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Mapping the transitional pathway to low-carbon homes in South Africa

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2017

https://hdl.handle.net/10539/25216

Geszler, Dominique Marguerite (2017) Mapping the transitional pathway to low-carbon homes in South Africa, University of the Witwatersrand, Johannesburg, <http://hdl.handle.net/10539/25216>

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ABSTRACT

Based on a complementary framework guided by the Delphi method for the business-as-usual (BAU) forecast and the backcasting method for envisioning the desired future state, the study finds that by 2050, South Africa will have reached its goal of 80% reduction of CO_2 emissions from the middle-income home sub-sector, through a middle-loading (ML) transition pathway. This pathway was selected from among four alternative pathways because of its ability to mindfully facilitate the required transformational changes in behaviour and lifestyle, especially through support by means of responsive nudging incentives and mandatory policies, responsive technology innovations and market transformations.

The study also applied multiple-level actors (MLA) principles towards the identified four primary pathway-options in CO_2 emissions reduction in the sub-sector, which are front-loading (FL), back-loading (BL), even-loading (EL) and middle-loading (ML). The study further provided substantial motivation for ML as the preferred pathway for South Africa's transitioning to low-carbon homes by 2050. This reinterpreted transition model of orchestrating transformative change depicted how iterative responses to conflicting accelerator- and inhibitor-factors enabled low-carbon mitigation interventions in the sub-sector, thus facilitating an equitable country-level contribution towards the global goal of stabilising global warming below the scientifically-guided threshold of 2°C by 2050. A co-evolutionary approach will be required on multiple-levels with significant pressures that will overcome systems-inertia in order to achieve the transition to low-carbon middle-income homes in South Africa. The main findings of this study can contribute towards policy tools to guide deeper structural transformations of both society and economy in pursuit of improved/equitable well-being and prosperity while ensuring survival within finite planetary resources. In particular, the process of visioning and pathway-frameworks under backcasting has been adequately substantiated to allow for adaptation to alternative applications in similar studies for South Africa and internationally as well.

Keywords: Low-carbon homes; futures studies; Delphi; backcasting; transitional pathways