ENERGY SECURITY

Department of Mineral Resources and Energy

mineral resources & energy
Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

2030 NDP

WHAT IS 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.***

ENERGY SECURITY AND THE ENERGY MIX

- Energy Mix
  - *Is based on reduction of emissions over time in line with NDCs.*
  - *Is based on the need to balance the system now and in the long term*
  - *Is based on the need for the system to respond sufficiently to changes in supply and demand (adequacy) with least "practical" cost*

- Net ZERO

  Refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. We reach net zero when the amount we add is no more than the amount taken away. And this can be achieved through the following:

  - *Emissions free production*
  - *Removal of carbon from the atmosphere*

INTEGRATED RESOURCE PLAN 2019

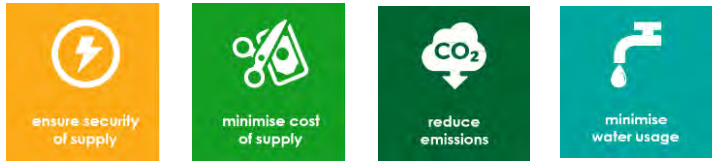
IRP is government plan to ensure energy security in the long-term

	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

Objectives of the IRP is to provide electricity generation plan that aims to:



- **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 INTERVENTIONS

- There is currently lack of energy (electricity) security due to challenges with Eskom's plant performance.
- There are a number of initiatives to deal with the long and short-term energy security challenge and they include:
  - Procurement of available energy from existing Renewable Energy
  - Enabling Generation of Power outside of Eskom
    - Municipal power generation
    - Generation for own use (Schedule 2)
  - Risk Mitigation Independent Power Producer Procurement Programme
  - Implementation of rest of the capacity in the IRP 2019

ENERGY SECURITY INTERVENTIONS

- 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.
- 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.

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 January 2022.

- 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
    - Request for Proposal for 2 600 MW of renewable energy and 513 MW of battery storage to be issued by end February 2022
    - Request for Proposal for 1 600 MW of renewable energy to be issued mid 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
    - Projects are expected to reach Commercial Operation from March 2023.

Thank you

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