



Integrated Resource Planning and the Independent System Operator

IRP2 Plenary Session, 7 June, 2010

Presented by Mark Pickering, Meridian Economics

This presentation is based on preliminary findings from a research conducted by Meridian Economics for the Energy Research Centre, University of Cape Town.



Government Policy

“To ensure reliable power supply, we have established an Inter-Ministerial Committee on Energy, to develop a 20-year integrated resource plan. Among other things, this will look at the participation of independent power producers, and protecting the poor from rising electricity prices. **We will establish an independent system operator, separate from Eskom Holdings.** Eskom will continue to build additional generation capacity and improve the maintenance of its power stations.”

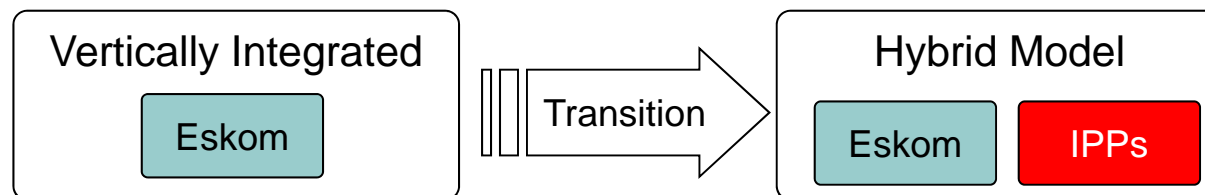
(President Zuma. 2010, 11 February. State of the Nation Address)

What functions
should the ISO perform?



Towards a Problem Statement

- The South African power sector is making a transition



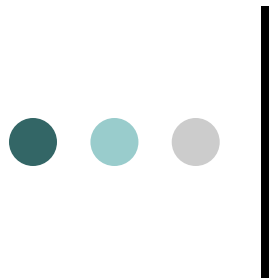
- Hybrid models require careful attention to planning, allocation of new-build opportunities, procurement, contracting, systems operation and grid access.
- South Africa has not addressed these functions adequately, leading to:
 - Underinvestment by both public and private sectors
 - A dangerously low reserve margin, and
 - Uncertainty as to how the sector will become more sustainable
- To address these challenges government must, amongst other things:
 - Acknowledge Eskom's vested interests
 - Establish an ISO to perform certain functions
 - Ensure that the ISO has adequate authority and financial and institutional capacity to perform its mandate



Reform Objectives the ISO must achieve



- Effective implementation of the hybrid model must:
 - Ensure neutrality between supply and demand options to achieve security of supply;
 - Ensure adequate investment in new generation capacity;
 - Attract IPPs into the sector;
 - Facilitate growth of renewable energy providers; and
 - Enable demand-side access to markets for energy and ancillary services.
- Unlike other power sector reforms in other countries, South Africa is not driven by objectives of:
 - Privatising state assets
 - Improving efficiency through competition



Functions the ISO Might Perform

Planning

- Undertake/facilitate new generation capacity planning

Allocation

- Allocate new capacity opportunities between Eskom, other SOEs or IPPs

Procurement

- Procure new IPPs (on behalf of the buyer)

Buyer

- Enter into PPAs with generators, on behalf of the distributor/s
- Aggregate the wholesale cost of power

System Operator

- Ensure short-term security of supply
- Dispatch generation and dispatchable load
- Operate the transmission network

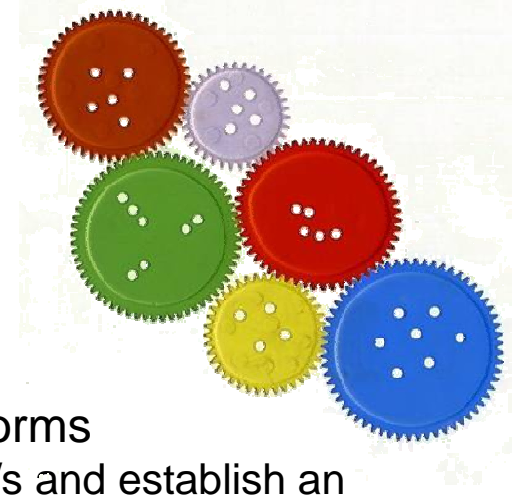
Transmission

- Build, own and maintain transmission infrastructure



Institutional Models

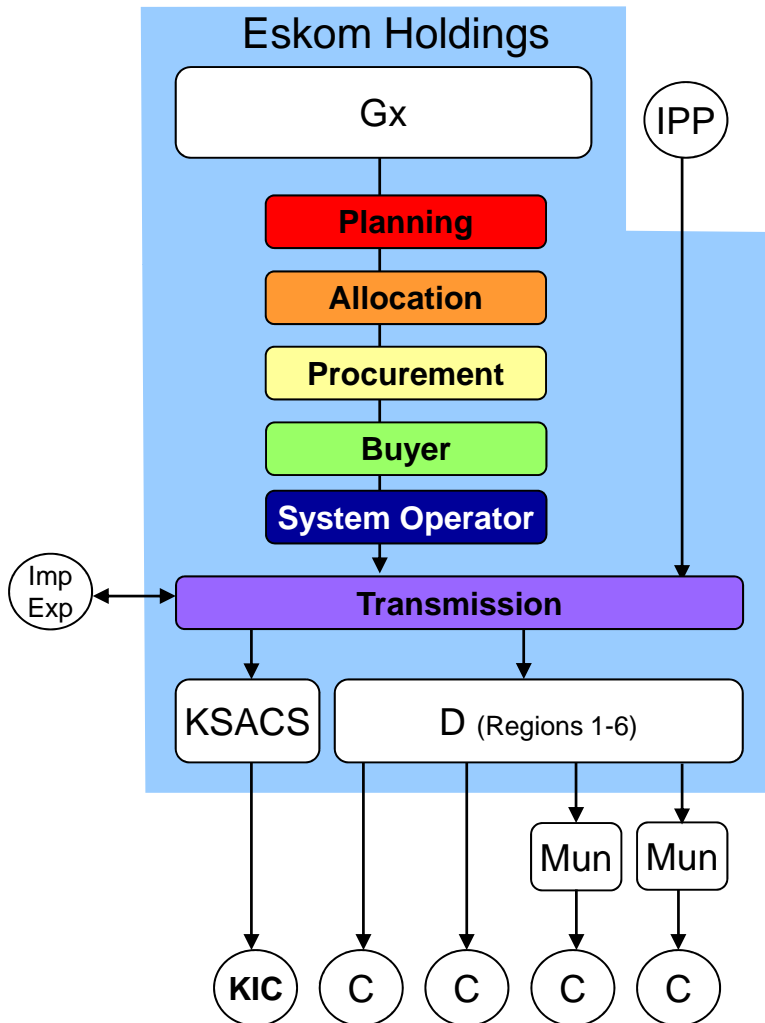
International experience



- Vertical unbundling is a key step in market reforms
 - EITHER leave transmission with the incumbent/s and establish an Independent System Operator (ISO)
 - OR establish a full Transmission System Operator (TSO)
- Choice of ISO or TSO typically depends on ownership of the incumbent transmission system
 - Multiple Tx owners → ISO (e.g. US, multiple utilities)
 - Single/few Tx owner/s → TSO (e.g. UK(1), Spain (3))
- Grid access can be a big issue
 - Current focus of debate in EU
 - ISO unable to make grid investment
 - Mixed incentives for a vertically integrated utility
 - SA plans major shifts in generation technology mix, which will have implications for grid development

Institutional Models

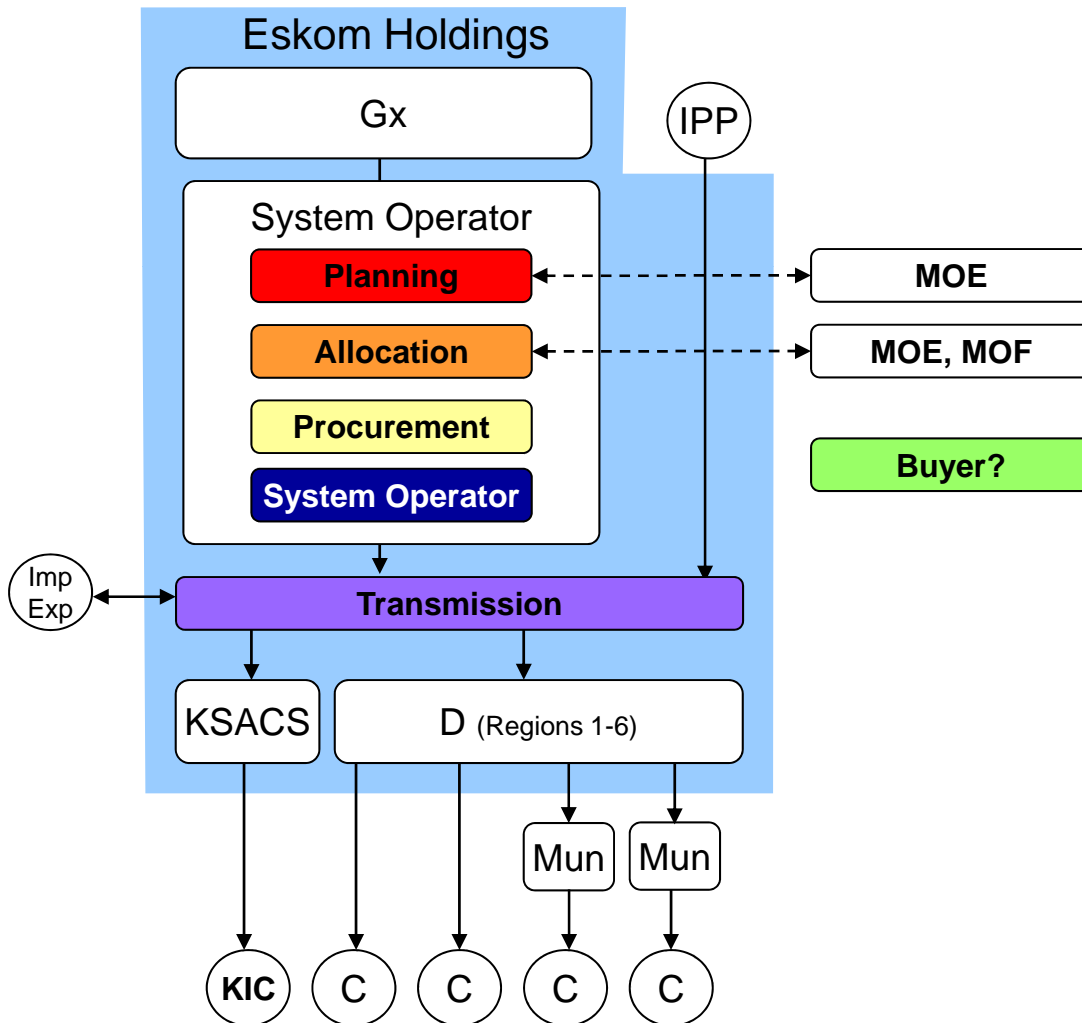
Historic structure of the ESI



- Vertically integrated
- Eskom performed all planning functions
- Very little procurement undertaken
- Supply-side bias
- Unsustainable reliance on coal

Institutional Models

Allocation of functions under the 2009 Newgen Regulations

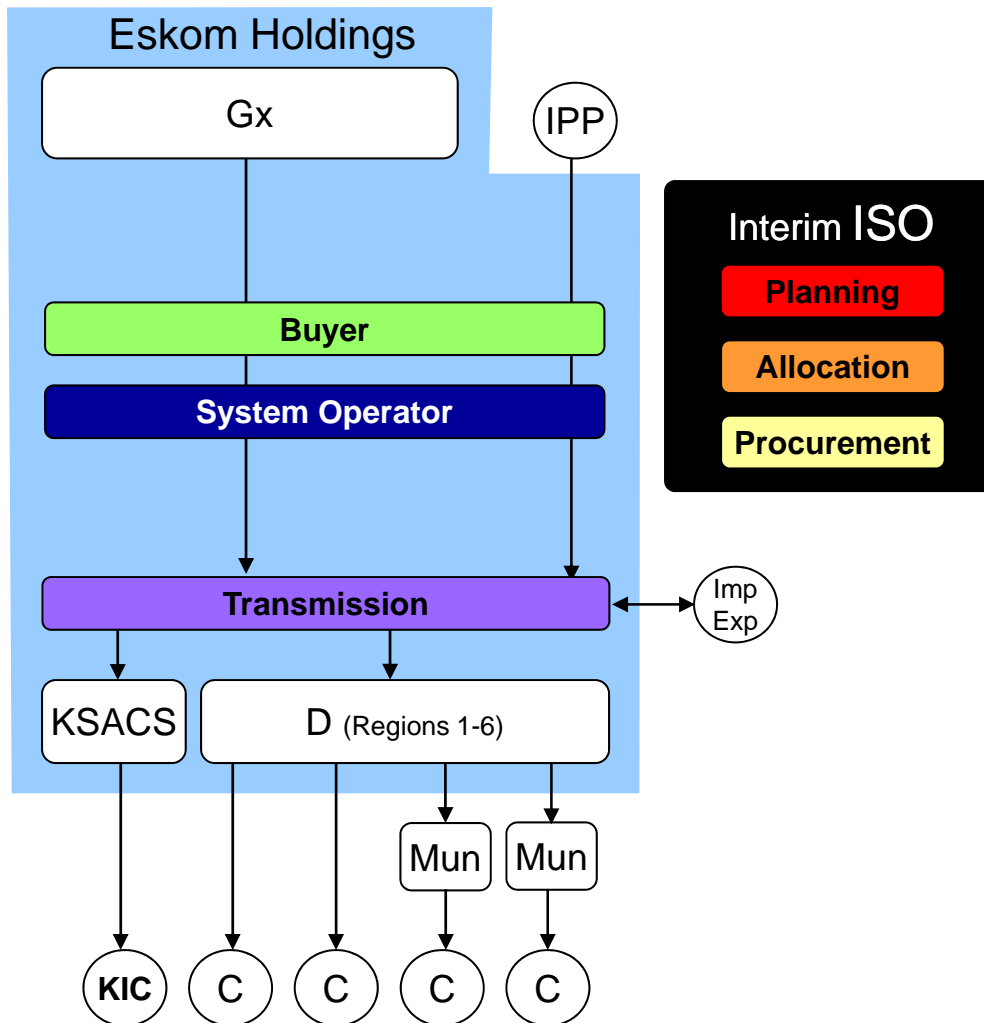


- Newgen regulations, read with Eskom's Transmission license, assign Planning, Allocation, Procurement, System Operator and Transmission functions to Eskom
- Minister of Energy has final say over Integrated Resource Plan
- Minister of Energy, in concurrence with Minister of Finance, has final say over public/private allocation of generation opportunities
- Buyer function appears not to be allocated

This allocation is not achieving reform objectives

Recommended Model

Pre-legislation phase



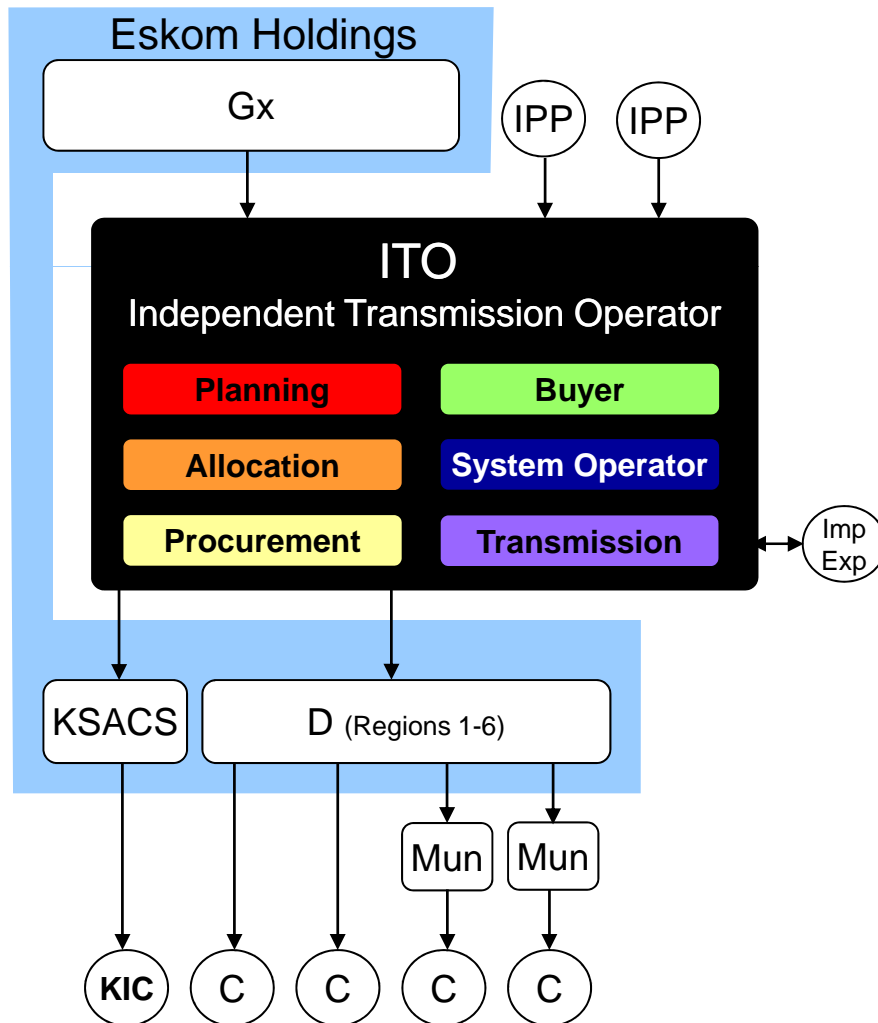
Required Steps

- Establish Interim ISO as a subsidiary of an existing SOE (Nersa, EDI Holdings or CEF)
- ISO to have independent governance
- Amend Newgen regulations and NERSA licenses to define and assign functions clearly
- Clarify objectives and criteria for allocation decisions
- Second required Eskom staff
- Complete IRP2 process
- Commence procurements
- Finalise policy and draft legislation for the end-state ISO

No legislation → quick implementation
Independent governance is crucial

Recommended Model

Post-legislation phase



Required steps

- Establish Independent Transmission Operator by legislation
- Corporatise Eskom's Transmission Division and transfer all staff, assets and existing PPAs into the ITO
- Continue procurements in line with IRP2 and allocation decisions
- Complete EDI restructuring

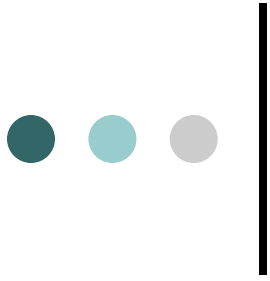
Governance system will have to adapt to future reforms



Conclusion



- South Africa is not currently pursuing the 'Standard Model' for ESI reform, (i.e. vertical unbundling and the pursuit of wholesale and retail competition)
- We face imminent power shortages
- We expect relatively high economic growth and significant expansion in generation capacity
- The urgent priority is therefore to get independent planning, allocation and procurement functions working properly
- An Interim ISO should therefore be established as soon as possible to perform Planning, Allocation and Procurement functions
- It is crucial that the interim ISO has independent governance
- The fact that we have a single national transmission system makes South Africa an ideal candidate to implement the ISTO model earlier rather than later.



Thank You