The Next Generation of Regional Planning Considerations for Southern Africa

SA-NENREL Forum

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GM Grid Planning

ESKOM

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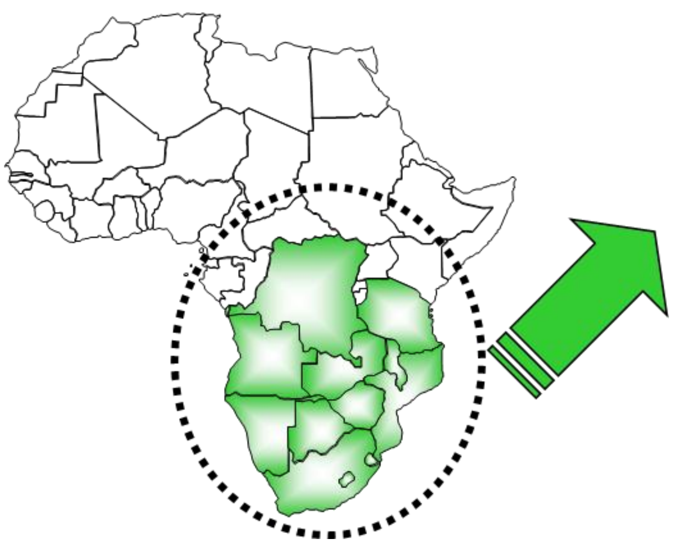
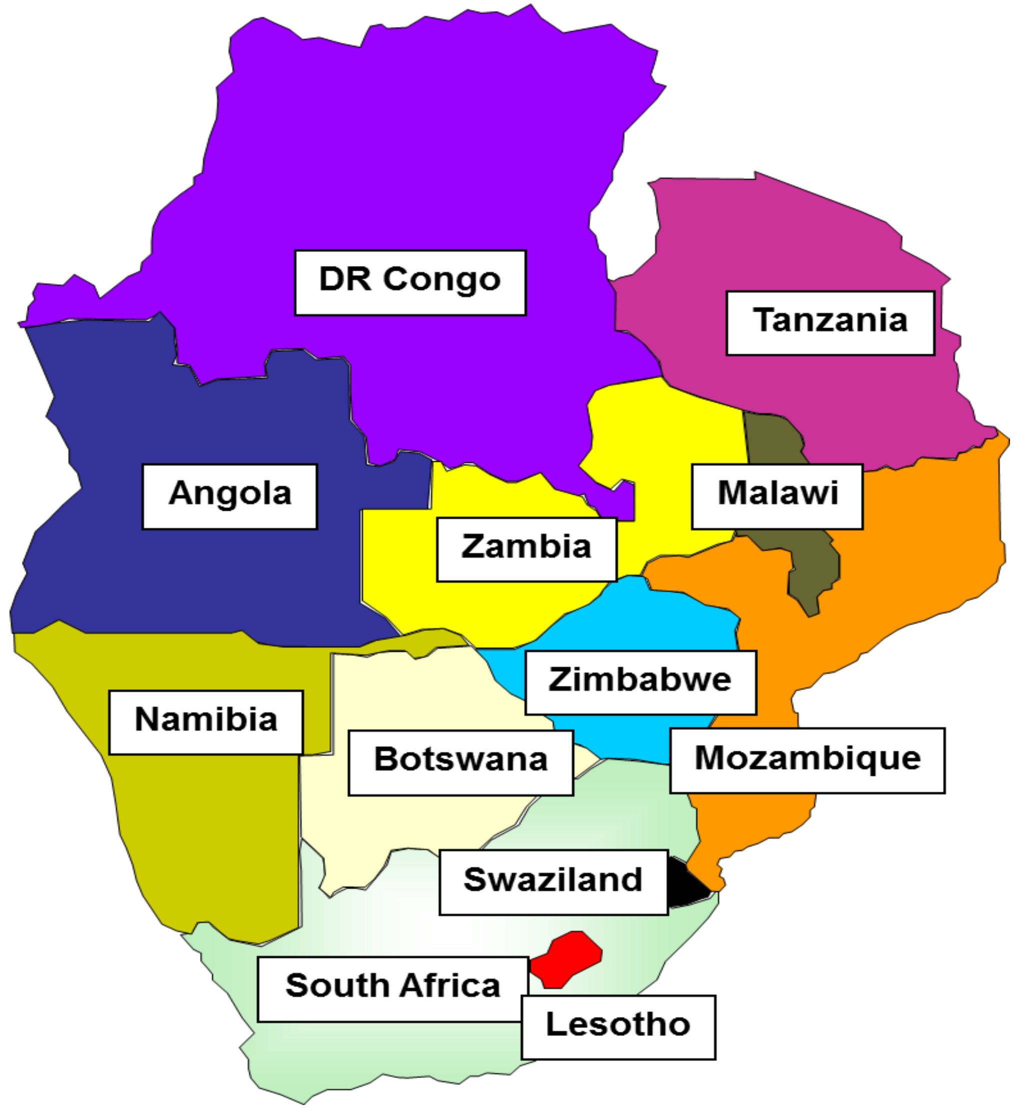
Presentation Overview

- Southern African Power Pool (SAPP) – Key Facts
- Opportunities for Increased Regional Integration
  - Power Generation Development
  - Transmission Development Projects
- Challenges
  - Transmission & Generation Constraints
  - Regulatory and Institutional Arrangements
- The Vision for the Future of Regional Integration in Southern Africa
- Questions & Answers

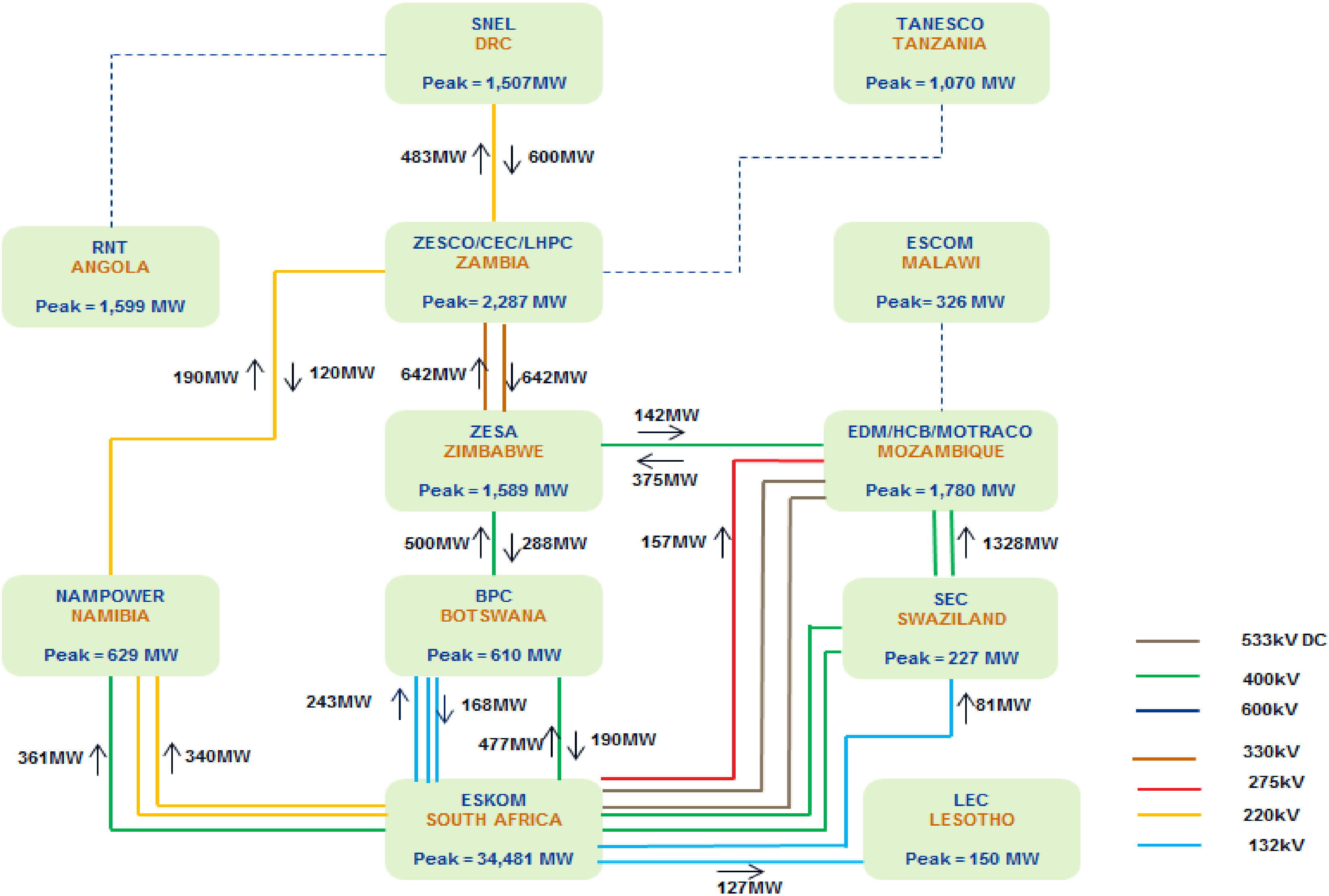
SAPP – Key Facts

- 12 Countries
- 280 Million people
- Installed Generation Capacity - 56 GW
- Available Generation Capacity - 51 GW
- Peak Demand - 54 GW
- Consumption - 400TWh





Existing Interconnectors in SAPP



Power Generation Development Opportunities

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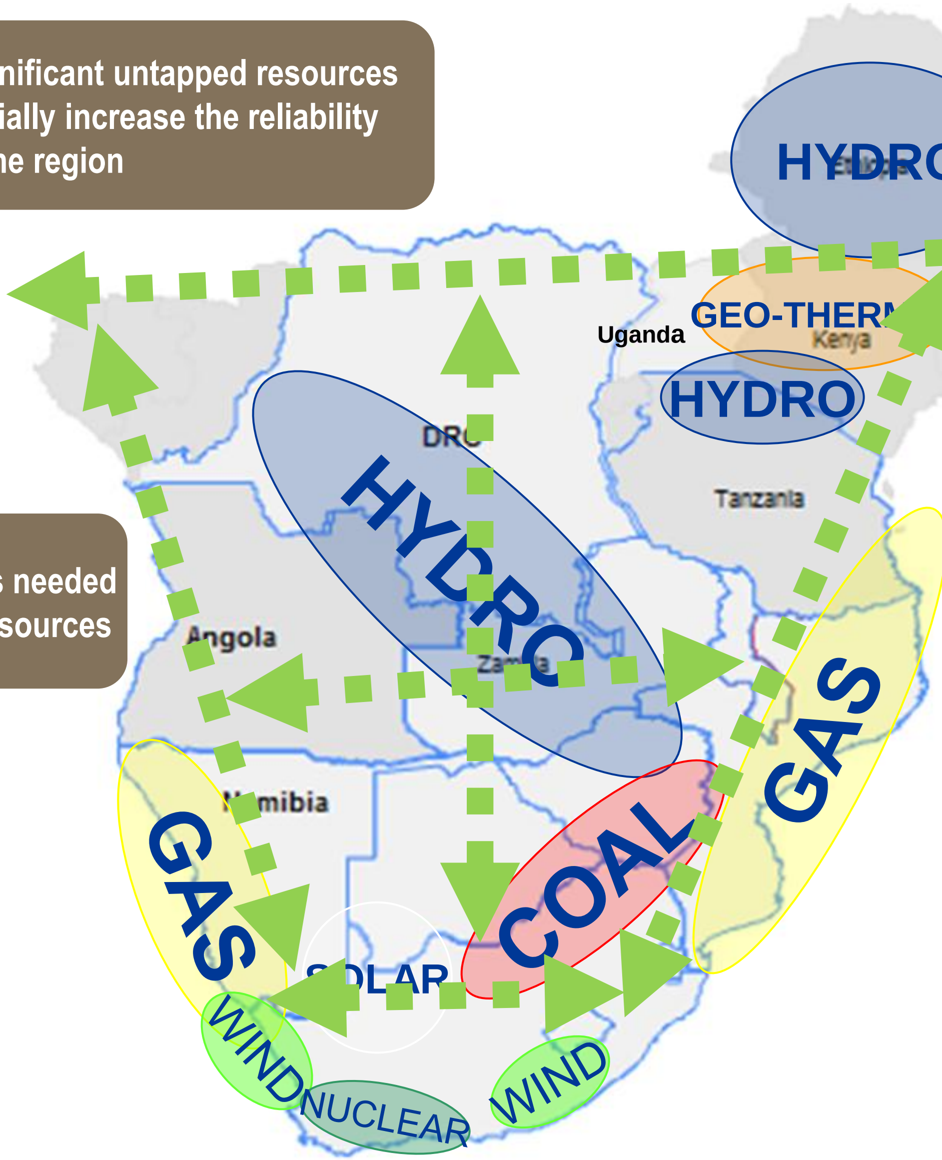
The region has significant untapped resources which could potentially increase the reliability of supply across the region

A regional super grid is needed order to access these resources



- Promote optimum resource utilisation
- Enhance competition
- Mitigate climate change
- Stimulate investment
- Stimulate industrial dvlpmt

Opportunities for Investment in Transmission Infrastructure

PRIORITY REGIONAL TRANSMISSION PROJECTS		
Project Category	**Project Name**	**Planned Capacity (MW)**
Interconnecting Non-operating SAPP Members	Mozambique-Malawi	300
	Namibia-Angola	400
	DRC-Angola	600
	Zambia-Tanzania-Kenya	400
Relieving Congestion	Central Transmission Corridor (CTC), Zimbabwe	600
	Zimbabwe-Zambia-Botswana-Namibia Interconnector (ZIZABONA)	300
	Kafue-Livingstone upgrade, Zambia	600
	Northwest Upgrade, Botswana	600
Integrating New Generation	Mozambique Backbone Phase I (STE)	3100
	Mozambique Backbone Phase II (STE)	3000
	2nd Mozambique-Zimbabwe Line	500
	2nd Zimbabwe-South Africa Corridor	650
	2nd DRC-Zambia Line	600
	765kV Central Corridor (DRC-SA)	2500
	Marupule (A) – Maun (B)	600
	Maun – Pundamatenga(C)	600

Challenges

- Insufficient Transmission Capacity:
  - A limiting factor to realization of potential regional trade
  - A significant barrier to potential wheeling revenue
  - Inflexibility to accommodate varying demand profiles and energy prices across the region
  - Inadequate integrated planning covering for the region

- Generation Shortages:
  - Backlog in investment in new generation across the region
  - Proposed projects taking too long to get to commercial operation
  - Recent drought has reduced the output of existing hydro generation
  - Weak balance sheets of member-utilities is a barrier to new projects
  - Backlog in the maintenance of existing plants
  - Lack of integrated regional energy plans and demand forecasts
  - Over-emphasis by funding institutions on bankable off-takers for new projects

- Regulatory Deficiencies:
  - RERA is still only an association of individual country- regulators – thus has no power to regulate the regional market
  - Only members of SAPP can trade in the power market – this restricts IPPs concluding deals with cross-border customers
  - Insufficient market rules to guard against issues like anti-competitive behaviour by market participants
  - Lack of harmonisation of the member-countries' energy policies and practices.

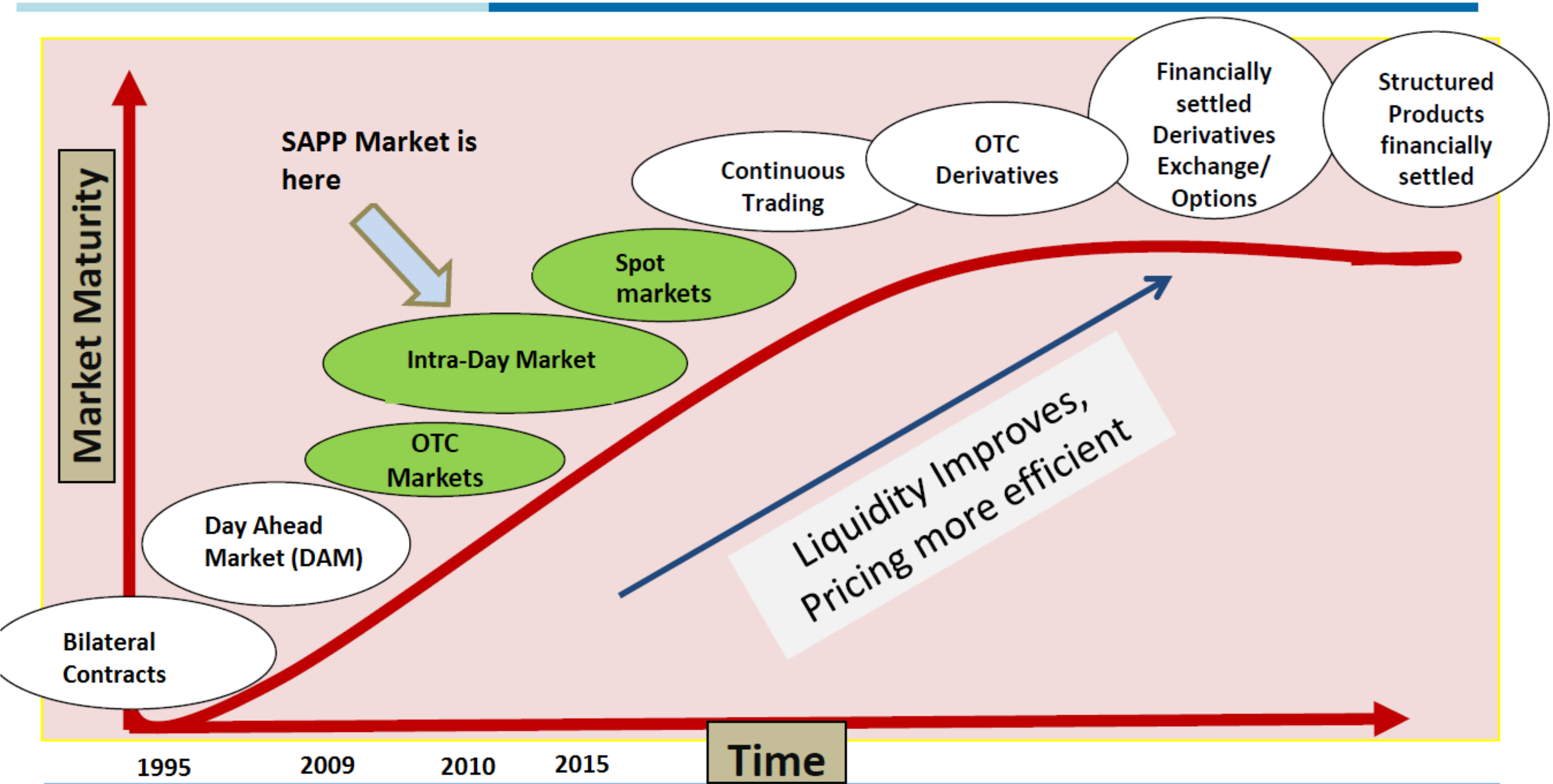
- Land Development for New Projects:
  - Securing of lands rights and environmental authorisations across several jurisdictions takes too long leading to delays in project implementation

Vision for the Future

- Integrated Planning across the SAPP area:
  - Generation Planning
  - Transmission Development Planning
  - Integrated Demand Forecasting
  - Project Development
- Institutional Capacity:
  - Strengthen and Resource the SAPP Co-ordination Centre
    - Perhaps evolve it into a fully-fledged Corporate Entity
  - RERA to evolve into a Regulatory Body
- One Independent System Operator :
  - Balance demand/supply fluctuations across the region
  - Manage transmission congestion across the region
- Fully Competitive Electricity Market:
  - To evolve towards a fully competitive electricity market
- One Regulatory Authority:
  - To regulate the market and be the custodian for the SAPP market rules.
  - To guard against anti-competitive behavior and any possible market abuse

Vision for the Future (Market Dvlpmt)

Market development S- Curve



✓In matured Markets all these types of Markets exist
✓Interplay between Markets improves Price discovery

Thank You