Southern African Power Pool
Cross-Border Partnership in Planning and Operation

Mekong River Commission International Conference

3 April 2018

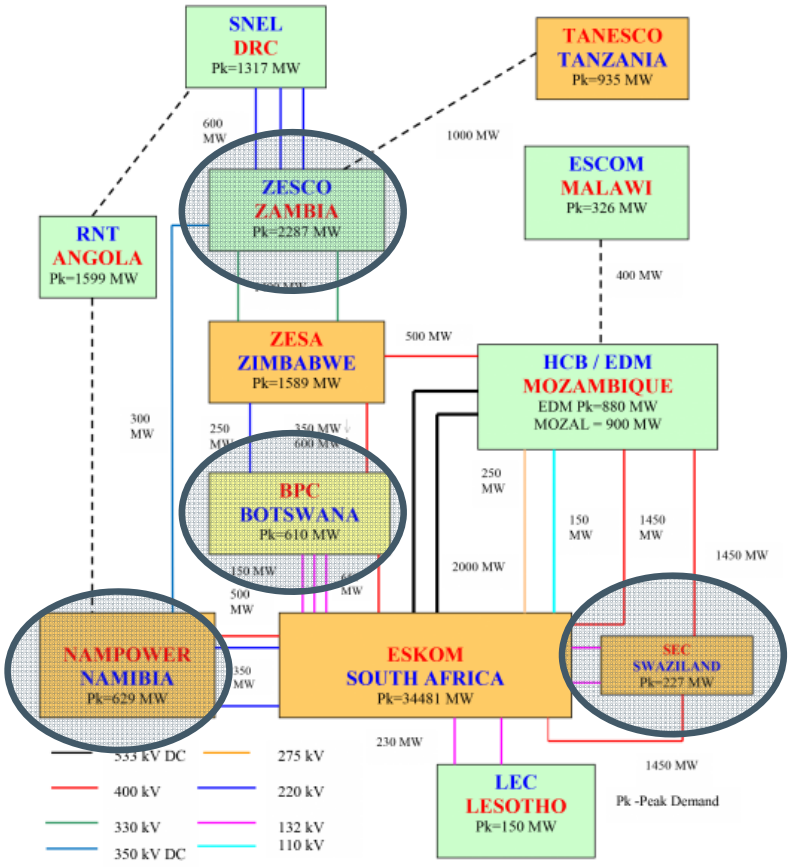
ECONOMIC
CONSULTING
ASSOCIATES

www.eca-uk.com

What is SAPP?

- Created under a 1995 Inter-Governmental Memorandum by the countries of the Southern African Development Community
- Current membership comprises 12 national utilities plus 4 IPPs/ITCs
- Governed by
  - the 1995 IGU
  - an inter-utility MOU
  - an Agreement between Operating Members
  - the Operating Guidelines

Largest importers are Zambia, Namibia, Botswana and Swaziland



Installed capacity = 67,190 MW
61% coal / 21% hydro / 18% others

Peak demand = 50,817 MW

Statistics for 2017 from www.sapp.co.zw

Co-ordinated market operations in SAPP

Bilateral Market (1-year+)

Directly negotiated, transacted under SAPP rules

Forward Physical Market (1-month / 1-week) opened 2016

Traded market, clearing at marginal cost

Day-Ahead Market (1-day) opened 2009

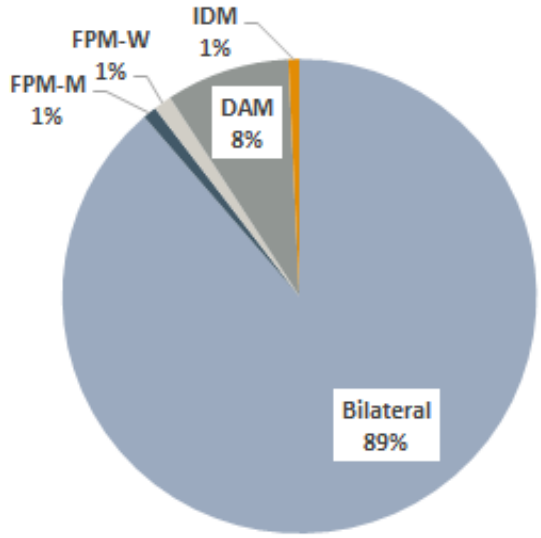
Traded market, clearing at marginal cost

Replaced Short-Term Energy Market established in 2001

Intra-Day Market (1-hour) opened 2015

Traded market, first-come-first-served pricing

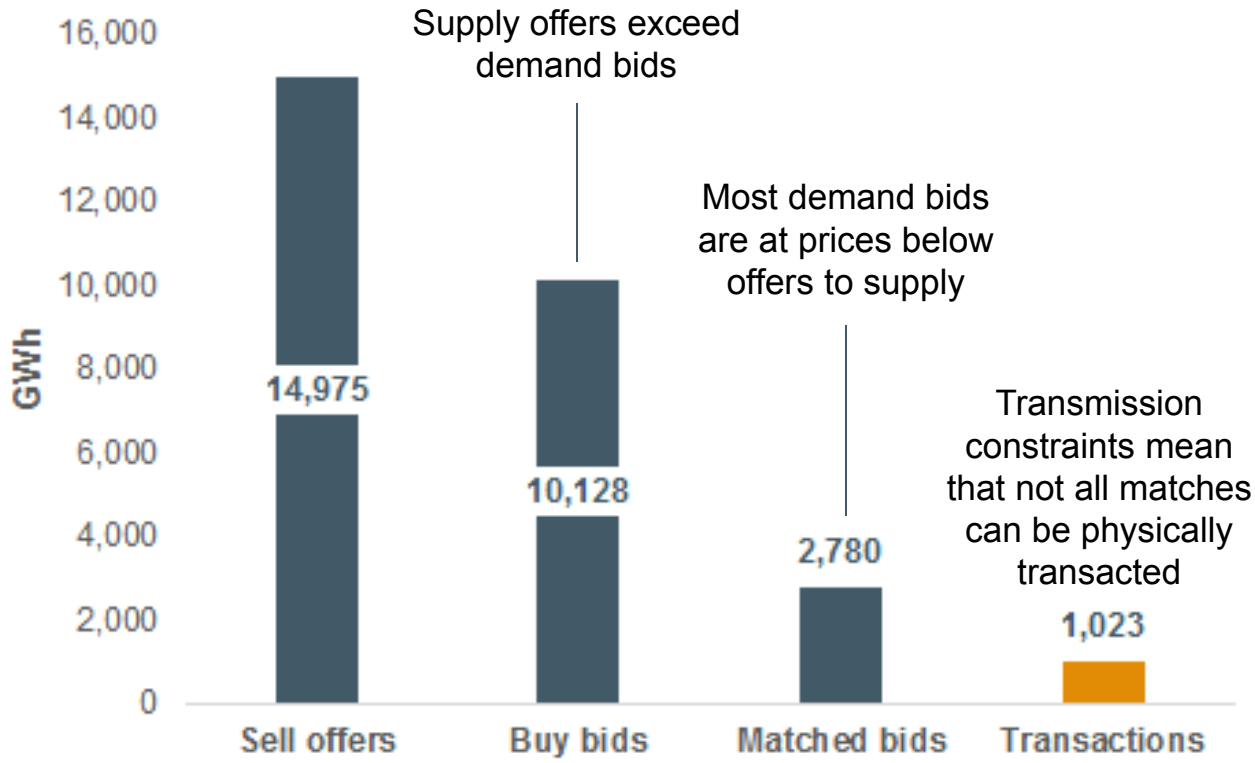
Bilateral trade currently dominates
(2016/17 data)



Total volumes traded were 9,015GWh or 3% of SAPP supply

Over-supply and constraints remain a problem

SAPP competitive market volumes, 2016/17



Co-ordinated planning in SAPP

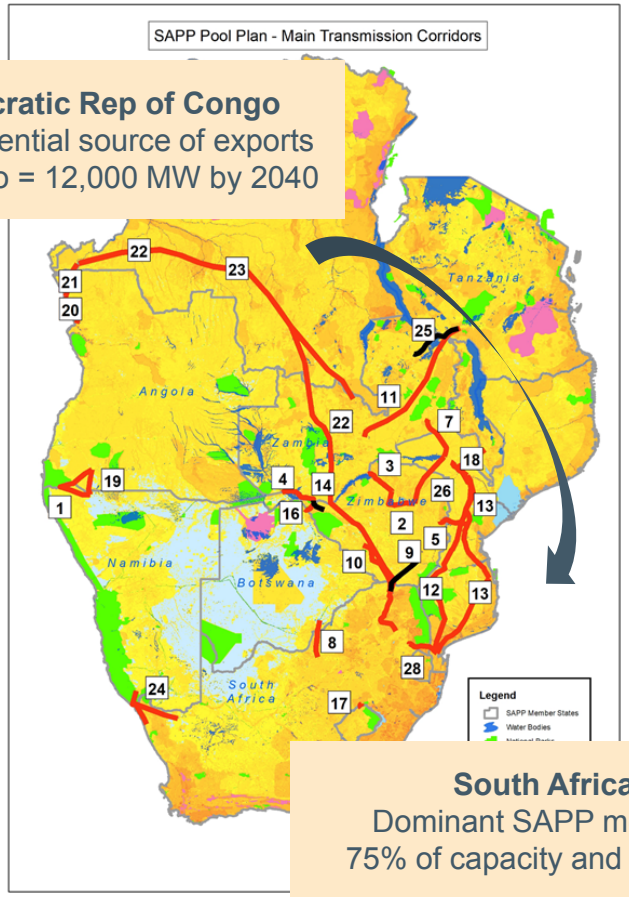
- Overseen by the Planning Sub-Committee
- Responsible for
  - establishing common reliability standards and monitoring compliance with these
  - preparing **indicative regionally-integrated generation and transmission master plans** to show opportunities for cost savings
  - calculating capacity obligations on members and transfer limits between systems

Key Planning Criteria

Security: Generation capacity of at least 100% of peak demand

Reliability: Minimum reserve margins of 10.6% (thermal systems) and 7.6% (hydro systems)

Utilities may contract reserves from other members



Democratic Rep of Congo
Major potential source of exports
Inga hydro = 12,000 MW by 2040

South Africa
Dominant SAPP member
75% of capacity and demand

Benefits of integration

- Ongoing study, being conducted by ECA. The conclusions are under review by SAPP members and are still in draft form

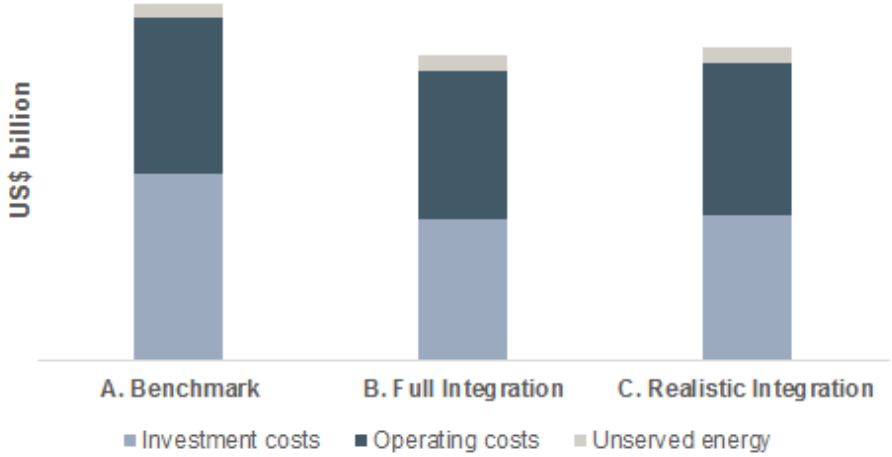
- Three cases were assessed

  A. Benchmark Case: Existing country-by-country expansion plans

  B. Full Integration Case: Least-cost integrated plan for SAPP as a whole

  C. Realistic Integration Case: Least-cost integrated plan but with each country also meeting the key planning criteria

Increased coordination lowers costs



Environmental impacts of interconnectors were incorporated by ensuring that no candidate lines are routed through sensitive areas. Generation projects were submitted by member countries and were not screened for environmental and social impacts

Lessons for the Mekong region?

- Coordinated operations can build from existing bilateral trades, first through common standards and then through adding new markets
- The benefits from coordinating investment and operations are significant, even if each country remains self-sufficient in supply
- Effective governance is critical – SAPP works on a consensual basis through multiple coordinating committees

Who is ECA?

- An independent economics consultancy with its head office in London
- Founded in 1997 and more than 500 assignments worldwide since that date
- Contracted by MRC to help develop the Sustainable Hydropower Development Strategy for the LMB

www.eca-uk.com

William Derbyshire

william.derbyshire@eca-uk.com

ECONOMIC
CONSULTING
ASSOCIATES

www.eca-uk.com