

# REGULATORY REVIEW OF THE ELECTRICITY MARKET IN SA - IN THE CONTEXT OF THE TRANSITION TO RENEWABLE ENERGY SOURCES

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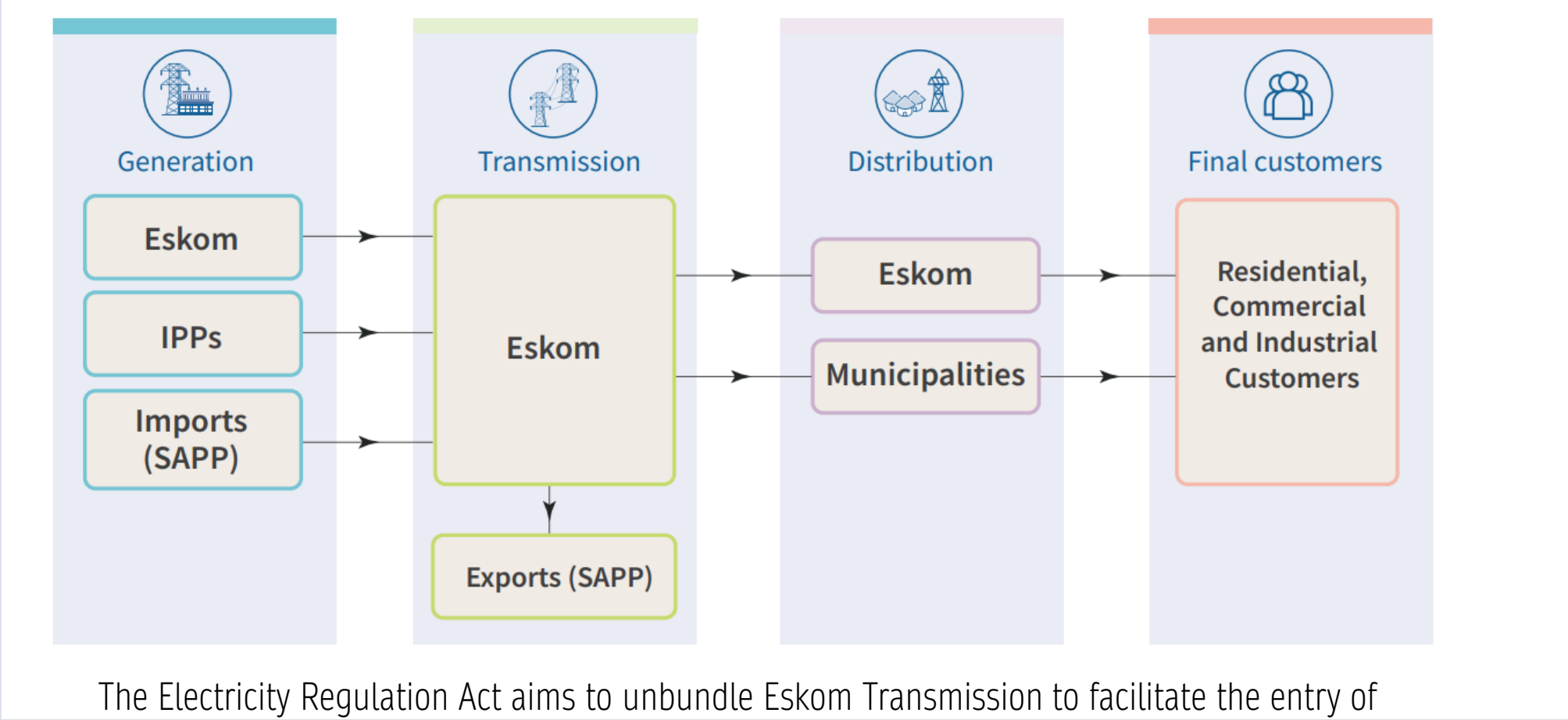
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# THE SOUTH AFRICAN ELECTRICITY MARKET



# KEY ROLE-PLAYERS

Role-player	Responsibility
Eskom	Monopoly power generation utility, 100% owned by government
DPE	Eskom's sole shareholder.
DMRE	Develops energy policy and determines procurement of new capacity
National Treasury	Manages finances and Eskom oversight. Guarantees IPP payments in event of a default
DEFF	Environmental policy development and compliance oversight
Regulator (NERSA)	Regulates electricity sector through Electricity Regulation Act. Set tariffs; licences generation, transmission and distribution; and oversee trading of imports & exports
National Nuclear Regulator	Nuclear authorisation and regulatory control related to safety.
Municipalities	Buys power from Eskom/ IPPs, sold to customers via distribution system
Independent Power Producers	Produce generation capacity to sell to Eskom / Industrial customers for self-generation
End-users / Customers	Buy power from Eskom / Municipalities / Generate it for own user

NB: The New Minister of Electricity is responsible for the Electricity Supply Crisis plan which aims to reduce the extent of and intensity of load-shedding and

# POLICY DRIVERS OF ENERGY TRANSITION

1998

- **White Paper on Energy (1998)** – set out the country’s electricity vision:
  - To increase access to affordable energy services
  - To improve energy governance
  - To stimulate economic development
  - To manage energy-related environmental impacts
  - To secure supply through diversity

2003

- **White Paper on Renewable Energy**
  - Foundation for the promotion of renewable energy in South Africa
  - Set a ten-year target to diversify the energy mix including renewable energy
  - Secure cleaner from renewable energy sources
  - Driven by concerns about global warming

# CLIMATE CHANGE AS DRIVE OF TRANSITION

- National Climate Response Policy White Paper, in 2011
- Introduced a “**peak, plateau, decline**” strategy to manage greenhouse gas emissions
- South Africa submitted a Nationally Determined Contribution under Paris Agreement
- Committed to limit emissions to 398 Mt CO<sub>2</sub>-eq (2025); 614 Mt CO<sub>2</sub>-eq by 2030
- Key driver of plans to diversify into low-carbon electricity sources, including renewable energy

# LONG-TERM ENERGY PLANNING – IRP 2019

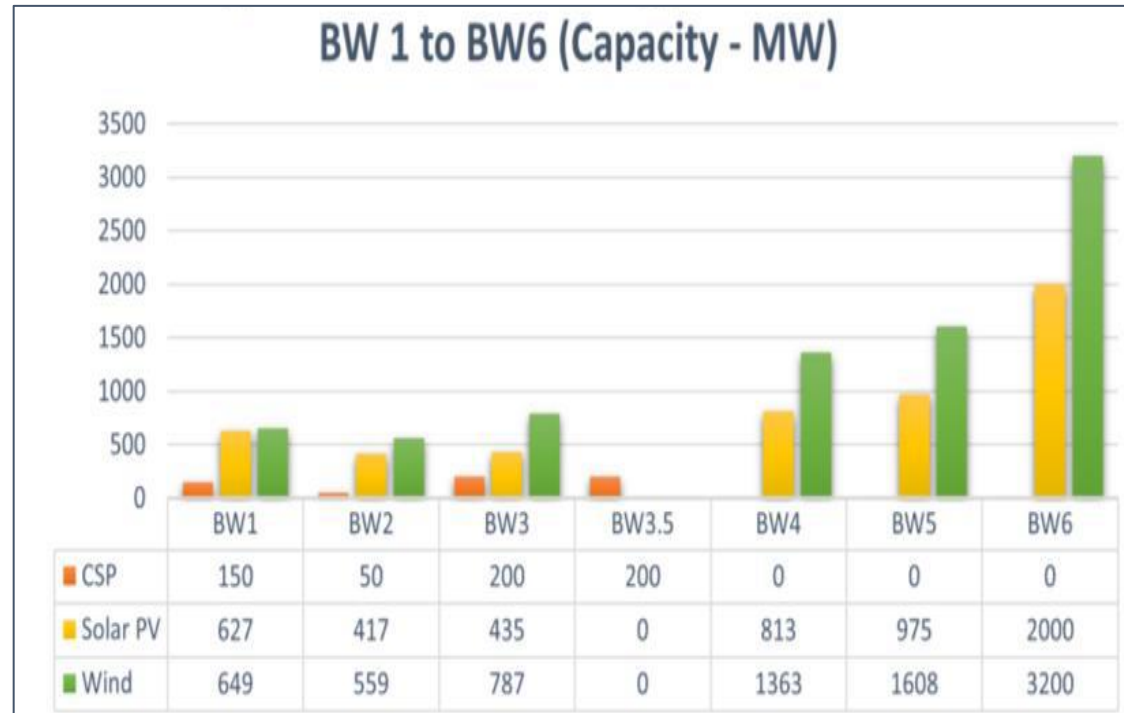
Recommended Plan IRP 2019	Coal		Nuclear	Hydro	Storage	PV		Wind	CSP	Gas & Diesel	Other*
Current Base	37149		1860	2100	2912	1474		1980	300	3830	499
2019	2155	-2373						244	300		***
2020	1433	-557				114		300			
2021	1433	-1403				300		818			
2022	711	-844			513	400	1000	1600			
2023	750	-555				1000		1600			
2024			1860					1600		1000	500
2025						1000		1600			500
2026		-1219						1600			500
2027	750	-847						1600		2000	500
2028		-475				1000		1600			500
2029		-1694			1575	1000		1600			500
2030		-1050		2500		1000		1600			500
<b>TOTAL INSTALLED CAPACITY by 2030 (MW)</b>	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	
	<b>Installed Capacity</b>										
	<b>Committed/ Already Contracted Capacity</b>										
	<b>Capacity Decommissioned</b>										
	<b>New Additional Capacity</b>										
	<b>Extension of Koeberg Plant life</b>										
	<b>Distributed Generation Capacity for own use</b>										
* Distributed Generation, CoGen, Biomass, Landfill											
** Allocation to the extent of the short term capacity and energy gap											

Source: DMRE

## Aim to diversify the SA energy mix:

- Renewable energy increased role in future energy
- Decommissioning of coal-fired power plants
- Gas for conversion of OCGTs to CCGTs
- Capacity from Inga (DRC)
- Nuclear – Koeberg extension of life
- Distributed Generation from own use
- Plant performance challenged
- IRP2023 to be presented to Cabinet next week

# SOUTH AFRICAN RENEWABLE ENERGY MARKET



- Market has grown steadily since Mar 2011 promulgation of IRP2010
- Six bid windows procured since the commercial operation of 1st project in Nov 2013
- Total capacity of **6,323** MW by December 2021 (DMRE, 2021)
- Growth of Distributed Generation
- More private generators are incentivised to enter the market since a change in licence requirements



# RENEWABLE ENERGY MARKET CHALLENGES

- Emergency procurement of **2 000 MW** was expected (2019 and 2022)
- Challenges reaching financial close
- Distributed or embedded generation exponential growth in planned projects
- Bid Window 5: preferred bidders announced in October 2021
- Not all the projects have signed project agreements with the DMRE
- Challenges due to bidding low tariffs
- BW6: initial 2600 MW doubled to 5200 MW
- Following the President's announcement of the Electricity Supply Crisis plan
- Grid constraints in areas where renewable energy resources are most abundant.

# THE JUST ENERGY TRANSITION INVESTMENT PLAN (JET IP)

- The JET IP is premised on South Africa's National Development Plan (NDP) 2030
- Identifies the following electricity investment needs of **ZAR 647.7 billion** (2023-2027):

<u>Activity/Technology/Programme</u>	<u>Amount (R billion)</u>
• Coal plant decommissioning	4.1
• Distribution infrastructure	13.8
• Transmission infrastructure	131.8
• New Solar PV projects	233.2
• New wind projects	241.7
• New batterie storage	23.1

**Source:** The Presidency Republic of South Africa JET IP (2022)

## Key policy questions:

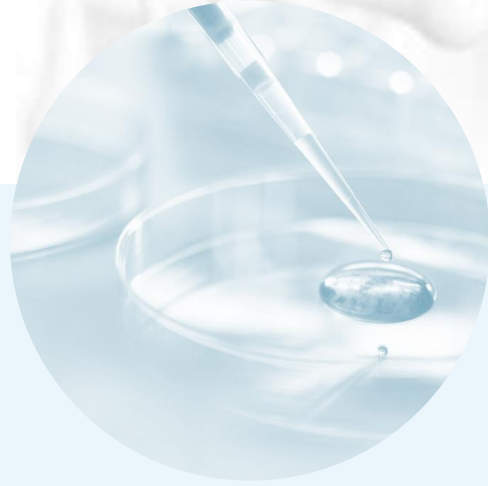
- Is South Africa ready to decommission coal capacity?
- What is the plan to deal with associated security of supply challenges?
- What is the plan to tackle the systemic challenges of poverty, inequality, and unemployment?

# CHALLENGES IN JET-IP IMPLEMENTATION

- Variable renewable energy challenges in ensuring the security of the supply
- Storage capacity requirements high the current total capacity globally
- Flexible supply options required to support renewable (diversification of energy mix)
- It is not clear how the **JUST** elements of JET will be realised
- Renewable energy value chains are difficult to penetrate
- Original Equipment Manufacturers' control poses a challenge to localisation and job creation ambitions
- Distributed or embedded generation exponential growth in planned projects is welcome
- National grid capacity poses a challenge, as Eskom needs to build capacity

# CONCLUSION

- SA's energy policy objectives to transition to low-carbon energy have enjoyed some success
- Due to the entry of renewable energy into the market
- Renewable energy private players are expected to grow in future
- They help alleviate Eskom's funding constraints by developing their own capacity
- Renewable energy support climate change mitigation
- But without associated flexible generation they pose a security of supply challenge
- Thus, Eskom still has a critical role to play in the SA Electricity Supply market
- SA should pursue an energy mix which ensures the security of the electricity supply
- Electricity is a key input to economic development
- Key policy questions remain about decommissioning of coal, security of electricity and socioeconomic impacts of a JET



**THANK YOU**

