, I think it was haphazard but the second version, I think it was the 2013 Codes of Good Practice, are better.

And its prescriptive, as it's a 'thou shalt', which is better, and if you apply it transparently then everyone knows what is expected. So besides the corruption and so on.

The one thing, though, was the time frame between the legislation coming into play and being applied, and getting the implementers knowing 'how to'. So that I think is an area for improvement, though they got better and at least Eskom got better, within the actual implementation happening and the training.

Interviewer: What would you like to see being done differently regarding the current implementation of the transformation agenda in Eskom, Koeberg?

Interviewee 8: The answer would be, the same as currently, as we are now moving forward, and with the same trajectory. Yes, that we are intentional about what we want to achieve.

And it's not about the KPIs. If it becomes an imperative, that people understand the 'why it's important', instead of chasing a number – and that is the change management from the heart - that people do it from the heart - for the right reasons. The numbers must just be the result of it.

You need to bring it home, the buy into the 'why' and it's almost similar to having a business plan, and the business plan covers business efficiency, it covers production, but it is to elevate the importance of the transformation of the supply chain – up to that level – and hence my comment to Albert – it needs to be in the performance contracts of the HODs. So, I don't know if he's gonna be successful with that.

Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.

Interviewee 8: The role of leadership is the big learning. It needs to come from the top - the direction – and then converting the legislation into a believable objective, where you're driving that. But then, the second one is the one we spoke about now in the previous question, was the, 'it needs to come from within'.

Yes, because we need to prevent, and unfortunately I think we're already there, we must prevent that the transformation of the supply chain follows the same negative view that affirmative action in the workplace has.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?

Interviewee 8: I think at managerial level, the commitment was there, but the 'how' or direction was lacking. The action wasn't there In commercial, unfortunately, we were fighting within ourselves if that SD&L mandate was in the right area. So, we therefore conflicted, although we were all in agreement that it must happen – but the 'where' in the supply chain is what we debated.

So, I don't know if Barney has a particular view of where it should be – cos I had many discussions with him – and I don't know if he had, if he was in agreement with it, but I think I was, but he wasn't gonna do anything about it.

But, you see, that actually was a factor of how Nexco was operating at the time. That's cos, there was no contest when considering the Karl vs Barney voice, and Nexco was not in support of it at the time. And everybody followed Karl's direction, and Barney's voice was silenced. And so on managerial level it was like that.

And then it cascaded down, on implementation level therefore, to the buyers, saying 'you're asking me to do this, but it's too late, we can't do it now' and so from an implementation perspective, it lacked a success rate because of that. And, so the contract manager is saying the buyer, 'don't waste my time with SD&L, I want to get the contract placed and get the work done'.

And, there was a conflict in the implementation level with the middle managers in commercial, who were tasked with service delivery to the client, and the client wants this, and the client must get it at the speed next to none, so the turnaround time of PR to contract – lead times were chased and met. And therefore with that, the time taken to do Piet's tool (complete the opportunities matrix) wasn't practical as we couldn't transform a vendor in the process of the placement of a contract. It wasn't feasible, else it becomes window dressing.

Interviewer: Are there Key Performance Indicators, or KPIs, included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success (of the transformation agenda) in Eskom, Koeberg? Please explain.

Interviewee 8: So historically, there isn't. But, there's at the executive level, and there's no cascading down to the departmental heads and so on. And I do believe that if it's cascaded down, it would have impacted positively on achievements.

Interviewer: How, in your view, can procurement transformation assist us in the attainment of our transformation agenda objectives SD&L at Eskom, Koeberg?

Interviewee 8: Yes, it can help. Again, you have to be intentional about what it is that you do. So if you insist – as the input into the procurement side of the supply chain – it's about if the demand planning and the strategy about how to satisfy that demand - if that is done intentionally, properly and upfront with a strategy – you could therefore designate certain scopes of work for designated groups of vendors in your procurement strategy, so therefore using the spend of the money that is available to transform the targeted audience. Or, direct that money, to satisfy that need, to those targeted vendors. So upfront planning before hitting the procurement process, on the demand planning side – if that is done properly – we can better do the procurement strategy, with targeted procurement, to the designated groupings.

Interviewer: What do you suggest could further be done about ensuring that the design for local imperative is fully maximised when procuring items on the open market?

Interviewee 8: But you see if that question specifically relates to Koeberg, there's the specific thing that Koeberg must do, which is that we need to be more 'tough - but tough doesn't describe it properly - with our OEM vendors, around which of the procurement specifications are the intellectual property of the vendor versus Eskom – does it belong to them, or does it belongs to Eskom?

So come to think of it, we need to have a working group on intellectual property and procurement specifications on who does it belong to.
[Interviewer: Yes, I do think it will fit into one of the working groups already described, the supply planning one. But it must be a focused agenda issue, yes.]
Interviewee 8: I think that you are right, yes. We need to get out of the legal hold that many of the OEM vendors have on procurement specifications. If we have our own procurement specifications, then we could test the local market with those, cos currently we can't.
Interviewer: How do you suggest that we go about, or engage OEMs & OESs on the transfer of their intellectual properties rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?
Interviewee 8: We actually have OESs, the ones that we deal with, the Company B (*previously Company J)* and the XYs *(trading as Company S SA),* they mostly original equipment suppliers, but not manufacturers. But, they deal with the manufacturers, and because of the fact that they have the exclusivity rights, that is the thing.

So how to deal with that, is again, we need to get permission, almost like going to PTC, and get a mandate to negotiate with them, on the acquisition of intellectual property, or intellectual capital around these procurement specifications, specifically, and then buy it if we have to.

Remember how Piet was saying that there's some money available for intellectual property. I think that we need to work with the dti. So, the funds that they make available for localization, or for local manufacture , we need to pool those funds and then, through that way, if we have to, once-off, pay for those IP, then we pay and use the IP to do the local industry manufacturing and we need to work with other state owned enterprises and government departments.
So, hence, I am almost saying that for this particular thing, there must be sub-committee of the working group and their focus is to integrate with other state owned enterprises that are in the same sphere of, like the funding, TLIU – but with key milestones. And I've trying to get TLIU to work with TLII around their

vendor database and the qualifications process versus what they use, and what we use, so that we can integrate those. So, for, intellectual property, it's about getting access to the funds.

And lastly, we're on the same page with engineering now, with Chris, and so we must use our obsolescence issue to do equivalent local manufacturing, because all obsolescence issues we anyway now gonna do new specifications, and so that gives us the opportunity to break from the OEM – why go back to the OEM and ask for an alternative? You can now work with, someone like Curtis Wright, as an example, and together with local industry, and that is how you localize the obsolete items at least. But engineering is key, and EdF.

Interviewer: What can be done to improve on the manner in which market analyses of the KOU supplier base - for local content requirements in tenders - is currently being done at the KOU?

Interviewee 8: So The market intelligence for me, is almost the same as the previous example I quoted previously. It's that, we must always do an expression of interest or the like, asking vendors or institutions, that have information on the local industry on particular scopes of work.

So we'll do an expression of interest, or request for information, and then that is how we will do a pre-qualification of those vendors based on the response and particular criteria, the criteria that PQE, as an example, will have. And in that way, those vendors who are out in the market and believe that they are capable, will come forward. That is one thing that I think that we will need to do.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List?

Interviewee 8: So we have to do it, especially for designated groups. And hence why I asked Phindi *(PQE)* to do that thing, post this EME workshop, is to get the company information form from them, then do a desktop exercise and then to keep a separate database of potential businesses. So, a separate database of EMEs in those sub-categories.

If we had more resources, then I would almost have said that we should have 1 person responsible for that, because it deals with development. You see, because PQE's role in the organisation is that of auditor. But their job, and they will tell you that they can't be the judge and the executioner. So, they will won't get involved in the development. Ja, so now you will have to get somebody – a development officer, as an example, that works with that vendor. PQE would say it's a conflict of interest because you can't audit and help. So PQE, I think, they must do what they do, and then we must have an individual who sits outside of PQE, here with SD&L or something, and becoming the breach between interpreting what PQE says to the vendor (gaps) and we must have access to all the funds – not the actual funds, but the 'where to', we need to guide them where to go, for example the Atlantis Chamber must be capacitated, or any other community based organisation.

Also, to get proactively back to these designated vendors, we need to have a procurement plan that is linked to a procurement strategy, that says that this scope of work is for these designated groups. Then, we do the market research, and then we say, yes, we do have these vendors, we get PQE to do a proactive assessment - even if it's a desktop assessment - to ask where their gaps are, and then we hand over that report to the development officer, together with the relevant community based organisation, and they then work with the supplier to get the supplier up to that level, that then gets reported back to PQE over a period of time, to say that I think that the vendor is ready to be re-audited again, can you re-audited them again – then PQE audits them, and says okay, you've made progress, but you still need to do this, and that report goes back to the development officer, and that is how the circles continues.

Interviewer: How do the new 2017 PPPFA regulations assist the KOU in procuring more from transformed local vendors? If you disagree that they do assist, please explain your reasons.

Interviewee 8: It helps greatly, the one thing that we don't properly, but that is an operational thing, is that we do not ensure that we look for those opportunities, on the RFQs levels for spares, we must ensure that those things are standard in the

RFQs. We are not sufficiently using the opportunities to include the new entrant vendors on the spares side.

So yes, it's easier to do it on contracts side so they have the imbedded opportunity, and there's also a tick box on their PR worksheet. On the spares side, there are many SD&L leakages, because of the *(production)* pressures (*by buyers)* of getting the RFQs out, there's an error trap there of not doing it properly. As a matter of urgency, we need to have a session with the spares buyers to explain and create awareness of what needs to be done.

End of Interview.

APPENDIX J

Interview with Respondent J

Interviewer = Researcher

Interviewee 9 – Key Participant 9

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 9: Yes. We can't expect it from the private sector - though it's growing, where they're not only looking at the profit bottom line - but it would be naïve to expect the private sector to naturally implement the developmental state, which includes the redistribution of wealth. So the state owned companies are not only more easily moved in that direction, but the economic clout of these state owned enterprises, when used appropriately, is also very powerful.

Interviewer: What are your thoughts regarding the manner in which the implementation of the transformation of the supply chain or transformation agenda, or SD&L objectives was done?

Interviewee 9: In Eskom, I think it is decent - though it's probably not quite on the mark either, cos it's an asymptote, so you're never gonna quite get there where you wanna be, but I'm okay with that. And I think that the rest of Eskom have done decently, though some would say, like the capacitation of Rotek, as an example, that whole effort is in the right direction. So, I think the rest of Eskom also buy quite a number of key components locally, like transformers and pumps, and so on, so I think they've done well.

But nuclear, I think, is a poor cousin of that. That's cos, I think, firstly, us as leadership, haven't taken a consistent and appropriate interest in it, and we've have hidden behind the nuclear aspect of it. So I think we've been very poor, and the other part of it, is that, even for new build, we say that we need a fleet to do proper localization, but I think that that's a lie that's become widely believed because it makes intuitive sense, until you dig a little bit deeper - and you know the notion that you have to a fleet before you can build turbines locally, does that

make sense? But then dig a little deeper, and ask, *'so why do you wanna build turbines locally, why don't you do the 3000 valves locally, or the electrical components'* – and I don't know how many electrical components there might be, but maybe there might be 20 000 electronic cards. But even once you've built the factory, what are you gonna do with the heavy components?

So, I think the learnings for new build is gonna be that we've been poor at coming to the party at Koeberg, with the single plant, hiding behind the factors that I've just mentioned. And the learning for nuclear 2, then should be that you don't need a fleet to do meaningful nuclear localization, you need confidence and strategic investment.

And by strategic investment, I mean you should taking the Koeberg compliance standards for instance, which won't be the case for new build, but we've got IEEE on the electrical side and we've got ASME on the mechanical side. For suppliers to become accredited within those standards, takes money and effort. Strategic investment implies that in your supplier development, you help them before they are actually in line for a contract.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	**2**	3	4	5
	X			

Interviewee 9: It's 2.

Interviewer: How has Nexco, in their role as the executive management team at the KOU, championed the change management process related to the transformation agenda in Eskom, Koeberg? What are your thoughts related hereto?

Interviewee 9: 1. It's been very poor. You know that mos. It's been non-existent. The other day in Nexco when I asked Barney what you've done *(nuclear*

commercial), and he said, *"well, we've done the PTR tank"*, and I told him, 'no, you didn't do anything, I did it'. I decided that we were gonna do it locally. Now, when I say things like, 'I did it', I might be arrogant - but I'm not actually naturally arrogant - the only reason I say that is because I'm frustrated, you know. I'm frustrated that, what we've done is separate the line from commercial, which means the line is not allowed to talk to suppliers, and yet we expect the line to do localization. That's the most absurd thought, so even now when I put a bomb under Barney, he struggles to get going on making a meaningful contribution. So, yes, it was very poor.

Fronting is another thing that bothers, for instance, I admire Abel Inc.. Now if you ask those guys how I used to treat them before, …it's like I could spit when I see them, but they've built a business that is South African. And sure, with Company B's help and so on, but it's a South African business. But, it's not a black business, it's a white business – but they're trying to transform the Board there, etc. And if it's a South African business, I say great, but let that add to my B-BBEE scores, you know. But that's not a black business. New Age is a black business, COMPANY E is a black business, Cliffie-them is a black business – Company D is who I'm talking about. The point is they are a black business. But what have we done to actively nurture them? The answer is zero. We can't claim, as a business, that just because we've had long-term business with them, that we've nurtured them. That's not true.

So, if I continue my digression, then like I said, Abel Inc., I view them as a white business, and I admire them. NCI is a white business and I admire them less, but still it's organic, they've spawned themselves – though they're not that good, though, in my opinion. Company W South Africa – and they were a South African business, even though they had the Company W name. So, if anything, we have done more negative things towards the more organic nuclear businesses in South Africa, rather than nurture them.

I'm not excluding myself from the point that I'm trying to make, that as nuclear leadership we've done very little to nurture local nuclear businesses.

Interviewer: How would you describe the current status of the Koeberg implementation of the transformation agenda?

Interviewee 9: I think currently that the transformation of the supply chain is a figment of our imagination. Sure, I accept what you're saying that the meetings went well. But that is not a measure of success. And in that meeting, Piet made a comment that, *'the line needs to do more'*, and that is so far from the truth. Like I said, we've divorced the line from the suppliers. So what do you expect?

Sure, there's work that the line can do, but they need to be led to do it and the leadership is very poor.

So yes, even though the meetings went well, and engineering have had those working groups – and I think that good will come from it – so let us say that there's a bit of light in the darkness. But currently, I would say the best that I could put it - is that there are encouraged signs - that maybe, perhaps, something good could come from it. But the track record is really poor.

And I tell you this much, every time I mention this to you, whether it's in the kitchen or wherever, you concur with me.

[Interviewer: Yes, I do. Look, our stats is one thing, and we have improved how we procure, but it's not enough and it's not indicative of where we are, no.]

Interviewee 9: Just look at those SD&L elements you shared with me. Industrialisation, nil, what industrialisation have we got? Nothing. Skills development? Perhaps. But in terms of high level skills development in the supply chain, we can't claim much, because we can claim indirectly that we've done some stuff, but we can't claim much. Enterprise and supplier development is nil. It's not a done thing – it's because of the separation of the line. Job creation? Yes, I suppose we have – it's a natural consequence of placing contracts with your suppliers. Localisation? Other than the PTR tank, I can't really think of one significant shift from buying overseas, to buying locally, and the one that the guy are targeting now is consumables. And I told them to be cautious – don't think gaskets are easier than valves. Valves are actually easier than gaskets. But nevertheless, I think that if you look at the elements, instead of the stats – cos these are contrived to some degree – then we're doing very poorly against the elements.

[Interviewer: Just as an aside, for industrialisation, the closest we've come to it, and I don't know how soon, is with the (spent fuel) casks.]

Interviewee 9: Now again, the architecture of the casks was built in this office, with Caleb. But that is very niche, and I'm not dismissing it, but they aren't programmatically important – and by programmatical, I mean the everyday stuff we use in the plant – and for maintenance, especially. Those are the things that we must target for industrialisation because they are sustainable.

Interviewer: What do you think, what's your perception, of the major roadblocks or problems associated with the Koeberg implementation?

Interviewee 9: The simplest one is confidence. We don't have the necessary confidence in the local supply thing, the local suppliers, and you need to lose your 'afro pessimism' South African low confidence mind-set somehow, and that needs to percolate into your engineering mind set.

This means that your engineers must 'sign off' on the local product. Like if you use the PTR tank as an example, I forced the case through by appointing the engineers directly into the project, making the principle decision that I'm accountable for, in other words, leadership signs off on it, 'this will be a local South African-led thing. So in other words, you shield them from that accountability when taking a pro local stance. But then you appoint them into make it work. Then, you constantly need to remind them that as you pick up problems here, don't think it's because its local and how you do that, is remind them who screwed up our turbines and our generators, Alstom. Who screwed up our steam gennies, way back then? Company B. Who did we have to kick in the teeth before they moved the forging of our steam generators? Company B. Who messed up our PMC modifications? Company W. And I can go on and on and on.

So you constantly have to remind people that problems, they are part of the business review. As you see it, you man up, and then you deal with it. But you don't say, 'see what localization brings?'. No. So the primary roadblock that I'm talking about when I mention confidence, impacts into all of things I've just mentioned.

Then there's leadership championing, like we spoke about at Nexco level, measuring these *(SD&L)* elements we just spoke about now - as opposed to the bollocks stats that we talk about *(B-BBEE KPIs)* which is an arbitrary exercise. So if we measure those elements – as opposed to B-BBBEE - and we champion those SD&L elements, so one of it is direct leadership involvement in the key SD&L elements, then there's other issues like funding for strategic investment – but that's not an excuse, hey, cos in the past we've had funding but we didn't do it.

Then there's, I suppose the cost and difficulty of doing business with Eskom, creates a very high barrier to entry, which many suppliers may not be keen to come to the party with. The fear of new entrants to enter the nuclear market is immense.

Interviewer: What are the unique risks and challenges within nuclear engineering regarding the local supplier industry? Greater responsibility, focus on safety, etc.
Interviewee 9: We've spoken about this.

Interviewer: What are your recommendations on how the transformation agenda should be implemented in the nuclear new build ?
Interviewee 9: I think high volume components need to be targeted, identified and targeted through strategic early investment. And this will include electronic cards, valves – especially on balance of plant - pipe supports, pipe work, civil structures, etcetera. And, the main contracts should be used as leverage to make all of these things work.

Interviewer: What kind of challenges have you experienced with implementing the transformation agenda in your area?
Interviewee 9: None. I told you mos, you just decide. Don't you think I agonised about it, don't you think I took stressed over it? How do you think I came up with the statement, *"…as you pick up problems here, remember what Alstom did"*. That didn't just pop in my head. How do you think that came about? That came about as I looked at all the problems and you know, sweated on. So then we're

struggling with Company F withdrawing effectively, and I've even called the Company F manager stupid. Or the site manager that was there, I would tell, '*if I see that guy again, I'm gonna find a way to penalise you, or something'*, and they mos take me seriously, cos they know I've done it before. Now all of that behaviour, where do you think it come from? It comes from…that's the nurturing. Nurturing isn't just about being nice, etcetera. You gotta grind them. So all of that stresses you're going through- you're sweating blood. Now that comes behind the story of, '*No, you will do it locally'*. That's where it comes from.

So the barrier is, and there are enormous barriers. But, it starts with, I'm a South African, when I talk to these guys, whether its transformation of people, or plant, whether it's I'm talking to Chris, Albert, John, Caleb, anyone that I know…people that I know understand what I'm saying - I will tell them things like - when it comes to things like the PTR tank, 'remember that we are South Africans, we can dream that others are gonna do some stuff for us, we can say, no we're just small, we can't make a difference. Really? We spend a billion rand a year – other than salaries - if you don't see yourself as a captain of industry that can make a difference, you don't belong here. So you as captains of industry must drive it.
The other day I gave this…they were talking about the skills development programme as part of the steam generators, where we also give bursaries and train people, and they're saying things like, *"we can't find the people to train"*, and all of them were there, Hope, Caleb, Arnaud, and James was chairing the meeting, and I lose my cool. And I say to them, '*if you can't find people here, you go look in group capital, and if you can't find them there, you go look elsewhere Eskom, and if you can't find them there, you go look in the street - but you don't sit here on your gat here, if you pardon my French, and miss the opportunities to do this. If you can't make this simple aspect of localization work, which is the skills development, don't tell me you gonna do localization in new build, cos you lack balls…'*, you know.

So the fact of the matter is, whether you can conceptualise all of these fancy programs, sound nice and get to do fancy presentations, but it boils down to

having the confidence and then the competence behind that, to say, '*this is what we gonna do, make it work*', and then you gotta sweat the blood behind it. And you gotta stay with it. And if you pardon my frankness, in this game, I've got no respect for energy and effort that Barney puts into it, and very little that Piet puts into it. Good people, hey. They are good people. They have a degree of competence, but we need to pull these things over the line.

So, I think you mustn't underestimate the leadership drive and competence required to do this. But there's no barrier.

[Interviewer: Hmmm. But I think that's also where the change management of sorts happened in your area. You set the rules and said, make it happen. You will make it happen.]

Interviewee 9: I expect the team to play it forward. Are we doing enough? Like with the gender issues in the business. And I do think that the guys (who've taken over) are definitely on the right track, make no mistake. But you constantly need to be on the case, where you say, the real answer to your question, '*what are the barriers?*', the real answer is, *'there are no barriers'*. But once you've made it happen, you've gotta sweat blood behind it, to make it work. You gotta stand behind your decision and make it work. It doesn't just work automatically.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects and impacts of the implementation of the transformation agenda in Eskom, Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 9: So the benefits are, cos obviously, it's a business imperative, right? So you increase your resource base. Okay, transformation increases the resource base, so where I got that thought from is, when we started affirmative action – and I don't like that term, but you know what I mean – so the way I would explain it to people is, we don't have enough skills and the reason we don't have enough skills, is because we have a narrow view, on where the skills are, you know the skills either have to be male, or they've got to have a white skin. So, no, if you look wider - your resource base increases – so I dunno if that's short-term or long-term, I'm not gonna try and answer that one - but it's there.

It increases the fiscal benefit – you know, your tax base increases, so when you buy local instead of foreign, you're not only driving money into the economy, but there's a mulitiplier effect – cos you're also making your country richer.
And then, these things are heavily geared in terms of breaking the poverty cycle. And by that I mean, if you take - and sorry now for how I'm gonna say it, it's unfortunate wording – but to make it clear, you take the lowest end of the business here, on the technical side it'll be the utility men, and on the non-technical men it will be the clerks and the PAs, the minute they are either contracted, or preferably permanently employed in Eskom, if they come from Atlantis or Retreat, or these places - never mind that they can put better food on the table - their mindset then goes towards educating their children and they start thinking, *'no, I've got a good job, my kids must go to a better school. They must do better than me'* That mindset then becomes one where, the chances that their children have a better education, and therefore a better outlook, is higher. So, the gearing on jobs in state owned enterprises, and even on our supply chain, you know where most of its high-end technical, it's heavily geared, so your chances of breaking the poverty cycle is higher. So ,to reinforce my point, if you look at the alternative – where you take my friend with a building company, a family business with 5 brothers, and they're all wealthy guys, but if you look at the average worker that works in his business, they live hand to mouth, and chances are that their children will live hand to mouth – so therefore they tend not to break the poverty cycle at the lower ends. But obviously if they have higher end guys, like the supervisors and foremen who've been working for them for 20 years, he's got a better chance – so if you compare our lower end to their lower end, you'll see that our lower end is better off than their lower end. Typically speaking. So this industry, has, in my opinion, a better chance – this kind of transformation is heavily geared in terms of breaking the poverty cycle.

Other benefits? It's a bit of a tenuous link, but you can drive the maths and sciences and technology aspects of your economy. And that's not everything, it's not the be all and end all of life, but when you drive that, the chances are that your society becomes more sophisticated, as opposed to other very important industries

like tourism and so on, and so on. Your high end things, like nuclear, etc etc drives a very important part of the development in your society. You can become a relatively wealthy company on tourism – take Zanzibar for an example – it's a wonderful tourism destination – but the people are still poor. So tourism can make a few people rich, but it's not gonna drive sophisticated economies like these high end industries can.

And the negatives? With transformation you can sometimes put a 'square peg down a round hole', if you force it. So, if you again take the PTR tank as an example, which is just the one that comes to mind – in retrospect, I wish we hadn't backed Company F – now we didn't back them, it was Company B and Abel Inc. who backed them, and they created this consortium that then appeared before us in the tender, and then we split them and Company C and who else? But Company F was a square peg in a round hole, in my opinion. And now it's the same with transformation in your staffing, you can sometimes, because you so much want to have a woman in that job, and then you go and appoint the woman - but then it might just be the wrong person - because you forced the issue. So transformation sometimes turns out to be a square peg in a round hole – which sometimes turns out to be bad for the peg, and bad for the hole, and so nobody wins.
Transformation also can result in exploitation, nepotism and corruption – which results from the principle of redistribution of wealth. So, the intent might be good, but the outcome could be bad. And the practices could be bad.

Then, non-designated parties, those that are not targeted for transformation – sometimes check out. They "check out" in inverted commas.

Interviewer: Which of the 5 SD&L objectives - transformation agenda elements - have you implemented or have you had success with? Kindly share your experience, positive or negative.
Interviewee 9: I think the PTR Tank is probably the only localization one that's – now almost historic. On the SGRs we gave a lot of bursaries and training

opportunities, so skills development. We started and stopped on valves and electronic cards. We were gonna spend R10M on refurbishing our electronic cards refurbished locally cos they're so poorly refurbished overseas. And, we did a procurement process on identifying valve suppliers and then it died a natural death because of us getting our technical specs and, you know, ducks in a row. Guys telling me stuff like, '*no, we can't see what the high volume stuff are cos we can't see it on SAP, and so on'*, so by the time we had our ducks in a row, we had the financial constraints. But that, I think, would've been a nice pilot program. So other than that, I can't think of anything.

Mind you, the likes of Company C, Abel Inc., Company D and COMPANY E – not our generation – but this was real localisation. This was done by the people we were all so critical of, the late Riaan Dane, Faanie van Tonder. This was the late 1990s/ early 2000s. Like if some of those decisions were right or not – like the nominated partner of Company B being Abel Inc., who were Company A at the time – even though I think Dennis is a good guy, he has a very smart way about him. And even after time I kakked on him, there was never bitterness, you know, behind that. And for me, that's a measure of people's character – and that how my respect grew from being dismissive. But the point is, we – in the current generation of leadership – we can't claim that we developed those suppliers, cos we didn't.

Concluding from my statement ,the only localization that happened in nuclear, is one that happened outside of the SD&L program. And that would be those companies that supported by our predecessors and these projects and stuff that were driven by the line.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies front end loading or planning to be in place. Is this front end planning practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.

Interviewee 9: No, it's not an entrenched practice. The process brings in SD&L considerations early in the process. The fact that, the example of how Caleb 'thinks about' how to localize the casks, is because early on in the process you need to consider SD&L, cos its now part of the process. So, part of your commercial process triggers SD&L considerations. That's a positive. But in terms of designing, so that your local suppliers have a better chance, no, – I think we tried it once on the fire truck, and then that failed dismally. So no, we don't have it built it. We write generic specifications that don't favour anybody.

But I think that our new breed of leaders, like Chris – who is very systematic – and Albert, set us up on the right path.

[Interviewer: Do you think that SD&L should be housed in engineering instead of commercial?]

Interviewee 9: Yes, I do think that there's merit in that. The thing that I impressed on John and them, during the engineering restructuring, is procurement engineering. But they declined that offer, saying that, *'no, PQE must do their job, commercial must do their job, engineering must do their job,*' but it doesn't work, you know. It's world best practice – procurement engineering. So Nathir grasped what I was telling him – cos he comes from the line – so he started doing some work in that regard, not enough, he always says I was hyper critical of him. Now I loved the guy, but he was very slow sometimes – but also very systematic. Now that Ahmed's in that role, he's doing okay – so they've got elements of this in their team, but because we separate the line from the suppliers, I don't think they've ever be able to make a meaningful difference. So, I think there's a lot of merit in your idea.

But, if Barney would straightened his back more in this thing, and displayed more drive and leadership in this - he's a qualified engineer - and made this his issue, if he does that, why can't it be driven by commercial?

[Interviewer: Maybe it's a confidence thing, like you said?]

Interviewee 9: But if you're in a position of responsibility, I expect you to put skin in the game. You must grow. And that's what I tell him to his face. They must have skin in the game.

Interviewer: Additionally, please explain how else you can ensure that design for local strategies are included in the commercial strategy of your requirement.
Interviewee 9: It's been discussed.

Interviewer: Do you consider the SD&L Opportunities Matrix tool or approach employed by KOU SD&L effective when considering design for local front end planning strategies? Please explain or elaborate.
Interviewee 9: Yes, it is valuable. And I dunno why it hasn't gained more traction.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?
Interviewee 9: It's excellent. And I'll say the same for those matrices, those policies, all those things are excellent. It's the pulling over the line, making it work, the implementation - that's the problem. There's nothing wrong with the policies.

Interviewer: Please elaborate on what you think will be relevant learnings from the Eskom, Koeberg implementation.
Interviewee 9: Already covered.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of the required SD&L objectives in your area?
Interviewee 9: Already covered.

Interviewer: Are there Key Performance Indicators included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.
Interviewee 9: In the supply chain, no. Yes, those things do make a difference. These SD&L elements would make great KPIs – like where you don't ask

somebody to just give you stats to show how we spent on black businesses, when 9 out 10 black businesses are, like Abel Inc.. We actually need to start measuring the elements.

Interviewer: How do you suggest that we go about or engage OEMs and OESs on the transfer of their intellectual properties rights attached to relevant imported items - given that this endeavour is potentially costly and difficult to achieve?
Interviewee 9: With skill and knowledge. Because we're 30 years old, most of the patents would have expired, so if we are able reverse engineer some of the items, nothing stops us, except confidence. And that's a big thing, hey, that confidence. I'm trivialising it in this session, but it's a big thing. I personally moved gaskets, certain gaskets from local to overseas, because I told the guys that you think it's easy – but it's not – you think it costs you R25 per gasket, but then it ends up costing you R25M of problems.

So certain things the OEM doesn't actually have IP rights, so you have to identify those things, where they've got no rights over the patents, over the copyright I should say. But then that doesn't mean that you've got the IP, cos you still have to do the work on it. But, there are many components where there aren't any rights anymore.
So you need to identify which do and do not, like I said, with the skill and knowledge. And for those who haven't, you just have to decide and then go and give it a go. Take your RCP valves as an example. Use reverse engineering.
Where rights haven't expired, the OEMs have become extremely protective of that. And they right clauses because they realise it's their business competitive advantage, or edge. Now I dunno why they write it into clauses with us cos we're not able to exploit it anyway. The Chinese, though, who've mos now gone to town – and yet they still clamour to do business with the Chinese. So, how you leverage IP is there must be some sort of incentive for the OEM. And typically, when you see easily they establish factories in China, it based on volumes of business, or money paid. So if you're giving big volumes of business, then you can leverage hard (off future business). If you're not giving big volumes of

business, then you have to pay. In other words, you've got to buy the specification, etcetera etcetera.

In Eskom, one of our top 6 priorities was industrialisation by specifications, make it here. I'm giving you this incidentally – what I'm saying is that it's not uncommon thinking of buying specifications – it's not an unusual thought.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List?

Interviewee 9: From experience, it's very difficult. For instance, when we had our supplier workshops, such as the ones we organised at the CTICC for the steam gennies, you get a room full of people and for about a week, they stay in touch with you – until they see that there's no cash flowing from that in the next month or so – and then they lose interest. So getting vendors onto your supplier database, where there's prospect of work for them in the medium term, is in practical terms, mostly a waste of time. There might be other examples of where it's successful.

Take for example your PSM pipeline – has that been a success? So pipelines is more real than a supplier database. I'm drawing analogies here. So those guys (PSM in training trainees) were employed, they were being trained, they were already earning money, and yet they didn't see the end of the line at the company.

So, pipelines tend not to work. Supplier databases are the ultimate pipeline.

A level up from a supplier database is the panel contracts. But, panel contracts are not guaranteed task orders. So, what use is it for them to be on it if there is no real work available for them?

So if you had to draw a pyramid, you'd say at the top of the pyramid, the supplier has contracts, one level below – is on panel – and one level below that – is on database. Who cares? You think they gonna invest in becoming nuclear ready, So I think that it's a pipedream to think that just because they're there, you've done something good.

I think that the only real thing to do is to find transparent and legitimate processes, to identify prospective suppliers and them give them real work, starting them

enterprise development, then helping them with the codes and standards and them give them real work. Anything else would be senseless.

End of Interview.

APPENDIX K

Interview with Respondent 10

Interviewer = Researcher

Interviewee 10 = Key Participant Number 10

Interviewer: Indicate your views on whether Eskom, as a State Owned Enterprise, should be utilised as a vehicle for the government's developmental goals for South Africa.

Interviewee 10: Yes, I do agree with that. If it's not a state owned enterprise, who then? I think that we'd find it hard to get any other alternatives to SOEs.

Interviewer: What are your thoughts regarding the manner in which the implementation of the transformation of the supply chain / transformation agenda / SD&L objectives was done?

Interviewee 10: Back in 2012, spec, slash design engineering was asked to categorise our equipment to meet the dti's designation (of goods). This required us to engage with local suppliers, and so this process started the basis of initiating a basic, high level specification. But then, what came out of the suppliers forum we had back then, and again after that was very discouraging, because all the local suppliers wanted to know is where the supply will be. They want business to come their way and thought that something would come of it.

But since then, we've changed our approach – because we could see that localising for nuclear only would be tough - and so we decided to focus on the secondary side of the plant and the balance of plant, where the supply is closer to the rest of the Eskom generating fleet, the conventional power plants. We're now trying to locate local supply first, because everyone is expected to find local.

And there has been growth. As Koeberg, we've struggled to accept the fact that local can comply with our technical requirements, and we have tried to kick against the curb, and we've also seen management try to push it lately but the vision isn't clear, cos we know what we want, but we aren't not sure how to. And the attempt at the working groups and procurement engineering, as a department,

that were both conceived and initiated, though, wasn't enough, and that's why the procurement engineering department then fell apart.
So when I think about it, there's no real difference between now and in what's happened since 2012, cos there isn't anything seen. I'm told that there's a budget at MWP but there isn't one here at Koeberg.

Interviewer: Please indicate on the following rating scale the efficacy of this implementation, whereby 1 is very poor, 2 is poor, 3 is average or don't know; 4 is well and 5 is very well.

1	**2**	3	4	5
	X			

Interviewee 10: It's number 2, cos it was poor. We can still see these in maintenance contracts – they go with what they know, and they don't even want to consider local alternatives.

Interviewer: How has Nexco, in their role as the executive management team at the KOU, championed the change management process related to the transformation agenda in Eskom, Koeberg? What are your thoughts related hereto?
Interviewee 10: Well, there's still no mandate to the different departments that can make a difference, we're still waiting for it to be issued. But, it's coming through strong though, and it's maybe it's said in the passages, but there're no KPIs in place, and so there's no clear direction either.

Interviewer: How would you describe the current status of the Koeberg localisation imperative?
Interviewee 10: So we started it at a high level and now it's a bit more focused. But, we haven't put things in place to make it more focused to move forward.

Interviewer: What do you think has been the major roadblocks or problems associated with the Koeberg transformation agenda implementation, your perception?

Interviewee 10: As Koeberg, we don't know how we'll achieve this.

Interviewer: What are the unique risks and challenges within spec /design engineering regarding the local supplier industry? (greater responsibility, focus on safety, etc?)? Can you share your thoughts or experience regarding these risks and challenges by way of examples?

Interviewee 10: The biggest challenge is that we don't know what we don't know, for example, I've included 5 supplier visits a year as a KPI in the staff's compacts – that's to make sure that they're aligned to the PQE supplier capability assessment visits. So PQE only looks at a particular part of the scope from a certain perspective, and engineering will look at it from a technical perspective, and so will be in the best position to determine what else the supplier could be providing us.

Looking at the staff resources, we don't have someone to support this initiative. And we definitely don't have dedicated resources that we could use to focus on these requirements. We will need more people to help identify what the local suppliers' technical engineering capability will be. But, this is also how the TLIU database could help.

An example that we have had a success with is motors, but the supplier is in Polokwane. It was one of the obsolescent items that Company S used to manufacture but it isn't available any longer. And they also can't supply us with an alternative cos it's obsolescent. So, one of the guys in the office actually found the local supplier in Polokwane by chance – cos we were referred to them by someone who knew about them. So wrote the specification, did the equivalency and are now waiting for the motor to arrive on site.

When the requirements come into the department, production pressures dictate how to deal with every type of component on the plant so imagine how much work it would take to find a local alternative supply. And not all of it is directly

linked that it can find a similar success path as the motors. Also, we don't have the capability in terms of resources yet. For example, the ability to write the specifications generically. It's still largely geared to a particular supplier.

Interviewer: What are your recommendations on how localisation or the transformation agenda should be implemented in the nuclear new build? How would you approach it, given the situation we find ourselves in now re: access to OEM specs, obsolescence etc.?

Interviewee 10: For the new build, we have the opportunity to write the specs and then we can meet the design for local , or the local spec. We can use the EPPEI MSc. Eng. Masters students to help us to do this. I think that they'll be able to help us a lot, because it'll also give them real practical experience on helping Eskom overcome some of its issues, and the guys will really like it a lot.

Interviewer: What kind of challenges have you experienced with implementing localisation in your area?

Interviewee 10: Ja, that's the resources and other stuff ì mentioned.

Interviewer: What do you think are the long-term effects or benefits versus the short-term effects or impacts of localisation at Koeberg? That is, please indicate your perceptions regarding how the associated benefits and drawbacks of how it impacts the KOU.

Interviewee 10: The country benefits in the long term when you consider local development, as well as the local businesses. And importantly, we'd be developing local industry to meet our needs. There'll be much more human development and lots of potential cost savings. I can also see that we can provide the service to other African countries in the future.

The drawbacks are linked to the short term and long term. So, because our foreign suppliers know that we're moving into a localisation drive, they make these subtle threats, like, '*if you do not use our equipment and spares, then you'll lose your guarantees',* and so on.

And the short term drawback is that we can lose our OE, and a lot of what we do here is OE based. This'll also affect the relationship with the international suppliers, cos we unfortunately don't currently have the technical relationship experience ourselves.
So if we focus our local products or services that is common to the rest of the Eskom power plants, then we'll have that OE – which is then translated into a long-term benefit.

The short term benefit is that there'll potentially be cost savings to Eskom. Also, it'll likely be scoped properly and so we can use existing local suppliers. And even if there's a cost in the beginning, if we approach it properly, the cost issue will be minimal.

Another big benefit will be that we'll be in a position to share our skills within Africa and South Africa.

Interviewer: What are your success stories regarding localisation of components or elements related thereto?
Interviewee 10: The localisation of the motors is a good success story – I'll think of others and let you know.

Interviewer: The development of local industries can be maximised through the Design for Local concept, which implies front end loading or planning to be in place. Is this front end planning practice entrenched in your functional area, and if not, please indicate the reasons and any suggestions for improvement.
Interviewee 10: Ja, front-end planning isn't 100% implemented because our specs are written with the existing equipment in mind. We have to put the design for local and understand what the local supplier market can offer us first before we put front end planning in place. Like I told you, we have significant resource constraints. So, although there's some sort of vision in place, there is no how – and so the recipe is missing.

Interviewer: How has the government's legislation and policies, as it applies to transformation in SOC procurement KOU implementation, assisted in providing guidance on how to approach the transformation agenda at Eskom, Koeberg?
Interviewee 10: I don't know.

Interviewer: Please elaborate on what you think will be relevant learnings from Koeberg's localisation drive thus far?
Interviewee 10: Just the fact that we have been sensitised to it means that something has happened. We're looking for local suppliers now and because of it, there's a lot of interest and opportunities. But, we're still waiting for the Mandate to come from Nexco before we can do anything else.

Interviewer: What was the level of commitment or support that you experienced from the senior leadership team in the implementation of localising in your area?
Interviewee 10: There are no KPIs written in our performance contracts. There've been attempts at establishing certain groups, like procurement engineering, but nothing in black and white, and no written directives or mandates have been issued to us yet.

Interviewer: Are there Key Performance Indicators included in your performance contract regarding the progress or outcomes of the transformation agenda in Eskom, Koeberg? If not, do you believe that this would have led to increased success of the transformation agenda in Eskom, Koeberg? Please explain.
Interviewee 10: No. The KPIs about the 5 supplier visits a year for the staff could make a difference, cos it also creates alignment with PQE.
Interviewer: How do you suggest that we go about / engage OEMs or OESs on the transfer of their intellectual properties rights attached to relevant imported items, given that this endeavour is potentially costly and difficult to achieve?
Interviewee 10: IP is what makes business sense. I like what they've done with the valve program and maybe we should be following something like that. But there must be something in it for them in order for them to be interested. There must be a piece of the pie for them, or else they wouldn't want to do it.

Interviewer: What can be done more proactively to include more local vendors onto the nuclear Approved Suppliers List?

Interviewee 10: It's a mission when you just go out there and see suppliers, and so there must be a system – with a plan - in place and a particular focus. We need to start small and with a focused scope of work – which'll make it easier to expand to other areas. And we should use a pilot program like Piet and TLIU them did with the valves. But, this strategy, the Company B/Company Z valves pilot isn't enough cos we need so much more information. So why not bring EPPEI in, to look at the component where IP isn't a consideration and design it for us instead?

Interviewer: The Nuclear Engineering Role includes:

a) *the identification of components and/or parts using a graded approach with potential for local design, manufacture and supply. What is your view of the current status quo regarding progress related thereto?*

Interviewee 10: Yes, we can move forward. For those people who've adopted the mindsets into their day to day activities can move forward with what we've started to put in place. But it will be minor progress.

Interestingly, spec eng has previously been looking to local suppliers, but it just wasn't documented like that, and there was no credit taken for it, cos it was long before 2012.

b) *Develop procurement specifications to address the gaps in local supplier capability regarding equipment classifications; for example, to include additional controls during manufacture: Quality Control Plans, Witness & Hold points and Testing methods. How far have we come in meeting this objective?*

Interviewee 10: Well, I've mentioned the challenges. We haven't assessed a sufficient number of suppliers as yet. We just don't know what's out there.

Interviewer: (i) This committee has recently obtained endorsement from NEXCO to function as its sub-committee (Steering Committee) - dealing with the transformation of the supply chain at the KOU. What are your thoughts regarding the importance of this mandate and what its implications are for the attainment of

the transformation agenda at KOU (and the related attainment of the Shareholders procurement equity KPIs? Okay, we've spoken about this.

Interviewer: (ii) Do you foresee any major roadblocks in the implementation, and or, functioning of the working groups?
Interviewee 10: I can't say what'll it be about cos it hasn't been discussed with us formally yet and it's still got to approved, and there's no mandate.

Interviewer: (iii) What do you regard as a necessity regarding the buy-in of the plant (line managers and staff) in order to make the implementation a success?
Interviewee 10: The benefit must be seen and if possible, it must be felt personally by them, cos, *'for the good of the company',* isn't good enough. It's gotta be felt personally, like their kids not being able to get a job, or that their pocket will be affected, so they must feel it, and it must be very personal for it to make any difference.

End of Interview.

APPENDIX L

Participant Information Sheet

Date:

Dear …….

Re: Participation in Research on *The transformation agenda implementation at Eskom, Koeberg: Lessons Learnt for Nuclear New Build.*

I would like to formally invite you to participate in a research study conducted by myself, Faye Dijkstra. I am a part-time MSc student in the School of Mechanical, Industrial and Aeronautical Engineering at the University of the Witwatersrand, under the supervision of Ms Bernadette Sunjka. My MSc title is: *The transformation agenda implementation at Eskom, Koeberg: Lessons Learnt for Nuclear New Build.* The purpose is to ensure that we transfer the relevant learnings of the implementation of the transformation agenda at Koeberg into the Nuclear New Build (NNB) programme. Your selection as a possible participant in this study is attributable to your vast knowledge, experience and insights as a critical role player and stakeholder in the Koeberg Operating Unit. Your participation would provide significant, valuable contributions to the study, and to the recommendations that are aimed to be made from the relevant lessons learnt from the implementation of the transformation agenda at Eskom, Koeberg. You should read the information below, and ask any questions about anything you do not understand or feel comfortable with, before deciding whether or not to participate any further. The study will be conducted between November 2017 and August 2018. Involvement in the study would entail one (1) face-to-face interview – of approximately 2.5 hours duration, with you at your convenience. A follow up interview may be conducted, depending on any additional information that may be required. During the interview, I would like to gauge your understanding, insights and possible suggestions for improvement related to the implementation of the transformation agenda at Eskom, Koeberg. You will not be compensated for this interview. Participation in the study is voluntary, and you may withdraw at any time. You have the right not to answer any question, and to stop the interview at

any time or for any reason. Unless you give us permission to use your name, title, and / or quote you as a result of this research, the information you tell us will be strictly confidential and anonymous. Kindly be advised that your anonymity (regarding name and any employee names) and confidentiality of information provided will be assured and respected at all times. I would like to record the interviews, so I can later transcribe them at a later stage. Your consent at the time of the interview will be requested. All interview recordings will be stored in a secure work space until (*1 year*) after that date. The tapes will then be destroyed. If you do grant permission for this conversation to be recorded, you have the right to revoke recording permission at any time. If you do not wish the interviews to be recorded this will be respected and strictly adhered to. The results of the study will form part of my MSc research report and will be completed and submitted to the university by 28 February 2019. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. The report will allow for internal Eskom review and vetting of information included in final report to comply with National Key Point Industry requirements. A summary of the results of the research will be made available to you on request.

Please contact me if you have any questions regarding the research and participation in the study.

I look forward to hearing from you.

Yours faithfully

Faye Dijkstra

……

University of the Witwatersrand

Johannesburg, South Africa

Private Bag 3, WITS 2050, South Africa

Tel: ……. Email:…….

APPENDIX M

Sample Letter of Consent

Letter of Consent

I, _____, agree to participate in the MSc research entitled ***The transformation agenda implementation at Eskom, Koeberg: Lessons Learnt for Nuclear New Build*****,** to be undertaken by **Faye Dijkstra**, under the supervision of **Ms Bernadette Sunjka**, and certify that I have received a copy of this letter of consent.

I acknowledge that the research has been explained to me and I understand what it entails, as follows:

1. There will be one interview, which is expected to take no more than 2,5 hours each. A follow up interview may be conducted, depending on any additional information that may be required.
2. The interviews will be audio taped, and transcribed for analysis by the researcher.
3. I have the right to withdraw my assistance from this project at any time without penalty, even after signing the letter of consent.
4. I have the right to refuse to answer one or more of the questions without penalty and may continue to be a part of the study.
5. I may request a report summary, which will come as a result of this study.
6. I am entirely free to discuss issues and will not be in any way be coerced into providing information that is confidential or of a sensitive nature.
7. Pseudonyms will be used to conceal my identity, and that of my department, my employees, and suppliers whose contracts, that either myself or one of my employees, have managed. The information disclosed in the interviews will be confidential.
8. Audio-tapes and transcripts will be kept securely stored during the research and after the research has been completed.

9. This project was approved by the Faculty of Engineering and the Built Environment of the University of the Witwatersrand and the School of Mechanical, Industrial and Aeronautical Research Ethics Committee (non-medical) of the University.
10. If I have any questions or concerns about my rights or treatment as a participant, I may contact the Chair of the School of Mechanical, Industrial and Aeronautical Research Ethics Committee (non-medical) at (phone #) or by (email).

Signed: _____

Date: _____

Questions concerning the study can be directed to:
Ms Faye Dijkstra

Tel: 021-550 4404 (w) or 0823016836 (mobile) and
Email: dijkstf@eskom.co.za

Supervisor: Tel: 011-717 7367
Email: Bernadette.Sunjka@wits.ac.za