

Gendered perspectives of the enablers and constraints for female energy leaders in South Africa

Xolile Msimanga

360693

360693@students.wits.ac.za / 0724498747

A Research Report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment the requirements for the degree of Master of Management in Energy Leadership

Johannesburg, 23 October 2023

ABSTRACT

This exploratory research study provides gendered perspectives on female leadership characteristics and how increased diversity may contribute positively to energy sector performance. This study also explored the enablers and constraints for women in the energy sector in South Africa to progress to senior positions. A qualitative research approach was used for the research method. Semi-structured interviews were conducted with eight female and seven male energy sector leaders. Thematic analysis was used to analyse the interview data using MAXQDA coding software.

The research findings showed that the characteristics are being people-centric – inclusive and collaborative; 'soft traits' like empathy; developing and empowering others; being visionary and performance-driven. Both genders highlighted that although these characteristics were more pronounced in women, they were also observed in good male leaders. The best leaders can balance their gender-related traits with the traits of good leaders. The leaders highlighted that increased diversity results in better problem-solving and superior solutions. Therefore, an increase in diversity leads to better performing organisations.

The research findings showed that the main enablers were transformation processes; networking and exposure; organisational environment; coaching, mentorship, sponsorship; development and training opportunities; mindset and internal beliefs; senior and managerial support; career ownership; and family support. Self-determination was recognised as vital, and autonomous motivation drove the female leaders to succeed.

The research findings showed that the main constraints were gender stereotyping; mindset and internal beliefs; male-dominated sector and culture; old boys' clubs; lack of female pipelines and representation; lack of accommodative structures in operations; and the dual role of women. Male leaders can play a crucial role in male-dominated environments to ally with women and work on changing the systems. Although gender stereotyping was recognised as the biggest challenge, their mindset and perspectives about the sector were also a significant constraint as it could impact their willingness to pursue leadership roles in energy or even consider careers in the sector.

KEYWORDS: Energy sector, female leadership, enablers, constraints, gendered perspectives, self-determination theory

DECLARATION

I, Xolile Msimanga, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Energy Leadership at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: Xolile Msimanga

Signature:

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke, positioned above a horizontal line.

Signed at: Corlett Gardens, Johannesburg

On the 23rd day of October 2023

DEDICATION

I dedicate this research to my mother, Dineo Msimanga, who has inspired me to reach for all my dreams and never doubted my ability to achieve anything I set my mind to. I would also like to dedicate this to my grandmother, Nomshengo Roslina Msimanga, for showing me what it is to be strong even when things are difficult. To the rest of my family, former partner and friends, your support and patience through my journey were highly valued, and your belief in me never faltered, even when I had moments of doubt. To all the young women on this journey with me, you inspired me – this is especially for you. Most importantly, I would like to thank God for giving me the strength and faith to see this through to the end.

ACKNOWLEDGEMENTS

Much heartfelt appreciation goes to everyone who helped and supported me through this research project:

My supervisor Professor Terri Carmichael for your guidance, vast knowledge on conducting research, encouragement and reminding me to keep my eye on the prize. I could not have done this without you.

Thank you to all the respondents who gave willingly and generously of their time despite their busy schedules. I learned a lot from all your knowledge and experiences. I am genuinely grateful and humbled.

Thank you to all the organisations I have worked for throughout my journey for your patience and understanding while I finished my research project.

TABLE OF CONTENTS

ABSTRACT	ii
DECLARATION.....	iii
DEDICATION.....	iv
ACKNOWLEDGEMENTS	v
LIST OF TABLES.....	ix
LIST OF ACRONYMS	xi
CHAPTER 1. INTRODUCTION.....	1
1.1 PURPOSE OF THE STUDY	1
1.2 CONTEXT OF THE STUDY	1
1.3 RESEARCH PROBLEM.....	5
1.4 RESEARCH QUESTIONS	5
1.5 SIGNIFICANCE OF THE STUDY	6
1.6 DELIMITATIONS OF THE STUDY	7
1.7 DEFINITION OF TERMS.....	7
1.8 ASSUMPTIONS.....	8
1.9 STRUCTURE OF THE REPORT	8
CHAPTER 2. LITERATURE REVIEW	9
2.1 INTRODUCTION	9
2.2 THEORETICAL FRAMEWORKS	9
2.2.1 SELF-DETERMINATION THEORY (SDT).....	10
2.2.2 FEMINIST THEORY	12
2.3 BACKGROUND	13
2.3.1 ROLE OF WOMEN IN BUSINESS PERFORMANCE	13
2.3.2 SOUTH AFRICAN ENERGY SECTOR.....	13
2.3.3 THE GLASS CEILING AND GLASS LABYRINTH.....	13
2.4 CHARACTERISTICS OF FEMALE LEADERSHIP THAT HAVE HAD AN IMPACT ON THE SUCCESS OF ORGANISATIONS IN THE ENERGY SECTOR.....	14
2.4.1 CHARACTERISTICS OF FEMALE LEADERSHIP	15
2.4.2 GENDERED PERSPECTIVES	17
2.4.3 ORGANISATIONAL OPERATIONS IMPROVEMENT WITH MORE WOMEN IN LEADERSHIP 17	
2.4.4 PROPOSITION 1.....	18

2.5	ENABLERS FOR FEMALE CAREER PROGRESSION TO SENIOR LEADERSHIP POSITIONS	18
2.5.1	MACRO.....	19
2.5.2	MESO.....	19
2.5.3	MICRO.....	22
2.5.4	PROPOSITION 2.....	23
2.6	CONSTRAINTS FOR FEMALE CAREER PROGRESSION TO SENIOR LEADERSHIP POSITIONS.....	24
2.6.1	MACRO.....	24
2.6.2	MESO.....	25
2.6.3	MICRO.....	27
2.6.4	PROPOSITION 3.....	28
2.7	CONCLUSION OF LITERATURE REVIEW	28
2.7.1	PROPOSITION 1.....	29
2.7.2	PROPOSITION 2.....	29
2.7.3	PROPOSITION 3.....	29

CHAPTER 3. RESEARCH METHODOLOGY..... 30

3.1	RESEARCH APPROACH.....	30
3.2	RESEARCH DESIGN.....	30
3.3	DATA COLLECTION METHODS.....	31
3.4	POPULATION AND SAMPLE	31
3.4.1	SAMPLE.....	31
3.4.2	SAMPLING METHOD	32
3.5	THE RESEARCH INSTRUMENT.....	32
3.6	PROCEDURE FOR DATA COLLECTION	33
3.7	DATA ANALYSIS AND INTERPRETATION.....	33
3.8	LIMITATIONS OF THE STUDY	35
3.9	TRUSTWORTHINESS.....	35
3.9.1	TRANSFERABILITY	36
3.9.2	CREDIBILITY.....	36
3.9.3	DEPENDABILITY.....	36
3.9.4	CONFIRMABILITY	37
3.10	ETHICAL CONSIDERATIONS	37
3.10.1	DATA COLLECTION.....	37
3.10.2	RISK TO THE INDIVIDUAL PARTICIPANTS.....	38
3.10.3	CONFIDENTIALITY AND ANONYMITY.....	38
3.10.4	PROTECTION OF DATA	38

CHAPTER 4. FINDINGS AND DISCUSSION 40

4.1	INTRODUCTION.....	40
4.2	DEMOGRAPHIC PROFILE OF PARTICIPANTS.....	40
4.3	RESULTS AND DISCUSSION PERTAINING TO RQ 1 – FEMALE LEADERSHIP CHARACTERISTICS	42
4.3.1	CHARACTERISTIC THEME 1: PEOPLE-CENTRIC, TEAMWORK, COLLABORATION AND INCLUSION	44
4.3.2	CHARACTERISTIC THEME 2: POSSESSING AND DISPLAYING SOFT TRAITS	47
4.3.3	CHARACTERISTIC THEME 3: DEVELOPING AND EMPOWERING OTHERS.....	49

4.3.4	CHARACTERISTIC THEME 4: LONG-TERM VISIONARY AND SYSTEMIC THINKING	50
4.3.5	CHARACTERISTIC THEME 5: PERFORMANCE DRIVEN, ROLE OWNERSHIP AND	
UNDERSTANDING THE BUSINESS.....		52
4.3.6	CHARACTERISTIC THEME 6: GOOD PROBLEM-SOLVING AND DECISION-MAKING	
ABILITY		54
4.3.7	CHARACTERISTIC THEME 7: EFFECTIVE COMMUNICATION.....	56
4.3.8	CHARACTERISTIC THEME 8: ETHICAL AND PRINCIPLED	56
4.3.9	CONCLUSION OF FEMALE LEADERSHIP CHARACTERISTICS	58
4.4	RESULTS AND DISCUSSION PERTAINING TO RQ 2 – ENABLERS.....	59
4.4.1	MACRO – SOCIETAL LEVEL	60
4.4.2	MESO – ORGANISATIONAL LEVEL	63
4.4.3	MICRO – INDIVIDUAL LEVEL	71
4.4.4	THE ROLE OF SELF-DETERMINATION.....	76
4.4.5	CONCLUSION OF ENABLERS FOR FEMALE LEADERSHIP PROGRESSION IN THE	
ENERGY SECTOR		79
4.5	RESULTS AND DISCUSSION PERTAINING TO RQ 3 – CONSTRAINTS	80
4.5.1	MACRO – SOCIETAL LEVEL	81
4.5.2	MESO – ORGANISATIONAL LEVEL	86
4.5.3	MICRO – INDIVIDUAL LEVEL	91
4.5.4	CONCLUSION OF CONSTRAINTS FOR FEMALE LEADERSHIP PROGRESSION IN THE	
ENERGY SECTOR		95
4.6	COMPARISON OF LITERATURE REVIEW AND OWN FINDINGS.....	96
4.7	CONCLUSION	ERROR! BOOKMARK NOT DEFINED.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS ... 100

5.1	INTRODUCTION	100
5.2	CONCLUSIONS REGARDING FEMALE LEADERSHIP CHARACTERISTICS...	100
5.3	CONCLUSIONS REGARDING ENABLERS	101
5.4	CONCLUSIONS REGARDING CONSTRAINTS	103
5.5	RECOMMENDATIONS AND IMPLICATIONS FROM THE RESEARCH.....	107
5.6	SUGGESTIONS FOR FURTHER RESEARCH.....	108

REFERENCES 109

APPENDIX A: PARTICIPANT CONSENT FORM 124

APPENDIX B: INTERVIEW GUIDE 126

A. FEMALE LEADERS	126
B. MALE LEADERS.....	128

LIST OF TABLES

Table 1: Different leadership styles (adapted from Alonso-Almeida et al., 2017)	16
Table 2: Consistency table: research questions and propositions	29
Table 3: Profile of participants	32
Table 4: Phases of thematic analysis (Braun & Clarke, 2006)	34
Table 5: Consistency table: research questions, propositions, data collection and data analysis	39
Table 6: Participant details	41
Table 7: Comparison of literature review and findings	97
Table 8: Consistency table: research questions, conclusions, and contribution to knowledge	105

LIST OF FIGURES

Figure 1: Employment by gender, 2019 (IEA, 2022)	2
Figure 2: Proportion of women in senior management roles globally, 2011-2022 (GrantThornton, 2022)	3
Figure 3: Percentage of new hires in companies by gender (Leopold et al., 2017)	4
Figure 4: Self-Determination Theory adapted from Deci and Ryan (2000) and Cook and Artina (2016)	10
Figure 5: Self-Determination Theory (Ryan & Deci, 2000, p. 72)	11
Figure 6: Share of women in functional senior and middle management roles.	26
Figure 7: Leadership characteristics identified by the participants	43
Figure 8: Summary - Enablers.....	60
Figure 9: Summary - Constraints.....	81

LIST OF ACRONYMS

BBBEE	Broad-Based Black Economic Empowerment
BWASA	Businesswomen's Association of South Africa
CEO	Chief Executive Officer
COVID-19	Coronavirus 2019
DFFE	Department of Forestry, Fisheries, and Environment
EEA	Employment Equity Act
FP	Female participant
IEA	International Energy Association
ILO	International Labour Organisation
IRENA	International Renewable Energy Agency
IRP	Integrated Resource Plan
JSE	Johannesburg Stock Exchange
MP	Male participant
NDP	National Development Plan
O&G	Oil and Gas
RE	Renewable Energy
REI4P	Renewable Energy Independent Power Producer Procurement Programme
ROE	Return on Equity
SANEA	South African National Energy Association
SA	South Africa
SDT	Self-Determination Theory
STEM	Science, Technology, Engineering and Mathematics
WEF	World Economic Forum

CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

This exploratory qualitative study focuses on the key enablers and constraints for females in their career progression into leadership positions in the energy sector in South Africa using self-determination and feminist theories. Furthermore, the study highlights specific female leadership characteristics that may lead to better performing organisations. The study uses semi-structured interviews with purposefully selected leaders of different genders in the energy sector to draw insights from each gender using thematic analysis. The study also uses qualitative content analysis to draw insights from the literature into the analysis and findings. As it stands, the representation of women in senior leadership positions in South Africa is not representative of the country's demographics, with the impact of the coronavirus 2019 (COVID-19) pandemic eroding some of the progress (Businesswomen's Association of South Africa [BWASA], 2021). This underrepresentation is more apparent in male-dominated industries such as the electricity and oil and gas energy industries (Moodley, Holt, Leke, & Desvaux, 2016).

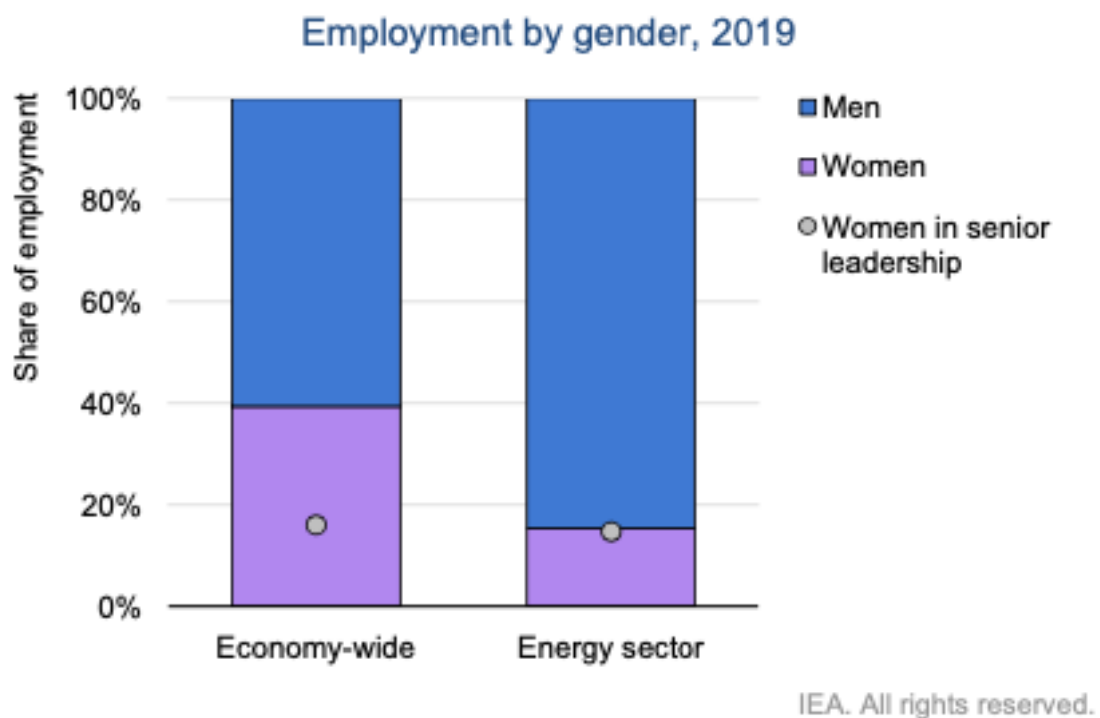
1.2 Context of the study

Numerous studies have analysed the enablers and constraints of female leadership, focusing on the progression to senior leadership positions in organisations (Schultheiss, 2021; Vu & Nwachukwu, 2020). Literature has also assessed women's struggles in the Science, Technology, Engineering, and Mathematics (STEM) related industries (Coe, Wiley, & Bekker, 2019; O'Connell & McKinnon, 2021; Schmitt & Wilkesmann, 2020). There have also been several studies that investigate female leadership characteristics and how this influences organisational performance (Alonso-Almeida, Perramon, & Bagur-Femenias, 2017; Desvaux, Devillard, & Sancier-Sultan, 2010; Offermann & Foley, 2020). However, there has been limited research into female leadership in STEM-related industries (McCullough, 2020), and the availability of research dwindles further when investigating the energy sector. Furthermore, research on the management styles of males and females have a gap in providing a gendered perspective (Alonso-Almeida et al., 2017; Esser, Kahrens, Mouzughi, & Eomois, 2018).

The South African government has legislation and regulations that promote the participation of more women in the workplace, such as the Employment Equity Act (EEA)

and Broad-Based Black Economic Empowerment (BBBEE) (Fajardo & Erasmus, 2017). At the constitutional level, Section 9 of the Constitution of South Africa provides equal rights for all groups regardless of gender, sex, ethnicity, race, and disability. (Government of the Republic of South Africa, 1996). The National Development Plan (NDP) of South Africa provides Vision 2030 for South Africa, which proposes measures to ensure that inequality will be addressed effectively (Department of Labour, 2019). The government has made it clear that it is essential to have representation of women in the workplace. President Cyril Ramaphosa's cabinet has reached 50% representation (Fleming, 2019), a significant accomplishment towards gender parity, and South Africa is one of the exemplary countries in this regard (Moodley et al., 2019). Furthermore, the public sector has had more progress in increasing women in senior positions compared to Johannesburg Stock Exchange (JSE) listed companies (BWASA, 2021)

According to a recent study by the International Energy Agency [IEA] (2022), women make up 39% of global employment; however, they only account for 16% of energy sector employment, with only 14% of women making up senior management positions in the energy sector, see **Figure 1**.



Notes: Employment shares are from the International Labour Organization (ILO) covering 48 countries for the energy sector. Senior management shares are IEA global calculations based on the Refinitiv PermID database.

Figure 1: Employment by gender, 2019 (IEA, 2022)

In GrantThornton (2022) *Women in Business 2022* report, the picture is more positive where globally, the share of women in senior management in surveyed organisations was 32%, representing an increase of 8% in the past five years, indicating a positive upward trajectory see **Figure 2**. Although these numbers have improved, it still needs to represent global demographics, where women are half the population (World Bank, 2021).

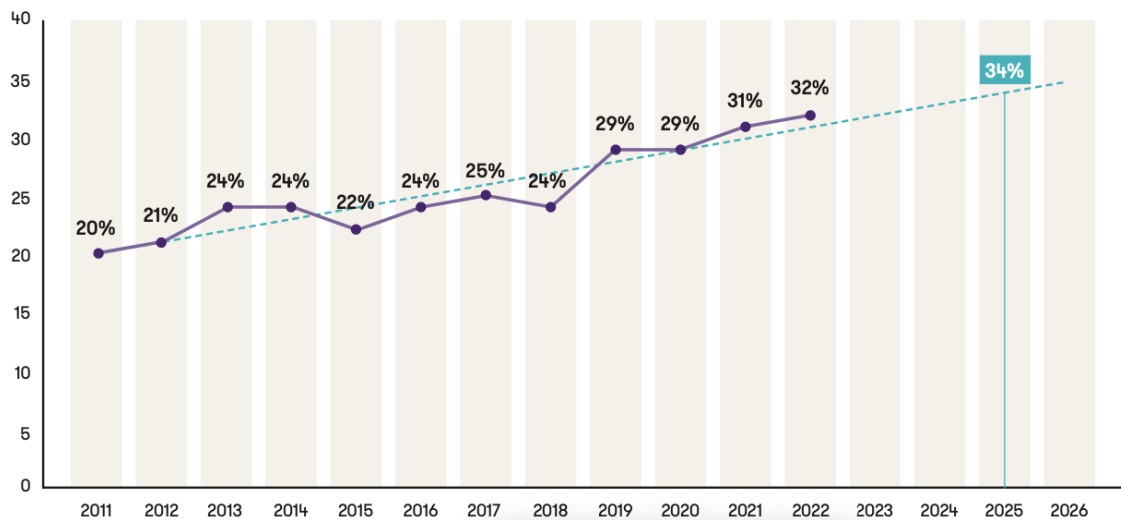


Figure 2: Proportion of women in senior management roles globally, 2011-2022 (GrantThornton, 2022)

Several studies illustrate that organisations with more women in senior leadership perform better (Abdulrahman & Amoush, 2020; Dixon-Fyle, Prince, Dolan, & Hunt, 2020; Fajardo & Erasmus, 2017). Research by the World Economic Forum (WEF) showed that the software and Information Technology (IT) services, energy and mining, and manufacturing sectors had the fewest female hires compared to other industries, see **Figure 3** (Leopold, Ratcheva, & Zahidi, 2017).

In late 2019, the world witnessed the introduction of the COVID-19 pandemic. Subsequently, the business environment had to deal with the impact of COVID-19. All spheres of the economy were affected, and businesses had to find new ways of operating or risk closure. Many companies went virtual and allowed employees to work remotely during lockdown restrictions. This new status quo disproportionately impacted women because of their dual roles of working and being a caretaker at home.

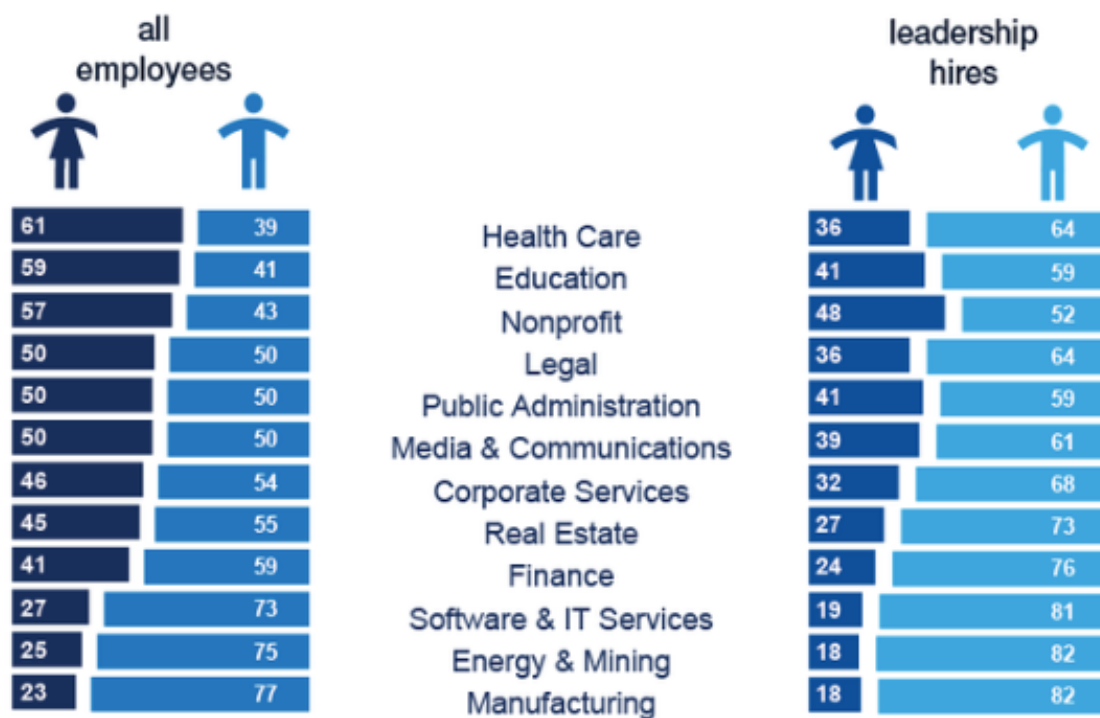


Figure 3: Percentage of new hires in companies by gender (Leopold et al., 2017)

According to BWASA (2021), the share of companies without women in executive positions increased from 29% in 2017 to 34% in 2021. Indeed, more women are in senior leadership positions than ever before; however, the COVID-19 pandemic eroded some progress (Thomas et al., 2020). On the other hand, it provided women more flexibility as more organisations moved to hybrid working models.

The role of women as has been depicted by society indicates that traditionally women are expected to be nurturers and homemakers and have no real place in business and leadership positions (Chiloane-Tsoka, 2010; Fajardo & Erasmus, 2017; Moodley et al., 2019). Women are discouraged from pursuing leadership positions based on sociocultural belief systems, which still promote patriarchy (Chiloane-Tsoka, 2010; Khuzwayo, 2018). Furthermore, patriarchal cultural systems are still prevalent in many African countries (Haile et al., 2016; Moodley et al., 2019).

South Africa has several challenges at present in the energy sector. The power sector is contending with an unreliable electricity supply from Eskom, severely impacting the economy. The situation is also precarious in the oil and gas sector, with some refineries closing and imports increasing. The country looks to secure domestic fuel supply by developing gas fields. Under the Paris Agreement, South Africa has committed to Nationally Determined Contributions (NDCs), which are targets for decarbonising all its' sectors, especially the energy sector as the most significant contributor to greenhouse

gas emissions (Department of Forestry, Fisheries, and Environment [DFFE], 2021). More ambitious targets were proposed by the Department of Forestry, Fisheries, and Environment (DFFE) in 2021 (DFFE, 2021). Considering this, the country is committed to ensuring a just transition to ensure environmental sustainability while ensuring decent work, social inclusion and poverty eradication (Smith, 2017). The role of energy will continue to be a focal point for the country as it works towards economic recovery post the COVID-19 pandemic.

The purpose of the research is not to show that women are better than men. Instead, it is saying that organisations that promote diversity perform better because of the inclusion of different ideas, leadership styles and more integration. Women and leaders in other African countries with similar economic, institutional, cultural, and social situations – can take learning from this research for their organisations. Young women in the energy sector working their way up the ladder can learn how to navigate their careers. Furthermore, as South Africa and the African continent at large try to improve their economies, energy becomes a focal point, and the representation of women in energy organisations at all levels may lead to improved performance.

1.3 Research problem

This study aims to highlight female leadership characteristics that may lead to better organisational performance and to identify the factors that contribute to the underrepresentation of women in senior levels of organisations in the energy sector. It aims to explore the gendered perceptions of enablers and constraints provided by women leaders and their male counterparts. It is evident that there is a significant challenge for gender parity and that this is heightened in male-dominated industries. Several studies have posited the potential reasons for the lack of progression for women into senior leadership positions and the potential solutions. This research aims to highlight some of these and their relation to the needs of women in the South African energy sector. The study also aims to highlight the importance of having more women in organisations based on their unique leadership traits.

1.4 Research questions

1. What are the specific characteristics of female leadership that have impacted the success of organizations in the energy sector?

2. What are the enablers for female career progression to senior leadership positions in organisations in the energy sector?
3. What are the constraints for female career progression to senior leadership positions in organisations in the energy sector?

1.5 Significance of the study

Junior women in the energy sector can benefit from insights into senior women's experiences throughout their careers. The women can better understand what can be done, what challenges may lay ahead, and how to navigate these. Women can gain an understanding of the leadership characteristics women possess which make them good leaders, and that there is no need to conform to stereotypical ideas of leadership that centre around male leadership traits.

Women considering changing careers or sectors due to the proverbial 'glass ceiling' defined as invisible blockages and hindrances that exist for previously disadvantaged groups that reduce the ability to move up in organisations (Bastida Domínguez, Rivo-López, & Villanueva-Villar, 2019; Kobus-Olawale, Schachtebeck, & Dhanpat, 2021) and have been unable to break through may also gain some insights on potential steps forward (International Labour Organisation, 2019). This 'glass ceiling' challenge would address the 'leaky pipeline' phenomenon wherein although higher numbers of women are entering the workforce at entry-level, as women progress up the career ladder, the number of women decreases, indicating that there are losses along the way (Bellone, Kutob, Noel, & Siccardi, 2019; ILO, 2019). Men may benefit from this study as it may allow them to recognise behaviours in themselves that may facilitate or interfere with female advancement.

Considering the male-dominated nature of the energy sector, the study aims to provide a perspective provided by male counterparts as the ones with the most power and responsible for most decision-making, thus significantly impacting female career progression. Previous studies on female career progression are provided from the women's point of view (Doubell & Struwig, 2013; Kobus-Olawale et al., 2021; McCullough, 2020). This study aims to provide a gendered perspective by seeking perspectives from both genders. This dual approach was anticipated to provide more nuanced answers to the topic. In addition, identifying current enablers and constraints would facilitate discussions on how to retain and promote women in the energy sector.

1.6 Delimitations of the study

- a. The focus is on senior management-level female and male leaders.
- b. The study is delimited to the electric power and oil and gas sectors in energy.
- c. The study excludes typical leadership constructs, only concerned with how women enact their leadership roles.

1.7 Definition of terms

Career progression of women: Women's career progression is described as the upward mobility of female employees along an organisation's career pipeline or pathway (Johns, 2013).

Constraints: Something that controls what you do by keeping you within particular limits (Cambridge definition).

Enablers: Something or someone that makes it possible for a particular thing to happen or be done (Cambridge definition).

Energy sector: The energy sector is defined as the set of industries related to producing and selling energy. For this research, the areas of the energy sector that are of interest are oil and gas exploration and production and the power sector.

Female leadership: This is defined as leadership positions or roles in organisations that women hold.

Feminist theory: According to Letherby (2003), most feminists were historically concerned with understanding why inequality exists between men and women, but current views (Rice, 2021) are focused on addressing inequalities and promoting collaborative synergies between men and women; this study contributes insights in this area. There is no one definition of feminist theory. However, this study focuses on women's lived experiences and the effect that gender inequality has had on their careers.

Self-determination theory: To add to the feminist theory, self-determination theory (SDT) was selected to explore the role of self-determination and intrinsic and extrinsic motivation in female careers in male-dominated industries such as energy. The SDT theory suggests that combining intrinsic and extrinsic motivators for workplace activities affects employees' performance and well-being (Deci et al., 2017).

1.8 Assumptions

The interviewees are participating in the research of their own free will, with no expectation of compensation and provide accounts based on their own lived experiences and observations.

1.9 Structure of the report

Chapter 2: This is a literature review in which the key terms and concepts of the study are elaborated. At the end of the literature review, propositions are stated as potential answers to the research questions posed in Chapter 1.

Chapter 3: This chapter is the research methodology that addresses the research questions in Chapter 1.

Chapter 4: This chapter discusses the research findings and addresses the research questions in Chapter 1 and the literature review.

Chapter 5: This chapter provides the summary and conclusion of the research findings. It also provides limitations and potential future research areas.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This chapter aims to provide the study context using existing literature and also provides the theoretical frameworks used in the study. It provides insights into what characterises female leadership and delves into an assessment of the enablers and constraints for women to progress to senior leadership in the energy sector as identified in the existing literature. The structure of this chapter starts with the description of the theoretical frameworks that were used to frame the research. This is followed by the background section, which discusses the role of women in business performance. Then briefly discuss the South African energy sector and the current challenges. A discussion of the concepts of the glass ceiling and labyrinth follows them. Lastly, the description of the theoretical frameworks that were used to frame the research is explored. After the background section, a section on female leadership characteristics and gendered perspectives follows. Then it goes on to a section that examines the key enablers and constraints facing female career progression into senior positions.

2.2 Theoretical frameworks

Theory plays an integral part in the research process. In qualitative research, the theory relates to the methodology used by the author and affects all aspects of the research process (Anfara, 2008; Anfara & Mertz, 2014; Collins & Stockton, 2018). According to Anfara and Mertz (2014), a theoretical framework is any empirical or quasi-empirical theory of social and psychological processes at various levels that can be applied to understanding phenomena. Varpio, Paradis, Uijtdehaage, and Young (2020, p. 7) define theoretical frameworks as *“a logically developed and connected set of concepts and premises—developed from one or more theories—that a researcher creates to scaffold a study”*. Furthermore, Anfara (2008, p. 872) states that *“theoretical frameworks can focus a study, reveal, and conceal meaning and understanding, place the research in academic conversation and reveal its strengths and weaknesses”*. Below is a discussion of the theoretical frameworks considered in this study – self-determination theory (SDT) and feminist theory.

2.2.1 Self-determination theory (SDT)

The SDT suggests that the combination of intrinsic and extrinsic motivators for workplace activities affects employees' performance and well-being (Deci, Olafsen, & Ryan, 2017). The SDT assumes a relationship between the working environment and the individual's motivation (Schmitt & Wilkesmann, 2020). The SDT proposes that to increase motivation, creativity, and performance in individuals; three psychological needs must be met – competency, autonomy and relatedness (Deci & Ryan, 2010; Ryan & Deci, 2000; Smith, Handley, Zale, Rushing, & Potvin, 2015): see Error! Reference source not found.Error! Reference source not found. for illustration.

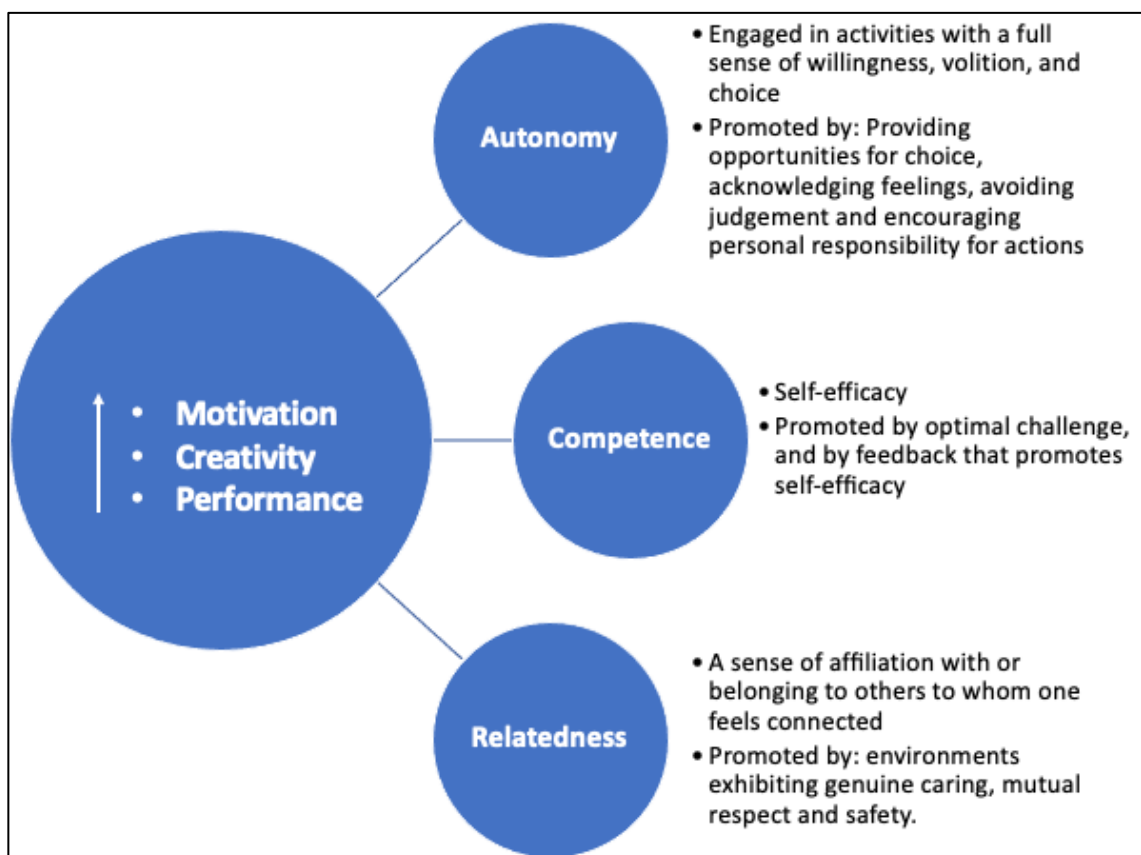


Figure 4: Self-Determination Theory adapted from Deci and Ryan (2000) and Cook and Artina (2016)

According to Deci et al. (2017, p.20), autonomous motivation can be characterised by engaging in activities with a complete sense of willingness, volition, and choice. The SDT theory suggests that organisations with conditions wherein employees feel supported in their autonomy will increase employee satisfaction and organisational effectiveness (Deci et al., 2017). Intrinsic motivators are sourced internally and involve people doing

activities because they are interesting and satisfying; thus, they are an autonomous source of motivation (Gagné & Deci, 2005).

On the other hand, extrinsic motivation derives satisfaction from the consequences of the activity, such as rewards, money, and status and is defined as a controlled source of motivation. However, there is a spectrum of extrinsic motivation that goes from controlled to autonomous depending on the level of internalisation (Gagné & Deci, 2005); see Error! Reference source not found..

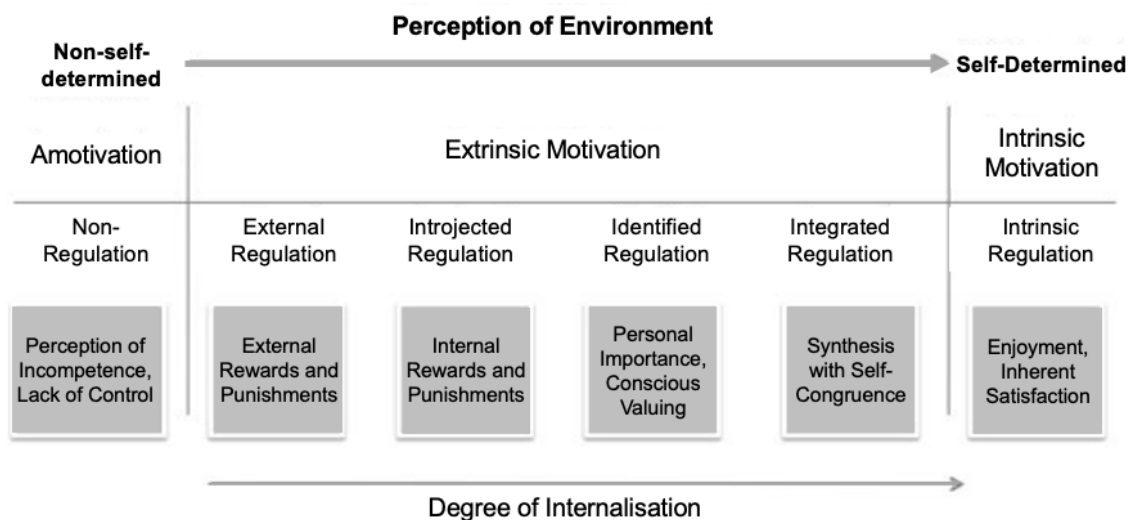


Figure 5: Self-Determination Theory (Ryan & Deci, 2000, p. 72)

The SDT explains why women might tend to conform to male behaviour in male-dominated environments; this would happen through the internalisation of extrinsic motivators. Internalisation has three forms - introjection, identification, and integration, all of which have increasing levels of autonomy and decreasing levels of control on a spectrum. *Introjection* is internalisation which occurs when a person "takes in" a value or regulatory process; however, they do not identify with it or accept it as their own, and it is an internal control that is enforced by sanctions such as threats of guilt or promises of self-approval (Deci et al., 1994). *Identification* occurs when a person identifies with the value of the behaviour for their self-selected goals; they feel greater volition because the behaviour aligns with their personal goals and identities (Gagné & Deci, 2005). *Integration*, on the other hand, refers to internalisation where people identify with an activity and fully accept responsibility for it; the regulatory process is integrated within oneself and thus is self-determined (Deci & Ryan, 1991). The person does the behaviour of their own volition wholly because of its value to them and their personal goals (Deci et al., 1994). With integration, there is no internal conflict compared to introjection; thus,

behaviour is more consistent (Deci et al., 1994). Integrated internalisation is the most autonomous form of extrinsic motivation, considered self-determined, and thus the closest form to intrinsic motivation.

According to Deci et al. (2017), various studies confirm that autonomous motivation or satisfying basic psychological needs (autonomy, competence, relatedness) is a reliable predictor of positive work outcomes. Deci et al. (2017) state that when people understand the value and purpose of their jobs, feel ownership of their roles, and receive clear feedback on their performance and support, they are more inclined to be autonomously motivated and perform and learn better. The SDT theory has been chosen as the basis for this study as the assumption is that women in male-dominated industries require a high level of autonomous motivation to reach senior levels of their industries (Schmitt & Wilkesmann, 2020). Furthermore, the literature highlighted the importance of self-determination as the key to success in career progression (Chengadu & Scheepers, 2017). In this study, the SDT framework is used to assess and illustrate the role of self-determination as an enabler for women to progress to senior leadership positions. It touches on all the research questions posed – as self-determination could be considered a characteristic of leadership and can be identified by respondents as an enabler or constraint regarding the source of motivation for female leaders in the energy sector.

2.2.2 *Feminist theory*

According to Letherby (2003), feminism is not a unified concept. However, most feminists are concerned with understanding why inequality exists between genders and the cause of the subordination of women throughout history and society. The author states that feminist researchers begin with a commitment to producing valuable knowledge in making a difference in women's lives through social and individual change (Letherby, 2003, p. 4). Furthermore, feminist researchers aim to conduct research that shows what is happening in women's lives and, by extension, in men's lives because to understand what is happening in women's lives, there must be an understanding of what it is that men are thinking and experiencing too (Letherby, 2003). Literature highlights different feminist research approaches such as feminist empiricism, feminist standpoint epistemology, post-modernism and post-culturalist (Hesse-Biber, 2013; Hesse-Biber & Leavy, 2007; Letherby, 2003). For this study, the most interesting approach is the feminist standpoint epistemology, which aims to draw on women's lived experiences. The feminist theory contributed to the foundation of the aim of the study – which was to gain perspective into the experiences of women from them, as well as their male

counterparts. The female respondents were able to distil their own experiences of leadership in the sector and were able to identify the characteristics of leadership they believed they possessed and was key to their success. Having the first-hand experience of these women can enhance understanding of the experiences of women in the sector.

2.3 Background

2.3.1 Role of women in business performance

Several studies have illustrated that the role of women in business is essential and that organisations with more women in senior leadership positions perform better (Abdulrahman & Amoush, 2020; Dixon-Fyle et al., 2020; Fajardo & Erasmus, 2017). According to the ILO (2019), their findings indicate that enterprises that had equal employment opportunities and gender-inclusive cultures were over 60% more likely to have improved profits and productivity. Similarly, McKinsey and Company show that company profits and share performance can be close to 50% higher when women are well represented at the top. (Dixon-Fyle et al. , 2020). Morgan Stanley Capital International shows that a return on equity (ROE) can be 36% higher when there is a diverse executive team (Fajardo & Erasmus, 2017). This finding is supported by Bank of America Global Research as cited in IEA (2021), which shows that S&P 500 companies with women in senior management saw a 30% higher ROE and a 30% lower earnings risk than peers with lower representation.

2.3.2 South African energy sector

The role of energy will continue to be a focal point for the country as it works towards economic recovery after the COVID-19 pandemic and the current energy crisis. According to the IEA (2022), the energy sector employs 65 million people globally, which accounts for 2% of employment, with Africa accounting for 3.8 million jobs. Many African countries are concerned about energy security (Hlavova, 2017), and many seek to secure supply. Moreover, growth in energy-related sectors, e.g., renewable energy, could increase employment opportunities (International Renewable Energy Agency [IRENA], 2020). In SA, energy security is more of a concern than ever, with the sector under immense pressure to recover to reduce the negative impact on the energy-intensive economy (Vuppuluri, 2020). The leadership that will help navigate the challenges and opportunities in the energy sector will be crucial for economic recovery.

2.3.3 *The Glass Ceiling and Glass Labyrinth*

According to Kobus-Olawale et al. (2021), the glass ceiling is an artificial barrier created by the combination of hindrances and blockages that prevents women from reaching executive positions. Even though women can see through the barriers, the women cannot seem to break through despite possessing the necessary skills and qualifications (Doubell & Struwig, 2014). Hymowitz and Schellhardt (1986) explain the glass ceiling as a barrier that minimises the flexibility of previously disadvantaged people through organisations. The glass ceiling is explained as discrimination due to many variables beyond the individual's control (Hymowitz & Schellhardt, 1986). Lahti (2013) states that perhaps the glass ceiling has been shattered and that now what women face is no longer a glass ceiling but rather a glass labyrinth wherein the women can ascend to higher positions but must take a more complex, convoluted path compared to their male counterparts.

2.4 Characteristics of female leadership that have had an impact on the success of organisations in the energy sector

This section provides an analysis of the literature that looks at characteristics that women may bring to leadership that may improve organisational performance. Several studies explore the differences between the leadership styles of women and men, where the transformational leadership style of women is highlighted (Desvaux & Devillard, 2008; Eagly, 2007; Offermann & Foley, 2020). Characteristics of transformational leadership include an emphasis on intellectual and social capabilities, creativity, listening and empathising with employees, teambuilding, helping others to achieve common goals and being participative instead of being individualistic (Alonso-Almeida et al., 2017; Kark, 2004). There has also been research into the types of character traits that are witnessed in female leaders and how it impacts their subordinates and the operations of the organisation (Greenberg & Sweeney, 2005; Offermann & Foley, 2020). It may be that the energy sector requires more diversified leadership to promote innovation and bring change, to reduce the negative trajectory of the sector and its negative impact on the climate. According to Bruckmüller and Branscombe (2010), during times of crisis, characteristics that are stereotypically associated with female leadership, such as communication and being able to motivate others, are seen as more important. It is perhaps now where change is needed, and the characteristics associated with transformational leadership are more appropriate (Rowley, Hossain, & Barry, 2010).

2.4.1 *Characteristics of female leadership*

As the representation of women in leadership increases, the question arises - do women bring unique traits to leadership? Are men indeed better leaders than women? There has been an undeniable marginalisation of women who may lack characteristics often attributed to men – does it put women at a disadvantage? Or may it be that introducing diverse leaders in organisations allows for attracting different types of talent – thus potentially making the organisation more dynamic, agile, and innovative than other less diverse organisations?

Even though research and empirical evidence show that there are more barriers for women to become leaders than men, especially in male-dominated sectors, historically there was less consensus and evidence on the behaviour of both men and women once they become leaders (Eagly & Johannesen-Schmidt, 2001). However, greater effort has been put into discovering what the potential differences may be. A book by Book (2000) highlights some characteristics unique to female leadership: the willingness to reinvent the rules, sell their visions, and turn challenges into opportunities. According to Greenberg and Sweeney (2005), in a survey by Caliper, characteristics attributed to women are being more assertive and persuasive, more willing to take risks and having the desire to get things done. However, on the other hand, according to Offermann and Foley (2020), women are less competitive and more collaborative and productive working with others than their male counterparts. They are supported by previous research by Abdulrahman and Amoush (2020) and Eagly and Carli (2007), which state that female characteristics include being democratic, cooperative, collaborative and participative.

Greenberg and Sweeney (2005) highlight that women are more empathetic and flexible and have better interpersonal skills. Female leadership characteristics identified by Barsh and Yee (2012) and Gipson, Pfaff, Mendelsohn, Catenacci, and Burke (2017) are a relentless work ethic, possession of an outcomes-based orientation; perseverance driving them to beat the odds, feedback and engaging with their teams; humility; a desire to empower, motivate and inspire their teams and through this leading purposefully to improve their team's performance. Offermann and Foley (2020) and Gipson et al. (2017) caution that there is limited research on the impact of the intersectionality of identities such as gender, race, ethnicity, and culture and how their different combinations could have an impact on leadership traits that may lead to differences among women.

There are many different types of leadership styles in literature, such as autocratic (dominance/authoritarian), democratic (participative), Laissez-Faire (delegation), bureaucratic, situational, transactional, and transformational. Alonso-Almeida et al. (2017) explore the differences between leadership styles and their relation to gender, see **Table 1**.

Table 1: Different leadership styles (adapted from Alonso-Almeida et al., 2017)

Leadership style	Description	Associated characteristics	Typical gender association ¹
Dominance	Leaders with this style value achieving power and money and dominating others	• authoritative, • strong-minded, • goal-oriented, • power-seeking	Male
Difference Transactional	- Similar to dominance	• exert control, • impose order • achieving rewards	Male
Difference Transformational	- Leaders with this style value helping others and participating in their teams	• empathy, • team building, • creativity, • helping others	Female
Dual - agentic	Dual leadership styles are portrayed depending on the organisational context, regardless of gender. Researchers note that different genders are more similar in their styles than different and emphasise communal or agentic characteristics depending on the situation.	• dominance • control • independence • self-confidence • competitiveness	Men
Dual - communal		• helpful attitude • kindness • empathy	Women

Desvaux and Devillard (2008) highlight that female leadership characteristics were aligned with transformational leadership. Offermann and Foley (2020) state that the original research on transformational leaders' impact on followers inspires their followers to put others ahead of themselves, which results in higher effort and performance. They also point out that several studies show that leadership traits often associated with better

¹ Not exclusive to that gender

leaders, such as idealised influence, intellectual stimulation, inspirational motivation, individualised consideration, and contingent reward defined by Eagly, Johannesen-Schmidt, and van Engen (2003) are more present in women than men and are more present in transformational leadership styles and that due to this, women have a distinct leadership advantage.

2.4.2 Gendered perspectives

Generally, the volume of research investigating and discussing female leadership is provided from the female perspective, which is vital as this provides for elaboration on the experiences of women. However, this study provides a gendered perspective wherein both female and male points of view are explored. Arenas-Molina and Rodríguez (2017) state that it is pertinent to have views from both genders as these comprise and affect the numbers directly and that there is a need to see the world from both viewpoints. Furthermore, as the energy sector is male-dominated, assessing the male point of view on the problem may provide new and valuable insights (Esser et al., 2018). However, a gap exists in the literature that reveals an absence of gendered perspectives around leadership styles (Alonso-Almeida et al., 2017; Esser et al., 2018; Hovden, Kvande, & Rasmussen, 2011). According to Hovden et al. (2011), research should aim to combine the analysis of gender and power and explore its connections to masculinity and business. "We, therefore, need a better understanding of the discourses on gender and leadership among the corporate elites and how these discourses may argue for men as more competent and legitimate leaders than women" (Hovden et al., 2011, p. 410).

2.4.3 Organisational operations improvement with more women in leadership

Although the literature has highlighted that gender stereotyping is one of the main challenges women face in progressing into leadership roles where male leadership characteristics are considered better, according to results from a study by Paustian-Underdahl, Walker, and Woehr (2014), women do not differ in terms of their leadership effectiveness. Kark, Waismel-Manor, and Shamir (2012) show that characteristics traditionally attributed to females have been increasingly linked to effective leadership within organisations. Desvaux et al. (2010) in their report state that women bring a different leadership style from which organisations can benefit.

Furthermore, Chengadu and Scheepers (2017) state that having women equitably represented in leadership allows for the right combination of skills and perspectives that enable businesses to tackle challenges effectively and make for a more dynamic work environment. Additionally, McKinsey and Company's *Women Matter* reports show that having more representation of women in managerial positions benefits organisations and increases their financial performance (Coury et al., 2020; Dixon-Fyle et al., 2020; Moodley et al., 2016; Moodley et al., 2019). This research is supported by Abdulrahman and Amoush (2020), who states that companies with more female representation in management are more profitable and that, according to research, gender-diverse companies perform better than their less gender-diverse competitors.

Considering South Africa's energy landscape, having more women representation in leadership may bring about change. Stephens (2020, p. xix) posits that the "*Climate crisis is a leadership crisis*" and that perhaps the change needed in climate change and energy is to have diverse antiracist, feminist leaders who focus on transformative leadership as it puts people first instead of only profit-first. According to Eagly and Carli (2003), the effectiveness of female leadership is affected by the context, which can reduce in male-dominated industries. This finding is supported by Post (2015), who studied the contexts wherein female leadership may be more effective.

2.4.4 Proposition 1

Based on the literature review, the study proposes that the characteristics associated with female leadership, such as empathy, perseverance, motivation, collaboration, participative and flexibility, are positive for organisations. In addition, increasing the representation of females in leadership positions positively impacts organisations, making these organisations more dynamic and innovative.

2.5 Enablers for female career progression to senior leadership positions

This section discusses what the literature says about the enablers and constraints for women to progress to senior positions in the energy sector. The research on this topic in male-dominated industries, including STEM and energy sectors, is more scarce (Amon, 2017; McCullough, 2020). The approach was to assess the enablers and constraints at three levels – micro, meso, and macro. The macro level is at the societal level and considers indirect factors influencing organisational and individual behaviour (Lahti,

2013). The meso level is at the organisational level and considers factors in organisations that promote female leadership (Lahti, 2013). The micro level is the individual level and considers the woman herself and how the macro and meso levels impact her progress. This approach provides a more holistic picture as all three levels influence women's career development (Diehl & Dzubinski, 2017; Fajardo & Erasmus, 2017).

2.5.1 Macro

a. Government legislation

The Constitution of South Africa provides for the right to equality for all groups regardless of gender, sex, ethnicity, race and disability (The Republic of South Africa, 1996). The progression of South African legislation and policies to increase women's representation and promote equality for men and women has been noteworthy (Doubell & Struwig, 2013; Singh, 2018). Then there are other supportive policies such as the BBBEE and EEA. Some studies in the literature highlight this as a supportive element for the progression of women (Doubell & Struwig, 2013; Fajardo & Erasmus, 2017; Singh, 2018). However, several studies note that despite the supportive policies, the impact has not been as expected (Chengadu & Scheepers, 2017; Doubell & Struwig, 2014; Hofmeyr & Mzobe, 2012; Kobus-Olawale et al., 2021).

2.5.2 Meso

a. Coaching, mentoring and sponsorship

Coaching, mentoring and sponsorship have been highlighted as key for women to break the proverbial glass ceiling (Doubell & Struwig, 2013; Van Oosten, Buse, & Bilimoria, 2017). Sometimes, this is considered one of the best ways to progress to leadership positions (Moodley et al., 2016). In a survey by Hofmeyr and Mzobe (2012), one in four participants cited coaching and mentoring as one of the critical solutions for career progression for women. According to Deemer and Fredericks (2003), senior women can provide guidance on navigating gender-related barriers. Hofmeyr and Mzobe (2012) emphasised this research and felt that senior women should form part of the coaching and mentoring solution and be a source of motivation (Lenka, Gupta, & Sahoo, 2016). However, on the other hand, due to the male-dominated nature of the energy sector, it is vital to have male coaches, mentors, and sponsors as men have more influence and

connections, and it will show their support for female progression (Beeson & Valerio, 2012; Bellone et al., 2019; Hofmeyr & Mzobe, 2012). Women in male-dominated industries are using mentoring more (Mate, McDonald, & Do, 2019). Some studies also recommend formalising connections with mentors and sponsors (Fajardo & Erasmus, 2017; Kobus-Olawale et al., 2021; Sánchez & Lehnert, 2019), primarily due to the challenges women have establishing these relationships and their importance in reaching senior ranks (Akkaya, 2020).

b. Senior leadership and supervisor/managerial support

Support from supervisors for the upward progression of employees has also been identified as key (Cimirotić et al., 2017; Fouad, Singh, Cappaert, Chang, & Wan, 2016; Van Oosten et al., 2017). Although supervisors are not mentors, their role is vital in the career management process and allows female leaders to gain increased responsibility and identify growth opportunities (Cimirotić et al., 2017). Female leaders in the energy sector recognised this as the key success factor (Marten & Rick, 2016). Furthermore, CEOs of organisations should drive gender diversity strategies as this leads to increased success in increasing representation (Moodley et al., 2016; Rick, Martén, & von Lonski, 2017).

c. Networking

Networking is one component contributing to female career progression to senior positions (Kobus-Olawale et al., 2021; Offermann, Thomas, Lanzo, & Smith, 2020; Sánchez & Lehnert, 2019). It is recognised that individuals who can build relationships and create a rapport with key individuals who can connect and refer them to the right people can assist in excelling in their careers (Doubell & Struwig, 2013; Garavan, Hogan, & Cahir-O'Donnell, 2003; Sánchez & Lehnert, 2019). Men have more network access (Kobus-Olawale et al., 2021; Sánchez & Lehnert, 2019). The networks are built to provide access to many benefits, such as coaching, feedback, information, and opportunities (Sánchez & Lehnert, 2019).

d. Inclusive environment and culture

Fostering an inclusive environment which encourages gender diversity where women can be themselves without having to conform to gender stereotypes of leadership where the portrayal of characteristics associated with a male leadership style allows women to thrive and increase their representation at senior levels (Babalola et al., 2021; Chengadu & Scheepers, 2017; Hofmeyr & Mzobe, 2012). The work environment should allow

women to be authentic and bring the best version of themselves and connect with their colleagues (Marten & Rick, 2016). Allowing them to play the executive role and that of a mother without penalty will allow them to perform well (Chengadu & Scheepers, 2017). Men in the organisation should contribute to creating an inclusive environment for all employees (Bellone et al., 2019).

e. Work-life integration policies

The delicate balance between professional and personal life affects how women navigate their careers (Schultheiss, 2021). In general, women are faced with the dual role of pursuing a career and providing care for their families; this dual responsibility is an important consideration as they progress to senior levels (Hofmeyr & Mzobe, 2012; Sánchez & Lehnert, 2019; Schultheiss, 2021). Senior roles are usually accompanied by long hours, business travel, and meetings at odd times (Babalola et al., 2021). The availability of organisational policies that provide women with flexibility, such as parental leave, flexitime, telecommunicating and working from home, allows women to pursue their career advancement confidently and allows women to have a successful career without having to make sacrifices (Babalola et al., 2021; Beck & Panczel, 2018; Marten & Rick, 2016; Sánchez & Lehnert, 2019). The COVID-19 pandemic has made this element more critical as the lines between work and home have become blurred and, thus, more challenging for women to navigate (Schultheiss, 2021). Reviewing flexibility policies to accommodate the new status quo will contribute to assisting women to reach leadership positions (Schultheiss, 2021; Thomas et al., 2020).

f. Training and development opportunities

To ensure that women are ready and equipped to take on senior roles, there need to be relevant training and development opportunities (Francis, 2017; Mamba & Singh, 2018; Munjuri, 2011; Schultheiss, 2021). According to the literature, women must build the necessary skills to perform well in their leadership roles, such as relevant education training, project management, technical training, and leadership skills (Beeson & Valerio, 2012; Doubell & Struwig, 2013). Exposure to different environments, such as international work assignments, allows for the growth of employees and, in international companies, is considered a prerequisite for promotion (Bastida Domínguez et al., 2019). Due to women's dual role, Frail (2012) advises that international assignments be offered earlier in their careers when responsibilities are less. Access to these learning opportunities provides women with enhanced chances for progression (Cimirotić et al., 2017; Francis, 2017; Tlaiss, 2013).

g. Fair and transparent promotion and recruiting

There need to be fair, uniform, and transparent processes for promoting staff to the next level and a broader criterion of selection to promote to senior roles (Beck & Panczel, 2018; Bellone et al., 2019; Rick et al., 2017). Organisations are encouraged to have a broader selection criterion and more comprehensive search that includes different types of people to take up leadership positions in their recruitment processes (Doubell & Struwig, 2013). The recruitment and promotion policies can be used to increase the representation of women in senior management positions. They can use different recruitment strategies, such as blind resume screening, to remove unconscious bias and require recruiters to provide diverse candidates (Bellone et al., 2019; Rick et al., 2017; Sánchez & Lehnert, 2019). In addition, organisations can ensure that information about promotion opportunities is readily available to all employees (Beck & Panczel, 2018; Sánchez & Lehnert, 2019).

2.5.3 Micro

a. Qualifications and performance

For women, being a top performer is recognised as being the bare minimum to gain entry to leadership positions (Frail, 2012). However, in a study by Kobus-Olawale et al. (2021), some female leaders stated that performance counted for less than being liked in the organisation. To qualify for promotion to senior levels in organisations, the qualifications to perform the role are vital to illustrate competency and ability (Maseko, 2013). In several studies, women highlighted their qualifications as one of the key factors that allowed them to attain senior leadership positions (Chinyamurindi, 2016; Cimirotić et al., 2017). Furthermore, the continued upgrading of qualifications was highlighted as an enabler (Chinyamurindi, 2016; Hofmeyr & Mzobe, 2012). In addition, knowledge and competence play a more prominent role in women's promotions than men's (Kobus-Olawale et al., 2021). Many women attain their formal qualifications and surpass men in the number of graduates (ILO, 2019). Even though the number of female STEM graduates is still lower than males, there has been an improvement (ILO, 2019).

b. Family support

Family support is one of the enabling factors for female career progression (Chinyamurindi, 2016; Doubell & Struwig, 2013; Mabokela & Mlambo, 2015). Including having a good foundation in their formative years where the home had role models of

hard work and education was valued (Chengadu & Scheepers, 2017; Doubell & Struwig, 2013). This support is continued in the marital home by sharing responsibilities and having a spouse who supports career ambitions (Cimirotić, Duller, Feldbauer-Durstmüller, Gärtner, & Hiebl, 2017; Doubell & Struwig, 2014; Mabokela & Mlambo, 2015). According to a survey by Fajardo and Erasmus (2017), approximately 80% of the women agreed that their families supported equal career opportunities for both genders, and there was minimal variation among racial groups; this was supported by Chengadu and Scheepers (2017) who state that the role of family is vital in building gender equality consciousness. Spousal support was particularly highlighted for women in STEM careers and male-dominated industries (Babalola, du Plessis, & Babalola, 2021; McCullough, 2020).

c. Self-determination and clarity on career path ownership

Women's inward desire and self-determination to ascend the ranks in organisations are also recognised as one of the key enablers (Chengadu & Scheepers, 2017; Schmitt & Wilkesmann, 2020; Vidyakala, 2020). The literature revealed that some women believed owning their career path through a clear vision and intentional, strategic career decisions were vital in driving their careers in a specific direction (Lubbe, 2015). Many senior women in the literature state that their drive to succeed and set aspirational goals spurred them on in their careers (Cheung & Halpern, 2010; Moodley et al., 2016; Schultheiss, 2021). According to a statement by Nkosazana Dlamini-Zuma in Chengadu and Scheepers (2017), she considers that the enablers for women lie within themselves. Some women do not consider any barriers faced along the way gender-specific (Chengadu & Scheepers, 2017). According to Schalkwyk and Brough (2019), a U.S. KPMG survey showed that females have a strong aspiration to succeed. Moreover, searching for and capitalising on opportunities, volunteering, advocating for themselves and expressing an interest in higher positions were vital (Frail, 2012; Zikode, 2020).

2.5.4 Proposition 2

This study proposes that the most critical enablers for female energy leaders' progression include family support, work-life integration, coaching, mentorship, sponsorship, networking, individual qualifications, self-determination, and performance.

2.6 Constraints for female career progression to senior leadership positions

This section critically discusses what the literature says about constraints for women to attain senior leadership positions in the energy sector. Like the literature on the enablers, there has been plenty of research on constraints for female career progression to senior roles (Babalola et al., 2021; Chiloane-Tsoka, 2010; Diehl & Dzubinski, 2017; O'Connell & McKinnon, 2021). The approach followed in this section is the same as the previous section and discusses the constraints on the three levels outlined.

2.6.1 Macro

a. Gender stereotyping

According to Bussey and Bandura (1999), stereotypical gender roles are more a result of societal and cultural conditioning than biology. Women face gender stereotyping challenges where society believes specific characteristics and roles are gender-assigned (Alqahtani, 2019; Samuel & Mokoaleli, 2017; Sánchez & Lehnert, 2019). These roles imply that men and women should behave in specific ways, and this reinforces gender stereotypes (Samuel & Mokoaleli, 2017; Sánchez & Lehnert, 2019). This stereotyping filters into the workplace, where many women still occupy roles traditionally an extension of the female role and create biases against women for leadership roles (Hofmeyr & Mzobe, 2012). Women find it challenging to progress to senior roles because of the perceptions of their abilities and because men are perceived as better leaders (Kobus-Olawale et al., 2021; Samuel & Mokoaleli, 2017).

b. Tradition and culture

According to Ayman and Korabik (2010), culture impacts identity, power, authority and resources, relationships, and how well groups work together. The role of women as has been depicted by society indicates that traditionally women are expected to be nurturers and homemakers and have no real place in business and leadership positions (Fajardo & Erasmus, 2017; Moodley et al., 2019). Women are oppressed and discouraged from pursuing leadership positions based on these sociocultural belief systems, which still promote patriarchy (Chiloane-Tsoka, 2010). Furthermore, patriarchal cultural systems are still prevalent in many African countries (Haile, Emmanuel, & Dzathor, 2016; Moodley et al., 2019).

2.6.2 Meso

a. Organisational culture and bias towards men

Organisational culture can hinder women from advancing in organisations (Burkinshaw & White, 2017; Doubell & Struwig, 2013). In a follow-up to Schein (1973), in their study more than three decades later, Schein (2007) found that males in the corporate US still thought of women as less qualified for managerial positions. Organisations may be biased towards male management and what has been termed 'think manager, think male', where women are not considered to have the traits required to be a leader (Schein, 1973, 2007). Moreover, male characteristics must be emulated to be considered good leaders (Alqahtani, 2019; Schultheiss, 2021). In a study by Chiloane-Tsoka (2010), the perception was that men believed that women were incapable of being leaders. In Lahti (2013), the senior women in management reflected that the biggest obstacle to female career advancement is an organisational culture that prefers men. At the junior to middle-management levels, negative experiences such as lack of inclusion and sexual harassment in the organisation present barriers for both genders but affect women more disproportionately (Fajardo & Erasmus, 2017; Sánchez & Lehnert, 2019).

b. Unfair promotion procedures

The organisational mindset, biased towards male leadership, affects the promotion procedures where women are overlooked for positions (Mamba & Singh, 2018; Sánchez & Lehnert, 2019). Furthermore, there is the occurrence of the 'old boys' network/club' at the top of organisations where males in organisations exclude women from informal social networks where connections that will help with promotion opportunities are made (Diehl & Dzubinski, 2017; Du Plessis & Barkhuizen, 2015; Rick et al., 2017). In these networks, men exchange helpful information, and it is difficult for women to join, thus giving their male counterparts an unfair advantage (Du Plessis & Barkhuizen, 2015; Rick et al., 2017). This practice is particularly prevalent in the STEM fields (Du Plessis & Barkhuizen, 2015).

c. Gender division of management roles

Although there has been progress in the representation of women in management, jobs are still segregated along gender lines (Broughton & Miller, 2009), and frequently, the types of management roles that women occupy are in support functions versus men who are in strategic management roles (ILO, 2019). In the survey conducted by ILO (2019), illustrated by **Figure 6**, in the senior and middle management roles, the share of women

is relegated to support functions such as human resources, finance and administration, and marketing and sales. Whereas more strategic functions, such as profit and loss, research and development and operations, have less female representation.



Figure 6: Share of women in functional senior and middle management roles

d. Lack of mentors, sponsorship, and internal support

Although it has been recognised that mentorship is an enabler of career advancement, sourcing mentors remains a challenge for women (Diehl & Dzubinski, 2017). According to research by Fajardo and Erasmus (2017), women surveyed stated they needed more support from senior-level management to help reach higher levels. Often women do not have access to sponsors who are crucial to creating leadership opportunities, advocating promotion, and connecting them to stakeholders (Moodley et al., 2019).

e. Lack of relevant development opportunities

To progress in organisations, training is required to provide the necessary skills to perform at the next level. Unfortunately, the lack of training and development opportunities to acquire these skills can be a barrier (Du Plessis & Barkhuizen, 2015; Hofmeyr & Mzobe, 2012). According to Broughton and Miller (2009), women were less

likely than men to receive training and development opportunities. According to Du Plessis and Barkhuizen (2015), women in STEM find it more challenging to obtain skills through training due to family commitments, making it harder to progress to senior levels due to the technical nature of STEM fields.

f. Lack of female role models

Finding female role models to inspire women to advance to senior levels in organisations remains challenging (Du Plessis & Barkhuizen, 2015; Hofmeyr & Mzobe, 2012), more so in male-dominated industries. Some doubt is created in their abilities due to the lack of representation, and at times the women then opt to alter their career trajectories (Page, Bailey, & Van Delinder, 2009). Alternatively, it perpetuates the 'think-manager, think-male' cycle, reinforcing male leadership characteristics (Sidani, Konrad, & Karam, 2015).

g. Lack of support from senior women

In some instances, women do not only face lack of support from males but also other women – this is referred to as the 'Queen Bee Effect' or 'pull her down syndrome' (Chengadu & Scheepers, 2017; Diehl & Dzubinski, 2017; Hofmeyr & Mzobe, 2012). This phenomenon occurs when women do not provide each other support to advance their careers and sabotage each other (Hofmeyr & Mzobe, 2012) and when senior women actively prevent the promotion of more junior women (Diehl & Dzubinski, 2017). According to Hofmeyr and Mzobe (2012), this lack of support among women has been cited as one of the significant barriers to senior female advancement. In a study by Chengadu and Scheepers (2017, p.70), a participant said,

“We are going through difficult and sad times, and we are not supportive of one another. Women are not supporting each other because we do not want to let other women in and see them succeed. Fear if I let you in, you will be better than me rather than thinking if I let you in, and you are doing things better than I do, I can learn from you.”

2.6.3 Micro

a. Mindset among women

Several studies have cited a lack of self-confidence as one of women's most common internal barriers (Broughton & Miller, 2009; Chengadu & Scheepers, 2017; Rick et al., 2017). The lack of self-confidence results in women not taking bold career risks,

underselling themselves, and not negotiating fair salaries (Broughton & Miller, 2009; Chengadu & Scheepers, 2017; Moodley et al., 2019). According to KPMG (2019), sixty percent of the women surveyed found it difficult to see themselves in leadership or senior management roles. More than half indicated their hesitance to progress to leadership roles.

b. Dual role of women

Due to the dual role of women, balancing home and work life has been recognised as a challenge that disproportionately affects women more than men as their career progresses (Du Plessis & Barkhuizen, 2015). In a study by McCullough (2020), which seeks to compare challenges faced by women in leadership to those in STEM careers, balancing work and home life was cited as the biggest challenge for both. The expectation to work longer hours as there is an increase in seniority adds to the burden for women as the women juggle work and family (Babalola et al., 2021).

c. Imposter syndrome

Imposter syndrome “occurs when an individual, typically considered a high achiever, undergoes an internal experience of feeling like an intellectual fraud or experiences a fear of failure upon achieving success” (Nakazwe-Masiya, Price, & Hofmeyr, 2017, p. 1). This phenomenon affects women more because of the dual role and the juggling act of balancing their feminine traits with male leadership traits to succeed (Nakazwe-Masiya et al., 2017).

2.6.4 Proposition 3

This study proposes that the most significant constraints for women to progress to senior leadership positions are gender stereotyping, organisational culture, lack of relevant development opportunities, and lack of sponsorship, mentoring, and internal support.

2.7 Conclusion of Literature Review

This literature review considered the potential enablers and constraints for women's progression into leadership. The constraints and enablers were provided on three levels – macro, meso, and micro as literature had shown that all three levels affect career progression. The literature also briefly discussed the impact that female leadership has on organisations.

2.7.1 Proposition 1

This study proposes that female leadership qualities such as empathy, perseverance, motivation, collaboration, participation, and flexibility positively impact organisations.

2.7.2 Proposition 2

This study proposes that enablers for female energy leaders' progression include family support, work-life integration, coaching, mentorship, sponsorship, networking, and individual factors.

2.7.3 Proposition 3

This study proposes that constraints for women to progress to senior leadership positions include gender stereotyping, organisational culture, lack of relevant development opportunities, and lack of sponsorship, mentoring and internal support.

Table 2: Consistency table: research questions and propositions

RQ #	State Research Question or Objective	Prop/hyp #	State Proposition or Hypothesis
1	What are the specific characteristics of female leadership that have impacted the success of organisations in the energy sector?	1	Female leadership qualities such as empathy, perseverance, flexibility, motivation, participative and interacting with subordinates positively impact organisations.
2	What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?	2	The enablers for female energy leaders' progression include family support, work-life integration, coaching, mentorship, sponsorship, networking, and individual factors.
3	What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?	3	The constraints for women to progress to senior leadership positions include gender stereotyping, organisational culture, lack of relevant development opportunities, and lack of sponsorship, mentoring and internal support.

CHAPTER 3. RESEARCH METHODOLOGY

The purpose of this chapter is to describe and justify the research methodology adopted to answer the research questions outlined in chapter one and provide the steps followed to answer these questions. This chapter provides the approach, design, data collection methods, sampling method, research population, data analysis method and what was used to increase the quality, reliability, and validity of the study. Lastly, a discussion on how ethical considerations for the study is addressed.

3.1 Research approach

Due to the nature of the study, a qualitative research approach was used to gain insights into the problem. Qualitative research provides an in-depth understanding of the problem and allows the author to uncover trends in participants' experiences, perceptions, behaviour and processes to answer the research questions (Moser & Korstjens, 2017). According to Chinyamurindi (2016), research has shown that qualitative research methods are well suited to career progression research for women as the types of career development complexities faced cannot be captured as easily by quantitative research. The qualitative research approach allows for deep insights into the participants' experiences and to gain perspectives to draw similarities and differences to what has been highlighted in the literature review.

3.2 Research design

The research design provides an action plan for the research and is a guide from the beginning to the end (Yin, 2003). This study used an exploratory qualitative research design that draws on a single data collection technique: semi-structured interviews (Saunders, Lewis, & Thornhill, 2015). This technique allowed for interaction with the studied participants and a partnership and rapport to be built, which can lead to deeper insights and add richness and depth to the data (Antwi & Hamza, 2015). An exploratory research study allows for asking open questions to discover what is happening and to gain valuable insights about the topic (Saunders et al., 2015). Exploratory studies are beneficial when researchers want to clarify their understanding of an issue, problem, or phenomenon (Saunders et al., 2015). In addition, because of the nature of exploratory research, it is flexible and allows for adjustments during data collection as insights emerge (Ngulube, 2015).

3.3 Data collection methods

In qualitative research, there are several types of data collection methods, such as in-depth interviews, participant observation, focus groups (Moser & Korstjens, 2018), physical traces, document review and audio-visual materials (Ngulube, 2015). For this study, the data collection method is semi-structured interviews. This method allowed the women to draw on their experiences and provide verbal expressions (Kallio, Pietilä, Johnson, & Kangasniemi, 2016) of their perception of their individual leadership journeys in the energy sector. In addition, interviews were conducted with a sample set of male leaders to gain their perspective on female leaders' progression based on their experiences.

3.4 Population and sample

The study population was selected based on common characteristics defined by the inclusion and eligibility criteria (Lopez & Whitehead, 2013). The people interviewed are men and women at a senior level that manage junior to mid-level employees or form part of the C-Suite level in organisations. This selection was to ensure that individuals considered leaders were interviewed. In addition, the experience level of participants should exceed five years of management-level experience and more than five years working in the energy industry. The longer tenure allows for a depth and breadth of observations, which may reduce the chances of participant generalisations. The energy sector is the focus of the study as it has a low representation of females on all levels, especially senior (Beck & Panczel, 2018).

3.4.1 Sample

The criteria for selecting the participants in this research study were split into two. First, selecting the female participants required South African women at a senior managerial level in their organisations and working in the energy sectors in South Africa for several years. Second, the selection of the male participants required men that were senior managers and had worked in the energy sectors in South Africa for several years. Participants with less than five years of experience in senior management positions were not considered. The participants were selected based on their level of seniority in their organisations and their expertise and knowledge in the research. The participants marital status, number of children and their highest qualification were also recorded to compare

similarities and differences between the genders, and to see if there were similarities and differences among the men and women themselves.

3.4.2 Sampling method

This study used a purposeful sampling method with snowballing to identify participants, which relies on pre-specified criteria relevant to the research (Lopez & Whitehead, 2013). These types of methods are suitable for qualitative research as the aim is not to get a representative sample of the focus population but rather to select participants that are willing to relay their experiences and are selected because of their specific profile, which is suited to the purpose of the research (Tustin, Ligthelm, Martins, & Van Wyk, 2005). The aim was to interview at least six women and six men that fit the criteria specified under the sample. This process required drawing on personal networks. Snowball sampling was used to get additional participants by getting referrals from the secured interviewees and other potential participants who were unable or unwilling to participate in the study themselves. Interviewing the participants may achieve theoretical saturation, assuming the population is relatively homogeneous (Boddy, 2016).

Table 3: Profile of participants

Description of participant type	Number to be sampled
Female senior managers (5 years+ experience in management and energy sector)	8
Male senior managers (5 years+ experience in management and energy sector)	7
TOTAL number of participants	15

3.5 The research instrument

For this study, the research instrument used is one-on-one semi-structured interviews utilising an interview guide (see Appendix A) which contains the relevant questions along the dimensions of the research questions. Interview guides ensure that all the topics and sub-topics are covered (Terre Blanche & Kelly, 1999) and, help to structure and focus the interview (Roberts, 2020), and provide clear instructions for the interviewer (Stuckey, 2013). The quality of the interview guide impacts the research outcomes (Kallio et al., 2016). The questions developed were created from the results of the literature review.

The open-ended questions allowed participants to talk freely about their experiences without interference (Creswell & Poth, 2016).

The one-on-one interviews were suitable because they allowed participants to relay their experiences in a safe, comfortable environment as opposed to focus group interviews where the participants may not be open to answering sensitive questions or may modify their responses to match the rest of the group (Tustin et al., 2005). It also provides a depth of information from each participant. Furthermore, during the interview, follow-up questions may arise organically; pre-designed follow-up questions were included to complement the main theme questions (Kallio et al., 2016). Lastly, due to the profile of the participants, their busy schedules are more suited to interviews versus trying to align all their busy schedules to conduct a focus group (Mupambirei, 2013) or send them a survey which could get missed in their emails.

3.6 Procedure for data collection

Participants were contacted via email to inform them of the research study and to ask for their participation, with the explicit stipulation that participation is voluntary. At the onset, participants were informed of the contents and purpose of the study, at which point their formal consent was obtained, and the participants were duly informed that consent could be withdrawn at any point (DiCicco-Bloom & Crabtree, 2006). Due to the COVID-19 pandemic and the new way of working for many organisations, the interviews were conducted via suitable online platforms - Microsoft Teams and Zoom. Semi-structured interviews can take 30 minutes to several hours (Whiting, 2008); however, the interviews were 30-60 minutes long. The interviews were recorded using a suitable online application contingent on consent from participants. In the cases where participants consented and were comfortable, the video session was recorded. Recording the interviews allows the interviewer to be less distracted by note-taking and focus on interacting with participants (Whiting, 2008). It is vital for verbatim transcription, which avoids bias and allows for permanent records. A pilot interview was not conducted; however, it would have allowed a check of timing and clarity and for adjustments to be made for the remaining interviews (Gill et al., 2008).

3.7 Data analysis and interpretation

The qualitative data analysis procedures that were followed was thematic analysis and qualitative content analysis. According to Braun and Clarke (2006), thematic analysis is

a common form of qualitative research data analysis and a foundational method which researchers should begin with as it provides core skills for other types of qualitative research. It is a method within which themes are identified, analysed and reported within the data gathered and analysed, and it provides flexibility (Braun & Clarke, 2006). Furthermore, it is an interpretive process that helps organise the data in rich detail and interpret various aspects of the topic (Braun & Clarke, 2006; Smith & Firth, 2011). Qualitative content analysis on the hand is described as a research approach used for the description and interpretation of data from text (Assarroudi et al., 2018) by analysing words and phrases (Colorafi & Evans, 2016). It is suitable for use with a variety of data, including but not limited to interviews, literature reviews, diaries and web sites (Margrit Schreier, 2012). In this study content analysis was used to integrate the findings from the literature review with the findings from the thematic analysis. Considering all this, using thematic analysis and qualitative content analysis for this study was appropriate as they both allowed for the identification of key themes in the data and addressed the research questions. The six phases of thematic analysis, as described by Braun and Clarke (2006) in **Table 4**, were followed. However, to ensure that the analysis process was comprehensive, an additional step of categorisation was added. Categorisation followed coding in the steps Braun & Clarke (2006) outlined. The initial step of coding, known as open coding, was followed by axial coding, which refined and categorised the themes (Williams & Moser, 2019). Once codes were extracted from the transcripts using open and axial coding, they were grouped into categories per Saldana (2009) as an additional step to Braun and Clarke's (2006) use. This categorisation of the codes facilitated the next step, constructing themes to respond to each research question in turn. To conduct the coding process, the MAXQDA coding software was utilised. This program allowed for uploading the transcripts into one repository and enabled the coding of the transcripts. It ultimately provided a collated coding document with all the referenced text from the individual transcripts.

Table 4: Phases of thematic analysis (Braun & Clarke, 2006)

Phase	Description of the process
1. Familiarising yourself with your data	Transcribing, reading, and re-reading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.

3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing potential themes	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic “map” of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, 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 of the analysis to the research questions and literature, producing a scholarly report of the analysis.

3.8 Limitations of the study

- Non-purposive sampling does not lead to generalisable results; however, it is not the purpose of qualitative research to be generalisable but rather to generate or propose theoretical propositions from a small expert sample that may be tested elsewhere for generalisability (Mazonde & Carmichael, 2020).
- As interviews are conducted face-to-face online, it did not allow for the anonymity of participants, and this may have affected the level of honesty when answering questions. Participants were reassured of confidentiality and asked probing questions to try solving for this.
- The participants are leaders in the sector and may be responsible for ensuring transformation or formulating transformation strategies, and so may be inclined to provide positive answers.

3.9 Trustworthiness

In qualitative research, the quality or rigour of the research design is assessed by considering its trustworthiness. It is concerned with how applicable it is to the population or similar contexts (Lincoln & Guba, 1986). Ensuring the quality of conducting and reporting research can be challenging for researchers (Cope, 2014). Lincoln and Guba (1986) introduced the criteria for determining the trustworthiness of qualitative research design (Cope, 2014; Morse, 2015). Lincoln and Guba (1986) determined that the criteria to assess trustworthiness for qualitative research are *transferability*, *credibility*, *dependability*, and *confirmability*. It differs from the criteria for quantitative research design, which considers the validity, generalisability, reliability, and objectivity of the

research, which are unsuitable for checking the quality of qualitative research (Korstjens & Moser, 2018).

3.9.1 Transferability

Transferability is about providing sufficient information on the context, population specifications, and sampling criteria to enable other researchers to carefully select based on similarity (Cope, 2014) to their context setting by making a 'transferability judgement' (Korstjens & Moser, 2018). Transferability considers the applicability of the research to similar contexts (Lincoln & Guba, 1986) and is the equivalent of generalisability in quantitative research (Connelly, 2016). Transferability can be achieved once the target audience can resonate with the findings' detailed description and connect it to their experiences and contexts (Tracy, 2010). To ensure transferability, all the research was recorded and transcribed to capture the rich, detailed descriptions (Amankwaa, 2016) and was written in a manner that is accessible to the audience (Tracy, 2010).

3.9.2 Credibility

Credibility refers to confidence in the truth of the findings and their interpretation and representation (Cope, 2014) and is considered an essential criterion (Connelly, 2016). It is the equivalent of internal validity in quantitative research (Connelly, 2016; Korstjens & Moser, 2018). It concerns the trustworthiness and plausibility of the findings informed by the research design, subjects, and context (Lincoln & Guba, 1986; Tracy, 2010). Credibility was enhanced in this research by ensuring clear data descriptions (Cope, 2014). The interviews were recorded and transcribed to ensure accuracy (Amankwaa, 2016). To ensure credibility in this study, strategies from Lincoln and Guba (1986), such as using interviews and field notes; and getting participants to check transcripts for accuracy of meaning, were used. In addition, the participants were asked to check the final report to ensure that their thoughts had been correctly interpreted and integrated fairly into the findings. The participants were welcome to provide feedback and thoughts on the findings in the report if they wanted to and all participants approved of the final report and its findings and conclusions.

3.9.3 Dependability

Dependability is the qualitative research equivalent of reliability in quantitative research (Connelly, 2016) and is achieved if other researchers agree with the decision trials of the

research process (Cope, 2014). Dependability refers to how consistent and replicable the research findings are with similar subjects and contexts (Lincoln & Guba, 1986) and is concerned with the stability of the findings over time (Anney, 2014; Connelly, 2016). To ensure dependability in this study, the transcripts were checked for errors by the researcher and the participants; this minimised the chances of misinterpretation (Maxwell, 2008) and allowed for accurate reporting of the interview data. Furthermore, participants were allowed to evaluate the interpretation and recommendations of the research to ensure that it reflects the data provided (Korstjens & Moser, 2018).

3.9.4 Confirmability

Confirmability considers the degree of neutrality or objectivity of the research findings and refers to the extent the findings are influenced by the participants and not by the researchers' bias (Lincoln & Guba, 1986). Confirmability is akin to objectivity in quantitative research (Lincoln & Guba, 1986). It is concerned with the genuineness of the participants' personal views and not the researcher's biases or viewpoints (Cope, 2014). To ensure confirmability in this study, the transcribed findings were shared with the participants to ensure accuracy (Amankwaa, 2016); in addition, conclusions and interpretations from the findings are supported by direct rich quotes from the data to illustrate themes. A research journal with detailed notes of the analysis and decisions during the data collection process will be maintained (Connelly, 2016).

3.10 Ethical considerations

3.10.1 Data collection

Data were obtained on the participants' gender, age range, and the number of years of work experience at the level assessed in the research, i.e., senior management levels. The research requires knowing the gender as perspectives were gleaned from both male and female perspectives. The age range shows how long it takes women to reach higher levels of seniority and if it is like men. The participants were also asked about their sector, as the focus is on industries related to the energy sector or work centred around energy example, energy consulting. Demographics were age range and gender as described above. Names are not included in the studies, and specific names of organisations are also kept anonymous.

3.10.2 Risk to the individual participants

The risk presented by this research to the participants is low. Based on the risk categorisation, low risk can be classified as “the only foreseeable risk is one of discomfort where the questions posed will be around people’s lives, activities, and opinions. Information will be personal to the individual and may include a recall of past events” (WBS GBS Administration, 2021).

3.10.3 Confidentiality and Anonymity

Consent was obtained from the research participants using formal consent forms, which each participant filled in and signed before any interview was conducted. The identity of the participants was known to the researcher, and the individual identities of the participants were identifiable in the raw data. Individual data was not shared with other participants; only the participant themselves was privy to the transcribed data. The participants were informed that although 100% confidentiality and anonymity cannot be guaranteed, the researcher would ensure that the data in the final report is not attributable to any individual or linked to any organisation in any way, shape, form, or manner. Where descriptions are needed, pseudonyms or codes were utilised. Further, the participants were given the final write-up to gauge whether their responses could be recognised as their own.

3.10.4 Protection of data

During the research process, data is protected by storing it on a password-protected computer and password-protected cloud in case the physical device is compromised. Microsoft OneDrive cloud services are being used to store information and analysis. When the transcripts were shared with the participants, it was on their email of choice that the share was secure. For data storage upon project completion, consent was obtained to store the data for future analysis for a period not exceeding five years on a password-protected computer, provided the data is appropriately anonymised.

Table 5: Consistency table: research questions, propositions, data collection and data analysis

RQ #	State Research Question	Prop/hyp #	State Proposition	Data collection detail	Data analysis method
1	What are the specific characteristics of female leadership that have impacted the success of organisations in the energy sector?	1	Female leadership qualities such as empathy, perseverance, flexibility, motivation, participative and interacting with subordinates positively impact organisations	Interview guide question Female leaders: 6-9 Male leaders: 6-9	To test this proposition, thematic and content analysis will be conducted. Through the analysis, the main characteristics should be highlighted, as well as how the respondents experience their impact on organisations.
2	What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?	2	The enablers for female energy leaders' progression include family support, work-life integration, coaching, mentorship, sponsorship, networking, and individual factors.	Interview guide question Female leaders: 10-16 Male leaders: 10-14	To test this proposition, thematic and content analysis will be conducted. Through the analysis, the main enablers should be highlighted, and how the respondents experience their impact on female leadership progression.
3	What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?	3	The constraints for women to progress to senior leadership positions include gender stereotyping, organisational culture, lack of relevant development opportunities, and lack of sponsorship, mentoring and internal support.	Interview guide question Female leaders: 17-22 Male leaders: 15-19	To test this proposition, thematic and content analysis will be conducted. Through the analysis, the main constraints should be highlighted, and how the respondents experience their impact on female leadership progression.

CHAPTER 4. FINDINGS AND DISCUSSION

4.1 Introduction

In this chapter, the findings of this study are presented and discussed. This study aimed to identify the key enablers and constraints for females in their career progression into leadership positions in the energy sector in South Africa. Furthermore, the study aimed to highlight the specific characteristics of female leadership that may lead to better performing organisations. The chapter consolidates and discusses the qualitative data gathered from the fifteen semi-structured interviews with eight women and seven men to provide a more nuanced, gendered perspective to the study.

The findings presented address the following research questions:

Research question 1: *What are the specific characteristics of female leadership that have impacted the success of organisations in the energy sector?*

Research question 2: *What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?*

Research question 3: *What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?*

Interview responses from the participants captured in the transcripts are used to support the findings. Participants' names and organisations are omitted to protect their identity. Female participant quotations are all FP# and all the male participant quotes are MP#.

4.2 Demographic profile of participants

Demographic information was collected through the consent form, as well as through the interview questions. The demographic data were collected to understand the context of the type of leaders being interviewed and to glean the similarities and differences between the genders. **Table 6** provides context into the types of leaders interviewed and illustrates that all the participants were eligible to be interviewed based on their industry experience and experience as leaders.

Table 6: Participant details

#	Gender	Marital status	Children (Yes/No)	Highest qualification (Type)	Industry experience (Years)	Senior leadership experience (Years)
1	Female	Divorced	No	MBA	>15	>15
2	Female	Single	No	MBA	5-10	>15
3	Female	Single	No	Masters	>15	>15
4	Female	Divorced	Yes	PhD	5-10	5-10
5	Female	Long-term relationship	Yes	Undergrad	11-15	5-10
6	Female	Divorced	Yes	Masters	11-15	11-15
7	Female	Married	Yes	Masters	>15	11-15
8	Female	Divorced/ Long-term relationship	Yes	MBA	>15	>15
9	Male	Married	Yes	Masters	>15	>15
10	Male	Married	Yes	Masters	>15	10-11
11	Male	Married	Yes	PhD	>15	10-15
12	Male	Married	Yes	MBA	10-15	>15
13	Male	Married	Yes	Masters	>15	10-15
14	Male	Married	Yes	Undergrad	>15	>15
15	Male	Married	Yes	Masters	10-15	>15

Regarding marital status and children, according to Buse et al. (2013), female engineers who persisted in their professions had fewer children and were less likely to be married. All the male participants highlighted the value of having supportive spouses and that they believe that it was a key factor to their success. Whereas the female participants had mixed experiences when it comes to the presence of a supportive partner, they did highlight however that having a supportive partner was indeed important.

Regarding formal qualifications, most male and female leaders had postgraduate qualifications, with three women having MBAs, compared to only one man having an MBA. This finding may correlate with findings by Chinyamurindi (2016) and Cimirotić et al. (2017) that women tend to need higher qualifications to get into senior leadership positions. Furthermore, Kobus-Olawale et al. (2021) states that knowledge and competence play a more prominent role in women's promotions than men's. According to Frail (2012), being a top performer is recognised as the bare minimum for entry to leadership positions for women. Some of the female and male participants highlighted that getting their post graduate qualifications, especially early on in their careers was a key enabler for their progression.

4.3 Results and discussion pertaining to RQ 1 – Female Leadership Characteristics

The first research question is, "*What are the specific characteristics of female leadership that have impacted the success of organisations in the energy sector?*". This analysis aims to understand if female leadership characteristics contribute to better performance in energy sector organisations. The main reason for exploring this was to assess if the energy sector could benefit from increased representation of women.

For this question, participants of both genders were asked about the following:

- *Ideal leadership characteristics* – these refer to characteristics all leaders should ideally possess.
- *Female leadership characteristics* – these refer to characteristics associated with female leadership. Participants were also asked to describe their leadership characteristics; however, only the female participants' responses have been included in this analysis.
- *Energy sector leadership characteristics* refer to characteristics they thought would suit the energy sector.

Lastly, they were asked about what they thought had been the impact of leaders on the energy sector and what benefits may arise from increased diversity in organisations. Chronologically, inclusion; systemic, integrated and design thinking; soft traits; and being visionary were the characteristics most commonly valued among the female participants. For the male participants, these were soft traits; understanding individuals and their circumstances; being visionary; inclusion; and giving opportunities to the team.

On the following page, **Figure 7** summarises the characteristics valued by both female (F) and male (M) participants grouped into characteristic themes. The summary indicates which gender valued which characteristics in the different categories based on frequency of occurrence (Low, Medium, or High), which is depicted in shades of green with the lightest shade being Low, the slightly darker shade being Medium and the darkest shade being High. The key to the figure is provided at the bottom of the figure. In the following section, the main characteristics of these themes will be further detailed as per **Figure 7**; the themes are discussed chronologically from the highest frequency (Characteristic Theme 1) to the lowest (Characteristic Theme 8).

Figure 7: Leadership characteristics identified by the participants

		CATEGORIES								
Leadership characteristics	Characteristics theme	Characteristics	Ideal characteristics		Female leadership characteristics		Female participants characteristics		Energy sector leadership characteristics	
			Female	Male	Female	Male	Female	Male	Female	Male
	1. People-centric, teamwork, collaboration & inclusion	• Inclusion • Collaboration, co-creation; consultation and learning from others • Engaging, connecting people and building trust-based relationships • Understanding individuals and their circumstances	L	M	M	M	H	n/a	L	
			H	M	H		H	n/a	L	L
			L		L	L		n/a	L	L
			M		L	M		n/a		H
	2. Possessing and displaying soft traits	• Soft traits – vulnerability, intuition, patience, nurturing, caring, compassion, sympathy, empathy • Emotional intelligence	M	L	H	H	H	n/a		M
			M	L	M	L	L	n/a	L	L
	3. Developing and empowering others	• Give team opportunities and credit • Sponsoring, mentoring, coaching & guiding	H	M	L			n/a		L
					L	L	H	n/a		
	4. Long-term visionary and systemic thinking	• Visionary • Systemic, integrated & design thinking	L	M	M	L	L	n/a	L	M
			H		L	L	L	n/a	H	
	5. Performance driven, role ownership and understand the business	• Actively achieving targets, focus on delivery/outcomes • High performing environment	L	L	L	L	H	n/a		
					L	L	H	n/a	L	L
	6. Good problem solving and decision-making ability	• Problem solving • Decisiveness	M		M		M	n/a	L	L
			L	L		L	L	n/a	L	L
	7. Effective communication	• Effective and open communication/good listening	M		L	L	M	n/a		L
	8. Ethical and principled	• Accountability & transparency • Standing for values that benefit all/socially conscious	L	L	M		L	n/a		L
		L		L	L		n/a	M	L	
			Occurrence: None Low Moderate High							

4.3.1 Characteristic theme 1: People-centric, teamwork, collaboration and inclusion

There was consensus that leaders with characteristics that focus on people were better leaders. This characteristic theme concerned leaders putting people first and not being individualistic. The theme speaks to elements such as fostering teamwork, being collaborative and inclusive of others and their contributions.

a. Inclusion

Inclusion was highlighted by several female participants, with an emphasis on taking others along on the journey. It was also a characteristic that the female participants had, and they identified as being present in female leadership. Kark et al. (2012) and Radovic Markovic, Salamzadeh, and Razavi (2013) describe the female leadership style as participative – encouraging employee involvement. Abdulrahman and Amoush (2020) describe the female leadership style as inclusive, commenting on how it was more conducive to the needs of the new economy. Similarly, the male participants believed leaders should be inclusive and promote equality in their teams. Female leadership was identified as inclusive by some of the male participants. MP2 and MP6 emphasised that they prefer working with women because they foster a better team environment. Kaiser and Wallace (2016) state that women's leadership style makes them better at working with people and fostering a cooperative environment. The findings of this study are consistent with literature in illustrating the importance of inclusion in female leadership.

Participant quotes
<i>"...I have learned over the years also that how to take people along with you and especially in strategy, the inclusion side of things." ~ FP3</i>
<i>"Number two, inclusivity is extremely important. So even the person who does not talk the most, who's not an extrovert, actually has an opinion. And it's important to have an environment where those people belong such that every once in a while, they can share whatever they're thinking or what their viewpoint is." ~ FP7</i>
<i>"Also be careful, at least in my case, <u>not to climb up on top of others but with others</u>, so you're actually more successful over time if you build good teams." ~ MP1</i>
<i>"I think underpinning that then is the different shades around how we go about the execution ... the various, I will say, linked to the behaviours is also the principles, so what the guiding principles are, respect for each other and things like that, you have to have respect, you have to think about being equal, one team, and all those things." ~ MP5</i>

b. Collaboration, co-creation; consultation; and learning from others

The participants were aligned on the value of collaboration, co-creation, consulting and deliberating with others. Leaders should also be able to learn from others and be open to being challenged. These were characteristics aligned with the female participants' leadership style and was a characteristic they deemed was shown in female leadership and needed in the energy sector. The male participants did not specify that these were necessarily female characteristics. In their study, Ross-Smith, Chesterman, and Peters (2004) illustrated that female leadership was perceived as collaborative and highlighted the preference for female leaders to consult and deliberate with others. Offermann and Foley (2020) discuss how the shift in organisational environments from "command-and-control" to more collaborative and teamwork-focused may result in rising demand for female leaders. This study's findings show that although the participants highlighted these characteristics as valuable in leaders, they commented that they could get in the way of decision-making.

Participant quotes
<i>"But I think in general women do tend to be more collaborative." ~ FP3</i> <i>"...you have to consult, especially being in strategy and sustainability, you have to consult lots of people in the organisation, and they have to trust you..." ~ FP3</i>
<i>"...what I tend to see in the boards that I'm sitting on is that women are a lot more able to get consensus and have a discussion." ~ FP8</i>
<i>"...it's about engaging the experts around you including, in inverted commas, below you. And I mean a lot of people write about this stuff but it's really not easy to do. Where you are comfortable in what you know and what you don't know and what you not best at. To embrace ideas and to create an environment where ideas are good, even the bad ones." ~ MP7</i>
<i>"For me, I believe in consultative leadership where leaders are able to get the opinions of different people and to shape their decisions." ~ MP2</i>

c. Engaging, connecting people and building trust-based relationships

These characteristics involve a leader's ability to connect people, build teams and maintain trust-based relationships. The female participants recognised these characteristics in all the categories. However, they did not highlight it as a characteristic they necessarily possess themselves. Stanford, Oates, and Flores (1995) heuristic

model of leadership shows that the team-based management approach of female leaders fosters relationships based on mutual trust and respect. The male participants also recognised these characteristics as components of female leadership and necessary for energy sector leaders. According to Kobus-Olawale et al. (2021), good people skills are crucial for effective leadership. Furthermore, De La Rey (2005) and Greenberg and Sweeney (2005) state that women have better interpersonal skills. The study findings are consistent with literature regarding people skills being a female leadership characteristic. However, the finding also emphasises its' importance in leadership.

Participant quotes
<i>"Then I think being personable is very important, to be able to engage everyone within your organisation, from the cleaner to your direct reports, in an authentic enough way that people feel they can trust you and talk to you." ~ FP6</i>
<i>"And the biggest difference she did, and this is where the difference is, it was a multi... we pretty much involved the whole organisation, different people at different levels from very, very junior staff to very senior and at every one of the engagements or the project planning she made sure that she personally connected with each person who was involved, explained their roles, why it's important, explained the timeline and how we need to deliver this and she got the best out of everyone." ~ MP5</i>

d. Understanding individuals and their circumstances

Leaders who understand teams at an individual level, their circumstances, accepting and supporting them, was highlighted as ideal leadership characteristics. Female participants highlighted that some of them had this characteristic. However, they did not highlight it as a general female leadership characteristic or a key for energy leaders. There were similar sentiments among the female participants around supporting employees through challenging their personal situations. The male participants did recognise this as a female leadership characteristic and necessary in energy leaders. Koenig, Eagly, Mitchell, and Ristikari (2011) concluded that contemporary leadership incorporates more feminine relational qualities such as sensitivity, warmth, and understanding. Offermann and Foley (2020) state these qualities are more consistent with women. This finding is supported by Abdulrahman and Amoush (2020), who states that the soft, understanding, and cooperative approach is favoured in female leadership. The study findings corroborate the literature and show that female leaders are recognised by themselves and their male counterparts as more understanding of their teams' individuals. Interestingly, although the women believed they possessed this characteristic, they did

not emphasise it as a female leadership characteristic. In contrast, the male participants thought it would be valuable for energy sector leaders.

Participant quotes
<i>"When it comes to issues around family, I'm extremely soft on that, so your child is sick or you're working from home, all those things, or you're working from Sun City from the boot of your car?" ~ FP7</i>
<i>"I mean, apart from what women bring as, you know, a bit more appreciation of the individuals and some of the softer things that are so important." ~ MP7</i>

This study identified several other characteristics under this theme. Female participants also highlighted being accessible and being able to serve others. Male participants also highlighted the ability to inspire teams, get the best out of the team, and create an environment that is not too punitive and fosters experimentation.

4.3.2 Characteristic theme 2: Possessing and displaying soft traits

This theme centred around soft traits such as; vulnerability, intuition, patience, nurturing, caring, humility, compassion, sympathy, and empathy. It also included emotional intelligence, which encompassed the ability of leaders to navigate their own emotions and others. Both genders agreed that soft traits and emotional intelligence were valuable in leadership for all the categories assessed.

a. Soft traits

Soft traits were valued leadership characteristics highlighted by both genders. Participants mentioned that these were not exclusive to one gender but were more pronounced in female leadership. Alonso-Almeida et al. (2017) illustrate that female and male leadership styles tend to be dual, wherein a combination of leadership styles is portrayed regardless of gender – with females displaying more dual-communal styles, which has a higher propensity for characteristics such as helpfulness, kindness, and empathy, see **Table 1**. Radovic Markovic et al. (2013) also state that female leadership is more correlated with communal characteristics which are concerned with the welfare of others. The female participants also had this characteristic. Ross-Smith et al. (2004) state that the women in their study believed that emotional investment in staff resulted in loyalty – but that this could pose a challenge if personal staff problems became an issue. The male participants were emphatic on the importance of soft traits in leadership. They recognised that female leaders possessed abundant soft traits – particularly empathy, intuition and motherly, nurturing instincts which gave them a leadership style that they

felt suited to the energy sector. In their research, Esser et al. (2018) interviewed male participants, who concur that they perceive women as more empathetic, but not exclusively so. The findings of this study are consistent with the literature regarding soft traits being more pronounced in female leadership. Furthermore, the study emphasises the need for soft leadership traits, which could benefit the energy sector.

Participant quotes
<i>"And I'm not putting women in the category of being emotional, but I think women's intuitive abilities and gut feel and empathy, to put themselves into emotional and social situations is much greater than that of men." ~ FP1</i>
<i>"That shows you that we have lacked this maternal outlook in our society and in our way of doing business for far too long. So, the challenge is that it's not that we are physically equal, is that <u>our differences make us a stronger combination</u>." ~ FP2</i>
<i>"But I think the motherly instinct tends to drive towards this ability to really understand people and empathise and sympathise with people." ~ MP5</i> <i>"So, for me what I take out of it is that people, you can say I care, it's one thing to say what you want to say, but more importantly, it's how you make them feel that matters more." ~MP5</i>
<i>"I think women are more likely to be more empathetic, which is one of the reasons that I work with them, because that's a very important leadership quality that I value." ~ MP2</i>

b. Emotional intelligence

Emotional intelligence, defined by Northouse (2019, p. 28) as the *"ability to understand emotions and apply this understanding to life's tasks"* was highlighted as a characteristic leaders should possess to be able to manage their teams well, this was the case across all the leadership categories for both genders. Female participants indicated that it was a characteristic they had. In the study by Ross-Smith et al. (2004), participants described female leaders as emotionally intelligent. The female participants felt that women were better at channelling their emotions, noting that men expressed emotions differently. This study is supported by Bynum (2000) example of dominance in men and was a sentiment the male participants echoed. Goleman (1998, p. 93) states that *"IQ and technical skills are important, but emotional intelligence is the sine qua non² of leadership."* Furthermore, women need high emotional intelligence to successfully navigate male-dominated sectors to deal with gender stereotypes and biases (Kobus-Olawale et al., 2021). This

² "Something absolutely indispensable or essential" Merriam Webster Dictionary definition

study finding is consistent with literature and emphasises the value of emotional intelligence in energy sector leaders.

Participant quotes
<i>"But I think business is now also transiting to being a little bit more cognisant of the emotional intelligence that sits behind decision-making." ~ FP1</i>
<i>"I think we need a fusion of leaders and for me, so this is where I think personally, I will say women have an upper hand with that. Naturally women have emotional intelligence in general, there are instances where maybe you do have one or two, and it could be environment that are forcing them otherwise." ~ MP5</i>

4.3.3 Characteristic theme 3: Developing and empowering others

This characteristic theme refers to the ability to develop and empower teams by providing growth opportunities and being comfortable enough to let the spotlight shine on teams. This characteristic is correlated with transformational leadership wherein Bass (1985, p.20) describes the transformational leader as *"one who motivates us to do more than we originally expected to do"*. Secondly, this theme speaks to the different ways of supporting their teams through sponsorship, mentorship, and coaching.

a. Give team opportunities to grow and credit

In Cheung & Halpern (2010), the women they studied emphasised the empowerment of others. Their research is supported by Kark et al. (2012), who state that stereotypical female leadership is associated with the empowerment of followers. The female participants highlighted this as an ideal characteristic and a female leadership characteristic. The male participants also valued this characteristic as ideal and that the energy sector could benefit from this characteristic in leaders. The participants believed good leaders could credit others and let the limelight shine on their team members. The study findings corroborate the literature on female leadership having an element of empowerment of others and that this characteristic was ideal in leaders overall. The study findings also highlight that this would be a valuable characteristic for leaders in the energy sector.

Participant quotes
<i>"I think the ability to support other people to shine. I think if I look at the people that I would think back on and admire as leaders are the people that don't take credit for things, it's about their team and it's about ensuring that everybody succeeds rather than just wanting to be the face of everything, I think." ~ FP8</i>
<i>"...working hard to make sure you're giving those people opportunities and celebrating them when they step into those opportunities and take those opportunities. Building the team around you also has the element of am I truly investing in apprenticing these people and growing them?" ~ MP2</i>

b. Sponsoring, mentoring, coaching, and guiding

The participants were aligned on the value of leaders providing this for teams and that they did this for their teams. Ross-Smith et al. (2004) state that women were seen to be committed to developing staff and that one man in their research saw this as a critical impact of female senior managers. Esser et al. (2018, p.150) stated, *"One candidate explicitly pointed out that both men and women do challenge others, but that female leaders would be more instinctive at developing and mentoring others than their male colleagues"*. The female participants highlighted that they provide this for other women. The findings align with what the literature shows on the value of coaching, mentoring, sponsoring and guiding teams for good leaders, and the leaders, both male and female, highlighted this as a characteristic they valued and displayed.

Participant quotes
<i>"Which is about ensuring that everyone has shared access to information and ensuring that I'm coaching and guiding people towards delivering." ~ FP6</i>
<i>"So be an example for women who are wanting to enter the industry, look at opportunities to bring women into the industry." ~ FP5</i>
<i>"I'm thinking of specific women leaders. Whether it's someone like **** who I see as a leader, or someone like ****, who I see as a leader, both of them work hard to try and pull up the next generation of people and they invest and coach and develop..." ~ MP2</i>
<i>"I impart let's call it certain lessons learned and I'm hoping that through that they acknowledge that, and they actually implement it." ~ MP6</i>

4.3.4 Characteristic theme 4: Long-term visionary and systemic thinking

This characteristic theme refers to leaders' ability to have a vision for their organisation and the energy sector. Leaders should be able to develop a vision with input from others and do all this with an understanding of the complexities of the energy sector, especially

in the current market context where technology is evolving, and climate change considerations impact decision-making.

a. Visionary

The female participants highlighted this characteristic as key across all categories and that female leaders, including themselves, were good at being visionaries – especially developing long-term visions. This finding is supported by research by Bynum (2000), where vision setting was highlighted as one of the principal characteristics of female leaders. The ability to set long-term visions was highlighted as necessary for the energy sector, wherein decisions are made years before implementation. The female participants viewed male leaders as more short-term visionaries, having a more immediate impact. The male leaders value visionary leaders that can steer organisations, and this was a vital characteristic needed in the energy sector. Although the participants highlighted vision setting as a characteristic of female leadership, Ibarra and Obodaru (2009) state that women are less visionary than men. However, one of the aspects of transformational leadership is being a visionary and strategy setting (Shung-King et al., 2018). The findings emerged that female leaders view themselves as long-term visionaries, which can complement the long-term planning and project implementation of the energy sector, and that male leaders were good at setting shorter-term visions that had an immediate impact.

Participant quotes
<i>"I think females are far better listeners than men. I think they have the ability to drive results quite hard when they are clear. I think they're able to have far longer-term visions, and they will understand what it's going to take to get there. ~ FP7</i>
<i>"Very much visionary because unfortunately, it's a long-term game, and therefore you've got to imagine the future that you want the country to have." ~ FP4</i>
<i>"I think in many cases women have a tougher time getting to these levels, and so they're also going to be more decisive, probably more visionary and more able to drive to get things done." ~ MP2</i>
<i>"That's probably the kind of leader that I think one would need; it is that visionary, not the operational guy. It cannot be someone who continues to extinguish fires on a daily basis; it cannot. You need to be able to step above that." ~ MP6</i>

b. Systemic, integrated design thinking

The female participants valued these characteristics across all categories. Furthermore, they believed that the energy sector needed leaders who could have a holistic view of the challenges and adapt their thinking to the problems. Abdulrahman and Amoush

(2020, p. 46) highlight the need to move away from traditional “*old box ideas by males*” and allow for diversity which allows for innovative thinking. The findings are consistent with research by Esser et al. (2018), which states that reviewing existing processes critically, sourcing different options and having holistic thinking were associated with feminine characteristics as the female participants believed women could connect the dots and bring a more integrated thinking approach. This characteristic was not mentioned by the male participants explicitly; MP5 described how this materialised practically. This finding supports the idea that the energy sector could benefit from an increase in female leadership due to the complex nature of the sector and the need for newer perspectives and approaches to problems.

Participant quotes
<i>“We need a systems thinker who can help unpack how the current construct of the energy system, which elements are suboptimal or counterintuitive or counterproductive, which levers, which incentives, whatever it is.” ~ FP6</i> <i>“So, we need someone who can step out of the box and think broadly and systemically around issues, because energy touches almost every single sector. It’s industrial, it’s fiscal, it’s environmental, gosh, it’s public sector, private sector.” ~ FP6</i>
<i>“...but the coordination, she played the role of bringing it all together, holding the overviews, this is what we’re trying to achieve, this is the big picture, who are the people I need and pre-engaging them before the time that she needs to understand, and we turned it around, but I think to the point that you can achieve a lot more because I think that understanding of what does everyone bring, how do I bring them in, it’s what makes them understand how to go around solving the problem.”~ MP5</i>

4.3.5 Characteristic theme 5: Performance driven, role ownership and understanding the business

This theme refers to how leaders should be focused on delivering on their projects, producing high quality, and owning their part in project execution.

a. Focus on delivery and outcomes

The female participants valued this characteristic in leaders but did not highlight it as an energy leader characteristic. Most of the female participants believed they had a high focus on project delivery and achieving targets; they also believed women work harder. Farrell (2005) states that women who are high performers always work hard to address challenges presented by the glass ceiling. The male participants also viewed this as a relevant leadership characteristic but did not emphasise its value as much as the female

participants. Barsh and Yee (2012) and Gipson et al. (2017) describe feminine leadership as having: a relentless work ethic, possession of an outcomes-based orientation; perseverance driving them to beat the odds; feedback and engaging with their teams; humility; a desire to empower, motivate and inspire their teams and through this leading purposefully to improve their team's performance. The findings were consistent with the literature on female leadership.

Participant quotes
<i>"The women just deliver and say, please sign this off. So, I think it will completely change the ball game once you've gotten more women because women tend to work, in my view, a lot harder, a lot smarter, be a lot more synergised, be a lot more accountable and be a lot more willing to do more." ~ FP6</i>
<i>"But then I also believe that there needs to be decisive leadership, so consultative first but then decisive next, which I think is important, so that once you've consulted, you decide, and then you execute." ~ MP2</i>
<i>"I think in many cases women have a tougher time getting to these levels, and so they're also going to be more decisive, probably more visionary and more able to drive to get things done." ~ MP2</i>

b. High-performing environment

As leaders, the female participants believed they had very high expectations of their teams – pursuing excellence at all times, with FP8 saying her team described her as “demanding” and FP5 stating that she is a “perfectionist”. Although being demanding is typically associated with male leadership (Bynum, 2000), according to a study by Kaiser and Wallace (2016), women were described as having a more forceful-operational style where one of the characteristics was being demanding. FP7 also mentioned that she could be punitive to her team in instances of non-delivery. The male participants did not heavily focus on this characteristic. However, one of the male participants stated they had seen a female leader push for high performance and set high standards for teams while creating a knowledge transfer environment. Leaders who can foster environments where teams have high levels of effort and performance through buy-in and collaboration are transformational leaders (Offermann & Foley, 2020). The findings showed that although the prevailing idea in the literature on female leadership is generally associated with how communal female leaders tend to be, they have high standards for their teams and can drive their teams just as hard as male leaders.

Participant quotes
<i>"I also believe in excellence, pursuit of excellence, and I expect my teams to pursue excellence, so in everything that's done, anything that's half-baked I send back and I'm like guys, you can't be serious, this is taxpayer money, are you serious, are you serious you've spent your tax on this?" ~ FP6</i>
<i>"Power station manager in the midst of major power failures and whatnot and she was in some senior position, and she gets there, and this guy is in his white slacks, 10:00 o'clock in the morning, basically so what's going on the plant? Knowing that he knows diddly squat because he hasn't been there. And she was hugely critical and demanded of her subordinates that they were prepared to pay their dues at the same time of the older guys being prepared to be open and vulnerable and share information." ~ MP7</i>

4.3.6 Characteristic theme 6: Good problem-solving and decision-making ability

This theme refers to the ability of leaders to solve problems in their organisations and be decisive in their decision-making.

a. Problem-solving

The female participants highly valued problem-solving across most categories; however, it was not highlighted for the energy sector. Only MP1 highlighted problem-solving as key for energy sector leaders. The other male participants noted that diversity was key for rigorous problem-solving in general. The female participants also agreed that a benefit of diversity was better problem-solving and superior solutions because of the benefit of different perspectives. Sadinova (2021) states that it is evident that having more women in management leads to increased diversity which results in more innovative problem-solving and decision-making, contributing to better-performing organisations. The findings support the literature on increasing diversity being a key driver for more innovative problem-solving and solutions, which will benefit the evolving nature of the energy sector.

Participant quotes
<i>"So, when we talk about traits, yes, we are talking about being creative, critical thinking skills or aptitudes, means that you have no affinity with any particular way of doing things, but you pursue the most superior solution to any given context." ~ FP2</i>
<i>"I like the dynamic, the male/female dynamic, I think we are predisposed to look at things differently and I think that women bring a different perspective in terms of solutions and have different insights." ~ FP5</i>

"It's like a leader will experience, you're moving forward but you're stuck in this quick-dry cement. It will be a struggle, but you need to be able to delve through those challenges, find those innovative solutions."~ MP6

"They in a way translate that into solving a problem and they learn to call on each other's strengths. If you just have the same people with the same characteristics and mindsets, there will be a problem which needs a new angle and none of them will think about you because they're all thinking the same, you might as well just have hired one rather than the 10." ~ MP1

b. Decisiveness

Female participants had mixed views on female abilities to be decisive. FP7 commented that although females tended to take their time to arrive at decisions, this time was used to consider the repercussions of the decisions. Literature indicates that women practice more participative and consultative decision-making (De La Rey, 2005; Ross-Smith et al., 2004; Wille et al., 2018). The male participants had differing views, with MP2 highlighting the complementarity of consultative and decisive leadership and that female leaders could be more decisive than male leaders. MP1 believed females could be less decisive than males, but that decisiveness only equates to good decisions if well thought out. This finding aligns with Gartzia and Van Engen (2012), as cited in Esser et al. (2018), that male leaders were more decisive. Decisiveness is a characteristic observed in good leaders – irrespective of gender (Offermann & Foley, 2020; Wille et al., 2018). The findings highlighted that women could be decisive when it comes down to the wire but preferred consultation and consensus, which can be detrimental to making a decision quicker. However, the main benefit is that all stakeholders would agree with the decision. The findings were consistent with the literature on female leadership having more consultative than male leaders in decision-making.

Participant quotes

"So, you often find that in a situation with a woman leader, they try to debate, discuss the issue, to come to a conclusive point. Whereas I think men tend to cut the argument short a lot quicker and become more decisive, and in as much as it's a positive trait it's also a negative trait because it sometimes demonstrates, it may be interpreted as a lack of ability to make a decision without massive consensus." ~ FP1

"That's when I started really seeing that my strength is really fixing stuff. Because I'd been in operations and maintenance, you need to make quick decisions, lead people, guide people, just making sure that you are still within the compliance and the rules." ~ FP7

<i>"But then I also believe that there needs to be decisive leadership, so consultative first but then decisive next, which I think is important, so that once you've consulted you decide and then you execute." ~ MP2</i> <i>"I think in many cases women have a tougher time getting to these levels, and so they're also going to be more decisive, probably more visionary and more able to drive to get things done." ~ MP2</i>
<i>"I think from the male side there is a bit more decisiveness, yes, I can see that as a male characteristic." ~ MP1</i>

4.3.7 Characteristic theme 7: Effective communication

This theme refers to leaders' ability to communicate well with their teams and stakeholders. Their ability to listen well and distil ideas for themselves and others into clear messages to get everyone on board for decisions and solutions.

a. Effective communication

The female participants valued this characteristic across all categories except energy leadership characteristics. It was a characteristic that they believed they had. Relational, effective communication and good listening skills are associated with female leadership (Esser et al., 2018; Hovden et al., 2011; Shung-King et al., 2018). Women leaders also value communication (Cheung & Halpern, 2010). The male participants believed that this characteristic would be suitable for energy leaders and that it was a female leadership characteristic. In a study by Esser et al. (2018), male leaders encouraged women in male-dominated industries to apply their feminine communication advantage while adapting to indirect masculine communication. The findings were consistent with the literature on female leadership and that leaders with good communication skills would benefit the energy sector.

4.3.8 Characteristic theme 8: Ethical and principled

This theme refers to leaders' ability to remain ethical and stick to their values and principles even in challenging environments. According to the literature, females have higher ethical standards and behave more ethically than men (Abdulrahman & Amoush, 2020; Kray et al., 2017; Offermann & Foley, 2020). The energy sector mainly requires leaders with a high moral agency to do the right thing for all parties and balance the needs and interests of all parties.

a. Accountability and transparency

The female participants highlighted accountability and transparency as ideal leadership characteristics and aligned with female leadership. The male participants did not emphasise this characteristic. However, they indicated that energy leaders should be people with high levels of accountability and transparency. The findings agree with the literature by Ross-Smith et al. (2004), where participants highlighted that women's collaborative leadership style makes decision-making more transparent.

Participant quotes
<i>"To take accountability. I think one of the things that I learned very quickly was that it's not okay if you don't say you don't know, sorry, it's okay if you say you don't know but it's not okay to sit and yet you don't know." ~ FP7</i>
<i>"I find women are a lot more accountable for their work, but the men tend to upward delegate their work." ~ FP6</i>
<i>"That are accountable for their actions and take ownership of things, and develop themselves and their staff, clarity of purpose." ~ MP3</i>
<i>"So, you must be absolutely open, transparent, honest and make sure people want to follow you and that you can only do by being compassionate and caring and authentic, and they can see through that." ~ MP4</i>

b. Standing for values that benefit all

Female participants indicated that leaders, especially within the energy sector, needed to put the needs of their organisation and South African society more broadly ahead of their interests. That there should be a service mindset within leadership – including socioeconomic considerations in decision-making. Abdulrahman and Amoush (2020) state that feminine leadership is correlated with values-based leadership. FP1 introduced the term "*conscious capitalism*", which speaks to how leaders could pursue capital gains for their organisation while considering the impact on society of their decisions. The values and attitudes of women may guide them to emphasise the public good (Eagly, 2020). The male participants highlighted this as a characteristic of female leadership and that energy leaders needed this characteristic. The findings are consistent with the literature that female leaders have values-based leadership, which the South African energy sector can benefit from considering its current state and challenges with corruption and state capture.

Participant quotes
<i>"Definitely this thing about not driving parochial interest. I think a much greater appreciation and interest in managing the consequences of decisions, whether short or long term." ~ FP1</i>

<i>"This critical and integrated ecosystem type thinking I think is the kind of leader that we need, and one that puts South Africa Inc. first above your own department or your own ability and your own personal thing." ~ FP3</i>
<i>"There is a bit of how does this impact people, they're more empathetic as well, and it's a sense of they're thinking not just about themselves but everyone, others around them, there's a bit more of that." ~ MP1</i>
<i>"Like the work that you're doing in the just energy transition space, it naturally wants a more empathetic, socially conscious mindset that I think comes more naturally to ladies." ~ MP3</i>

4.3.9 Conclusion of *female* leadership characteristics

This section addressed the research question *"What are the specific characteristics of female leadership that have impacted the success of organisations in the energy sector?"* and discussed the leadership characteristics of female leaders and how these align with ideal leadership characteristics and energy sector leadership characteristics required for South Africa. The participants in the study gave their point of view on this, with general alignment on the female leadership characteristics and ideal leadership characteristics – namely, being leaders should be people-centric, collaborative, participative, promote inclusivity, possess soft traits including a high level of emotional intelligence, and develop and empower others. These findings were consistent with the literature on female leadership characteristics such as inclusivity, collaboration, and empathy (Greenberg & Sweeney, 2005; Eagly & Carly, 2007; Abdulrahman & Amoush, 2020). In addition, female leadership characteristics included demanding high performance and perfectionism, this is supported by the findings of Barsh and Yee (2012) and Gibson et al. (2017) whose research found that female leadership characteristics included having a relentless work ethic and possessing an outcomes-based orientation. The findings also showed that female leadership characteristics such as their softer traits, emotional intelligence, long-term visions, integrated thinking, and values-based leadership would benefit the energy sector. Kark et al. (2012) and Desvaux et al. (2010) found that characteristics attributed to female leadership could benefit organisations and make them more effective.

Both genders were aligned on the value of diversity in teams and organisations more broadly. Although the leaders could not quantify female leadership's contribution to performance, they noted that there was a marked improvement in the performance of teams when the teams were more balanced. MP1 reflected on how there could be very little innovation without diversity by stating that 'there will be a problem which needs a new angle and none of them will think about it because they're all thinking the same, you

might as well just have hired one rather than the ten.’ MP2 agreed and thought little problem-solving innovation could come from being with people who look and think like him. The findings support the literature by Abdulrahman and Amoush (2020, p. 46), who state that “*diversity enhances decision making and allows for innovation and change*”.

4.4 Results and discussion pertaining to RQ 2 – Enablers

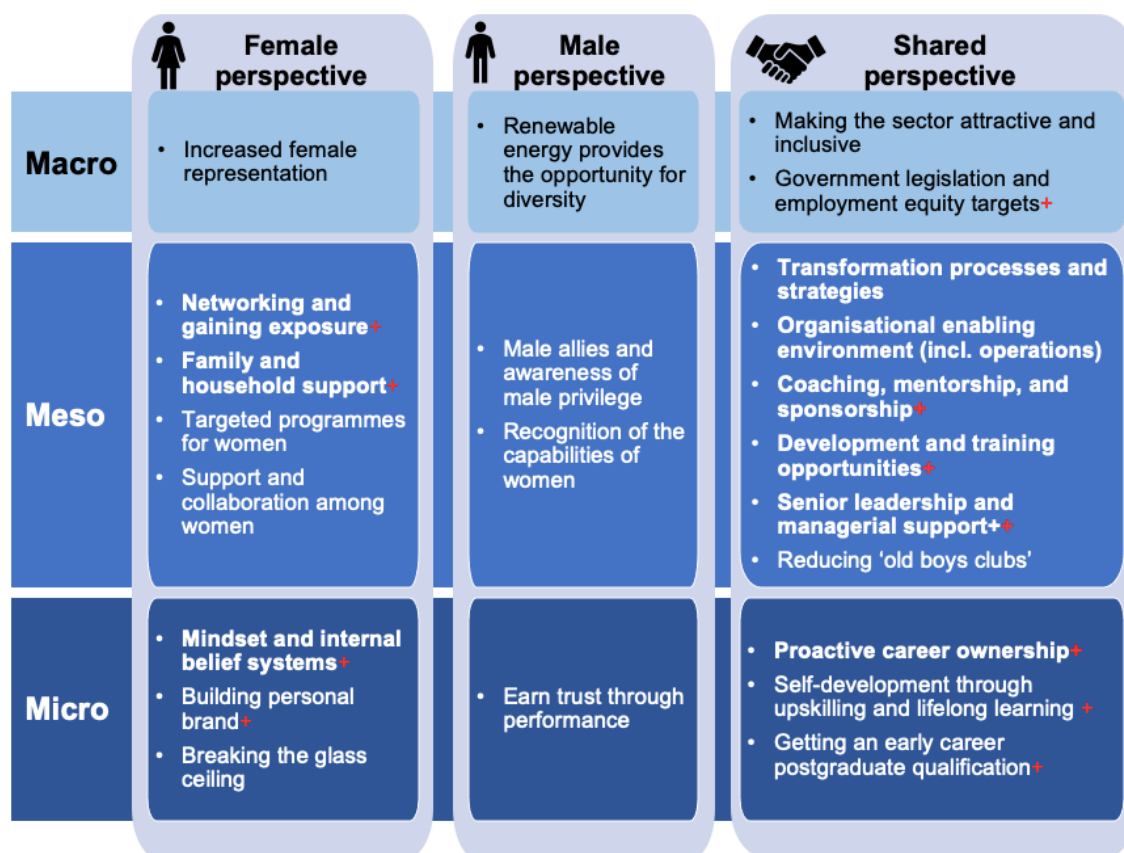
The second research question is, “*What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?*” This analysis aims to understand the main enablers for female career progression into leadership in energy sector organisations.

For this question, female participants were asked about what they had experienced as the main enablers for their career progression and what they believed were enablers for women. The female participants were also asked about their motivation for their careers. The male participants were asked what their observations of enablers for female career progression in the sector had been, as well as what their enablers were. This was to assess if there were fundamental differences in how the male participants progressed. However, in the scope of this study, the main focus is on the enablers for women. It is highlighted but not detailed in cases of alignment with male enablers.

For this analysis, three levels of enablers were explored – the micro, meso, and macro levels. This approach allowed a view into what were internal and external enablers. **Figure 8** shows the results of the enablers analysis. The text in bold had the highest occurrence during the analysis. Although this study focuses on the enablers for female progression into leadership positions, the + sign indicates that the male leaders identified this as an enabler for their leadership journeys.

Figure 8: Summary - Enablers

RQ2: What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?



Bold: High occurrence among participants; **(+):** Male participants enabler as well

4.4.1 Macro – societal level

Female perspective

The female leaders highlighted increased female participation as the macro-level enabler. They highlighted that female representation was important for other women to aspire to senior positions. The study findings correlate with the literature, highlighting that an increase in women at higher levels leads to increased female representation.

Enabler	Female participant quote
Increased female representation	<i>"And so, it's important to see those people succeeding and doing well or failing and picking themselves up again." ~ FP8</i>

i. Increased female representation: Finding female role models to inspire women to advance to senior levels in organisations remains a challenge (Du Plessis & Barkhuizen,

2015; Hofmeyr & Mzobe, 2012), more so in male-dominated industries. Having senior women in senior positions positively influences women at lower levels and leads to increased representation (Kurtulus & Tomaskovic-Devey, 2012). It illustrates that it is possible to build successful careers and inspire junior women; seeing and interacting with people who look like them shows them that they can also be in the same position one day. It also signals to the male leaders that females are required and cannot be ignored (Haack, 2014). Babalola et al. (2021) state in their research that women can develop their self-concept better when exposed to other female professionals.

Male perspective

The male leaders highlighted the growing renewable energy sector as a macro-level enabler. They thought that the renewable energy sector could provide an opportunity to increase the representation of women in the energy sector, and the sector could develop differently from how the rest of the energy sector developed, where women were highly underrepresented. The findings agree with the literature, which discusses how the sector provides the potential to change the narrative on gender diversity in energy.

Enabler	Male participant quote
Renewable energy provides the opportunity for diversity	<i>“But with the shift in the energy economics and the renewable energies, I think there’s definitely an increasing appreciation that there shouldn’t be that level of ... there should surely be ... not to say that there isn’t more opportunity for ladies in coal-fired power stations, for example, generally the jobs are perhaps less manual labour intensive, like coal mining, and then surely there’s more opportunity for ladies in this more blue collar and other jobs that go with the renewable energy. So, one hopes then that the renewable energy sector as it grows can also be a catalyst for more equity in terms of opportunities and representation of females in the energy sector.” ~ MP3</i>

i. Renewable energy provides the opportunity for diversity: The male participants noted that renewable energy technologies might provide an opportunity to have more women in the energy sector as the emerging careers may be more inclusive, and the technology involved could be less physically intensive, which may allow women to take advantage. In IASS (2022), the same idea is discussed wherein renewable energy is recognised as an opportunity to achieve a gender-inclusive energy sector in South Africa; a broad discussion on challenges and opportunities for women in the renewable energy sector is presented. As the renewable energy sector is still growing, the impact has yet to be illustrated, with overall female energy sector employment globally being 16%, with little difference between traditional fossil fuels and cleaner energies (IEA, 2022).

However, the study notes a positive change in energy start-ups with more women founders and inventors (IEA, 2022).

Shared perspective

The participants shared that making the sector more attractive and inclusive of women and government legislation and employment equity targets were macro-level enablers. The participants reflected on how the sector could be better marketed to women so that they see its value. They also noted how government involvement in increasing equality through regulations increased women's representation in the sector. The study findings align with the literature.

Enabler	Female/Male participant quote
Making the sector attractive and inclusive	<i>“So by exposing the different aspects of the sector, how technology is transitioning, this whole just energy transition, the climate change aspect, by exposing the different things the sector is about, I think you create different points of attraction for people to ... for ladies to uptake a career, otherwise it just looks like, oh, I’m working in a power station, I’ve got to wear dirty overalls, cut my lovely fingernails, and maybe that’s not attractive to people.” ~ FP1</i>
	<i>“From my view, ensuring from the beginning that the energy sector a sector which women are investing in and excited about, and I’ve been trying to do that by making sure I have more balanced teams.” ~ MP2</i>
Government legislation and employment equity targets	<i>“South African legislation really enabled the sector to even give me an opportunity, so I think from a government perspective, that was the starting point where it was equal opportunities for all.” ~ FP7</i>
	<i>“My approach has always been to, yes, you need to have a view of the target because those KPIs are supposed to achieve the overall objectives of the company. And the overall objectives are aligned to obviously, to a large extent in the public sector, what the country wants to achieve.” ~ MP6</i>

i. Making the sector attractive and inclusive: The female respondents highlighted that women might need to be made aware of potential careers and career pathways in the energy sector at the tertiary level. A basic example to illustrate this is that only FP7 and FP8 are qualified engineers; the rest entered the sector from other qualifications and sectors. Furthermore, women may have a negative perception of the sector. FP1, FP3, MP2, and MP3 commented on how women may negatively perceive the sector. Moreover, energy sector careers are not necessarily marketed towards them, so addressing this could potentially increase the pipeline of women keen on careers in the sector. According to Beck and Panczel (2018) research, companies should raise

awareness among tertiary students of the nature of work in the energy sector by having open days, attending activities at schools and universities and reaching broader audiences through online platforms. Like the female participants, the male participants noted that an increase in the positive perception of the energy sector as attractive for women would increase the number of women interested in pursuing careers in the sector.

ii. Government legislation and employment equity targets: BBBEE targets contribute to an increase of women in the energy sector. The targets aim to work towards gender parity in the sector, and their impact has been notable, according to Doubell and Struwig (2013) and Singh (2018). The female participants noted that in the large organisations they had worked for, these targets had effectively increased the number of women; this is supported by other similar studies (Doubell & Struwig, 2013; Fajardo & Erasmus, 2017; Singh, 2018). The male participants also felt that although the government targets had decreased men in the sector – specifically white males- there had been a positive impact with increased gender and race diversity. MP7 highlighted that these targets were necessary to enable equality in previously disadvantaged demographics and that advantaged groups should try to understand the necessity.

4.4.2 Meso – organisational level

Female perspective

The female participants highlighted several enablers at the meso-level. They emphasised the value of having networks and gaining relevant exposure to the right people in the organisation. They also reflected on the importance of family, setting up supportive structures at home, and the availability of targeted programmes for women in the workplace. Lastly, they highlighted support and collaboration among women as an enabler for women. These findings are consistent with the literature; the study also highlights that senior women can use their voices and access to uplift and stand up for the junior women in their organisations.

Enabler	Female participant quote
Networking and gaining exposure	<i>“Networks are very, very, very important and I think one oversight on my part in the early days of my career was put my head down and do the work and not worry about it, but I’m glad that very quickly I realised the power of a network.” ~ FP1</i>

Enabler	Female participant quote
	<i>"So, what I do is I bring all the women in around me and give them more stretch opportunities and exposure to the executive's office because that gives them generic capabilities and a network to be more competitive if they want to take a role anywhere else." ~ FP6</i>
Family and household support	<i>"There is no such thing as balance, we're never going to have the perfect work-life balance, but it doesn't have to be one at the expense of the other, especially if we can have support, families, colleagues as a woman." ~ FP5</i>
Targeted programmes for women	<i>"The other way is you've got to do a focus thing, especially in larger organisations, larger corporates, you've got to do a focus thing and I think coming out of the company, that was something that I was quite exposed to, that we recognise at a point in time we don't have a pipeline for women power station managers, so we went out and we went on a programme, recruited them, appointed them as deputies in the power station, started to give them the necessary training and exposure to be able to take up those roles eventually." ~ FP1</i>
Support and collaboration among women	<i>"Then I think we've recently seen a big rise in collaboration among women in the sector and I think that what I'm quite encouraged by is many of the recent conversations I've been participating in is it's not a complaining session, it's a little bit of complaining sometimes, but a lot more looking at how you can make a difference." ~ FP1</i>

i. Networking and gaining exposure: There was agreement among both genders that networks and their cultivation were crucial to their growth and would be a key enabler for careers in energy; this is supported by research (Kobus-Olawale et al., 2021; Offermann, Thomas, Lanzo, & Smith, 2020; Sánchez & Lehnert, 2019). The male participants did not explicitly highlight it as an enabler for women; however, they stressed the importance in their careers. Several female participants stated that networking was '*critical*' to their leadership journey. They also highlighted that one's networks needed to be a mix of genders and that women needed to build their networks strategically. Bynum (2000) reiterates this in their research by stating, '*Learn to network. Network with women and men in your own field and other fields*'. Sagebiel (2018), in their research, concludes that the women in their study were convinced that inclusion in internal and external networks was vital for successful leadership in technical careers for women. Women should identify individuals who may be able to influence or guide them on their career aspirations and develop trust-based relationships with them (Doubell & Struwig, 2013; Garavan, Hogan, & Cahir-O'Donnell, 2003; Sánchez & Lehnert, 2019). Women can gain exposure through opportunities to display their work to leaders in the organisations and therefore increase their visibility (Campbell & Smith, 2010; Lubbe, 2015), build credibility and learn.

The female leaders noted that this gives women the same level of exposure as men, which meant that leaders in the organisation would be aware of them when opportunities arose and would allow them to engage more.

ii. Family and household support: According to both genders, having a supportive partner and extended family, the availability of domestic help and family work-life integration is valuable. According to several studies, family support is vital for female career progression (Chinyamurindi, 2016; Doubell & Struwig, 2013; Mabokela & Mlambo, 2015). Only MP1 mentioned spousal support as an enabler for women. However, both genders highlighted that the type of partner they had made a difference in their careers and the female participants noted that if a partner was not supportive, it could be challenging. FP6 noted that she ended relationships with unsupportive partners. FP8 highlighted that her partner took care of all the home responsibilities. The female participants also noted that they sourced domestic help at home to enable them to focus on their careers. This strategy is supported by Cheung and Halpern (2010), who state that female leaders who are mothers outsource household help as needed. Family upbringing and exposure to possibilities were also highlighted as a contributor to career aspirations by FP6 and FP7; this is supported by Chengadu and Scheepers (2017).

iii. Targeted programmes for women: Programmes designed for female leadership development are vital levers. According to Doubell and Struwig (2013), these programmes are good instruments to support women and prepare them for leadership positions (Chengadu & Scheepers, 2017). This lever includes providing women with access to the necessary resources to succeed. FP6 highlighted a programme she was running for women in her organisation. FP5 spoke of a programme being offered by an organisation she was affiliated with, while FP1 spoke of a programme in an organisation she had worked for where a programme had been in place to develop female power station managers. Cimirotić et al. (2017) suggest that organisations wanting to support women into leadership should establish such initiatives.

iv. Support and collaboration among women: This enabler highlighted that women could work together to uplift and support each other's careers in the sector. FP2, FP5 and FP6 relayed their experiences as being part of and establishing entities where women could interact and support each other. In *Lean In*, Sheryl Sandberg states that there is a need for older women to encourage younger women – the women who occupy senior positions should encourage those who do not yet occupy them (Sandberg, 2015; Vachon, 2014). This approach can be done through associations, focus groups, and online engagement. In their study, Beeson and Valerio (2012) highlight that companies

should encourage women's networks to enable sharing of experiences. Through these interactions, there can be increased collaboration and awareness of other women, their activities, and aspirations, allowing for recommendations and knowledge transfer. FP1 and FP8 reflected that these spaces allowed women to share and produce solutions.

Male perspective

The study findings and perspectives of the male leaders corroborated the literature. They illustrated that male leaders in the energy sector are aware of their roles and the challenges women face, which is encouraging. The male participants shared that women having male allies, men being aware of their privilege as men in the energy sector, and women getting recognition for their capabilities were meso-level enablers.

Enabler	Male participant quote
Male allies and awareness of male privilege	<i>"And it's like you've got to, it's so unfortunate that you've got to be purposeful to create the diversity. But I think that's one of the key lessons is actually as men we've got to be purposeful. We can't just expect it to happen and then wait and moan when it doesn't happen." ~ MP7</i>
Recognition of the capabilities of women	<i>"I think so, I think the other wants to feel valued, to feel empowered and given the space, and equally I think the addition is that you have to then also feel supported, but I think for females in particular in this sector it's important for them to feel that they're respected, they're valued but more importantly their voice is heard and that which they bring to the table, people go and run with it."~ MP5</i>

i. Male allies and awareness of male privilege: The male participants were aware of their power and influence as men in the sector. This awareness means they can be active allies for women; this support can aid in female career progression (Moyana, 2018; O'Connell & McKinnon, 2021). This support can be through mentoring, coaching and especially sponsorship. However, it can also mean not being obstructive and advocating for gender parity at the organisational and broader sectoral levels (Sánchez & Lehnert, 2019). Generally, male leaders lack awareness of their privilege and, therefore, may not see the challenges faced by women (Vachon, 2014).

ii. Recognition of the capabilities of women: The male participants highlighted this as an enabler because if female capabilities are recognised, they will be given respect by other men and women and will be provided opportunities to demonstrate their capabilities (Amon, 2017). These opportunities will allow them to build credibility and visibility among senior leaders in the organisations and foster their career progress. Research has shown

that the capabilities and ideas of women are not consistently recognised or credited (Kobus-Olawale et al., 2021; Mabokela & Mlambo, 2015).

Shared perspective

The participants shared several meso-level enablers, and their thinking around the potential enablers for women was well aligned. They highlighted the value of organisational transformation processes, which include how recruiting and promotions are done. They expressed that an organisational enabling environment was vital, including at the operational level, where women were particularly challenged. They emphasised the value of coaching, mentoring and sponsorship, the availability of development and training opportunities and having senior leadership and managerial support. Lastly, they reflected on how the prevalence of old boys' clubs could be reduced. Most of the findings were consistent with the literature, with the addition of the potential to reduce the power of old boys' clubs by working together with each other and their male counterparts.

Enabler	Female/Male participant quote
Transformation processes	<i>"Whereas internally, as an organisation, we're very sensitive in ensuring that we create an environment of diversity to start with. So, we will not hire women for the sake of hiring women. We're hiring competent talent, very sensitive to gender dynamics. Because we do not believe that working spaces should be purely female or purely male. But should consist of competent people coming from diverse backgrounds and representing diverse perspectives." ~ FP2</i>
	<i>"And a lot of it also happens with recruitment, when we recruit, we are very, very specific in terms of trying to support equity, and the transition, and the gender and racial balance in the different parts of the Centre." ~ MP3</i>
Organisational enabling environment (incl. operations)	<i>"But when you start looking at leaning into complexity and studying things from a systemic perspective, you start understanding that you should be creating an ecosystem where anyone has the opportunity to flourish." ~ FP2</i>
	<i>"I do however think this whole thinking that all of us had around we have to work from the office is probably the biggest obstacle because you inhibit women's progress because they've got just so much more to do in terms of the family side and balancing things at home, and you need to be more flexible." ~ MP4</i>
Coaching, mentorship, sponsorship	<i>"...don't be dismissive of the male supporters in the room if you are a female because there are males who are very supportive of female growth in the industry, females taking up leadership positions..." ~ FP5</i>

Enabler	Female/Male participant quote
	<i>"Part of that process is also more active sponsorship and learning how to do so, how we sponsor women more actively in the process and also something you can't pay lip service, you've got to learn how to do it and what it means and what it will look like and possibly even set some targets and monitor it and measure it." ~ MP1</i>
Development and training opportunities	<i>"I do actively sponsor the women, and I've started a new under 35s programme which is a McKinsey based hypo-model, to just find all of the under 35s. I think we've got about five, and give them applied training, development, stretch assignments. So that they can be also a lot more marketable..." ~ FP6</i>
	<i>"My view is that with the right development processes they should ... females will stand up because frankly speaking it's not that males are more capable, that's at least my view." ~ MP5</i>
Senior leadership and managerial support	<i>"Support them to thrive, whether it's with me or it's somewhere else. And I think I have the same philosophy like on the boards that I sit on, it's a big push to make sure that they're hiring diverse people or at least opening their eyes to the fact that there are strong candidates." ~ FP8</i>
	<i>"So, I naturally look for women project managers and women junior partners and women partners to work with, which is easier at the project manager level, a little bit less easier at the junior partner level and much less easier at the partner level..." ~ MP2</i>
Reducing 'old boys clubs'	<i>"It's a very personal experience and in my experience to some extent it still persists, but I think it's rapidly shrinking..." ~ FP3</i>
	<i>"I think the old boys club is slowly ... I think we're seeing the sunset on it; I think it's almost behind us." ~ FP4</i>
	<i>"I think it's also driven by the governance structures that's been put in place, and things like that, but I do think the competitiveness of the global economy has made it you can't choose the second-best people, you have to choose the best people." ~ MP4</i>

i. Transformation processes: Participants noted that the organisations they had worked for had implemented transformation processes and this increased female representation. There need to be fair, uniform, and transparent processes for promoting staff to the next level and a broader criterion of selection to promote to senior roles (Beck & Panczel, 2018; Bellone et al., 2019; Rick et al., 2017). The male participants identified this as an enabler for women's move upwards into senior positions, complemented by organisational target setting. MP5 highlighted that female candidates were given the opportunity during promotions and recruiting, when all things were equal, in qualifications and experience. In addition, he highlighted that in one of the organisations he had worked for, the interviewers had to justify why they could not find suitable female candidates for

roles. Mamba and Singh (2018) state that policies should be implemented in organisations to increase the recruitment of women.

ii. Organisational enabling environment (incl. operations): The participants agreed that organisations should have an enabling environment for professional growth, diversity and inclusion. Organisations should foster environments where women can be their authentic selves (Marten & Rick, 2016) and promote a culture of equity (Du Plessis & Barkhuizen, 2015). An inclusive and safe working environment for women should be created, especially in the operations and fieldwork environments, by ensuring safety and providing suitable equipment and facilities. Participants commented on how organisations should implement awareness programmes around diversity and inclusion, have flexible work programmes, fair maternity, and paternity policies, and foster an enjoyable environment for all employees. Creating an environment that supports female professional development and accommodates parental responsibilities will allow women to perform (Chengadu & Scheepers, 2017; Fouad et al., 2016).

iv. Coaching, mentorship, and sponsorship: Both genders identified that coaching, mentorship, and sponsorship had been enablers for their careers. In literature, coaching, mentorship, and sponsorship are essential for women to break the glass ceiling (Doubell & Struwig, 2013; Van Oosten, Buse, & Bilimoria, 2017). The female participants particularly highlighted sponsorship and coaching. They also commented on the importance of receiving this from males, especially sponsorship. Due to the male-dominated nature of the sector, it is vital to have male support as they have more influence and connections (Beeson & Valerio, 2012; Bellone et al., 2019; Hofmeyr & Mzobe, 2012). The female participants were aware of women's challenges and tried to empower other women by providing opportunities and advocating for women. According to Deemer and Fredericks (2003), senior women can guide how to navigate gender-related barriers. Hofmeyr and Mzobe (2012) emphasised their research finding by stating that senior women should form part of the coaching and mentoring solution and be a source of motivation (Lenka, Gupta, & Sahoo, 2016). FP7 provided promotion interview training advice to other women as she realised they needed to be better equipped. FP6 stated that she advocated for women and that it was the responsibility of female leaders to use their voice for other women once they were in senior position in organisations.

v. Development and training opportunities: Both genders highlighted that the availability of relevant development and training opportunities were key enablers for their career progress. To ensure that women are ready and equipped to take on senior roles, there need to be relevant training and development opportunities (Francis, 2017; Mamba

& Singh, 2018; Munjuri, 2011; Schultheiss, 2021). The availability of development of training opportunities and tailoring them around individual needs and career aspirations is an enabler for career progress. According to the participants, this includes technical and soft skills training and a mix of formal and informal training. According to the literature, women must build the necessary skills to perform well in their leadership roles, such as relevant education or training, project management, technical training, and leadership skills (Beeson & Valerio, 2012; Doubell & Struwig, 2013). Male participants echoed that there should be provision for proper development and training opportunities, which included experiential learning.

vi. Senior leadership and managerial support: Support from leaders in the organisation and line managers was identified as a key enabler for both genders. Support from supervisors for the upward progression of employees has been identified as key (Cimirotić et al., 2017; Fouad, Singh, Cappaert, Chang, & Wan, 2016; Van Oosten et al., 2017). Managers can provide challenging work assignments that allow individuals to stretch their capabilities and develop, and they can identify growth opportunities (Cimirotić et al., 2017). The female leaders cited this as something they were doing within their organisations. Leaders who intentionally identify and groom female talent were also highlighted; FP6 noted that a male leader who, upon accepting a role in an organisation, had said that he would only accept the role if his successor were female. The male participants also recognised that supporting female development from senior leaders and managers was vital, and MP5 said there should be incentivisation and linking of leaders' performance to transformation targets.

vii. Reducing 'old boys clubs: Seven of the female participants believed these still existed and may provide barriers to women, which is in line with prevailing literature (Diehl & Dzubinski, 2017; Du Plessis & Barkhuizen, 2015; Rick et al., 2017). FP4 felt that these did not exist anymore, and although FP3 acknowledged their existence, she believed they were '*rapidly declining*'. Despite their belief in the existence of these '*old boys' clubs*,' some of the female participants believed that women needed to overcome them and create their own spaces that are inclusive, including men and disregard '*old boys clubs*'. In this way, the power of '*old boys clubs*' may diminish and not impact women's careers. MP3 and MP4 stated that the clubs are diminishing because of transformation and adherence to job requirements.

4.4.3 Micro – individual level

Female perspective

The female participants highlighted that the mindset of women, particularly their internal drive and determination, and women's internal belief systems around their capabilities and the energy sector were critical enablers. These study findings agreed with the literature. In addition, the findings also showed that women must build their brand and value proposition in organisations. Moreover, the findings highlighted that female leaders tended to be pioneers in their organisations and broke through glass ceilings along their leadership journeys.

Enabler	Female participant quote
Mindset and internal belief systems	<i>“So, I don’t think it’s the lack of opportunities, especially in the energy space, I think it’s learning now to embrace those opportunities without feeling guilty or that we’re not good enough or that the guy is going to win anyway so why should I try?” ~ FP5</i> <i>“I have to say your career success, whether you’re a man or a woman or whatever you want to be, everything is driven by you, even how you interact with people, who you seek collaboration from, how you identify supporters, and things like that, a lot of it is driven by you. So, the biggest enabler is you, yourself.” ~ FP1</i>
Building personal brand	<i>“I think you have to build your brand; you have to kind of centre yourself around how you deliver, how you do, things like that. So, it’s not enough to just be in the room and have a great education and things like that, you’ve got to get that to work for you.” ~ FP2</i>
Breaking glass ceilings	<i>“In fact, all my previous heads, executives running this have been men, so I’m the first female to come in and play this role.” ~ FP6</i>

i. Mindset and internal belief systems: The female participants highlighted the mindset and beliefs of women as the leading internal enabling factor for success in the sector. Although the male participants did not highlight this as an enabler for women, they did highlight it as an enabler in their career success. Several studies describe the inward desire to succeed and self-determination as critical enablers for women to progress to senior ranks in organisations (Chengadu & Scheepers, 2017; Schmitt & Wilkesmann, 2020; Vidyakala, 2020). Determination is important for women to be effective leaders in the energy sector to navigate the gender inequalities in male-dominated sectors (Rowley et al., 2010). The female participants spoke of how highly driven they were with an understanding of what needed to be done to achieve their goals. According to research by Kobus-Olawale et al. (2021), being self-driven was highlighted as a key enabler for

career progression for women. The participants highlighted a need for perseverance, resilience, passion, purpose-driven, and courage. According to research by Tlaiss (2013 p. 29), their respondents *“perceived their human capital, personality characteristics, agency, persistence, and desire for advancement as enablers that facilitated their career advancement.”*

ii. Building personal brand: This was highlighted by both genders as key for their progress in the sector; however, the male participants did not explicitly identify it as an enabler for women. The ability of women to build their brand and profile through good performance, illustrating their value proposition and career aspirations, increases their credibility and visibility to senior people in organisations. This branding then influences how quickly they excel and are recommended for opportunities and roles to enable their progress. FP1 spoke of how building a personal brand was necessary and centring this around how one delivers. FP5 and FP8 spoke of the importance of visibility and having people know what they do. Research shows that women tend to shy away from promoting themselves and their work, with some attributing their success to ‘luck’ (Cimirotić et al., 2017); or are expected to be modest because women are expected to be communal (Eagly & Carli, 2018).

iv. Breaking glass ceilings: Pioneering in an area where women were historically overlooked was also highlighted as an enabler for the female participants in their journeys. They were selected to establish new businesses, as was the case with FP8 and put into roles which women had not occupied, experiences highlighted by FP3 and FP6 and excelled in those roles, thereby paving the way for other women to follow. FP2 joined a board as a black female executive, which the company did not have prior. FP1 held many roles in her career in the organisation she previously worked for and felt she was not limited. According to Eagly and Carli (2018), women are managing to break through the glass ceilings successfully; however, the challenge is the complexity of the pathway to gaining those positions compared to their male counterparts.

Male perspective

The male leaders highlighted that earning the trust of senior people in organisations by performing well when opportunities are given was a key micro-level enabler. The study findings are consistent with the literature regarding good performance being a minimum requirement for leadership. However, the male participants held this standard and expectation for all genders.

Enabler	Male participant quote
Earn trust through performance	<i>“That goes hand in hand with talent and delivery and performance, you don’t do that if you’re not confident that the person is not going to embarrass you.” ~ MP3</i>

i. Earning trust through performance: The male participants highlighted that earning trust from sponsors through good performance when provided opportunities was an enabler for women to progress. The extent to which the women could display their capabilities through their delivery of tasks and projects would illustrate to their sponsors that they deserved opportunities to prove themselves further. Thus, they were more likely to progress to the following levels. For women, being a top performer is recognised as being the bare minimum to gain entry to leadership positions (Frail, 2012).

Shared perspective

The participants shared several micro-level enablers. They emphasised the importance of being proactive in owning one’s career path and ensuring one plans well to navigate their way to the positions one aspires. This finding was consistent with the literature. They also highlighted the value of self-development through upskilling and ensuring continued investment in education. The findings agree with the literature, adding that lifelong learning extends to self-learning, reading up on the sector and learning from knowledgeable people in the industry. They also noted that getting an early career postgraduate qualification could provide an added advantage. This finding is also consistent with the literature.

Enabler	Male participant quote
Proactive career ownership	<i>“Taking the time to sit and think about your career and decide what you want to do, because it’s all very well to be determined but determined to do what, what’s best for you, and sometimes ... and letting your ego get out of the way with that kind of thinking, because people’s egos often want the nice job with the title rather than what’s really going to get me up and excited every day, which may not come with as much money or with as much status.” ~ FP3</i>
	<i>“When I do a development plan with my team, I don’t want to know their next role, I want to have that vision, where they see themselves in ten years’ time. And we say, how do we work towards that, what are the kind of roles in between that will enable you to achieve that.” ~ MP5</i>
Self-development through	<i>“And I think the third thing probably is lifelong learning. As I said, I started off with microbiology and then I studied my masters when I was doing research and then I did a management programme at Wits Business School at MAP, and then I did the GIBS executive development</i>

Enabler	Male participant quote
upskilling and lifelong learning	<i>programme and then I did the strategy diploma at Oxford, and then I did coaching, and all of those things added different dimensions to my career.” ~ FP3</i> <i>“I studied, I studied a lot to understand the sector, I read reports, I invested myself. It was a painful journey, it was a steep learning curve, but it was a steep learning curve that I chose to follow, it was not imposed on me.” ~ FP2</i> <i>“And I did it with some of the guys, many of them at the company as well, where the Company gives you a bursary to study your masters, go do that.” ~ MP6</i> <i>“I think in industry we can do more, and you don’t have to set up major mentorship programs it needs to be relationship based there needs to be a willingness from the young people to learn and be vulnerable and the willingness from the older people to want to see the transformation.” ~ MP7</i>
Getting an early career postgraduate qualification	<i>“Secondly, I think one of the things that really fast tracked me quite early was finishing my masters at the age of 22. So, I was a bit of a nerd, I went straight from Bachelors into Masters and at 22 I had my Masters degree. Meaning I started off my career very young with a post grad qualification and that opened up many doors for me very early. Whereas I find a lot of people tend to do postgrad qualifications after a couple of years in the industry.” ~ FP6</i> <i>“Don’t want to start work immediately and earn more money but then you don’t get the opportunity to study. As soon as you get older and you get a family, your priorities are different. So, if you can study and continue to study then by all means continue to do that.” ~ MP6</i>

i. Proactive career ownership: The participants perceived that proactive career ownership and planning and a willingness to take on new responsibilities, roles, and opportunities significantly impact their leadership pathway. FP1, FP5, FP6, and FP7 encouraged women to take the bull by the horns and take the necessary steps to advance in their careers. This included seeking and accepting stretching assignments, potentially leaving their current job, being flexible in moving for work, and being intentional about training and development opportunities. Beeson and Valerio (2012) recommend that women actively manage their careers by seeking the required experience for their desired roles. Planning their career and where they see themselves in the future in their organisation and the sector allows for a strategic approach to one's career. The women in the research by Cimirotić et al. (2017) stated that there should be active planning to climb the career ladder. The participants highlighted that during career planning, women were encouraged to take a long-term view and work with their

managers and mentors to identify critical roles to enable them to reach their career milestones. MP5 described how he did this for his team and how it assisted them. This comment is supported by Beck and Panczel (2018), who encourage organisations to help women with career planning, allowing them to progress at their own pace based on their performance. However, conversely, a study by Francis (2017) found that career planning was not correlated with career advancement but rather that a proactive personality, with elements of career aspirations, had more of an impact.

ii. Self-development through upskilling and lifelong learning: Continuous self-development through upskilling and studying courses within energy and other complementary qualifications was highlighted as an enabler. MP6 highlighted that individuals should use further studying opportunities from their organisations. Furthering their education and qualifications meant that candidates would be eligible for the leadership role requirements when they became available within their organisations or when looking for opportunities elsewhere. FP3 spoke of how she continued to add to her qualifications. Research supports the notion that knowledge and competence play a more significant role in female promotions as compared to men (Kobus-Olawale et al., 2021). Furthermore, in several studies, women indicated that continued upgrading of their education was a key enabler for career advancement (Chinyamurindi, 2016; Hofmeyr & Mzobe, 2012; Tlaiss, 2013). The participants highlighted that individuals who continue to invest time and resources into learning more about the energy sector, and remaining abreast of emerging topics and themes within the energy sector landscape, would continue to grow. FP2 and FP5 spoke of how time should be invested into continuous learning about the sector. MP7 mentioned that individuals should also be open and willing to learn from others; if willing individuals want to transfer knowledge, women should be ready and willing to learn.

iii. Getting an early career postgraduate qualification: Taking the opportunity to further one's qualifications at the beginning stages of their career was highlighted as an enabler. FP6 noted that she had gotten her postgraduate qualifications before entering formal employment, which meant the roles she was eligible for were at a higher level than what would have been available without them. In several studies, women highlighted their qualifications as one of the factors that allowed them to attain senior leadership positions (Chinyamurindi, 2016; Cimirotić et al., 2017). MP6 similarly highlighted that getting postgraduate qualifications early in the career was easier than doing it while working and would set one up for success.

4.4.4 The Role of Self-Determination

The SDT assumes a relationship between the working environment and the individual's motivation (Schmitt & Wilkesmann, 2020). The SDT suggests that the combination of intrinsic and extrinsic motivators for workplace activities affects employees' performance and well-being (Deci et al., 2017). Intrinsic motivation is an autonomous source of motivation. Extrinsic motivation lies on a spectrum of internalisation that goes from controlled (low internalisation and regulation) to autonomous (high internalisation and regulation) (Ryan & Deci, 2000). The SDT shows that organisations that foster workplace environments where employees feel supported in their autonomy result in increased satisfaction and benefit organisational effectiveness (Deci et al., 2017). The SDT also views the intrinsic functioning of people can either be facilitated or impeded by the social context (Deci & Ryan, 1985, 1991). This view is important for this research as the energy sector is male-dominated, and thus the men determine the social context. The female participants were asked about their motivation for their career pathway. The following discussion delves into the SDT concerning this research.

a. Extrinsic motivation

Extrinsic motivation is multi-layered in that it operates on a spectrum of internalisation – which begins with external regulation and low internalisation, thus fully externally controlled to integrated regulation and high internalisation, thus self-determined and autonomous. The female participants portrayed evidence of external regulation, introjection, and identification. However, the analysis could not identify integrated regulation in the answers given. It should be noted that although integrated regulation is considered self-determined and autonomous – thus similar to intrinsic motivation – it is still considered extrinsic motivation, as the source of motivation comes from external sources.

For *introjection* – FP8 mentioned that she was motivated by her competitiveness and wanting to win. FP5 also mentioned that she was motivated by her competitiveness. Other participants mentioned that they were motivated by wanting to prove others wrong and change societal expectations of women, especially in the energy industry. Others had a deep desire to prove themselves to others. This motivation was primarily driven by the assumption that women are less capable – so there was a constant need to prove oneself.

For *identification*, the female strongly wanted to make a difference in other people's lives, society, and their teams. This held great value and importance for the women who wanted to leave the world a better place. They were also motivated by their family and wanted to be good role models for their children.

The following table is some extracts illustrating extrinsic motivators from the female participants:

Extrinsic motivator	Female participant quote
External regulation and/or introjection	<i>"What was my motivation? I don't know. I'm a super competitive person. I like to win." ~ FP8</i> <i>"So, growing up as a Black girl, I'd always hear, no, you can't do that, no, that's not for you, no, no, no. So, my whole approach to my career has been, watch me, watch me, and I'm going to break this door wide open and a whole bunch of women are going to come through it when I'm finished." ~ FP6</i>
Identification	<i>"Motivation in my career is just seeing the impact of having access to electricity has in people's lives. It opens up possibilities for education, it opens up possibilities for economic growth and it just is such a game changer, and why shouldn't everybody have it" ~ FP5</i> <i>"I also wanted to make a difference, I've always been big on having an impact on people and making a difference." ~ FP7</i> <i>"So, my motivation has always been to see a better tomorrow, so I always ask myself, what is it that must be improved so that tomorrow is better than today. So, it's that problem solving, it's that creating of the future that I want. I don't believe that a better tomorrow will just fall into our laps, we have to create a better tomorrow." ~ FP4</i>

b. Intrinsic motivation

Intrinsic motivation is an entirely autonomous source of motivation. According to Gagné and Deci (2005), three psychological needs must be satisfied for the optimal functioning of intrinsic motivation. To satisfy autonomy, the female participants put an emphasis on being highly self-driven and having the desire to succeed. They also agreed that self-determination was one of the deciding factors for succeeding in the sector. FP7 and FP2 said it was everything – with FP2 stating that it was '*as important as oxygen*', and FP8 said it was '*the most important thing*.' Competency, which speaks to self-efficacy, was highlighted by the female participants being high performers, ambitious, wanting to reach their full potential, having the desire to learn, and being developed. The psychological

need for relatedness speaks to a sense of affiliation or belonging with others to whom one feels connected (Deci & Ryan, 2010; Ryan & Deci, 2000; Smith et al., 2015). This aspect was illustrated by the female participants' desire to be inclusive and want others in their teams to succeed. These psychological needs were also illustrated in the leadership characteristics that the female participants correlated with their leadership styles. Self-determination, a high-performance culture, and inclusion were all qualities the female leaders associated with female leadership, their leadership characteristics, and the type of characteristics they desired to see in leaders, including energy sector leaders.

In addition, studies have shown that managers who allow for more autonomy result in employees who report greater satisfaction in having their basic psychological needs met, which results in better work outcomes (Deci et al., 2017). The SDT also illustrates how transformational leadership supports basic psychological needs and that a study by Bono and Judge (2003) showed that transformational leaders had employees who were more committed to the organisation, tended to adopt more autonomous work goals and displayed higher job satisfaction (Deci et al., 2017). Transformational leaders also have their basic needs met and thus are more transformational in their leadership style (Trepanier et al., 2012).

The following table is some extracts illustrating intrinsic motivators along the three psychological needs of the female participants:

Intrinsic motivator	Female participant quote
Autonomy	<i>"I've always been a very driven individual, always been a go getter so it was nothing new to be driven in my career." ~ FP5</i> <i>"Because I chose the sector. If I had chosen agriculture, self-determination would have gotten me to the heights that I would achieve, and there's nothing else to even embellish the statement. Without determination you can't get anywhere in any sector" ~ FP2</i> <i>"For me, my level of determination, as much as we didn't have money, but that was never ever going to stop me from getting anything I wanted, not from a material perspective or whatever but from a career perspective." ~ FP7</i>
Competency	<i>"And a deep desire to be independent and add value and realise my full potential." ~ FP6</i> <i>"I think what motivates me is using my brain and I think it's different for everybody." ~ FP3</i>

Intrinsic motivator	Female participant quote
Relatedness	<i>"What motivates me really is I never want to be the only one succeeding, I want a community of people to succeed." ~ FP2</i>

As previously mentioned, the SDT theory was chosen as the basis for this study as the assumption is that women in male-dominated industries require a high level of autonomous motivation to reach the senior levels of their industries (Schmitt & Wilkesmann, 2020). The findings confirmed the assumption that successful female leaders have a high level of autonomous motivation, which is aligned with the SDT literature. Furthermore, several studies highlighted the importance of determination as the key to success in career progression (Chengadu & Scheepers, 2017). The study's findings are consistent with the literature, as the female participants agreed that self-determination was a key determinant of career success in the energy sector.

4.4.5 Conclusion of enablers for female leadership progression in the energy sector

This section addressed the research question *"What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?"* and presented the results and discussion of the enablers identified and highlighted by the participants in this study. As mentioned, the study provided the results on three different levels, starting with the macro, external factors that are out of the control of the women drilled down to the meso level, which addressed the influence from the immediate community to the organisations, and lastly focusing on a more internal view, and the factors women could actively influence. The perspectives from both genders were provided, and although the different genders identified different enablers, there was much alignment, as was shown under the shared perspectives.

The main enablers identified were transformation processes and strategies; networking and gaining exposure; organisational enabling environment (incl. operations); coaching, mentorship, and sponsorship; development and training opportunities; mindset and internal belief systems (including self-determination) of the women; senior leadership and managerial support; proactive career ownership; and family and household support. Most of the study findings were consistent with the literature wherein enablers such as networking (Kobus-Olawale et al., 2021; Offermann, Thomas, Lanzo, & Smith, 2020; Sánchez & Lehnert, 2019), coaching, mentoring and sponsorship (Doubell & Struwig, 2013; Van Oosten, Buse, & Bilimoria, 2017); family support (Chinyamurindi, 2016;

Doubell & Struwig, 2013; Mabokela & Mlambo, 2015); and proactive career ownership (Lubbe, 2015) were cited. Additional enablers included females promoting their capabilities and branding themselves, continuously reading up on the sector, collectively reducing old boys' clubs and taking advantage of potential new employment opportunities presented by the renewable energy sector.

The female participants had aspects of both intrinsic and extrinsic motivation; however, the intrinsic motivators far outweighed the extrinsic ones. The participants agreed that females in this sector needed a high level of self-determination to drive successful careers in the sector, a study finding consistent with the literature (Chengadu & Scheepers, 2017; Schmitt & Wilkesmann, 2020; Vidyakala, 2020).

4.5 Results and discussion pertaining to RQ 3 – Constraints

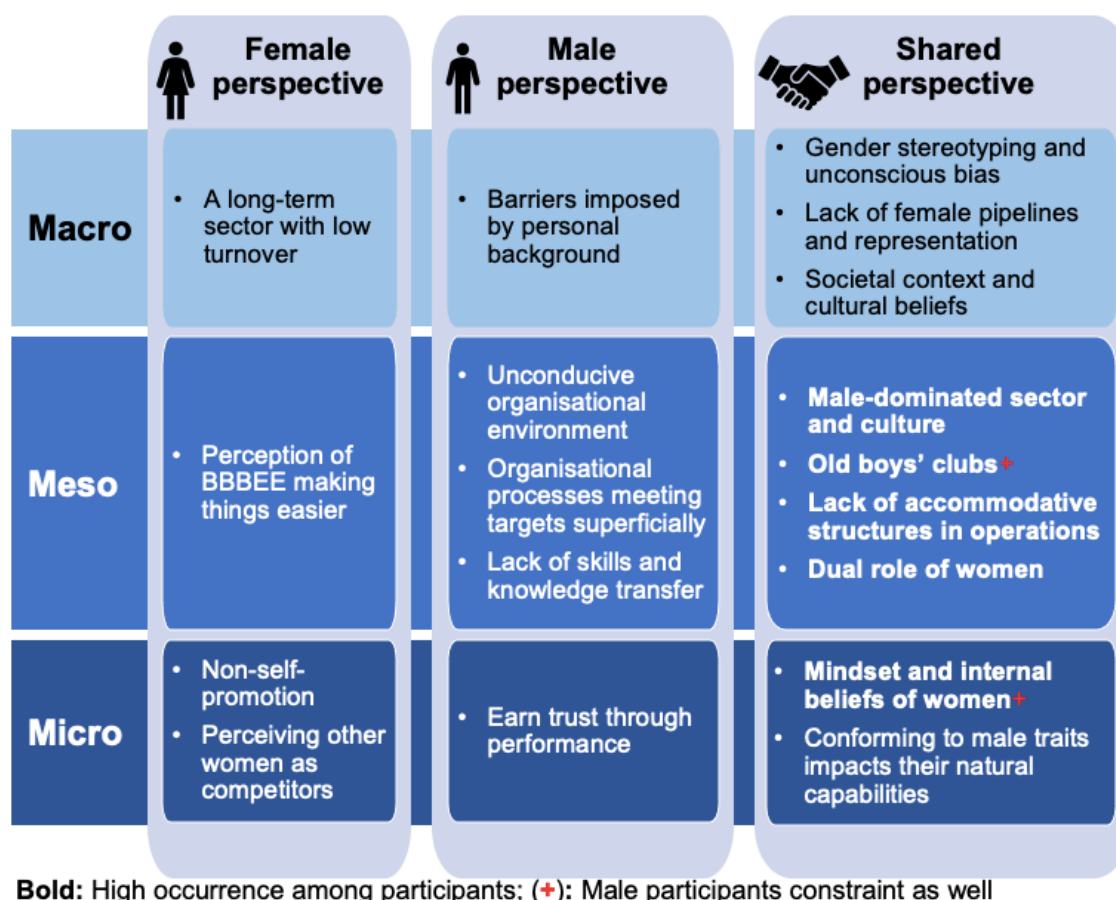
The second research question is, "*What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?*" This analysis aims to understand the main constraints for female career progression into leadership in energy sector organisations.

For this question, female participants were asked about what they had experienced as the main constraints for their career progression and what they believed were constraints for women. The male participants were asked what their observations of constraints for female career progression in the sector were and their constraints. They were asked this to assess if there were differences in how the male participants progressed.

Like the enablers analysis, three levels of constraints were explored – the micro, meso, and macro levels. This analysis allowed a view into what were internal and external constraints.

Figure 9: Summary – Constraints

RQ2: What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?



4.5.1 Macro – societal level

Female perspective

The female participants highlighted the long-term nature of the energy sector and its long-tenure careers as a macro-level constraint. They reflected on how planning cycles and projects were generally over several years, and for continuity, the same people remained in organisations; thus, the availability of senior roles was a challenge, consistent with the literature. The study findings contribute to the literature by highlighting that the long-term nature of the sector is a constraint for women to occupy senior positions as these are generally held by older, experienced employees for long periods.

Constraints	Female participant quote
A long-term sector with low turnover	<i>"Because it's such a highly specialised area, people come in and stay, you know, it's not banking, it's not. So, people stay, and they don't change. So that's what I've observed about upstream, that because of the high</i>

Constraints	Female participant quote
	<i>specialisation and the nature of long-term projects and programmes, the turnover is quite low, so you don't have the opportunity to change the demographic.” ~ FP4</i>

i. A long-term sector with a low turnover: The female participants highlighted this as a constraint for women as the same people in the sector typically occupy senior roles for long periods. The energy sector is characterised as a long-term where planning horizons for projects using traditional energy (fossil fuels) or new unexplored technologies (e.g., hydrogen) are generally over five years, commonly decades in outlook (Gaur, Das, Jain, Bhakar, and Mathur, 2019). Projects themselves take long to execute, and contracts are typically long-term. In addition, the workforce is older with a lower turnover because of the need to preserve the institutional memory of organisations to remain competitive (Makansi, 2007) and because the long-term nature of projects requires stable human resources.

Male perspective

The male participants highlighted the barriers that may be imposed on individuals based on their background and where they come from as a macro-level constraint. These individuals were already at a disadvantage as they entered their careers, and navigating is challenging as they may not have access to the same resources as others. This study finding is consistent with the literature.

Constraints	Male participant quote
Barriers imposed by personal background	<i>“And even for yourself that in that stress and where people don't have enough to eat, they don't know where they're going to stay, and then they must just perform and then when they don't the right wingers use it as a reason to back up their worldview.” ~ MP7</i>

i. Barriers imposed by personal background: Most previously disadvantaged individuals enter the workforce with historical economic barriers already in place. They must contend with structural disadvantages defined by Theron (2016, p. 38) as *‘tangible and/or systemic barriers that set people up for negative life outcomes and over which individuals have very little control’*. Their access to information and resources is limited, and they still need to learn how to navigate their new environments. Thus, they are likely only to perform if provided with the necessary support. MP7 highlighted the importance of providing this support, especially in South Africa, where inequality is still relatively high. According to Uludüz and Çalik (2023), socio-economic status, gender, race, and learning gap/disability can influence the STEM careers of disadvantaged students.

Shared perspective

The participants shared several macro-level constraints. They emphasised gender stereotyping and unconscious bias towards women as significant barrier for women. They also expressed how societal and cultural beliefs where women roles are gender assigned as nurturers and homemakers were a constraint as these transferred into the mentality in the workplace. They also reflected on women's lack of representation and available pipelines in the sector. This problem starts at junior levels and worsens as levels progress in the organisation. These study findings correlate with the existing discourse on the constraints for female career progression.

Constraints	Female/Male participant quote
Gender stereotyping and unconscious bias	<i>"I think it's that bias. If you think of the interviews that I've sat in where men are interviewing and women are interviewing, they hear different things than we hear from the same sentence and so will often give the benefit of the doubt to a male who said the same thing, just slightly differently." ~ FP8</i>
	<i>"So, I think it could be a societal thing, men are seen as the top, as the head of the house or whatever the case is. So, you get to work, and you try and make this equal, but there is some level of unconscious bias where you will listen to what the male says, and you listen to what the female says, and you probably lean towards what the male says." ~ FP7</i>
	<i>"Perceptions. It's primarily historical perceptions that I am better because I am male. And perceptions obviously, it's a collective and a collection of how you are brought up and your personal experiences. So, it's those perceptions." ~ MP6</i>
Lack of female pipelines and representation	<i>"But I think the issue is when you start drilling down, so when you get to below executive level, senior managers, GMs, that level has been untransformed because the pipeline into senior management is not set up to enable women to rise to that level." ~ FP6</i>
	<i>"So, we're trying to tackle it at every step of the journey, which is, even from an application point of view are we getting 50-50 applications or even more applicants from women, which isn't the case." ~ MP2</i>
Societal context and cultural beliefs	<i>"These contextual cues are created by social networks, background, culture. So, if they don't believe that women are supposed to be active participants in the economy and women can lead complex structures in the economy. If inherently, in their construct, in their personal construct, they do not believe that. You are asking them to act outside of their natural state of being and that's where the conflict is." ~ FP2</i>
	<i>"It isn't easy for many women, and they're expected from a societal perspective to still sometimes play second fiddle to their husbands' careers, so it definitely has an impact because in many cases there has</i>

Constraints	Female/Male participant quote
	<i>been a conscious decision that they are not going to be the career breadwinner role” ~ MP3</i>

i. Gender stereotyping and unconscious bias: The participants highlighted how men and women in organisations would perceive and treat women in a certain way. Gender stereotyping occurs because society believes specific characteristics and roles are gender-assigned (Alqahtani, 2019; Samuel & Mokoaleli, 2017; Sánchez & Lehnert, 2019). The perception is that women have no place in the boardroom, fieldwork, or leadership positions. According to Babalola et al. (2021), female leaders working in STEM highlighted gender discrimination as the most significant challenge they faced as leaders. FP8 reflected on how women were perceived to be emotional, and FP8 spoke about how women were perceived to complain about things. MP1 spoke about how this tendency to call women out as emotional suppressed their ability to express their intuition, wherein he highlighted intuition as one of the strengths of female leadership. FP6 shared how highly qualified women would be given basic tasks by men who believed they could not handle complex tasks. FP8 and FP6 spoke on how organisations would choose a man to be the face of a product or a service even though a woman had executed it, and the woman would not be credited for work. The female participants reflected on how female capabilities were constantly undervalued in organisations. Women find it challenging to progress to senior roles because of the perceptions of their abilities and because men are perceived as better managers and leaders (Kobus-Olawale et al., 2021; Samuel & Mokoaleli, 2017). MP7 reflected that he had never been a victim of any poor behaviour from men to women simply because he was a man, and it bothered him.

The male participants also reflected the perception that as women became mothers, they would be less available to do their work. In some instances, women were penalised through non-promotion for getting pregnant. Sagebiel (2018) mentions how women without children are impacted by the expectation that they may have children and thus miss out on promotion opportunities. The female participants highlighted that women also perpetuated the status quo of male dominance within organisations and would not be supportive of women. They believed that men were better leaders. They have not yet been able to imagine a world beyond their current existence where men lead them.

ii. Lack of female pipelines and representation: There was support from both genders that this was a significant constraint for increasing women leaders. According to Diehl and Dzubinski (2016), although the gender gap in leadership cannot be attributed solely

to pipelining issues, it begins with the pipeline in STEM and male-dominated sectors. MP2 reflected on how the number of women entering the sector was low compared to what is needed for gender parity. FP1, FP4 and FP8 highlighted that there were instances where they tried to recruit females but did not manage to find a large pool of candidates to choose from despite their efforts. MP1 lamented that they could not reach the target even when they tried to stipulate that 50% should be women at the recruiting level. FP6 spoke about how the sector was transformed at senior levels but not at lower levels, with limited representation. The efforts to increase the pipeline had yet to be deliberate. She noted that senior women were headhunted into positions and that organisations needed to '*grow their timber*' regarding female development into leadership. In addition, women were often overlooked for promotions even when women were fairly represented at senior levels (Susan Chira, 2017). MP4 reflected on how during his time in the 90s, only one female was in his undergraduate engineering class, the picture has changed, and more women are getting STEM degrees. Research has shown that despite the increased qualifications women may be getting, it is not resulting in a substantial rise in the number of women holding senior leadership positions (Chiloane-Tsoka, 2010; Haile et al., 2016).

iii. Societal context and cultural beliefs: The society and cultures most people grow up in assign behaviour and expectations of men and women based on their gender. The role of women as has been depicted by society indicates that traditionally women are expected to be nurturers and homemakers, with no real place in business and leadership (Fajardo & Erasmus, 2017; Moodley et al., 2019). FP6 reflected on how women were taught to be humble and not be outspoken about their capabilities. FP2 spoke on how gender roles had been indoctrinated based on background and that these beliefs were deeply entrenched and would need to be consciously unlearned. Patriarchal cultural systems are still prevalent in many African countries (Haile, Emmanuel, & Dzathor, 2016; Moodley et al., 2019). These deeply entrenched beliefs affect how women are considered for leadership roles. Women are oppressed and discouraged from pursuing leadership positions based on these sociocultural belief systems, which still promote patriarchy (Chiloane-Tsoka, 2010). The male and female participants spoke of how society has assigned the breadwinner role to males and the caretaker role to women. Women are then expected to support their men's careers – not the other way around. Furthermore, men are seen as natural leaders in society, and FP5 stated that the odds are stacked against women.

4.5.2 Meso – organisational level

Female perspective

The female participants highlighted the perception by organisations and individuals that the government-mandated targets in BBBEE made things easier for women as a meso-level constraint. This study finding is consistent with some of the literature but goes a step further by highlighting the unfair expectations placed on women of colour because of perceptions around BBBEE. These perceptions made getting employment in some organisations difficult as they believed women, particularly black women, could be hired easily to meet targets by other organisations. The individuals in organisations also expected that once they hired black women getting tenders would become more accessible – which placed an unfair expectation on these women.

Constraints	Female participant quote
Perception of BBBEE making things easier	<i>“So, when I finished my Master’s degree I couldn’t get a job in South Africa because everybody was saying you’re Black and so everyone else is going to offer you a job, so I just couldn’t get a job.” ~ FP6</i>

i. Perception of BBBEE making things easier: The BBBEE regulations are meant to provide previously disadvantaged individuals with a fairer opportunity to gain access to employment by setting targets and requirements. FP6 reflected on how people assumed gaining employment was easy as she could leverage BBBEE. Page et al. (2009) mention how organisations argue that women and people of colour have an advantage since they benefit from affirmative action. Hofmeyr and Mzobe (2012) discuss how although BBBEE and employment equity policies are meant to advantage black women the most, often the reality is not so. FP7 highlighted how some organisations thought getting contracts would be easier once black women were on their teams. This assumption disadvantages women by putting them under extra pressure to deliver on something entirely out of their control.

Male perspective

The male participants highlighted the lack of skills and knowledge transfer in organisations as a meso-level constraint – they reflected on the occurrence of tenured individuals in organisations departing before passing these on. This finding was an extension of the literature, highlighting organisational performance challenges when there was a lack of knowledge transfer (Agbalalah, Solorzano, and Rosenzweig, 2020). They also identified the uncondusive organisational environment wherein the people in

the environment made it difficult for women to work as another meso-level constraint. This finding aligns with the literature. They also expressed that organisations trying to meet transformation targets superficially and not through talent development was also a constraint as it created tokens of women, which disadvantage them and perpetuates the perception that they are incompetent; this finding is also consistent with the literature.

Constraints	Male participant quote
Lack of skills and knowledge transfer	<i>"I think there's a tendency, by the way, for leaders who have been long in the industry to, when they're approaching their retirement, not to necessarily pass on the skills and come back as contractors. I don't know why that is such a prevalent thing. For me it speaks volumes about our ability to transfer skills when we want to hold onto roles." ~ MP5</i>
Unconducive organisational environment	<i>"I've seen several people who are trying to make a more flexible program work, and I've seen the leaders around them being quite binary – either they will do everything they can, or they don't care at all. And if they don't care at all then it's just not going to work." ~ MP2</i>
Organisational processes meeting targets superficially	<i>"...getting promoted too soon where if you're supposed to have 10, 15 years for x role, and you've only got 5, I don't care how brilliant you are – you don't have the experience. Experience needs time, and you put those people under a tremendous disadvantage." ~ MP7"</i>

i. Lack of skills and knowledge transfer: Considering the long-term nature of the energy sector (Gaur, Das, Jain, Bhakar, and Mathur, 2019)., institutional knowledge tends to be held by the older generation, who need to pass on the knowledge so that it is retained and does not depart with them (Agbalalah, Solorzano, and Rosenzweig, 2020). The male participants highlighted a tendency for this not to happen, but rather that the people will leave their organisations and start their businesses (MP4) or become contractors to their former employers (MP5). Their exit from organisations challenges the upcoming leaders as they need to be provided with the skills and knowledge they need to execute their roles effectively.

ii. Unconducive organisational environment: The male participants highlighted the challenge within organisations to provide a conducive environment for women at work. MP1 gave an example of meetings being set late where women would be unavailable because of parental duties, Liani et al. (2020) highlights how this indirectly discriminates against women. MP7 commented on how some organisations would remain mute when there were diversity-related issues – instead of standing up against unacceptable behaviour. Mabokela and Mlambo (2015) state that coping with issues by ignoring them perpetuates a culture where the perpetrators do not have to account for their actions. MP1 commented that even with flexibility programmes, some leaders did not buy into it,

and implementation is likely to be complex. Furthermore, MP3 and MP4 reflected that the sector had the thinking perpetuating the idea that being physically present translates to more productivity. However, Fouad et al. (2016), in their study assessing retention of women in engineering disciplines, found that micro-aggressions at work alone did not distinguish who stays or leaves organisations but rather, are formative, developmental experiences.

iii. Organisational processes meeting targets superficially: This referred to the stipulations for transformation made by government regulations and how energy organisations were meeting the targets superficially just as a requirement they needed to meet to comply. This created challenges for women as they would be hired into roles as tokens, compromising their ability to succeed as they had yet to develop the capabilities to perform well. They would be unable to cope in the roles, creating a wrong perception of diversity hiring. Eagly and Carli (2018) stipulate that this tokenism in organisations limits women and makes it hard for them to ascend to senior positions responsibly.

Shared perspective

The participants shared several meso-level constraints. They reflected on how the male-dominated nature of the sector created a bias against women and favoured men. They highlighted how the existence of old boys' clubs excluded women and denied them access to vital information in organisations. They expressed how the operations environment lacked accommodative structures for women – the lack of proper uniforms, facilities and security compromised their ability to do their work well. Lastly, they reflected on how the dual role of women as professionals in the office and caretakers at home was also a constraint for women. The study findings for these shared perspectives of meso-level constraints were correlated with the literature.

Constraints	Female/male participant quote
A male-dominated sector with a bias towards men	<i>"You're also, when you are in meetings, will find that you can say and mention a point, but your male counterpart will say exactly what you're saying and all of a sudden, he said something brilliant and you sit there thinking, hau, that's exactly what I said. So, there is a certain level of bias or willingness to listen to the male counterparts more than the female counterparts." ~ FP7</i>
	<i>"Right, because they don't look like them, they don't understand how they work, they could be just as effective, but they don't trust that they will be." ~ MP1</i>

Constraints	Female/male participant quote
Old boys' clubs	<i>"The old boys club prevails, very much so, the golf course business and all of that still today and it has impacted women's careers and engaging women in the business as much as it has in general." ~ FP1</i> <i>"Women are left to flounder and figure it out for themselves because women tend not to be organised in that way. Women normally walk into organisations and have no support networks, they're not briefed, they're not properly onboarded on the political economy of the organisation." ~ FP6</i>
	<i>"I remember sitting at a meeting with a government roundtable discussion, and it was probably 85% males around the table and in the breaks, there were conversations and unsavoury because it was ... I think at that point you feel for the female counterparts that are there and you also feel like this is where I could stand up and walk and when you start engaging them." ~ MP5</i>
Lack of accommodative structures in operations	<i>"Ideally I prefer hiring females although in the space to be honest it is difficult just because of the kind of roles that we're advertising for or people going on site and things like that, there tend to just be fewer females in that space." ~ FP8</i>
	<i>"And equally so, then if that happens at that level, by the time we're saying we're looking for managers, and so forth, leaders in the head office, then they say, do you have experience from operations, yet we've made an environment at the operations hostile for females to really do well." ~ MP5</i>
Dual role of women	<i>"Because women who are starting a family have got additional responsibilities. Whether they need to fetch the children, prepare supper, something, but they're not able to stay at the office for those long hours compared to men." ~ FP7</i>
	<i>"I do however think this whole thinking that all of us had around we have to work from the office is probably the biggest obstacle because you inhibit women's progress because they've got just so much more to do in terms of the family side and balancing things at home, and you need to be more flexible." ~ MP4</i>

i. A male-dominated sector with a bias towards men: The energy sector is characterised as male-dominated, with women representing ~16% of the workforce (IEA, 2022). In South Africa, female employment in Eskom is ~31% (IASS, 2022). This underrepresentation results in organisational cultures being set by males, which can impact the ability of women to navigate the sector and take up leadership positions. The archetypal leader in the sector is modelled on males, and their leadership characteristics are considered ideal and to be emulated (Alqahtani, 2019; Schultheiss, 2021). The female participants spoke of how organisational cultures favoured males, a common theme supported in the literature (Chinyamurindi, 2016), even when women were better

performers or had better ideas. These organisational cultures can hinder women's advancement (Burkinshaw & White, 2017; Doubell & Struwig, 2013). FP7 gave an example of how women were judged more severely than men, even if their mistakes were the same.

The male participants also reflected that their environments are male dominated; MP7 highlighted an instance of poor behaviour he had witnessed where male leaders treated women poorly. This constraint provides a significant barrier to women as they must do the additional work of getting themselves respected by the men in the organisation and the women perpetuating the male-dominated culture. As a female, there is already an assumption of incompetence when you step into roles, especially in male-dominated industries by both males and females. In Lahti (2013), the senior women in management reflected that the biggest obstacle to female career advancement is an organisational culture that prefers men. Further, women tend to be sexualised in these male-dominated environments, as was commented by FP6. Negative experiences such as lack of inclusion and sexual harassment in the organisation present barriers for both genders but affect women more (Fajardo & Erasmus, 2017; Sánchez & Lehnert, 2019).

ii. Old boys' clubs: Lacking access to supportive networks is challenging for women's progress to senior positions. The '*old boys clubs*' are groups in organisations that exclude individuals that may look different or have a different background. For black women, this is particularly harmful as their gender and race play against them. When the female participants were asked if they thought these clubs existed, most believed they did, and only FP4 disagreed. Both genders highlighted that these clubs created barriers for women as important meetings and decisions were made on the golf course or after hours. This practice was highly exclusionary and impacted women's ability to navigate into leadership positions; this is supported by research (Diehl & Dzubinski, 2017; Du Plessis & Barkhuizen, 2015; Rick et al., 2017). According to Doubell and Struwig (2014), inaccessible networks were perceived as a career barrier for women. The female participants highlighted how women tended to be more aware of these clubs as they impacted them more than males and how these clubs denied women opportunities. FP6 commented on how these clubs perpetuated the protectionism of the members as they stood up for each other. The male participants acknowledged that these clubs existed and impacted women negatively. MP5 was particularly vocal about how these clubs allowed for the ill-treatment of women in business contexts and how he actively called out some bad behaviour. FP5 noted that these clubs affect not only the careers of women but men's careers – it is just that women are more attuned to them.

iii. Lack of accommodative structures in operations: Both genders reflected on this being challenging for women. The energy sector is highly technical, and in the formative years' post qualification, engineers must receive fieldwork experience. This experience enables them to perform their jobs well and understand the technical application of their formal degree. Chiloane-Tsoka, (2010) states that organisations must establish machinery to incentivise women to participate. MP3 commented on how there was a perception of the ability of women to do technical work. Participants highlighted that the operations environment was historically designed for men and that the accommodative structures such as safe working conditions during night shifts, separate ablution facilities, lactation rooms for breastfeeding women or uniforms that accommodate the female figure needed to be improved in certain environments. According to the study by Du Plessis and Barkhuizen (2015), the lack of proper facilities, cleanliness and safety was a deterrent for female engineers. However, technical experience is required for progression in energy sector careers, thus putting women at a disadvantage if they are not trained in the field (MP5). MP5 also mentioned that he had noted that the operations environment could be hostile towards women.

iv. Dual role of women: The participants highlighted that women are professionals while equally running their households and holding most parenting responsibilities. MP1 commented that working women are expected to be the primary caregiver by default once they become parents. Balancing home and work life has been recognised as a challenge that disproportionately affects women more than men as their career progresses (Du Plessis & Barkhuizen, 2015). The female participants noted that young working mothers had more difficulty climbing the career ladder as they had to contend with growing responsibilities at work and home. FP6 stated that she had strategically waited to have children later in her career as she realised that becoming a mother at a critical stage in her career path could derail the trajectory. MP1 and MP2 also highlighted that women would leave at critical points in their careers to have children. This decision would negatively impact their career trajectory, especially if they were still building their credibility and finding sponsors within the organisation. Male-dominated sectors perpetuate organisational structures that favour men and ignore the dual role women must play (Hofmeyr & Mzobe, 2012).

4.5.3 Micro – individual level

Female perspective

The female participants highlighted that women were not good at promoting themselves and their accomplishments to others; they were generally taught to have humility. They also expressed women seeing other women as competitors in the workplace as a constraint at the micro-level. These women would work against each other out of fear that there may not be enough space for all of them. These findings were consistent with the literature.

Constraints	Female participant quote
Non-self-promotion	<i>"We don't brand, in our culture we don't brand ourselves, we're not taught to brand ourselves, we're not taught to promote ourselves. I'm not saying the way men do it but I'm just saying we're not taught self-promotion or self-branding, self-marketing or how to profile ourselves and give our own work visibility because we're raised to be humble." ~ FP6</i>
Perceiving other women as competitors	<i>"...also, the internal struggle we have, that we don't have to fight each other, it doesn't have to be a competitive space, it can be a supportive space, and you often see women becoming really b****y when they're in the same position." ~ FP5</i>

i. Non-self-promotion: FP6 highlighted how by nature, women were taught to have humility, which speaks to the literature on how women are expected to portray more communal traits (Eagly & Carli, 2018). However, to progress in organisations, individuals need to have built credibility and visibility of their capabilities and achievements. FP1 spoke of how this inability to brand means women cannot build credibility with the right people. There is a need to do self-promotion to get recognition, especially for women who find their work often not being recognised or credited to them. However, this is not something that comes naturally to women. FP3 commented how she was unable to promote her work to others. FP8 reflected on how this inability to promote themselves prevented women from accessing opportunities.

ii. Perceiving other women as competitors: The female participants highlighted that women were also not always supportive of each other and would compete or bicker amongst themselves instead of supporting each other. This finding is supported by Hofmeyr and Mzobe (2012), who found that women did not support each other sufficiently. FP6 spoke of 'woman-on-woman' violence and competitiveness. The perception that some women have that there is not enough space at the top, FP5 commented how the behaviour of some women became more hostile towards other women once they reached certain levels. This behaviour resulted in 'Queen Bee Syndrome', where senior women did not support the junior women if they felt they the

latter threatened them. Babalola et al. (2021) noted in their research that this behaviour was because of being in male-dominated environments wherein senior women distanced themselves from other women to survive. Alternatively, the ‘*Patriarchal princesses*’ are described by FP6 as women who “*undermine other women to position themselves to men.*” FP2 highlighted that this behaviour was likely a trauma response based on the environments women grow up in and how they were treated – the desire to feel extraordinary impacts their ability to relate to other women.

Male perspective

The male participants’ discussion of the micro-level of constraints was less than the female participants. As discussed in the next part, most of their thoughts were shared with the female participants.

Shared perspective

The participants shared that the women’s mindset, internal beliefs about themselves and their capabilities, and conforming to male traits to fit into organisations were micro-level constraints. The barriers posed by the internal struggles women have about themselves and their ability to perform at times led to them being hesitant to take on new challenges and taking fewer chances on themselves than their male counterparts. The participants expressed that women conforming to fit into organisations took away from their natural capabilities. These study findings aligned with the literature; women should believe in their capabilities and avoid confirming as much as possible because their contributions are valuable to the energy sector.

Constraints	Female/Male participant quote
Mindset and internal beliefs of women	<i>“So, I pulled someone in to be my executive assistant and after about 12 months she quit because she said it was too much work, it was too stressful, and she had to deal with too many things. And I was like, you were stuck in some corner, if you want to move your career you have to be willing to stretch and do things that are out of your comfort zone” ~ FP6</i>
	<i>“Certainly, maybe earlier on there was more of a hesitancy from the women as well but I don’t pick that up these days maybe it’s older people or maybe as I’ve got older you relate more with older people and then their general competence overcomes the uncertainties. So, I think in my younger days women maybe were a little bit less certain of themselves, even more uncertain than I felt as an individual.” ~ MP7</i>

Constraints	Female/Male participant quote
Conforming to male traits	<i>"I think for me, and it's something I had to learn over time, especially because I was in a very male dominated environment that I tried to behave like my male counterparts, which at the end of the day didn't sit comfortably with me, and I eventually got the maturity as a manager and the confidence as a manager to develop my own style. And I think that women often do that, so they will take on what they think is required of them as a leader" ~ FP3</i>
	<i>"The third one is that when women are then in power, the respect part I don't think is as natural for all the people and then you either find the women are very stern and very hard in trying to assert themselves in the environment, which then takes away their natural ability and capability of leading because now they have to be something else that they are not just to get the respect." ~ MP5</i>

i. Mindset and internal beliefs of women: Just as the participants highlighted that the mindset of women was an enabler for career progress, they also reflected on how it could be a constraint. The female participants reflected on how women may not trust themselves and lack confidence in their capabilities. They also highlighted how women tended to be less risk averse, take fewer chances and not take on opportunities. According to Schmitt and Wilkesmann (2020), gender stereotypes and societal indoctrination of gender roles can make women less confident in technical or leadership capabilities. Du Plessis and Barkhuizen (2015) found that a lack of self-confidence in their capabilities was a barrier for female engineers. Vu and Nwachukwu (2020) found that personality-based constraints were challenging for women, including fear of taking risks, lack of self-confidence, and self-doubt.

An example would be the perception of readiness for a promotion – women would only apply if they believed they met most of the criteria. On the other hand, men were more willing to bet on themselves, even if they only partially met the set criteria. FP3 stated, *'I read this statistic the other day that if you apply for a new job, women will only apply for a new job if they think they can do 80 percent of it. Men will apply for a new job if they can do 20 percent of it.'*

FP6 mentioned that even when opportunities were presented, some women were unwilling to take on the task if it was outside their comfort zone. There was a tendency to avoid risk and uncertainty and remain in environments that were not conducive to progress, out of fear. There is, at times, a hesitance to take on the management role offered, which is supported by a study by KPMG (2019), where more than half the women surveyed were hesitant to take on leadership roles. MP7 reflected on how women may

be more hesitant to believe in themselves early in their careers. FP5 believed most women suffered from imposter syndrome, supported in research by Nakazwe-Masiya et al. (2017), who showed that imposter syndrome has a more significant effect on women. The female participants shared how women with low confidence would not give the best impression and that external affirmation was needed for them to believe in their capabilities.

Gipson et al. (2017) state that biases against women and the subsequent perceptions of themselves influence their leadership development process, especially in male-dominated environments. Both female and male participants highlighted how women might have negative perceptions of work in the energy sector and its ability to be inclusive of women. Thus, they may choose not to pursue careers in energy. FP1 mentioned how women might perceive the sector as dirty, and FP3 mentioned that perceptions of economic benefits might not be as attractive as other STEM careers. MP2 mentioned how, historically, the sector had not positioned itself as exciting for women.

ii. Conforming to male traits: Conforming to male traits can happen mainly in the operations environment where the workforce is primarily male (Eagly & Carli, 2018). The participants were asked if they thought women had to conform to male characteristics to progress in the sector. The common consensus was that some conforming was required – but this was based on the tenure in the sector and the environment. According to Kiamba (2009), there was a tendency for successful women to conform to the male culture in organisations. These were mainly male spaces in operations and required a sterner leadership style to earn respect. FP1 felt like she could be more herself as she got more senior in organisations. Conforming to the male leadership style resulted in more of the same type of environments being perpetuated where women find it hard to assimilate and be included. In addition, women are judged more harshly for portraying male leadership traits such as ambition, decisiveness, and power (Hofmeyr & Mzobe, 2012; Vachon, 2014).

4.5.4 Conclusion of constraints for female leadership progression in the energy sector

This section addresses the research question “*What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?*”. Like the enablers analysis, the constraints were analysed along the three levels from both the female and male perspectives. Similarly, although each gender identified

constraints, there were more shared perspectives on the potential constraints for women to progress to senior leadership positions in the energy sector.

The main enablers identified were gender stereotyping and unconscious bias; mindset and internal beliefs of women; male-dominated sector and culture; old boys' clubs; lack of female pipelines and representation; lack of accommodative structures in operations; and the dual role of women. Most of the findings were consistent with the literature wherein gender stereotyping poses a challenge as women may be boxed into particular roles based on societal expectations of their gender (Alqahtani, 2019; Samuel & Mokoaleli, 2017; Sánchez & Lehnert, 2019), similarly there may be an unconscious bias favouring men (Lahti, 2013; Schein, 1973, 2007) and women themselves may lack confidence in their own capabilities (Broughton & Miller, 2009; Chengadu & Scheepers, 2017; Rick et al., 2017). Additional constraints included the challenges posed by long-tenured employees due to the long-term nature of the energy sector, intentional lack of skills transfer, and the unfair expectations of women from perceptions of BBBEE.

Although most of the women were aligned on the constraints for women pursuing energy leadership, FP4 and FP5 felt that these constraints were not as consequential and did not pose a significant challenge that would stop women from excelling. This finding is similar to Chengadu and Scheepers (2017), where some women did not consider that any barriers were faced along the way that was gender specific.

4.6 Comparison of literature review and own findings

The following section compares the literature review and the study's findings concerning the research questions, see **Table 7**.

Table 7: Comparison of literature review and findings

RQ #	State Research Question	Prop #	State Proposition (literature review response to RQ)	Findings from own study
1	What are the specific characteristics of female leadership that have impacted the success of organisations in the energy sector?	1	Female leadership qualities such as empathy, perseverance, flexibility, motivation, participative and interaction with subordinates positively impact on organisations.	Female leadership qualities include being people-centric – inclusive and collaborative; possessing 'soft traits' like empathy and intuition; developing and empowering others; being visionary, high performance-driven and perfectionism. Increased diversity in organisations – including gender – results in better problem-solving and solutions, improving organisational performance.
2	What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?	2	The enablers for female energy leaders' progression include family support, work-life integration, coaching, mentorship, sponsorship, networking, and individual factors.	The main enablers for women to progress in the energy sector identified in this study are transformation processes and strategies; networking and gaining exposure; organisational enabling environment (incl. operations); coaching, mentorship, and sponsorship; development and training opportunities; mindset and internal belief systems (including self-determination) of the women; senior leadership and managerial support; proactive career ownership; and family and household support.
3	What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?	3	The constraints for women to progress to senior leadership positions include gender stereotyping, organisational culture, lack of relevant development opportunities, and lack of sponsorship, mentoring and internal support.	The main constraints for women to progress in the energy sector identified in this study are gender stereotyping and unconscious bias; mindset and internal beliefs of women; male-dominated sector and culture; old boys' clubs; lack of female pipelines and representation; lack of accommodative structures in operations; and the dual role of women.

4.7 Conclusion

This chapter presented the research findings and discussion. The chapter's findings concerning the three research questions were female leadership characteristics and the main enablers and constraints for women's career progression into senior positions.

The research findings highlighted that the main characteristics associated with female leadership are being people-centric – inclusive and collaborative; possessing 'soft traits' like empathy and intuition; developing and empowering others; being a visionary and being high performance-driven and perfectionism. These research findings were consistent with the literature; however, they highlighted that female leaders could be just as demanding as their male counterparts despite expecting them to be more communal. The research findings highlighted that increased diversity in organisations – including gender – results in better problem-solving and solutions, thereby improving organisational performance. The research findings also highlighted that although women did possess characteristics that were less pronounced in men, there needed to be a balance of characteristics to be able to lead men in the sector. However, women are encouraged to lean on their natural characteristics and not conform to male characteristics. This way, they can lead authentically. They will also bring complementary characteristics into the sector, which needs more people-centred leadership. The findings also showed that female leadership characteristics such as their softer traits, emotional intelligence, long-term visions, integrated thinking, and values-based leadership would benefit the energy sector.

For the second research question, the main identified enablers for progression into senior positions in the energy sector were transformation processes and strategies; networking and gaining exposure; organisational enabling environment (incl. operations); coaching, mentorship, and sponsorship; development and training opportunities; mindset and internal belief systems (including self-determination); senior leadership and managerial support; proactive career ownership; family and household support. It should also be noted that most of the main enablers for women to progress in the sector were the same for men. There was also a significant emphasis on the role of organisational processes and environments in allowing women to thrive in the sector. The role of senior men and women cannot be understated as the research also highlighted that they had a key role – with the participants being intentional about developing others. Most of the study findings were consistent with the literature; additional enablers included females promoting their capabilities and branding

themselves, continuously reading up on the sector, collectively reducing old boys' clubs and taking advantage of potential new employment opportunities presented by the renewable energy sector. The female participants had aspects of both intrinsic and extrinsic motivation; however, the intrinsic motivators far outweighed the extrinsic ones. The participants agreed that females in this sector needed a high level of self-determination to drive successful careers in the sector. This finding was also emphasised in the analysis of enablers and constraints – wherein the mindset of the women was one of the vital micro drivers identified by both female and male participants. The female participants also highlighted that self-determination and being self-driven were vital for them, a finding that is consistent with the literature.

The last research question focused on the main constraints faced by women on their journey to becoming leaders in the energy sector. The main constraints identified in the research are gender stereotyping and unconscious bias; mindset and internal beliefs of women; male-dominated sector and culture; old boys' clubs; lack of female pipelines and representation; lack of accommodative structures in operations; and the dual role of women. Gender stereotyping was identified as the leading constraint women face in the sector. This finding is to be expected, considering the male-dominated nature of the sector. Upon entering the sector, women are already faced with challenges concerning their ability to perform and be leaders. This bias against women comes from both men and women and is generally overcome by women working extra hard and conforming to male leadership styles, perpetuating the problem. Another major challenge identified by the participants is the mindset and beliefs that women have about themselves, their capabilities, and the sector. Women's role as professionals and primary parents in their households was also highlighted as a constraint. In some instances, this plays against women as they may be overlooked for promotions if it is believed they will be starting a family or are already expecting; this is especially a challenge in operations environments. These operations environments were also highlighted as an issue. Women needed experience in the field to be fully competent in their roles and be eligible for promotions into senior leadership – but the environment was sometimes hostile towards them or did not accommodate their needs. Most of the findings were consistent with the literature, with the addition of the challenges posed by long-tenured employees due to the long-term nature of the energy sector, intentional lack of skills transfer, and the unfair expectations of women from perceptions of BBBEE.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study aimed to highlight the female leadership characteristics that may lead to better organisational performance and identify the factors contributing to women's underrepresentation at senior levels in energy sector organisations. It aimed to explore the gendered perceptions of enablers and constraints provided by women leaders and their male counterparts. This study is relevant because it contributes to the discourse on the lack of gender parity, especially in leadership, in the energy sector. This chapter provides the conclusions and recommendations of this study. It starts with providing the conclusions to each research question investigated, followed by a consistency table summarising the study. The consistency table is then followed by recommendations from the study based on the findings and literature. The chapter concludes by providing suggestions for further research.

5.2 Conclusions regarding female leadership characteristics

There was a general alignment on female leadership characteristics and ideal leadership characteristics. Namely, leaders should be: people-centric, collaborative, and participative, promote inclusivity, possess soft traits, including a high level of emotional intelligence, and develop and empower others. The main characteristics highlighted as associated with female leadership, such as interpersonal capabilities, listening, empathy, teambuilding, helping others to achieve common goals and being participative, were indeed features of transformational leadership (Eagly & Johannesen-Schmidt, 2001). The research results indicate that females tend to have a more communal style of leadership which orients their style towards a people-centred type of leadership. However, the female leaders also described themselves as performance-driven, having high standards of delivery for themselves and their teams, which could be associated with more traditionally male leadership traits.

Although certain characteristics are more associated with female leadership, such as empathy and inclusivity, the leaders highlighted that good male leaders also possess these characteristics. Literature also supports the notion that senior leadership has certain common characteristics that need to be present in all successful leaders, such as assertiveness and strategic thinking (Wille et al., 2018). There were certain ideal

leadership characteristics with the leaders were not aligned with in their presence in female leadership, such as decisiveness, vision-setting and systemic thinking. In Kaiser and Wallace (2016), it is highlighted how positive leadership traits can be viewed as unfavourable when present in women, such as participative female leaders being viewed as indecisive and overly dependent on input from others. On the other hand, other studies discussed how women leaders might be penalised for displaying characteristics associated with male leadership, such as assertiveness or competitiveness (Gipson et al., 2017). This constraint is an added challenge for women trying to navigate their way towards leadership, as they must always be aware of how they are perceived. The female leaders also highlighted that they had high-performance standards and could be perfectionists, making them hard on their teams when the situation called for it.

Both genders were more broadly aligned on the value of diversity in teams and organisations. Although the leaders could not quantify female leadership's contribution to performance, they noted a marked improvement in teams' performance when teams were more balanced. The interpersonal strength of women allows them to get to know their teams, and they can then draw on their strengths to achieve the organisation's objectives. The leaders also noted that innovation could be enhanced when teams were more diverse, as problems could be looked at from different angles since there would be diverse and divergent perspectives on the same issue.

Organisations should aspire to have balanced leadership. Balancing characteristics associated with female leadership, such as empathy and collaboration, with characteristics associated with male leadership styles, such as decisiveness and goal orientation, could be the ideal leadership form. The research shows that both genders highly value female leadership characteristics and that the best leaders can draw on several ideal characteristics for effective leaders – whether traditionally masculine or feminine. The differences in leadership styles are complimentary between the genders and make for better organisations. Although the notion of 'think leadership, think male' may persist, the leaders interviewed demonstrated that female leadership is valued and needed in the energy sector to contribute to innovation, good governance, and better organisational performance.

5.3 Conclusions regarding enablers

The main enabler identified by the female participants at the macro level was the need for an increase in female representation in the sector, especially at senior levels. The

male participants identified that the growing renewable energy sector provided the energy sector with a unique opportunity to chart a more inclusive path for women. The participants shared the view that government policies that set transformation targets had a positive influence in increasing the number of women in the sector, especially in public sector organisations, as is evidenced in BWASA (2021). Furthermore, the participants agreed that the sector could make itself more attractive and inclusive to women.

At the meso level, the main enablers identified by the female participants were networking and ensuring that there was exposure to women's work. The women also believed there was power in women supporting and lifting each other. They also witnessed the impact that targeted programmes for women can have in assisting women to progress in their careers. In addition, the women highlighted the importance of having a supportive family – both immediate and extended. They encouraged women to outsource help to support their roles at home. The male participants also highlighted how invaluable their spouses had been in supporting their careers. However, regarding the enablers for women, the male participants highlighted the role of men as allies and sponsors of women's careers. There was a recognition of the role they could play in supporting women and an awareness of the privilege they had as men. They also highlighted that the capabilities of women needed to be recognised, as often women were overlooked. The participants shared that enablers for women included coaching, mentorship, and sponsorship; development and training opportunities; transformation processes and strategies; organisational enabling environment; support from supervisors and senior leaders in organisations and the reduction of the prevalence and impact of *'old boys clubs'*.

At the micro, individual level, the female participants highlighted the mindset and belief systems of women to be the main enabler for career advancement. Their self-determination and motivation to make a difference led them to go the extra mile to achieve their career goals. Additionally, women should take proactive ownership of their career path. Set clear, aspirational goals for themselves and do what is required for them to move up in their careers. They encouraged women to build their brand of performance within organisations. Lastly, the women had gone where no other women had before, broken glass ceilings and built reputations of performance and delivery within their organisations. The male participants recognised that for them, what stands out as an enabler at the individual level is building that reputation of performance and earning the trust of sponsors through excellent delivery, which would then prompt them to give women more opportunities. The shared perspectives on enablers were lifelong learning

about the sector, as technologies are constantly evolving and there are always innovations; continued self-development by upskilling; and getting an early career postgraduate qualification to set one up for senior roles at the start of one's career.

5.4 Conclusions regarding constraints

At the macro level, the female participants highlighted the long-term nature of the sector and how it created inertia in bringing in new people into the sector at senior levels, as those positions were occupied for long periods. Some male participants reflected on how personal background barriers could impact individuals' success, especially in South Africa. They knew how their privileged upbringing had provided them access to good schools and university bursaries – which set them up for success. The participants shared that gender stereotyping and unconscious bias provided a significant barrier for women in the sector as they were expected to behave in gender-assigned roles. The societal context and cultural beliefs breed gender stereotyping indoctrinated in the communities' individuals are brought up in, where women are relegated to caretaker roles and men breadwinner roles. They also shared that the lack of female pipelines impacted the number of women in the sector, exacerbating the lack of representation of women in the sector.

At the meso level, some female participants highlighted how BBBEE could be perceived to make things easy for women in terms of getting employment and contracts, whereas, in reality, this is not the case. The male participants highlighted a lack of skills transfer; an uncondusive organisational environment for female career advancement with seemingly intentional obstacles (e.g., setting meetings late); and organisations meeting transformation targets superficially without ensuring the women are ready for the roles. The participants agreed on the challenges for women posed by being in a male-dominated sector and culture which had a bias towards men and favoured them over women. They also agreed that the operations environment lacked the support structures for women to feel safe and included so that they could gain the fieldwork experience needed to excel in technical roles – which can be a significant barrier to advancement in the energy sector. Lastly, the participants agreed that the dual role of women being professionals and the primary caretaker at home could pose a significant challenge if organisations did not consider this and put in the necessary policies to enable women to perform well in all aspects of their lives.

At the micro level, the female participants highlighted that women could not easily brand themselves and promote their work and capabilities. This meant they would often remain invisible to those who needed to see them to give them further opportunities. The idea that women are expected to be more communal and thus should be humble and modest holds them back from opportunities. They also reflected on how women could be unsupportive of each other and, in certain instances, would block each other's way intentionally out of concern that there is not enough space for more women in the male-dominated environments they work. The participants shared that a significant constraint for women was their mindset and beliefs about themselves and the type of work in the sector. The lack of trust in their capabilities meant that they sometimes avoided opportunities, even if they were presented to them as appropriate. Lastly, the participants highlighted that women would sometimes conform to fit into their environments as this could be a strategy to excel in the male-dominated culture of the energy sector. However, this may come at the detriment of their female leadership characteristics, which the participants felt would be a disservice to the women and the energy sector, which could benefit from some of these characteristics.

Although most of the women were aligned on the constraints for women pursuing energy leadership, some felt that these constraints were not as consequential and did not pose a significant challenge that would stop women from excelling.

Table 8: Consistency table: research questions, conclusions, and contribution to knowledge

RQ #	State Research Question or Objective	State literature-based proposition or hypothesis	State conclusion or answer based on own research	Highlight key differences between your initial propositions/hypotheses and your findings – this is your contribution to knowledge
1	What are the specific characteristics of female leadership that have impacted the success of organisations in the energy sector?	Female leadership qualities such as empathy, perseverance, flexibility, motivation, participative and interaction with subordinates positively impact organisations.	Female leadership qualities include being people-centric – inclusive and collaborative; possessing 'soft traits' like empathy and intuition; developing and empowering others; being visionary, high performance-driven and perfectionism. Increased diversity in organisations – including gender – results in better problem-solving and solutions, improving organisational performance.	The research findings corroborated what was in the literature, however, with the addition that women are high performance-driven, perfectionists and work hard to achieve results. The research also highlighted that women's communal nature could sometimes result in indecision. There was also an appreciation by male leaders of the softer traits aligned with female leadership.
2	What are the main enablers for female career progression to senior leadership positions in organisations in the energy sector?	The enablers for female energy leaders' progression include family support, work-life integration, coaching, mentorship, sponsorship, networking, and individual factors.	The main enablers for women to progress in the energy sector identified in this study are transformation processes and strategies; networking and gaining exposure; organisational enabling environment (incl. operations); coaching, mentorship, and sponsorship; development and training opportunities; mindset and internal belief systems (including self-determination) of the	The research aligned with the enablers identified in the literature. However, there was an emphasis on the role organisations could play in establishing the necessary processes and creating the environment – especially in male-dominated operations – for women to succeed. In addition, the value of networking and exposure to senior leaders in the organisation was highlighted as integral to success. Women's mindsets and beliefs about their capabilities and the sector were also identified as

RQ #	State Research Question or Objective	State literature-based proposition or hypothesis	State conclusion or answer based on own research	Highlight key differences between your initial propositions/hypotheses and your findings – this is your contribution to knowledge
			women; senior leadership and managerial support; proactive career ownership; and family and household support.	key enablers. In addition, other enablers were females promoting their capabilities and branding themselves, continuously reading up on the sector, collectively reducing old boys' clubs and taking advantage of potential new employment opportunities presented by the renewable energy sector.
3	What are the main constraints for female career progression to senior leadership positions in organisations in the energy sector?	The constraints for women to progress to senior leadership positions include gender stereotyping, organisational culture, lack of relevant development opportunities, and lack of sponsorship, mentoring and internal support.	The main constraints for women to progress in the energy sector identified in this study are gender stereotyping and unconscious bias; mindset and internal beliefs of women; male-dominated sector and culture; old boys' clubs; lack of female pipelines and representation; lack of accommodative structures in operations; and the dual role of women.	The research findings on the constraints included gender stereotyping and organisational culture – highlighted as the male-dominated sector and culture in this research. Additional findings were the mindset and internal beliefs of women, the lack of female representation in the sector and pipelining, and the lack of structures to accommodate women in the operations environment in the sector. Lastly, the dual role of women as professionals and mothers could also pose a challenge, especially in male-dominated environments. In addition, other constraints included challenges posed by long-tenured employees due to the long-term nature of the energy sector, intentional lack of skills transfer, and the unfair expectations of women from perceptions of BBEE.

5.5 Recommendations and implications from the research

The following section discusses the implications of the research and the recommendations that can be considered. The focus is on women and men in the energy sector and energy sector organisations.

Implications for women in the energy sector

Women leaders in the energy sector can pave the way for those that follow by leaning into their feminine leadership traits while displaying how to dial up male leadership traits when the situation calls for it. They can be an example for other women still on their path to becoming leaders by showing them that it is all right to take up space as a woman in the energy sector and that much value comes from feminine leadership. Women leaders should also use their position to advocate for the inclusion of other women rather than being content with being the only woman in the room.

Women entering the energy sector already have to prove their capabilities; thus, navigating their way into senior leadership roles is challenging. These women can also use the highlighted enablers and constraints to help navigate their career path. Women need to take full responsibility for their careers to succeed. They should be aware of and address their barriers to take on all the relevant opportunities. Women should also not assume that only women can assist them but should take advantage of their relationships with male allies in their organisations. Women should also be intentional about when they start their families to ensure that it aligns with their leadership journeys and that they take key inflection point opportunities. Women are also encouraged to get support at home to perform well at work.

Implications for Men in the energy sector

The men in the energy sector should be aware of their privilege simply because they are male. They should be aware of the gender stereotypes that work against women and assist in trying to address those whenever possible. They should advocate for balance in leadership and provide fair and equal opportunities to women as they would for men. Men should work against the prevalence of '*old boys clubs*' as these exclude women from networking opportunities essential for advancement into senior leadership positions. Men should also volunteer to be mentors, coaches, and sponsors for women as they have institutional knowledge and networks that could enhance women's career advancement.

Implications for Energy sector organisations

Organisations in the energy sector have a long way to go to reach gender parity. The research showed that organisational transformation strategies and enabling environment are key enablers for women to participate fully and penetrate senior levels of leadership. Organisations need to develop and implement strategies that will increase the prevalence of female leaders in the energy sector – this needs to start with visibility to young women on the potential careers in the sector. Organisations should implement transformation strategies based on merit to avoid the tokenism of women leaders and programmes to support women to take senior leadership positions. Succession planning by leaders in organisations should foster diversity and inclusion. Diversity and inclusion programmes are encouraged to create awareness of the challenges being faced by women and to allow open dialogue among employees. Furthermore, organisations could consider linking increased diversity and inclusion to the performance outcomes of organisational leaders.

5.6 Suggestions for further research

Although this research attempted to answer the research questions, which was achieved to a certain extent, further research must be conducted to delve into some of the identified issues. The sample size of participants varied in race, marital status, upbringing, and educational background. The energy sector itself is broad, and there are differences between the oil and gas and electricity sectors for example. There could also be differences between public and private sector organisations, which this research did not address. This study focused on individuals who are already leaders in the sector; it might be interesting to get the views of junior and middle management individuals. Furthermore, the format of face-to-face interviews may have resulted in hesitance in participants to answer all questions thoroughly. A more anonymised study might provide different insights.

Lastly, it might be interesting to assess to what extent the enablers and constraints impact the female leadership journey compared to the male leadership journey. Although the research did start to delve into this – a more detailed assessment would provide some unique insights.

REFERENCES

- Abdulrahman, M., & Amoush, A. H. M. (2020). Female Characteristics and Their New Roles in Leadership. *Journal of Business*, 8(2), 38-47.
- Agbalalah, E. H., Solorzano, R., & Rosenzweig, J. (2020). Human Resources Challenges In The Nuclear Industry (Knowledge Retention And Transfer (KRT)) In The United Kingdom (UK) As Reference. *European Journal Of Human Resource*, 4(1), 63-76.
- Akkaya, B. (2020). Opinions of Educational Administrators on Glass Ceiling Syndrome Preventing Women from Becoming Senior Managers. *Journal of Education and Training Studies*, 8, 76-8.
- Alonso-Almeida, M. D. M., Perramon, J., & Bagur-Femenias, L. (2017). Leadership styles and corporate social responsibility management: Analysis from a gender perspective. *Business Ethics: A European Review*, 26(2), 147-161.
- Alqahtani, T. (2019). Barriers to Women's leadership. *Granite Journal: A Postgraduate Interdisciplinary Journal*, 3(2), 34-41.
- Amankwaa, L. (2016). Creating protocols for trustworthiness in qualitative research. *Journal of Cultural Diversity*, 123-127 <http://www.tuckerpublish.com/jcd.htm>.
- Amon, M. J. (2017). Looking through the glass ceiling: A qualitative study of STEM women's career narratives. *Frontiers in Psychology*, 8, 236.
- Anfara, V. A. (2008). *The SAGE Encyclopedia of Qualitative Research Methods: Theoretical Frameworks*. Thousand Oaks: SAGE Publications, Inc.
- Anfara, V. A., & Mertz, N. T. (2014). *Theoretical Frameworks in Qualitative Research*. SAGE Publications.
- Anney, V. N. (2014). Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and Policy Studies*, 5(2), 272-281.
- Antwi, S. K., & Hamza, K. (2015). Qualitative and quantitative research paradigms in business research: A philosophical reflection. *European Journal of Business and Management*, 7, 217-225.
- Arenas-Molina, M. T., & Rodríguez, J. M. C. (2017). Leadership in construction. A case study with a gender perspective. *Revista de la Construcción. Journal of Construction*, 16(1), 115-125.

- Assarroudi, A., Heshmati Nabavi, F., Armat, M. R., Ebadi, A., & Vaismoradi, M. (2018). Directed qualitative content analysis: the description and elaboration of its underpinning methods and data analysis process. *Journal of Research in Nursing*, 23(1), 42–55.
- Ayman, R., & Korabik, K. (2010). Leadership: Why gender and culture matter. *American Psychologist*, 65(3), 157.
- Babalola, O. O., du Plessis, Y., & Babalola, S. S. (2021). Insight into the organizational culture and challenges faced by women STEM leaders in Africa. *Social Sciences*, 10(3), 105.
- Barsh, J., & Yee, L. (2012). Unlocking the full potential of women at work. *McKinsey & Company/Wall Street Journal*, 2-12.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. NY: The Free Press: 191.
- Bastida Domínguez, M., Rivo-López, E., & Villanueva-Villar, M. (2019). 'The glass ceiling': Myth or reality? An expatriation perspective. *Organizational Dynamics*, 48(4), 100706.
- Beck, Z., & Panczel, A. (2018). *Gender Diversity in the CEE-SEE Energy Sector Women in Energy*. The Boston Consulting Group.
- Beeson, J., & Valerio, A. M. (2012). The executive leadership imperative: A new perspective on how companies and executives can accelerate the development of women leaders. *Business Horizons*, 55(5), 417-425.
- Bellone, B. D., Kutob, L., Noel, J., & Siccardi, G. (2019). The current state of women in energy, resources, and infrastructure. *Voices on Infrastructure*.
- Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research: An International Journal*. 19(4), 426–4.
- Book, E. W. (2000). *Why the best man for the job is a woman: The unique female qualities of leadership*: Harper Business New York: NY.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3, 77-101.
- Broughton, A., & Miller, L. (2009). Encouraging Women into Senior Management Positions: How Coaching Can Help an International Comparative Review and Research. *The Institute for Employment Studies* (pp. 129).

- Bruckmüller, S., & Branscombe, N. R. (2010). The glass cliff: When and why women are selected as leaders in crisis contexts. *British Journal of Social Psychology*, 49(3), 433–451.
- Burkinshaw, P., & White, K. (2017). Fixing the women or fixing universities: Women in HE leadership. *Administrative Sciences*, 7(3), 30.
- Buse, K., Bilimoria, D., & Perelli, S. (2013). Why they stay: women persisting in the engineering profession. *Career Development International*, 18, 139–154.
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review*, 106, 676.
- BWASA. (2021). *South African Women in Leadership Census 2021*. <https://bwasa.co.za/wp-content/uploads/2021/10/BWASA-CENSUS-FINAL-TO-PRINT-2021.pdf>
- Bynum, V. (2000). *An investigation of female leadership characteristics*. PhD, Capella University. Carless, SA Gender.
- Campbell, M., & Smith, R. (2010). *High-potential talent: A view from inside the leadership pipeline*. Greensboro, NC: Center for Creative Leadership.
- Chengadu, S., & Scheepers, C. (2017). *Women Leadership in Emerging Markets: Featuring 46 Women Leaders*. Taylor & Francis.
- Cheung, F. M., & Halpern, D. F. (2010). Women at the top: Powerful leaders define success as work + family in a culture of gender. *American Psychologist*, 65(3), 182–193.
- Chiloane-Tsoka, G. (2010). Perceptions of barriers to the advancement of women in management and leadership positions in South Africa. *Gender and Behaviour*, 8(2), 2976-2995.
- Chinyamurindi, W. T. (2016). A narrative investigation into the meaning and experience of career success : perspectives from women participants : original research. *SA Journal of Human Resource Management*, 14(1), 1-11.
- Chira, S. (2017, July 21). Why Women Aren't C.E.O.s, According to Women Who Almost Were. New York Times.
- Cimirotić, R., Duller, V., Feldbauer-Durstmüller, B., Gärtner, B., & Hiebl, M. R. W. (2017). Enabling factors that contribute to women reaching leadership positions in business organizations: The case of management accountants. *Management Research Review*, 40(2) DOI:10.1108/MRR-10-2014-0233

- Coe, I. R., Wiley, R., & Bekker, L.-G. (2019). Organisational best practices towards gender equality in science and medicine. *The Lancet*, 393, 587-593.
- Collins, C. S., & Stockton, C. M. (2018). The central role of theory in qualitative research. *International Journal of Qualitative Methods*, 17(1), 1-10.
- Colorafi, K. J., & Evans, B. (2016). Qualitative descriptive methods in health science research. *HERD: Health Environments Research & Design Journal*, 9(4), 16–25.
- Connelly, L. M. (2016). Trustworthiness in qualitative research. *Medical and Surgical Nursing*, 25(6), 435-437.
- Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. Paper presented at the *Oncology Nursing Forum* 41, 89-91.
- Coury, S., Huang, J., Kumar, A., Prince, S., Krivkovich, A., & Yee., L. (2020). Women in the Workplace. *McKinsey & Company* 6, 1-36.
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*: Sage publications.
- De La Rey, C. (2005). Gender, women and leadership. *Agenda*, 19(65), 4-11.
- Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: the self-determination theory perspective, *Journal of Personality*, 62(1):, 119–142. doi: 10.1111/j.1467-6494.1994.tb00797.x. PMID: 8169757.
- Deci, E. L., Olafsen, A. H., & Ryan, R. M. (2017). Self-Determination Theory in Work Organizations: The State of a Science. *Annual Review of Organizational Psychology and Organizational Behavior*, 4, 19-43.
- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In Dientsbier, R.A. (ed.), *Perspectives on Motivation: Nebraska Symposium on Motivation*, 237–288.
- Department of Labour. (2019). 20th Commission for Employment Equity.
- Desvaux, G., & Devillard, S. (2008). *Women Matter 2008: Female leadership, a competitive edge for the future*. Paper presented at the McKinsey & Company.
- Desvaux, G., Devillard, S., & Sancier-Sultan, S. (2010). *Women Matter 2010 Women at the top of corporations: Making it happen*. Paper presented at the McKinsey & Company.

- DFFE. (2021). *South Africa's First Nationally Determined Contribution under the Paris Agreement*. Department of Forestry, Fisheries and Environment,
- DiCicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical Education*, 40(4), 314-321.
- Diehl, A. B., & Dzubinski, L. M. (2016). Making the invisible visible: A cross-sector analysis of gender-based leadership barriers. *Human Resource Development Quarterly*, 27, 181–206.
- Dixon-Fyle, S., Prince, S., Dolan, K., & Hunt, V. (2020). *Diversity Wins: How Inclusion Matters*. McKinsey & Company.
- Doubell, M., & Struwig, M. (2013). The contribution of environmental factors to the professional success of women. *Africa Insight*, 42(4), 144-165.
- Doubell, M., & Struwig, M. (2014). Perceptions of factors influencing the career success of professional and business women in South Africa. *South African Journal of Economic and Management Sciences* 17, 531-543.
- Du Plessis, Y., & Barkhuizen, N. (2015). Exploring the career path barriers of women professional engineers in a South African context. *African Journal of Employee Relations* (Formerly, South African Journal of Labour Relations). 39, 38-57. 10.25159/2520-3223/5882.
- Eagly, A. H. (2020). Once more: The rise of female leaders. How gender and ethnicity affect the electability and success of women as political leaders. *American Psychological Association*. <https://www.apa.org/topics/women-girls/female-leaders>
- Eagly, A. H., & Carli, L. L. (2007). *Through the labyrinth: The truth about how women become leaders*. Harvard Business Press.
- Eagly, A.H., & Carli, L. L. (2018). Women and the labyrinth of leadership. *Contemporary issues in leadership* (pp. 147–162). Routledge.
- Eagly, H.(2007). Female leadership advantage and disadvantage: Resolving the contradictions. *Psychology of Women Quarterly*, 31(1), 1-12.
- Eagly, A. H., & Johannesen-Schmidt, M. C. (2001). The leadership styles of women and men. *Journal of Social Issues*, 57(4), 781-797.
- Eagly, A., Johannesen-Schmidt, M., & van Engen, M. (2003). Transformational, Transactional, and Laissez-Faire Leadership Styles: A Meta-Analysis Comparing Women and Men. *Psychological Bulletin*, 129(4), 569-591.

- Esser, A., Kahrens, M., Mouzugh, Y., & Eomois, E. (2018). A female leadership competency framework from the perspective of male leaders. *Gender in Management: An International Journal*, <https://doi.org/10.1108/GM-06-2017-0077>
- Fajardo, C., & Erasmus, M. (2017). *Gender (Dis)parity in South Africa - Addressing the heart of the matter* <https://www.emerald.com/insight/content/doi/10.1108/GM-06-2017-0077/full/html>.
- Farrell, W. (2005). *Exploiting the gender gap*. New York Times, September 5, 5.
- Fleming, S. (2019). South Africa's cabinet is now 50% women for the first time ever. *World Economic Forum*.
- Fouad, N. A., Singh, R., Cappaert, K., Chang, W.-H., & Wan, M. (2016). Comparison of women engineers who persist in or depart from engineering. *Journal of Vocational Behavior*, 92, 79-93.
- Frail, C. D. (2012). Keeping More Women in the Pipeline: Driver, Facilitators and Enablers to Women's Advancement. *The University of Guelph, Ontario*.
- Francis, V. (2017). What influences professional women's career advancement in construction? *Construction Management & Economics* 35, 254-275.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26, 331-362.
- Garavan, T. N., Hogan, C., & Cahir-O'Donnell, A. (2003). *Making training & development work: a "best practice" guide*. Oak Tree Press.
- Gartzia, Leire & Van Engen, M. (2012). Are (male) leaders "feminine" enough? Gendered traits of identity as mediators of sex differences in leadership styles. *Gender in Management: An International Journal*, 27. 296-314. [10.1108/17542411211252624](https://doi.org/10.1108/17542411211252624).
- Gaur, A. S., Das, P., Jain, A., Bhakar, R., & Mathur, J. (2019). Long-term energy system planning considering short-term operational constraints. *Energy Strategy Reviews*, 26, 100383.
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, 204(6), 291-295.

- Gipson, A. N., Pfaff, D. L., Mendelsohn, D. B., Catenacci, L. T., & Burke, W. W. (2017). Women and leadership: Selection, development, leadership style, and performance. *The Journal of Applied Behavioral Science*, 53(1), 32-65.
- Goleman, D. (1998). What Makes a Leader? *Harvard Business Report*, 76(6), 93–102.
- Government of the Republic of South Africa. (1996). *Constitution of the Republic of South Africa*. Pretoria.
- GrantThornton. (2022). *Women in Business 2022: Opening the door to diverse talent*. 27(5):296-314
- Greenberg, H., & Sweeney, P. (2005). Leadership: qualities that distinguish women; Results from a recent survey provide evidence that women bring distinct personality and motivational strengths to leadership roles--and do so in a style that is more conducive to today's diverse workplace. *Financial Executive*, 21, 32-39: Financial Executives International.
- Haack, K. (2014). Breaking Barriers: Women's Representation and Leadership at the United Nations. *Global Governance*, 20, 37.
- Haile, S., Emmanuel, T., & Dzathor, A. (2016). Barriers and challenges confronting women for leadership and management positions: Review and Analysis. *International Journal of Business & Public Administration*, 13.
- Hesse-Biber, S. N. (2013). *Feminist Research Practice: A Primer*. SAGE Publications.
- Hesse-Biber, S. N., & Leavy, P. L. (2007). *Feminist Research Practice: A Primer*. SAGE Publications.
- Hlavova, N. (2017). Energy Security in Africa. *Ekonomické Rozhl'ady/Economic Review*, 46(2), 126-136.
- Hofmeyr, K., & Mzobe, C. (2012). Progress towards advancing women in South African organisations: Myth or reality. *African Journal Of Business Management*, 6, 1276-1289.
- Hovden, J., Kvande, E., & Rasmussen, B. (2011). Gender and the production of elites in the Nordic countries: new directions in research. *Gender in Management: An International Journal*. 26(6):408-418
- Hymowitz, C., & Schellhardt, T. D. (1986). The Corporate Woman (A Special Report): Cover-The Glass Ceiling: Why Women Can't Seem to Break The Invisible Barrier That Blocks Them From the Top Jobs. *Wall Street Journal. Eastern edition* (pp. 1).

- IASS. (2022). *Opportunities and barriers for women in South Africa's energy transition*. Institute for Advanced Sustainability Studies (IASS).
- Ibarra, H., & Obodaru, O. (2009). Women and the vision thing. *Harvard Business Review*, 87(1), 62–70.
- ILO. (2019). Women in Business and Management: The business case for change. (pp. 149). 978-92-2-133168-1 (web pdf)
- IEA. (2021). Women in senior management roles at energy firms remains stubbornly low, but efforts to improve gender diversity are moving apace. <https://www.iea.org/commentaries/women-in-senior-management-roles-at-energy-firms-remains-stubbornly-low-but-efforts-to-improve-gender-diversity-are-moving-apace>
- IEA. (2022). *World Energy Employment*. <https://www.iea.org/reports/world-energy-employment/overview>
- IRENA. (2020). *Renewable Energy and Jobs – Annual Review 2020*.
- Johns, M. L. (2013). Breaking the glass ceiling: Structural, cultural, and organizational barriers preventing women from achieving senior and executive positions. Perspectives in Health Information Management/AHIMA, *American Health Information Management Association*, 10
- Kaiser, R. B., & Wallace, W. T. (2016). Gender bias and substantive differences in ratings of leadership behavior: Toward a new narrative. *Consulting Psychology Journal: Practice and Research*, 68(1): 72.
- Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12): 2954-2965.
- Kark, R. (2004). The transformational leader: Who is (s)he? A feminist perspective. *Journal of Organizational Change Management*, 17(2): 160–176
- Kark, R., Waismel-Manor, R., & Shamir, B. (2012). Does valuing androgyny and femininity lead to a female advantage? The relationship between gender-role, transformational leadership and identification. *The Leadership Quarterly* 23, 620-640.
- Khuzwayo, T. (2018). *An exploratory study of the leadership experiences of senior African female executives in the private sector*. November, 1–142. A research project submitted to the Gordon Institute of Business Science, University of Pretoria,

- Kiamba, J. M. (2009). Women and leadership positions: Social and cultural barriers to success. *Wagadu 6 Journal of International Women's Studies* 10(1): 89.
- Kobus-Olawale, J., Schachtebeck, C., & Dhanpat, N. (2021). Investigating career progression experiences of women into top management at a South African bank. *EUREKA: Social and Humanities*, 3, 28-40.
- Koenig, A. M., Eagly, A. H., Mitchell, A. A., & Ristikari, T. (2011). Are leader stereotypes masculine? A meta-analysis of three research paradigms. *Psychological Bulletin*, 137(4), 616.
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120-124.
- KPMG, & (2019). *2019 KPMG Women's Leadership Study: Risk, Resilience, Reward*.
- Kray, L., Kennedy, J., & Ku, G. (2017). Are women more ethical than men? *Greater Good Magazine*:
- Kurtulus, F. A., & Tomaskovic-Devey, D. (2012). Do female top managers help women to advance? A panel study using EEO-1 records. *The Annals of the American Academy of Political and Social Science*, 639(1), 173–197.
- Lahti, E. (2013). Women and leadership: factors that influence women's career success: female leaders' reflections on their career development and leadership. In: *Lahti University of Applied Sciences*.
- Lenka, U., Gupta, M., & Sahoo, D. K. (2016). Research and development teams as a perennial source of competitive advantage in the innovation adoption process. *Global Business Review* 17, 700-711.
- Leopold, T., Ratcheva, V. S., & Zahidi, S. (2017). 5 charts that will change how you see women's equality in 2017. <https://www.weforum.org/agenda/2017/11/women-equality-gender-gap-report-2017/>
- Letherby, G. (2003). *Feminist Research in Theory and Practice*. Open University Press.
- Liani, M. L., Nyamongo, I. K., & Tolhurst, R. (2020). Understanding intersecting gender inequities in academic scientific research career progression in sub-Saharan Africa. *International Journal of Gender, Science and Technology*, 12(2), 262–288.
- Lincoln, Y. S., & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions For Program Evaluation*, 73-84.

- Lopez, V., & Whitehead, D. (2013). Sampling data and data collection in qualitative research. *Nursing & midwifery research: Methods and appraisal for evidence-based practice*, 123-140.
- Lubbe, C. (2015). Career advancement enablers for women in senior management. Mini dissertation MBA, University of Pretoria.
- Mabokela, R. O., & Mlambo, Y. A. (2015). "The older women are men:" navigating the academic terrain, perspectives from Ghana. *Higher Education*, 69(5), 759-778.
- Mamba, T. N., & Singh, J. S. K. (2018). *A Study on the Gender Digital Divide: Overcoming the Under-Representation of South African Women in the IT Sector*. Asia Pacific University,
- Makansi, J. (2007). *Lights out: the electricity crisis, the global economy, and what it means to you*. John Wiley & Sons.
- Marten, I., & Rick, K. (2016). Women in Energy: Attracting top talent. *Boston Consulting Group* (pp. 1-8).
- Maseko, T.I. (2013). *A Comparative Study of Challenges faced by Women in Leadership: A Case of Foskor and the Department of Labour in Mhlathuze Municipality*. <https://uzspace.unizulu.ac.za/items/6897eda6-c71b-4ebf-a44c-295604d48a21>
- Mate, S. E., McDonald, M., & Do, T. (2019). The barriers and enablers to career and leadership development: An exploration of women's stories in two work cultures. *International Journal of Organizational Analysis*, 27,(4): 857-874.
- Maxwell, J. A. (2008). Designing a qualitative study. *The SAGE Handbook Of Applied Social Research Methods* 2, 214-253.
- Mazonde, N. B., & Carmichael, T. (2020). The African context, cultural competence and emic aspects of qualitative research. *Journal of African Business*, 21(4), 476-492.
- McCullough, L. (2020). Barriers and Assistance for Female Leaders in Academic STEM in the US. *Education Sciences*. 10, 264.
- Moodley, L., Holt, T., Leke, A., & Desvaux, G. (2016). *Women Matter Africa*, Johannesburg.
- Moodley, L., Kuyoro, M., Holt, T., Leke, A., Madgavkar, A., Krishnan, M., & Akintayo, F. (2019). *The power of parity: Advancing women's equality in Africa*.
- Morse, J. M. (2015). Critical analysis of strategies for determining rigor in qualitative inquiry. *Qualitative Health Research* 25, 1212-1222.

- Moser, A., & Korstjens, I. (2017). Series: Practical guidance to qualitative research. Part 1: Introduction. *European Journal of General Practice*, 23(1), 271-273.
- Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice*, 24(1): 9-18.
- Moyana, M. (2018). Perceived Enablers of Upward Mobility of Female Employees in Financial Services Organisations. Open UCT: <http://hdl.handle.net/11427/29589>
- Munjuri, M. G. (2011). *Factors affecting career advancement. In DBA Africa Management Review 1, 93-117.*
- Mupambirei, R. R. (2013). South African women managers' experiences and perceptions of organisational justice and leadership self-efficacy. <https://core.ac.uk/download/pdf/39671728.pdf>
- Nakazwe-Masiya, L., Price, G., & Hofmeyr, K. (2017). Effects of the imposter phenomenon on measures of assertiveness in female professionals in South Africa. In 41, 46-56. UNISA Press.
- Ngulube, P. (2015). Qualitative data analysis and interpretation: systematic search for meaning. *Addressing research challenges: making headway for developing researchers*, 131-156.
- Northouse, P. G. (2019). *Leadership: Theory and Practice*. Thousand Oaks, CA SAGE.
- O'Connell, C., & McKinnon, M. (2021). Perceptions of Barriers to Career Progression for Academic Women in STEM. *Societies*, 11(2), 27.
- Offermann, L., & Foley, K. (2020). Is there a female leadership advantage? *Oxford Research Encyclopaedia of Business and Management*, 1-32. doi:10.1093/acrefore/9780190224851.013.61
- Offermann, L. R., Thomas, K. R., Lanzo, L. A., & Smith, L. N. (2020). Achieving leadership and success: A 28-year follow-up of college women leaders. *The Leadership Quarterly*, 31(4), 101345.
- Page, M. C., Bailey, L. E., & Van Delinder, J. (2009). *The Blue Blazer Club: Masculine Hegemony in Science, Technology, Engineering, and Math Fields*. In 2009: ERIC. EJ870103
- Paustian-Underdahl, S. C., Walker, L. S., & Woehr, D. J. (2014). Gender and perceptions of leadership effectiveness: A metaanalysis of contextual moderators. *Journal of Applied Psychology*, 99(6): 1129.

- Post, C. (2015). When is female leadership an advantage? Coordination requirements, team cohesion, and team interaction norms. *Journal of Organizational Behavior*, 36(8), 1153-1175.
- Radovic Markovic, M., Salamzadeh, A., & Razavi, M. (2013). *Women in business and leadership: critiques and discussions*. Paper presented at The Second International Scientific Conference on Employment, Education and Entrepreneurship, Belgrade, Serbia.pp. 19-31
- Rice, R. M. (2021). Feminist theory and interorganizational collaboration: An ethnographic study of gendered tension management. *Communication Monographs*, 88(4), 530-548.
- Rick, K., Martén, I., & von Lonski, U. (2017). Untapped Reserves: Promoting Gender Balance in Oil and Gas. A collaboration between the World Petroleum Council and The Boston Consulting Group. <https://www.bcg.com/publications/2017/energy-environment-people-organization-untapped-reserves>
- Roberts, R.E. (2020). Qualitative Interview Questions: Guidance for Novice Researchers. *Qualitative Report*, 25(9).
- Ross-Smith, A., Chesterman, C., & Peters, M. (2004). *Instinctively collaborative: are women executives changing the cultures of senior management?* Paper presented at the Australian and New Zealand Academy of Management Conference.
- Rowley, S., Hossain, F., & Barry, P. (2010). Leadership through a gender lens: How cultural environments and theoretical perspectives interact with gender. *International Journal of Public Administration*, 33(2), 81-87.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68.
- Sadinovna, B. L. (2021). The role of females in leadership and their impacts on workplaces. Web of Scientist: *International Scientific Research Journal*, 2(10), 5–10.
- Sagebiel, F. (2018). Gender and network awareness in/for successful leadership in academic science and engineering. *International Journal of Gender, Science and Technology*, 10(1), 24–51. Retrieved from <https://genderandset.open.ac.uk/index.php/genderandset/article/view/519>
- Saldaña, J. (2009). The coding manual for qualitative researchers. *London: SAGE Publications Ltd*, 3.

- Samuel, O., & Mokoaleli, I. (2017). Analysis of gender and leadership role competencies, perceptions and stereotypes in an organisational context. *South African Journal of Business Management*, 48(2), 55-66.
- Sandberg, S. (2015). *Lean in-women, work and the will to lead*. Sage India: New Delhi, India
- Sánchez, C. M., & Lehnert, K. (2019). The unbearable heaviness of leadership: The effects of competency, negatives, and experience on women's aspirations to leadership. *Journal of Business Research*, 95, 182-194.
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2015). *Research Methods for Business Students*. Cape Town: Pearson Education.
- Schein, V. E. (1973). The relationship between sex role stereotypes and requisite management characteristics. *Journal of Applied Psychology*, 57(2), 95.
- Schein, V. E. (2007). Women in management: reflections and projections. *Women in Management Review*, 22(1), 6-18.
- Schmitt, M., & Wilkesmann, U. (2020). Women in Management in STEM: Which factors influence the achievement of leadership positions? *International Journal of Gender, Science and Technology*, 12(3), 328-352.
- Schreier, M. (2012). Qualitative Content Analysis. In *Qualitative Content Analysis in Practice* (pp. 170–183). Sage Publications.
- Schultheiss, D. E. (2021). Shining the light on women's work, this time brighter: Let's start at the top. *Journal of Vocational Behavior*, 126, 103558.
- Shung-King, M., Gilson, L., Mbachu, C., Molyneux, S., Muraya, K. W., Uguru, N., & Govender, V. (2018). Leadership experiences and practices of South African health managers: what is the influence of gender? - a qualitative, exploratory study. *International Journal for Equity in Health*, 17,(1): 1–12.
- Sidani, Y. M., Konrad, A., & Karam, C. M. (2015). From female leadership advantage to female leadership deficit: A developing country perspective. *Career Development International*. 20(3), 273–292. <https://doi.org/10.1108/CDI-01-2014-0009>
- Singh, J. (2018). *Enablers for the advancement of female executives in corporations*. University of Pretoria. UP Space Home <http://hdl.handle.net/2263/68805>
- Smith, J., & Firth, J. (2011). Qualitative data analysis: the framework approach. In *Nurse Researcher* 18, 52-62..

- Smith, J. L., Handley, I. M., Zale, A. V., Rushing, S., & Potvin, M. A. (2015). Now Hiring! Empirically Testing a Three-Step Intervention to Increase Faculty Gender Diversity in STEM. *BioScience*, 65, 1084-1087.
- Smith, S. (2017). *Just Transition: A Report for the OECD*. Just Transition Centre. It was provided to the OECD in the context of the project “Growth, investment and the low carbon transition.”
- Stanford, J. H., Oates, B. R., & Flores, D. (1995). Women’s leadership styles: a heuristic analysis. *Women in Management Review*, 10,(2): 9-16.
- Stephens, J. C. (2020). *Diversifying Power: Why We Need Antiracist, Feminist Leadership on Climate and Energy*: Island Press.
- Stuckey, H. L. (2013). Three types of interviews: Qualitative research methods in social health. *Journal of Social Health and Diabetes*, 1,(02): 056-059.
- Terre Blanche, M., & Kelly, K. (1999). Interpretive methods. *Research In Practice: Applied Methods For The Social Sciences*, 123-146.
- Theron, L. C. (2016). Enabling resilience: Shifting the intergenerational career expectations of South Africans challenged by structural disadvantage. *South African Journal of Higher Education*, 30,(3):, 37–53.
- Thomas, R., Cooper, M., Cardazone, G., Urban, K., Bohrer, A., Long, M., . . . Coury, S. (2020). *Women in the workplace*. McKinsey & Company.
- Tlaiss, H. A. (2013). Women in healthcare: barriers and enablers from a developing country perspective. *International Journal of Health Policy And Management* 1, 23.
- Tracy, S. J. (2010). Qualitative quality: Eight “big-tent” criteria for excellent qualitative research. *Qualitative Inquiry* 16, 837-85. Sage: Los Angeles, CA.
- Tustin, D. H., Ligthelm, A. A., Martins, J. H., & Van Wyk, H. D. J. (2005). *Marketing Research in Practice*. Pretoria: UNISA.
- Uludüz, Ş. M., & Çalik, M. (2023). A Thematic Review of STEM Education for Disadvantaged Students. *Canadian Journal of Science, Mathematics and Technology Education*, 1–21.
- Vachon, C. J. (2014). Tiaras, queen bees, impostors and the board room: Lean in & women in corporate governance. *Journal of Business & Technology Law*, 9, 279.

- Van Oosten, E. B., Buse, K., & Bilimoria, D. (2017). The leadership lab for women: Advancing and retaining women in STEM through professional development. *Frontiers in Psychology*, 8, 1-5.
- Varpio, L., Paradis, E., Uijtdehaage, S., & Young, M. (2020). The distinctions between theory, theoretical framework, and conceptual framework. *Academic Medicine* 95, 989-994.
- Vidyakala, K. (2020). A Conceptual Study on Career Strategies Adopted by Women Leaders to Overcome Their Barriers. *Aut Aut Research Journal*, 11,(8) 231-237. ISSN NO: 0005-0601.
- Vu, H. M., & Nwachukwu, C. (2020). Constraints and Enablers to Growth of Female-Owned Businesses: Empirical Review. The 36th International Business Information Management Association Conference (IBIMA)At: Granada, Spain
- Vuppuluri, P. (2020). South Africa's Energy Crisis: Three Things To Consider In The Transition Toward Renewable Energy. *Forbes*.
- Whiting, L. S. (2008). Semi-structured interviews: guidance for novice researchers. *Nursing Standard (through 2013)*, 22,(23): 35.
- Wille, B., Wiernik, B. M., Vergauwe, J., Vrijdags, A., & Trbovic, N. (2018). Personality characteristics of male and female executives: Distinct pathways to success? *Journal of Vocational Behavior*, 106, 220–235.
- Williams, M., & Moser, T. (2019). The art of coding and thematic exploration in qualitative research. *International Management Review*, 15,(1):, 45-55.
- Wits Graduate School of Business Administration. (2021). *WBS HREC Ethics Application*. Wits Business School.
- World Bank. (2021). *World Development Indicators*.
- Yin, R. K. (2003). *Case Study Research: Design and Methods*. SAGE Publications.
- Zikode, Z. L. N. (2020). *The Career Advancement Experiences of Female Managers in the ICT Sector*. MA Dissertation, Pretoria: Unisa

APPENDIX A: PARTICIPANT CONSENT FORM

Participant Information Sheet

Wits Business School: African Energy Leadership Centre

Gendered perspectives of the enablers and constraints for female energy leaders in South Africa

Dear Participant,

My name is Xolile Msimanga, and I am a Master of Management student at the Wits Business School's African Energy Leadership Centre in Johannesburg, South Africa. As part of my studies, I am conducting research into the enablers and constraints for female energy leaders in South Africa and the contribution of female leadership characteristics to the performance of energy organisations taken from male and female perspectives. The findings will contribute to the research in this topic area and will shed light on the experiences of women in the energy sector and to the discourse around potential reasons why there are low levels of female leaders in the energy sector.

Because of your knowledge, skills, and experience as a leader in the energy sector in South Africa, I am inviting you to be a participant in my study and allow me to interview you for approximately one hour. This will involve us setting up a virtual meeting on Microsoft Teams or meeting at any place that is convenient for you and where we will not be disturbed by interruptions, provided we adhere to Covid-19 safety protocols. The interview will be completely confidential as I will not record your name, organisation or any information that could identify you. Anything you tell me will be kept in a locked cupboard in my home office or electronically on a password protected document on my computer and not shared with anyone else. I will use a code to represent your participation in the documents and in my final research report and any articles resulting from it.

I also request that you allow me to audio record the interview so that I don't miss anything that you tell me and to make sure that I capture the interview accurately. The recording will be destroyed once my research and publications have been completed.

Your participation is completely voluntary, and you may decline to answer any specific questions or withdraw from the study at any time without any negative consequences whatsoever.

You will not receive any benefits from participating in my study and I do not anticipate that there will be any negative consequences.

If you have any questions about the study, please contact me or my supervisor using the details below.

If you would like a summary of the findings, I will gladly let you have it; however, I will need some contact information for that if you are comfortable to provide it.

Many thanks for considering my request for your valuable input.

Yours sincerely,

Xolile Msimanga

xolile.msimanga@students.wits.ac.za, 0724498747

Supervisor: Associate Professor Terri Carmichael

terri.carmichael@wits.ac.za, 0824589583

Participant demographic checklist

Gender:

Age:

Sector:

Years in managerial/senior/executive role:

Years in energy sector:

Highest qualification:

Are you a parent or full-time guardian (Y/N):

If yes, how many children:

APPENDIX B: INTERVIEW GUIDE

a. Female leaders

Standard demographic questions

- Age
- Gender
- Race

Context setting and general questions:

1. Please tell me about yourself and your experience in the energy sector, highlights of your journey and timelines.
2. Are you married or in a long-term relationship, and for how long?
3. Do you have children, how many and what are their ages?
4. How are you managing your leadership pipeline with respect to gender equality and equity?
5. In your opinion, why is the energy sector lagging other industries when it comes to workplace transformation?

Questions on female leadership traits

6. In your opinion, what are the most desired traits for effective and impactful leaders?

Follow-up: How would you describe your leadership character traits and leadership style?

7. The energy sector is in dire straits at present, what role do you think leadership has had?

Follow-up: Do you think we need new leaders? What type of characteristics should these leaders possess to improve the sector?

8. In your experience, do you think that there are differences in male and female leadership characteristics?

Follow up: In the energy sector, are female leadership traits considered a disadvantage and are women expected to conform to progress?

9. In your experience, how does diversity of teams, especially gender balancing impact the performance of your teams?

Follow up: As you embark on your transformation journey, has there been a change in performance in the organisation? If so, please elaborate?

Questions on enablers

10. What do you believe are the main enabling factors that contributed to your career?
11. Please can you outline how the factors played out along your career path, how were they linked to your upward progression? Can you specify which factor was most critical at each step.
12. How important was self-determination for your career progression? What was your motivation?
13. How important were development and training opportunities? Were you required to have certain qualifications for certain promotions?
14. Do you think there is value and motivation in having representation and diversity in energy sector organisations, especially for women who are generally in the minority?
15. How valuable has family been in supporting your career?
16. Was mentoring, coaching and sponsorship important to your progression?
Follow up: Are you providing the same in your capacity to your junior colleagues, how do you select them?

Questions on constraints

17. What have been the main constraints you faced to reach your position as an energy sector leader?
Follow-up: Please provide examples of how these factors impacted your career progression.
18. Please can you outline how these constraints played out along your career path timeline, how were they linked to delaying your upward progression? Can you specify which factor was most critical at each step.
19. In your career, what have you observed to be the main constraints for other women to progress to leadership positions in the energy sector?

20. In your opinion, does the existence of an “Old boys club” still prevail today?
And if so, how does it impact female leaders and their leadership journey?
21. How did you build your network, was this important on your path to being a leader in the sector? What support did you receive along the way?

b. Male leaders

Standard demographic questions

- Age
- Gender
- Race

Context setting and general questions:

1. Please tell me about yourself and your experience in the energy sector, highlights of your journey and timelines.
2. Are you married or in a long-term relationship, and for how long?
3. Do you have children, how many and what are their ages?
4. How are you managing your leadership pipeline with respect to gender equality and equity?
5. In your opinion, why is the energy sector lagging other industries when it comes to workplace transformation?

Questions on female leadership traits

6. In your opinion, what are the most desired traits for effective and impactful leaders?
Follow-up: How would you describe your leadership character traits and leadership style?
7. The energy sector is in dire straits at present, what role do you think leadership has had?
Follow-up: Do you think we need new leaders? What type of characteristics should these leaders possess to improve the sector?
8. In your experience, do you think that there are differences in male and female leadership characteristics?

Follow up: In the energy sector, are female leadership traits considered a disadvantage and are women expected to conform to progress?

9. In your experience, how does diversity of teams, especially gender balancing impact the performance of your teams?

Follow up: As you embark on your transformation journey, has there been a change in performance in the organisation? If so, please elaborate?

Questions on enablers

10. What do you believe are the main enabling factors that contributed to your career?

Follow-up: In your experience do these factors have a similar influence on the progression of female leaders?

11. Please can you outline how the enabling factors played out along your career path, how were they linked to your upward progression? Can you specify which factor was most critical at each step.

12. How important were development and training opportunities? Were you required to have certain qualifications for certain promotions?

13. How valuable has family been in supporting your career?

14. Have mentoring, coaching and sponsorship been important to progression?

Follow up: Are you providing the same in your capacity to your junior colleagues, how do you select them?

Questions on constraints

15. What do you believe have been the main constraints you faced to reach your position as an energy sector leader?

Follow-up: Please provide examples of how these factors impacted your career progression.

Follow up: In your experience do these constraints have a similar influence on the progression of female leaders?

16. Please can you outline how the constraining factors played out along your career path timeline, how were they linked to delaying your upward

progression, if at all? Can you specify which factor was most critical at each step.

17. In your career, what have you observed to be the main constraints for women to progress to leadership positions in the energy sector?
18. In your opinion, does the existence of an “Old boys club” still prevail today? And if so, how does it impact female leaders and their leadership journey?
19. How did you build your network, was this important on your path to being a leader in the sector? What support did you receive along the way?