



BREAK THE GRIDLOCK! WIRE FOR GROWTH!



21 - 23 OCTOBER 2025
8:00 am – 5:00 pm



CAPE TOWN, SA
CTICC 2

2025 PRESENTATION

Overcoming acceleration challenges in the South African Energy Transition

David Rudolph

22nd October 2025





SPEAKER **OVERVIEW**



David Rudolph

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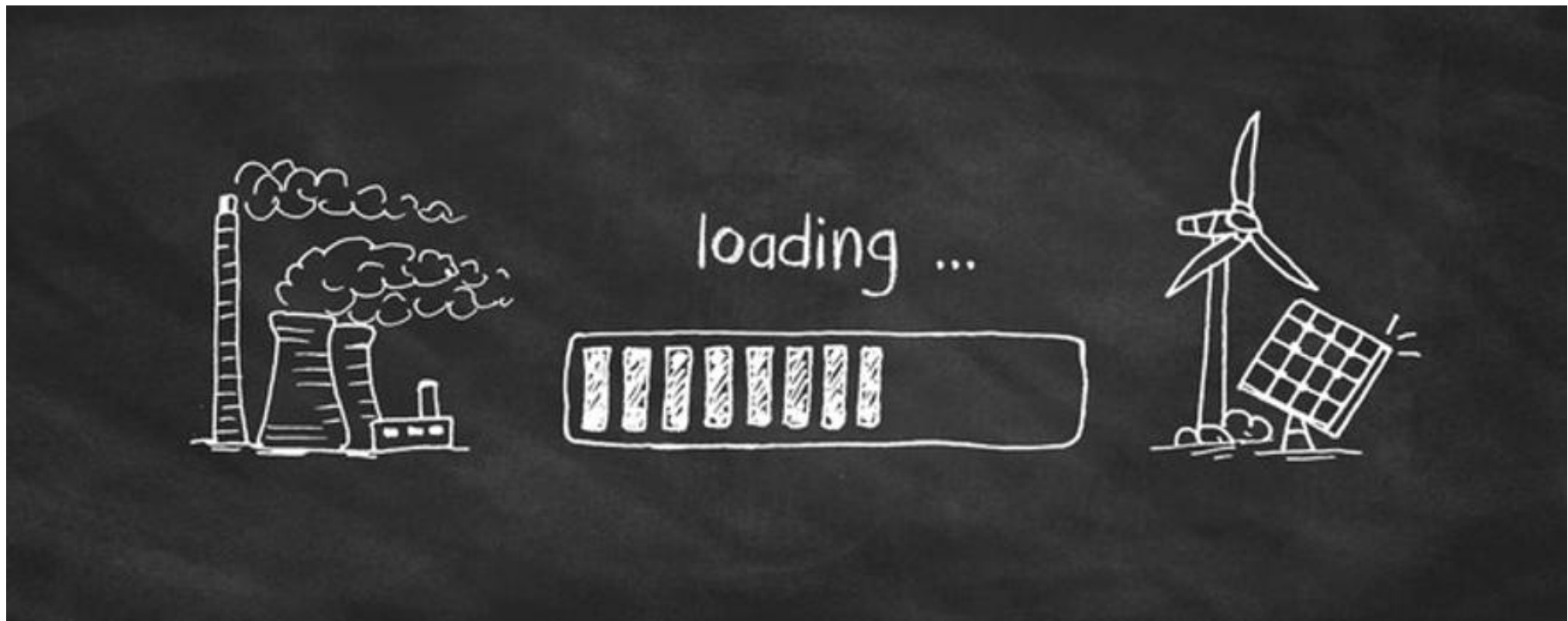




PRESENTATION **OVERVIEW**

- 01** • Context and acceleration challenges
- 02** • ACCELERATE research project
- 03** • Research foci
- 04** • Envisioned outcomes





1. Context and Acceleration Challenges



Context: Just Energy Transition

Not only ending era of fossil fuels and expanding renewables, but doing so in a just way, by:

- considering procedural and distributional implications;
- reducing inequalities;
- prioritizing economic, racial and gender equity;
- increasing access to energy;
- reducing energy poverty;
- enabling social inclusion; and
- supporting vulnerable communities

INEQUALITY
Unequal access to opportunities



EQUITY
Customised tools and assistance that acknowledge and address inequality



EQUALITY?
Evenly distributed assistance and tools

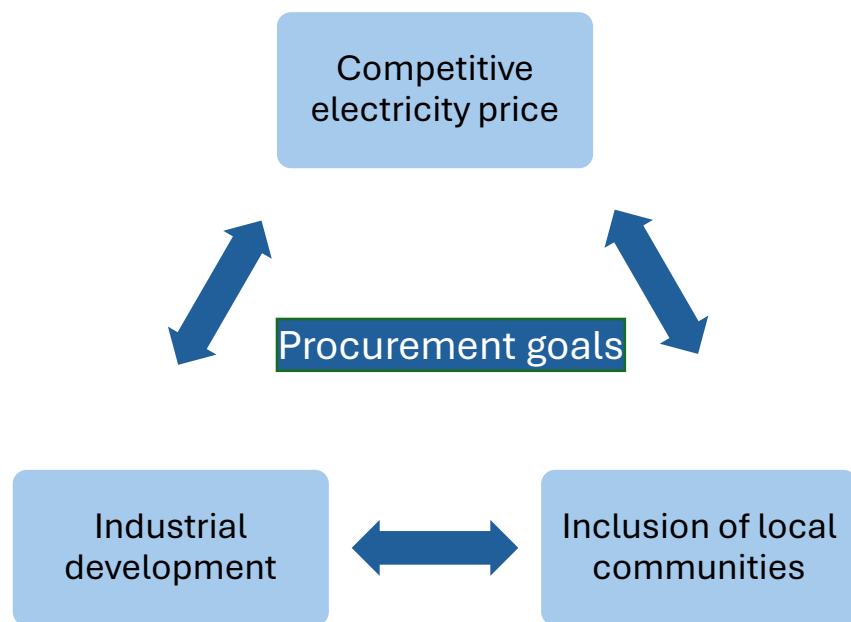


JUSTICE
Transforming the system to provide equal access to both tools and opportunities for all





Just Transition and procurement of renewable energy in the Global South



- Urgency vs. justice (Höffken et al. 2021)
- Combining expansion of renewables with local economic and industrial development (Swilling et al. 2022)
- Tension between shareholders, interests and ambitions for local development (Baker 2022)
- Consideration of social impacts of phase-out of fossil fuel industry (e.g. Atkins 2024)
- Consideration of social impacts of renewables (e.g. Baines & Taylor 2021)
- Restorative justice of rectifying historical harms (Heffron & Hazrati 2024)

Need to explore how different procurement schemes turn out on the ground





Energy Transition in South Africa

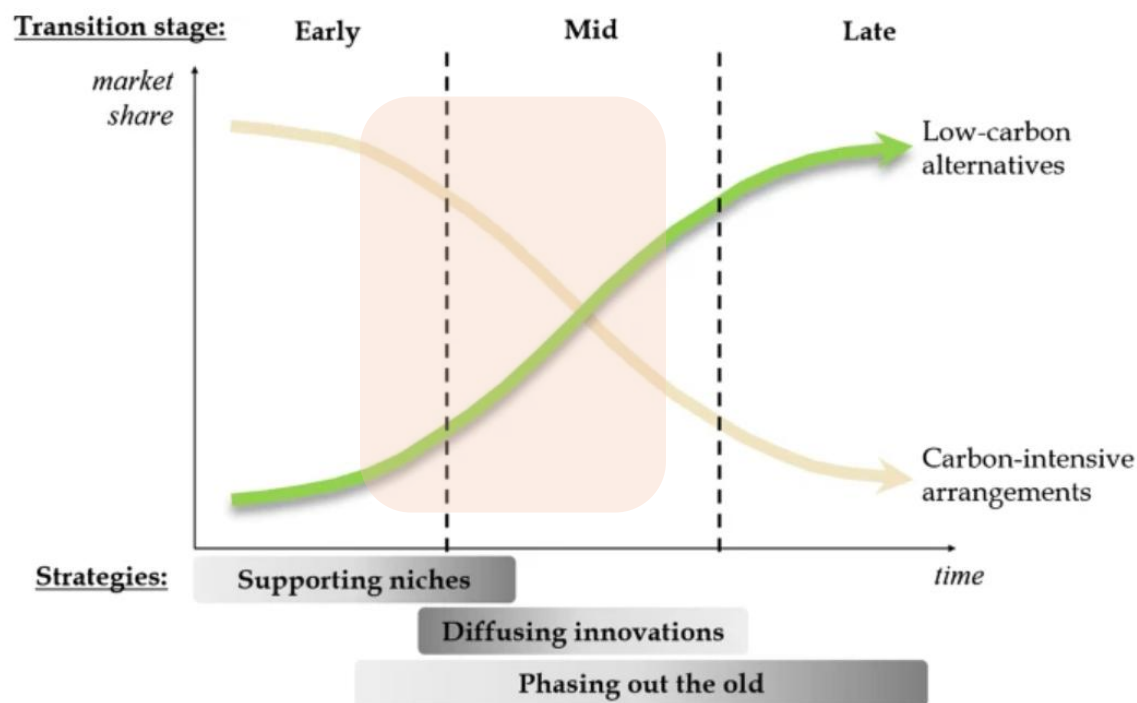
Evolving power sector in South Africa

- REI4P combined competitive bidding with stringent socio-economic development requirements, thereby embedding energy justice principles into the deployment of utility-scale RE projects
- Shifting procurement landscape from single buyer's (2011-) to wholesale competitive market (2026-) to accelerate transition
 - Shift from public to private procurement
 - Government backed off-taker → bilateral PPAs + power aggregators & trader → wholesale market
 - Shift away from dependence on state-owned utility facilities towards independent power producers
 - New actors and institutional arrangement increase competition, change risk assessment, influence finance and investment strategies
 - In theory two parallel procurement schemes for RE projects
- Fewer regulatory constraints; loosening of locational constraints and socio-economic development requirements for RE project have implications for just transition pathway





Acceleration Challenges in the Energy Transition



(Markard et al. 2020; Rosenbloom & Meadowcroft 2022)

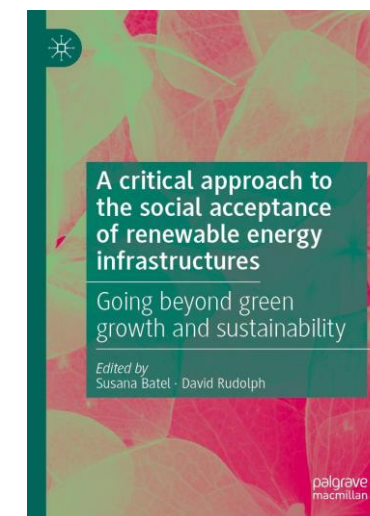
- Acceleration as an outcome, process or ambition has different consequences
→ pace and depth of change
- Societal backlash and struggles over ends and means of transition
- Urgency can jeopardise equity and procedural and distributional justice
- Resistance from incumbent actors, declining industries and labour / trade unions
- Cumulative impacts
- Complexity of governance
- Intersectional misalignment





Acceleration Challenges and acceptance

- Negative effects often become overlooked or more pronounced in accelerated transitions:
 - Rising conflicts over land and appropriation of other resources
 - Elite capture and energy access to affluent parts of the population
 - Unemployment and economic loss in coal mining regions
 - Marginalized regions and communities not part of the transition may fall further behind
 - Perpetuates or accentuates existing inequalities
 - Streamlining puts pressure on social acceptance, planning procedures, impact mitigation and community engagement
- Critical approach to social acceptance
 - Interrelationship between socio-political, market and community acceptance
 - How do socio-political context, economic system and power relations shape contestations, and what is being done, how, by whom, for whom and for what ends?



A>>>CELERATE

OVERCOMING ACCELERATION CHALLENGES IN THE SOUTH AFRICAN ENERGY TRANSITION

2. ACCELERATE Research Project



DTU Wind
Department of Wind and Energy Systems



CST
Centre for
Sustainability Transitions

UNIVERSITY OF CAPE TOWN



SAPVIA
South African Photovoltaic Industry Association



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A>>>CELERATE



ACCELERATE focuses on the design of procurement policies to accelerate the energy transition in South Africa and explores implications of a shifting procurement landscape in terms of governance, industrialisation, social performance and job creation.



OBJECTIVE: Contribute to an accelerated and just transition to renewable energy in emerging economies, including job creation and economic development.

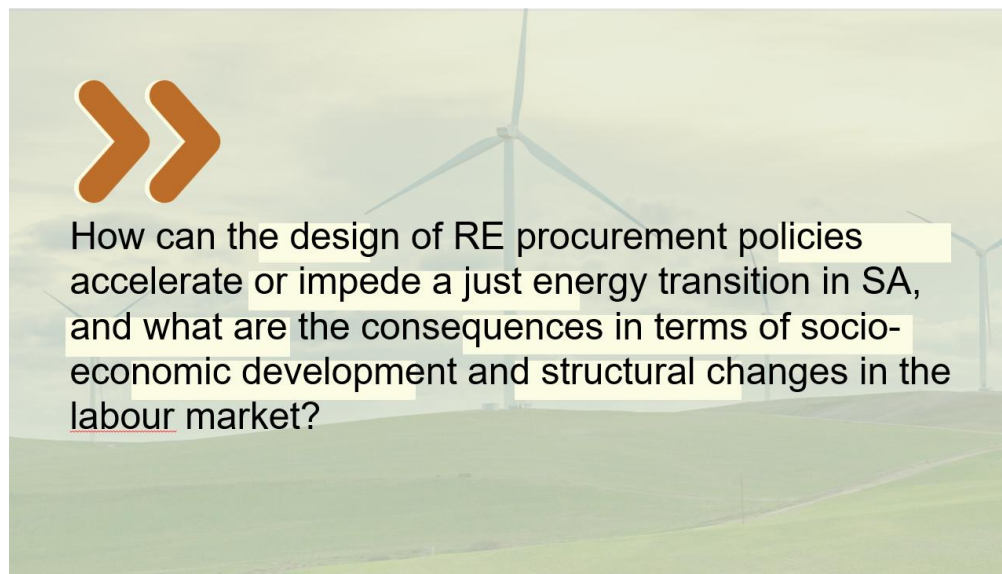


AIMS: To generate new knowledge on how countries that are at an advanced stage in the procurement of RE and face challenges such as the resistance from declining industries, labour unions, and affected communities, may address the acceleration of national energy transitions.



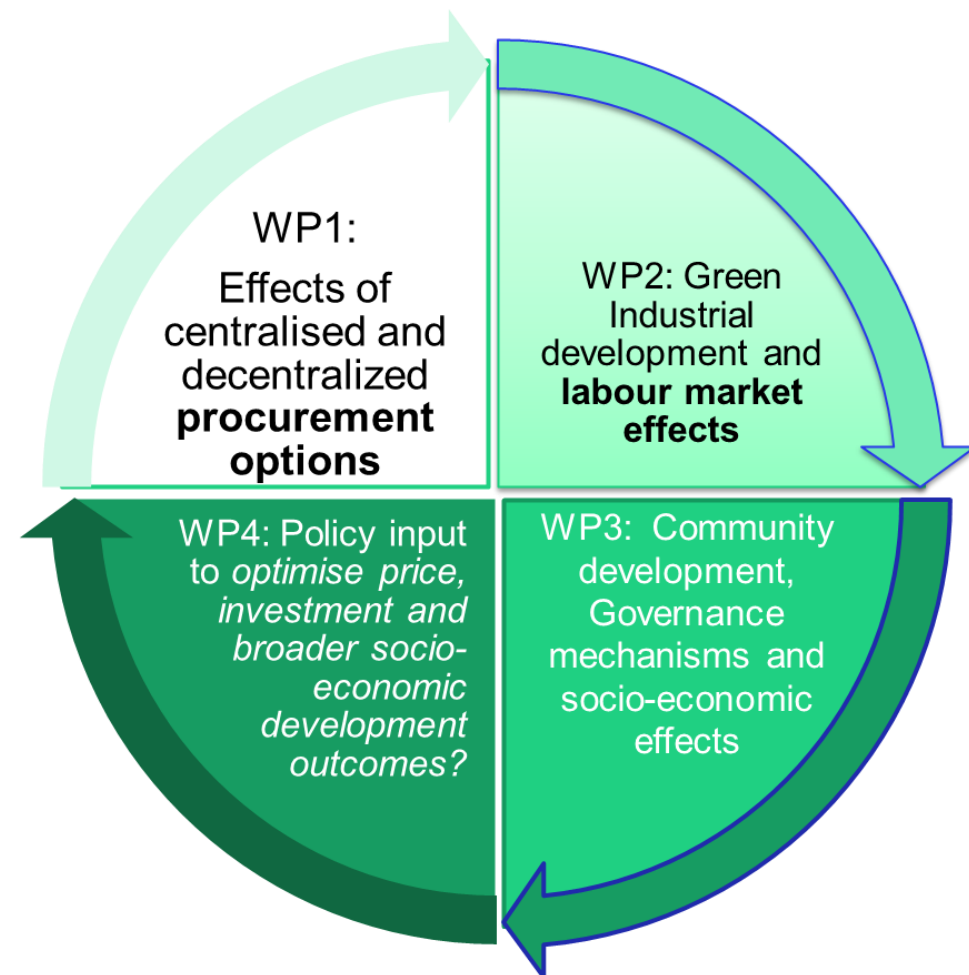


Overall research question:



Duration: Oct 2023 – October 2028

Funder: Danish Ministry of Foreign Affairs





Example: Lessons learnt from project planning and development

Developer

- Voluntary vs. mandatory benefit-sharing to address local needs
- CSR can make a difference
- Greater transparency about how 'consulted' has been considered

Policy level

- Greater awareness about interplay between national planning regimes and support systems required
- Repercussions of procurement design on finance and stakeholder involvement
- Minimum standards for engagement and involvement of local labour



Planning authority

- Municipal planning and zoning can avert challenges during project planning
- EIA determines scope of community engagement
- Community participation as mandatory vs. non-material consideration





3. Research foci



WP1 Renewable Energy Procurement Design

- Focus on diverse procurement mechanisms and their influence on market dynamics, project finance and socio-economic outcomes
- Research Question: *How do policy instruments and market reforms shape investment risk and financing outcomes for RE projects? How can decentralized and centralized procurement options reduce barriers, de-risk investments, and maximise socio-economic value creation from RE production?*
- Conceptual framing:
 - Comparative analysis of different procurement mechanisms
 - Policy and procurement design
 - Mixed methods

WP1



Prof. Lena Kitzing
Professor, DTU Wind



Dr Wikus Kruger
Director, UCT-GSB



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PhD Student, UCT-GSB



WPI Renewable Energy Procurement Design

- **Research foci and outcomes:**

South African RE market evolution and implications of multiple parallel procurement schemes

- Assessment of conditions shaping the evolution of RE project types and their financing
- Impact of procurement routes on project risks
- Risk assessment and mitigation across different actors (developers, off-takers, financiers)
- Outlook at elements of market design in wholesale market in shaping RE investments based on international experiences





WP2 Labour market and the accelerated transition

- Focus on various implications of RE investments on labour market
- Research Question: *What are labour market effects associated with an accelerated transition from fossil fuel-based energy production to RE production?*
- Quantitative and qualitative analysis
- Conceptual framing:
 - economic complexity and industrial relatedness theory
 - difference-in-difference and regression analyses
 - labour geography, spatial division of labour

WP2



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Senior Researcher, DTU



Dr William Westgard-Cruise
Researcher, DTU Wind



Prof. Haroon Borat
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Dr Francois Steenkamp
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PhD student, UCT-DPRU



WP2 Labour market and the accelerated transition

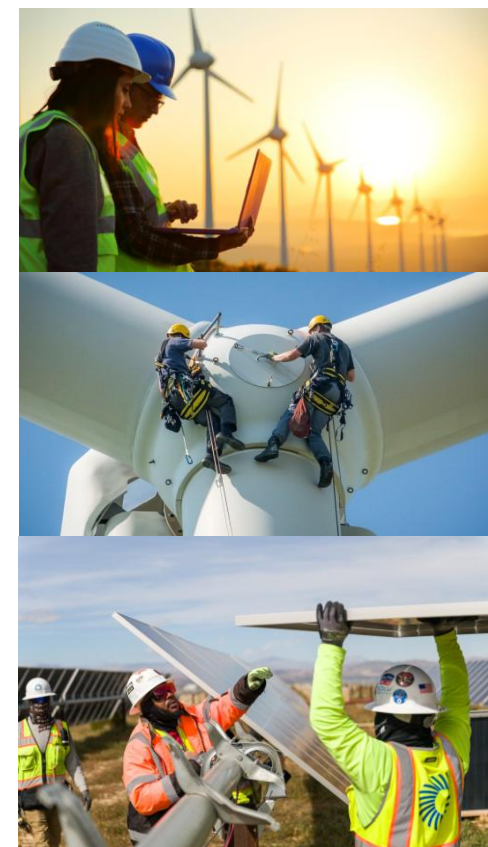
• Research foci and outcomes:

Quantitative micro-level analysis of labour market effects of the energy transition in SA

- Identification of potential diversification pathways for RE and labour intensity of products
- Assessment of employment effects of RE investments across regions
- Assessment of local economic impacts (spillover effects) of RE developments on other sectors

Qualitative analysis of labour market effects of the energy transition

- Geographical distribution of employment associated with development and O&M of large-scale wind and solar projects
- Spatial division labour within South Africa's RE sector, concentration of intellectual labour in Cape Town
- Emerging labour regimes and role of long-distance communiting in O&M





WP3 Social Performance and Spatial Prioritisation in the RE sector

- Focus on shifting social performance practices in RE sector, reconfiguration of local engagement and approaches to community benefit-sharing in response to changing governance landscape
- Research Question: *How do new governance arrangements and policy shifts influence spatial prioritization of renewable energy infrastructures, and how do these changes affect social performance practices?*
- Conceptual framing:
 - energy geography, multi-functional landscapes, rescaling
 - social acceptance, public participation, community energy

WP3



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Senior Researcher, DTU



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Dr Megan Davies
Researcher, SU-CST



Chulumanco Mdingi
PhD student, SU-CST



Abulele Adams
PhD student, SU-CST





WP3 Social Performance and Spatial Prioritisation in the RE sector

- **Research foci and outcomes:**

Strategic spatial planning for RE investments in pursuit of multi-functional landscapes

- Review of strategic environmental assessments for spatial prioritization of RE developments
- Assessment of social acceptance of RE projects by exploring local contestations
- Assessment of multi-functional landscapes
- Models for incorporating biodiversity measures into RE infrastructure development

Governing place-based investments in a shifting procurement landscape

- Review of social performance activities and dynamics in REI4P
- Role of social ownership and community development trusts in REI4P
- Economic development measures and practices in private off-taker projects





WP3 Social Performance and Spatial Prioritisation in the RE sector

• Research foci and outcomes:

Social performance in evolving RE procurement landscape

- Industry perspective on social performance and community development practices in response to procurement shifts
- Emerging modalities and practices of community engagement and benefit-sharing
- Links between social performance practices and suspensions / loosening of spatial constraints and community development requirements
- Changing stakeholder dynamics





WP4 Policy mix integration

- Consolidation and integration of findings from WP1-WP3 to develop a conceptual model and scenario-based framework for policy evaluation
- Research Question: *How can South Africa optimise its diverse RE procurement mechanisms and power sectors reforms to achieve coherent policy mix that maximises price and socio-economic outcomes?*
- Analysis of trade-offs and synergies to propose policy mixes that balance RE pricing, investment strategies and socio-economic development
- Guidance for policy-makers



WP4



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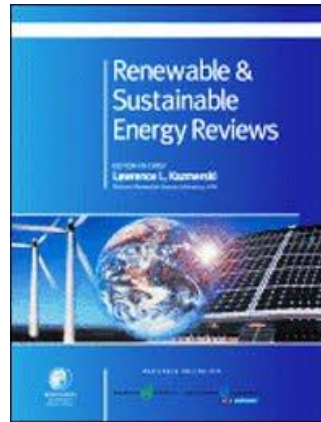
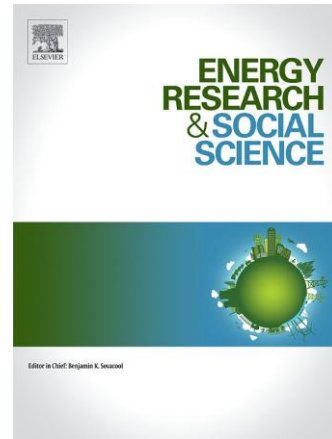
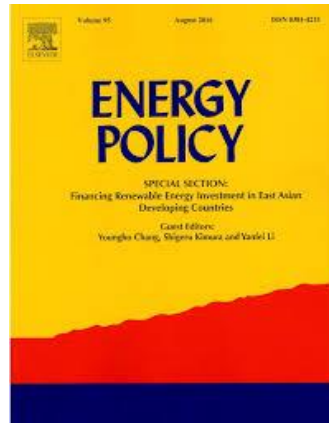


Prof. Mark Swilling
Professor, SU-CST





Envisioned outcomes



Academic

Research papers (10+)

Presentation at national, regional and international conferences (10)

University courses (3)

Stakeholder workshops (3)

Policy briefs (3)

Newspaper articles (3)

Popular



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THANK YOU FOR LISTENING!

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