



**71<sup>st</sup> AMEU**  
Convention 2025

**East London ICC**  
5 – 8 October 2025



## **Empowering South Africa's Energy Future**

Leveraging Artificial Intelligence 'AI' and Smart Technologies for a Stable, Balanced, Just, and Sustainable Energy Transition in Electricity Utilities

**The critical role of well governed and balanced electricity wheeling in enabling energy security, reliability and industry sustainability.**



### Authors:

- Professor Vally Padayachee, AMEU Strategic Advisor
- Terry Njuguna, Eskom Distribution

# Solving for complexity

*A story for integration and co-evolution*



**71<sup>st</sup> AMEU**  
Convention 2025

## Empowering South Africa's Energy Future

Leveraging Artificial Intelligence 'AI' and Smart Technologies for a Stable, Balanced, Just, and Sustainable Energy Transition in Electricity Utilities



# We are here a complex shift



***A transition to a low-carbon economy founded on achieving just outcomes leveraging social equity and economic inclusion in the attainment of NetZero by 2050.***

## **Sustainability**

- Low-carbon
- Balancing economy, equity and inclusion.
- Security of supply and system reliability.

## **Pressing challenges**

- Industry need for long-term energy pricing aligned to decarbonization.
- Safeguarding jobs and sustaining economic productivity.
- Rapidly evolving technological, institutional, and political relationships among stakeholders.

## **Wheeling imperatives**

- Implementation of NERSA Wheeling rules.
- Cost reflective recovery of additional costs.
- Continued energy access and basic services support.



# Wheeling realities

## Private renewables

- Rapid growth
- Intermittency
- Bi-directional



## Distributor returns

- Achieving unbundled tariffs
- Embedded network subsidies (?)
- Additional investments due to Wheeling
- Payment reliability
- Increased grid management complexities
- System upgrades
- Staff training and upskilling

## Regulations

- Wheeling rules
- Carbon taxes
- ESG obligations



## Energy access support

- Equity
- Inclusiveness
- Continued support

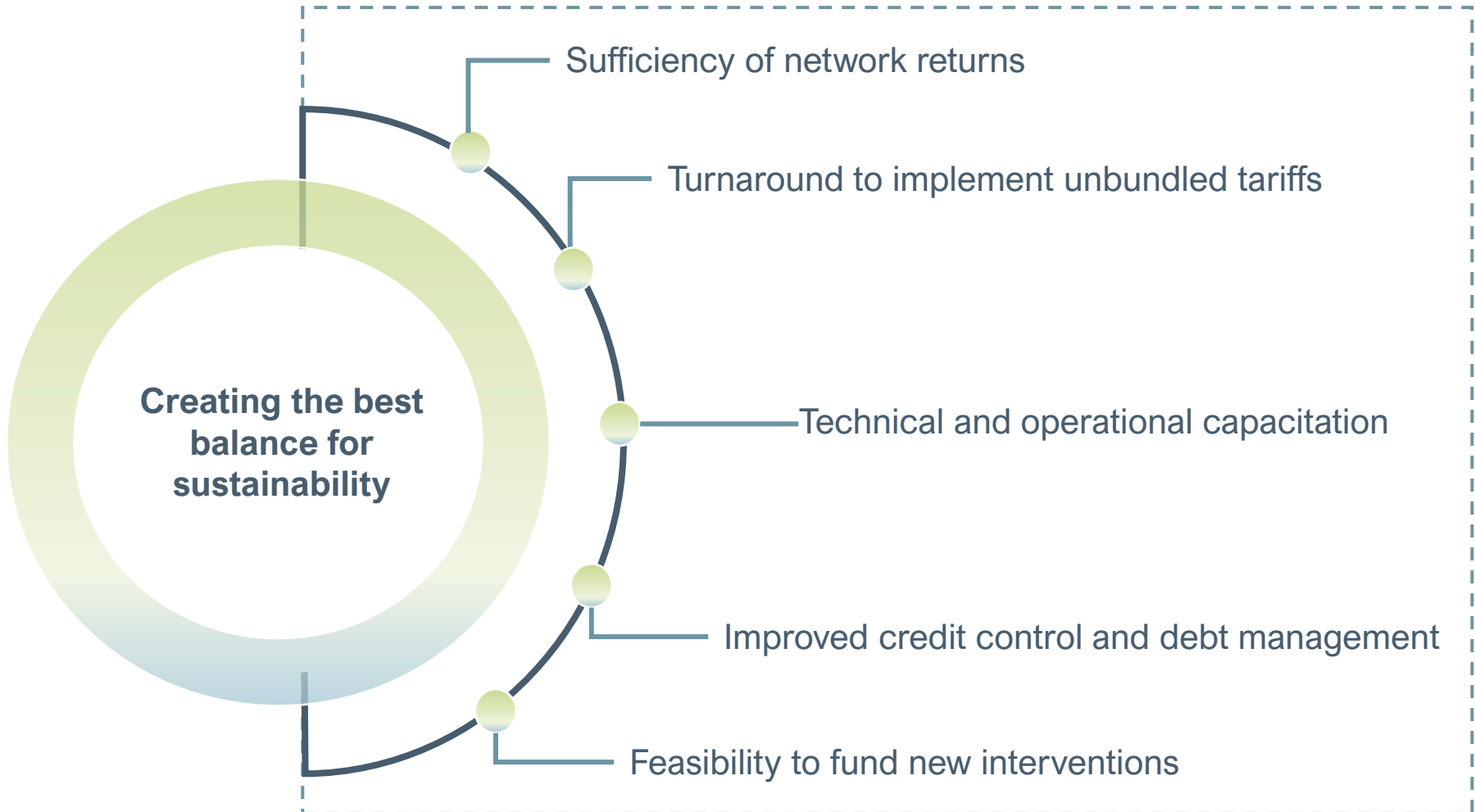


## End-customers (off takers)

- Long-term prices
- Lower energy price
- Low-carbon

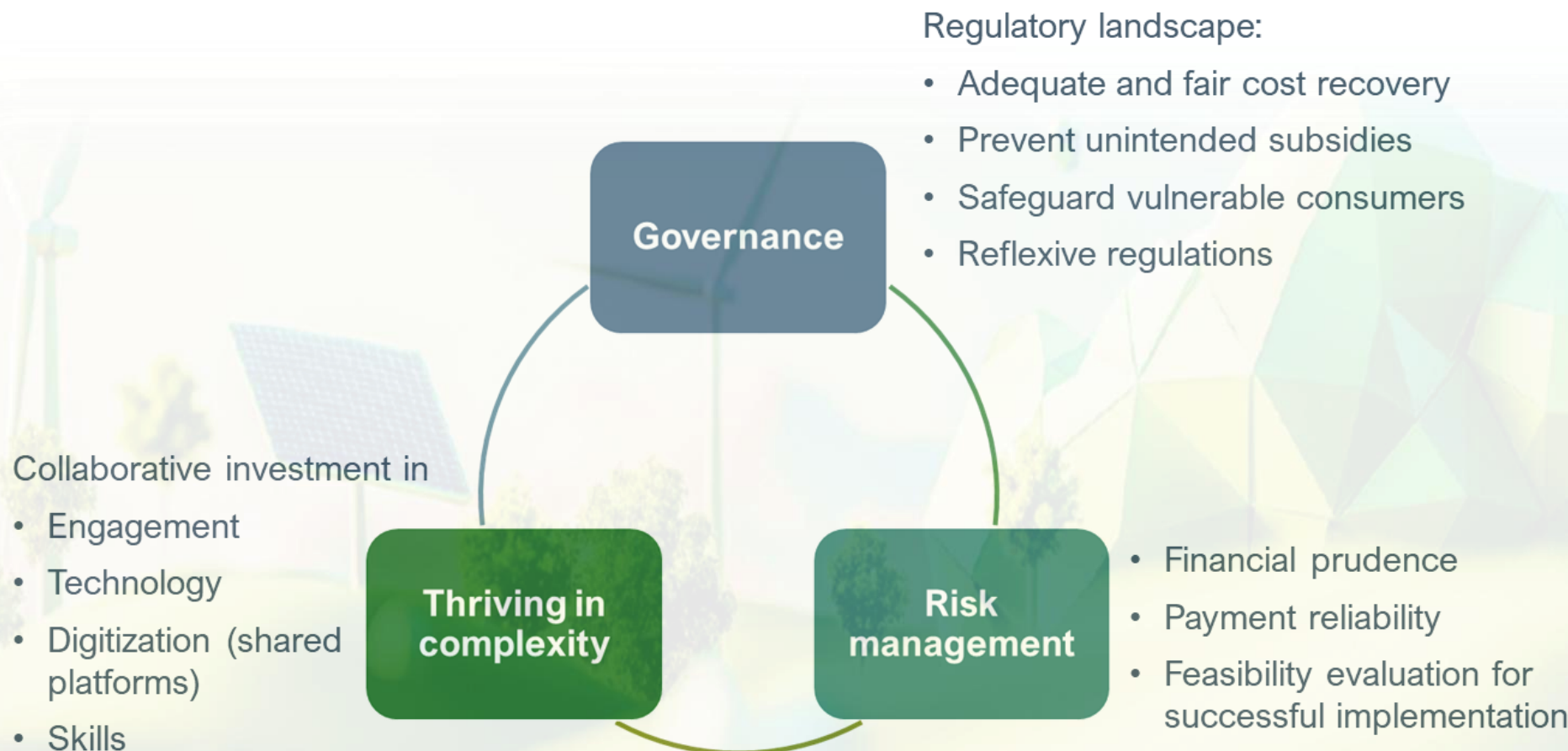
# Wheeling feasibility

*Feasibility refers to the degree to which a policy or regulation can be realistically adopted, operationalized, and sustained within prevailing institutional, economic, political, and social contexts (Howlett and Ramesh, 2014).*



# Multi-stakeholder collaboration

*Expediting cautiously*





***“If you want to go fast, go alone. If you want to go far, go together.”***  
*African proverb*

**Thank you**