Department of Mineral Resources and Energy

ENERGY SECURITY

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Department:
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REPUBLIC OF SOUTH AFRICA

2030 NDP

ENERGY SECURITY

- The International Energy Agency (IEA) defines energy security as the **uninterrupted availability of energy sources** at an **affordable price**.

- Key aspects of energy security:
  - short-term energy security which is the ***ability of the energy system to react promptly to sudden changes in the supply-demand balance (operational requirement).***
  - long-term energy security which is mainly about ***timely investments to supply energy in line with economic developments and environmental needs.***

- The **Integrated Resource Plan** is government plan / roadmap to ensuring “electricity” energy security.
  - The plan aim to:

ENERGY SECURITY – IRP 2019

	Coal	Coal (Decommissioning)	Nuclear	Hydro	Storage	PV	Wind	CSP	Gas & Diesel	Other (Distributed Generation, CoGen, Biomass, Landfill)
Current Base	37 149		1 860	2 100	2 912	1 474	1 980	300	3 830	499
2019	2 155	-2373					244	300		Allocation to the extent of the short term capacity and energy gap.
2020	1 433	-557				114	300			
2021	1 433	-1403				300	818			
2022	711	-844			513	400 1000	1600			
2023	750	-555				1000	1600			500
2024			1860				1600		1000	500
2025						1000	1600			500
2026		-1219					1600			500
2027	750	-847					1 600		2000	500
2028		-475				1000	1 600			500
2029		-1694			1575	1000	1 600			500
2030		-1050		2 500		1 000	1 600			500
TOTAL INSTALLED CAPACITY by 2030 (MW)	33364		1860	4600	5000	8288	17742	600	6380	
% Total Installed Capacity (% of MW)	43		2.36	5.84	6.35	10.52	22.53	0.76	8.1	
% Annual Energy Contribution (% of MWh)	58.8		4.5	8.4	1.2*	6.3	17.8	0.6	1.3	

Installed Capacity
Committed / Already Contracted Capacity
Capacity Decommissioned
New Additional Capacity
Extension of Koeberg Plant Design Life
Includes Distributed Generation Capacity for own use

- 2030 Coal Installed Capacity is less capacity decommissioned between years 2020 and 2030
- Koeberg power station rated / installed capacity will revert to 1926 MW (original design capacity) following design life extension work.
- Other / Distributed generation includes all generation facilities in circumstances in which the facility is operated solely to supply electricity to an end-use customer within the same property with the facility
- Short term capacity gap is estimated at 2000 MW

- **New Capacity Allocations (2022-2030)**
  - Coal = 1 500 MW
  - Nuclear = 1 860 MW (extension of life of Koeberg)
  - Hydro = 2 500 MW
  - Storage = 2 078 MW
  - Solar PV = 6 000 MW
  - Wind = 14 400 MW
  - Gas = 3 000 MW
  - Total MW to be installed = 31 338 MW
- **Capacity to be Decommissioned by 2030**
  - Coal = 11 017 MW

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ENERGY SECURITY – RISKS & MITIGATIONS

- In addition to need to meet demand in the future, the **Integrated Resource Plan 2019** identified a number of risks in the immediate term regarding our energy security. These amongst others include:
  - Inadequate power generation capacity reserves in the event of unplanned plant breakdowns at Eskom (deteriorating plant energy availability factor);
  - Underperformance of new Eskom's new build plants (Medupi and Kusile) adding to inadequate power generation capacity reserves;
  - Long lead times to bring new / additional utility-scale capacity online;
  - Koeberg nuclear power plant reaching end of design life in 2024;
  - Eskom running behind schedule with retrofits to its power plants to ensure compliance with Minimum Emissions Standards (MES).
- The IRP recommended a number of actions to address the risks and ensure security of supply in the long term; and these include:
  - Undertaking an urgent power purchase programme;
  - Extending Koeberg power plant design life;
  - Supporting Eskom to comply with MES over time.

ENERGY SECURITY - INTERVENTIONS

- Risk Mitigation IPP Procurement Programme
  - Objective: To procure dispatchable generation capacity (energy, capacity and ancillary services) that can be brought online within 12 to 18 months after contracting;
  - 11 Preferred Bidders totaling 1 995 MW announced by the Department;
  - Projects are scheduled for Financial Close by end March 2022.

- Procurement of available energy from existing Renewable Energy IPPs
  - Objective: To procure additional power from existing renewable energy IPPs;
  - The Department through the IPPO has issued expression of interest to IPPs;
  - 34 IPPs have responded expressing interest with total capacity of about 162 MW;
  - IPPO processing the offers by IPPs for approval by Eskom and National Treasury.

- Eskom Short Term Power Purchase Programme
  - Objective: To procure power from existing power generation facilities on short term basis
  - The initiative is on hold

ENERGY SECURITY - INTERVENTIONS

- Section 34 Ministerial Determination for 11 831 MW
  - Objective: To procure power from a range of technologies (Wind, Solar PV, Gas, Coal, Battery Storage)
  - Progress to date:
    - Preferred Bidders for 2 600 MW of renewable energy (known as Bid-Window 5) announced in 2021 with Financial Close planned for April 2022.
    - Request for Proposal for 2 600 MW of renewable energy (Bid-Window 7) scheduled for release end March 2022
    - Request for Proposal for 513 MW of battery storage scheduled for release by end April 2022
    - Request for Proposal for 1 600 MW of renewable energy to be issued by end August 2022
    - Request for Proposal for 1 500 MW for Coal to Power and 3 000 MW for Gas to Power to be issues during 2022/23 Financial Year

- Enable Development of Additional Capacity Outside of Eskom
  - Municipal Power Generation
    - Objective: To clarify requirements for Municipalities when requesting Section 34 Determinations;
    - Department amended Electricity Regulations of New Generation Capacity and has put together a process to be followed internally to ensure requests by municipalities are attended to speedily.
  - Generation for Own Use
    - Objective: To ease regulatory requirements for the development of generation for own use;
    - Department has amended Schedule 2 of the Electricity Regulation Act and exempted facilities of up to 100 MW from the requirement to hold a license.

Thank you

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