



# 68<sup>TH</sup> AMEU CONVENTION 2022

Durban International Convention Centre

2 – 5 October 2022

A JUST ENERGY TRANSITION (“JET”) FOR SOUTH AFRICA

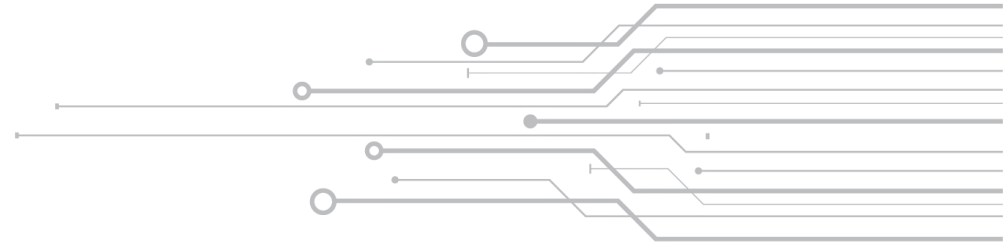
## ENERGY STRATEGIC ROADMAP FOR ETHEKWINI METROPOLITAN MUNICIPALITY

Presented by Sbu Ntshalintshali  
EThekweni Energy Office

*Hosted by*



## Presentation Outline:



- **Regional Power Generation Outlook**
- **Power Generation Outlook in South Africa**
- **Strategic Direction of the eThekweni Metropolitan Municipality**
- **Our Strategic Response to the Declining Energy Security**
- **Procurement Pipeline for Power Generation and Energy Fuels Projects**

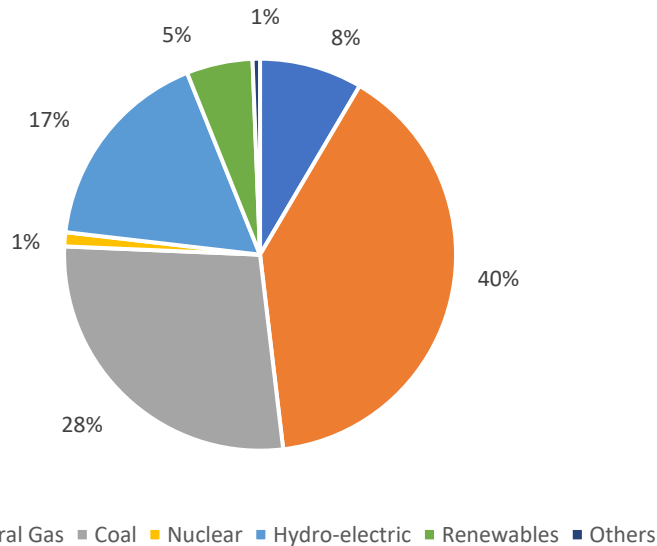
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# REGIONAL POWER GENERATION OUTLOOK

Regional Power Generation Mix in Africa (2021)

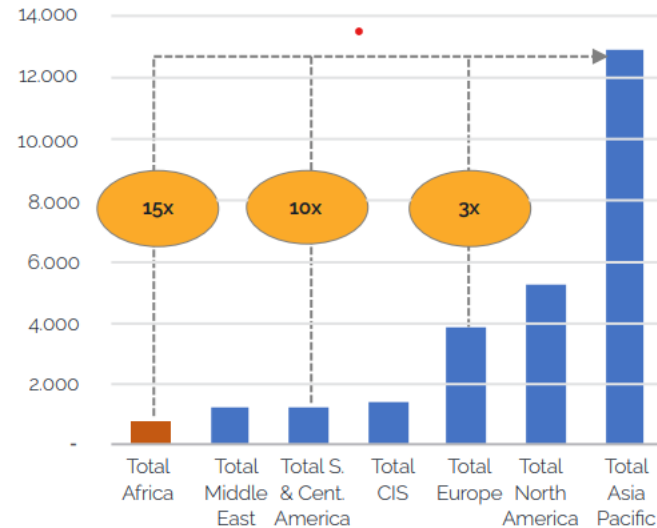


## HIGHLIGHTS: KEY CONSIDERATIONS

1. Conventional fuels still continue to make up the most share of Africa's power generation mix as it did in 2020
2. Natural gas still dominate the power generation mix at approximately 40%, followed by coal at 28%, and Hydro at 17%
3. Renewables account for only 5% of the power generation mix in Africa. However, the share is growing significantly
4. No one-size-fits-all approach to the energy mix as different regions prefer different energy resources.

Source: BP Statistical Review 2022

Regional Net Power Output (TWh) in 2021



## HIGHLIGHTS: KEY CONSIDERATIONS

1. Africa increased electricity production from 855 TWh in 2020 to 897.5 TWh in 2021 despite COVID-19 pandemic
2. However, this is 15x less than the total production in Asia Pacific region in particular
3. Africa's energy intensity must drastically improve economy, industrialize and provide access to electricity. The continent still has more than 600 million people without access to electricity
4. More investments in gas to power (GTP) projects will help to move away from polluting conventional fuels.

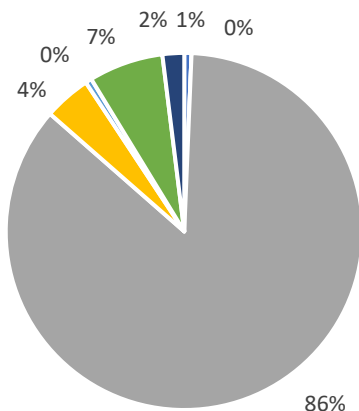
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# POWER GENERATION OUTLOOK IN SOUTH AFRICA

Power Generation Mix in South Africa (2021)



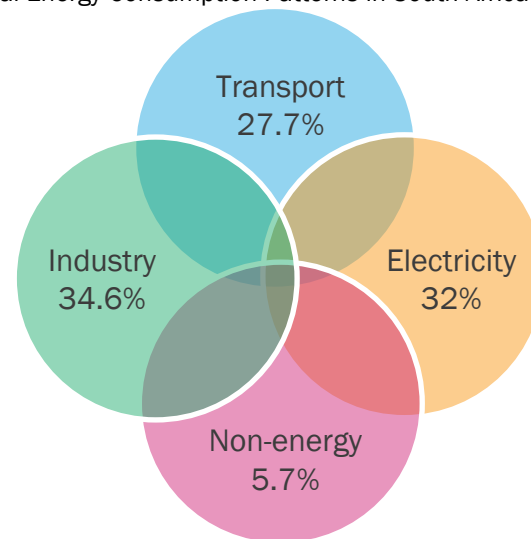
■ Oil ■ Natural Gas ■ Coal ■ Nuclear ■ Hydro-electric ■ Renewables ■ Others

## HIGHLIGHTS: KEY INSIGHTS

1. Electricity demand in South Africa fell by around 5% in 2020. In the first months of 2021 it increased by around 3% compared to 2021 figures
2. South Africa continues to struggle with capacity shortages due to ageing infrastructure and unpredictable behaviour of power plants
3. Coal still dominates the electricity mix accounting for 86%, followed by renewables contributing at least 7% and nuclear at 4%
4. Government plans to procure more additional capacity through REIPPPP and significantly expand supply chain infrastructure for LNG in KZN

Source: BP Statistical Review 2022

Total Energy Consumption Patterns in South Africa (2021)



## HIGHLIGHTS: KEY INSIGHTS

1. The total energy consumption requires a broader outlook beyond electricity generation in South Africa, we cannot assess the demand for gas through an electricity generation lens alone
2. Looking at the IEA consumption figures for South Africa, we note that electricity accounts for only 32% of the country's overall needs
3. Accordingly, we need to have a broader view on energy sources, and their application across our economy, including: (industrial sectors) (The transportation sector) (Residential, commercial and public service)

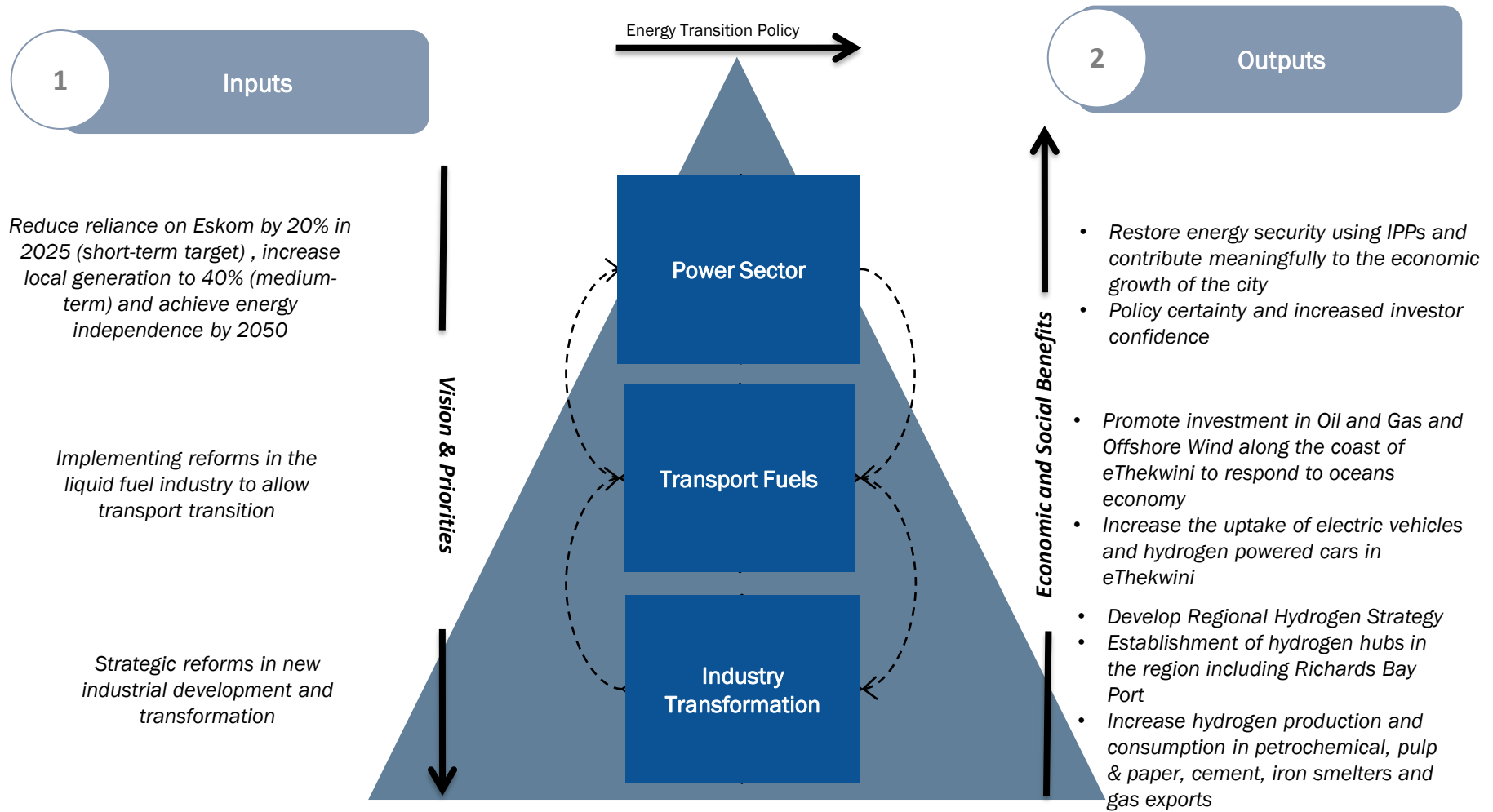
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# STRATEGIC DIRECTION OF ETHEKWINI METROPOLITAN MUNICIPALITY



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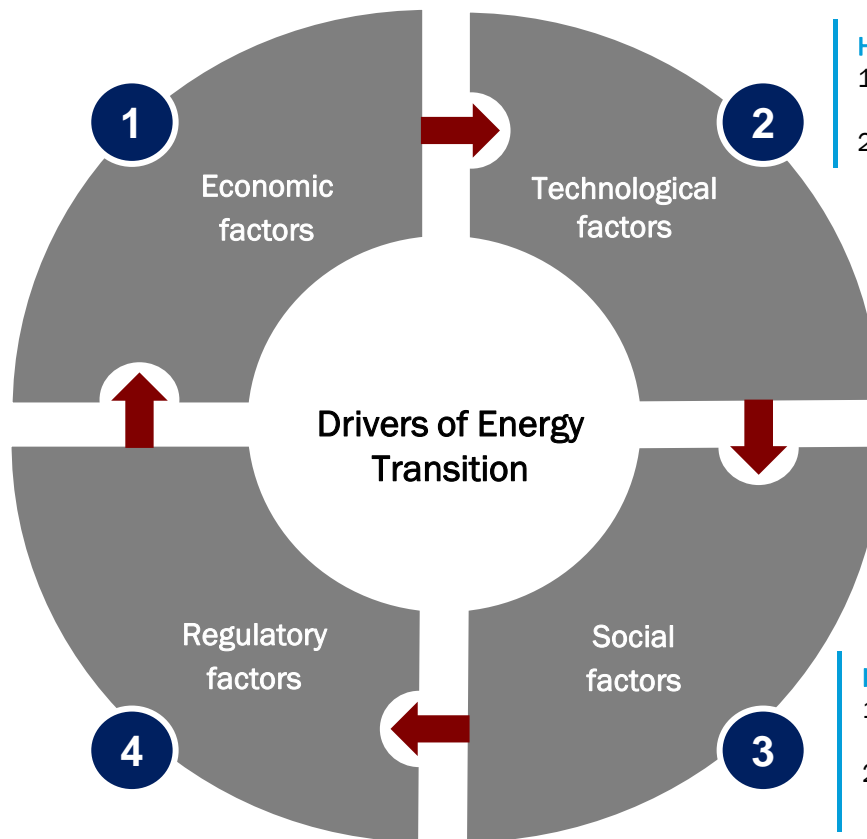
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# STRATEGIC DIRECTION OF ETHEKWINI METROPOLITAN MUNICIPALITY

## HIGHLIGHTS: KEY CHANGES

1. Price volatility: Supply and demand issues regarding fossil fuels
2. Issues of sustainability and net zero compliance



## HIGHLIGHTS: KEY CHANGES

1. Cost – competitiveness: significant drop in cost for RE technologies
2. Deployment of RE at scale

## HIGHLIGHTS: KEY CHANGES

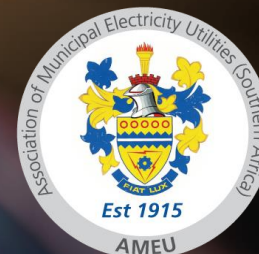
1. Changing investor priorities: carbon tax and ESG compliance
2. Reporting standards for various businesses

## HIGHLIGHTS: KEY CHANGES

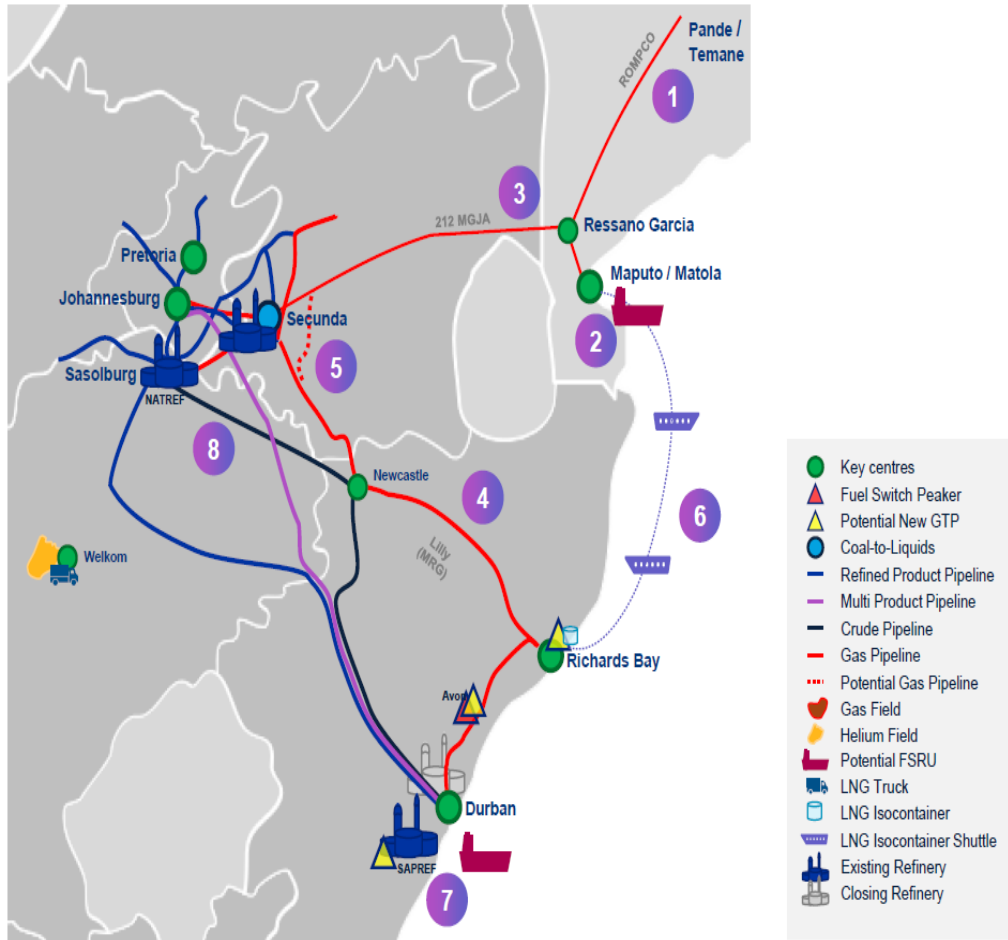
1. Energy access and energy security in developing countries
2. Socially driven ambitious targets for renewable energy / SDGs

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# OUR STRATEGIC RESPONSE TO THE DECLINING ENERGY SECURITY



Source: GMP Standard Bank

## Responding to the declining energy security: Gas economy

1. Considering the potential decline in Pande and Temane (PT) fields to 110 MGJA by 2028. EThekwiini believes alternative supplies must be integrated into mainstream economy;
2. Lilly pipeline conversion from methane rich gas (MRG) to Natural Gas (NG) and upgrading to reverse flow bottlenecks and expansion of Lilly line;
3. Potential economies of scale for LNG Isocontainer transport from Matola FSRU directly to Richards Bay, onward to Avon conversion to CCGT and to Durban Port.
4. EThekwiini Metro is planning to procure 850 MW from natural gas or LNG over time. Of which, 300 MW is already in the procurement pipeline with National Treasury;
5. The development of the Richards Bay's 3000 MW CCGT Power Plant. This includes the LNG Import Terminal to be constructed by TNPA
6. Potential development of gas distribution network in Durban in order to supply the growing industrial demand. The infrastructure to be owned and operated by private entity in partnership with eThekwiini Metro and;
7. Finally, the development of gas storage infrastructure to be owned and operated by private entity in partnership with eThekwiini Metro.

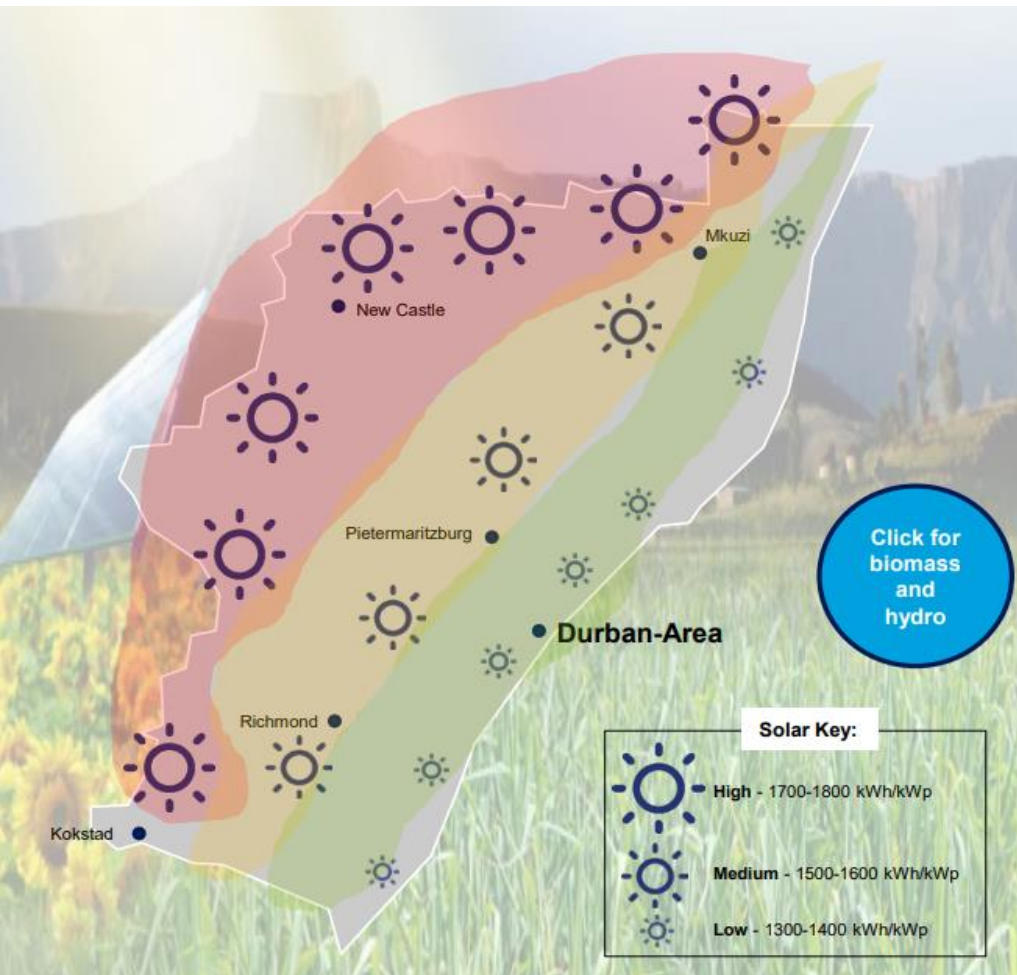
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# OUR STRATEGIC RESPONSE TO THE DECLINING ENERGY SECURITY



Source: KZN EDTEA

Responding to the declining energy security: Solar PV economy

1. The Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) from Department of Mineral Resources and Energy (DMRE) has attracted more than R200 billion since 2011;
2. To date, DMRE has procured 9 021 MW from 137 RE IPP projects, through 9 bid windows (BW). These BWs start from BW1 to BW5;
3. By end of December 2021, the total installed grid capacity was 6 000 MW from 86 projects, meaning almost all projects were in commercial operation;
4. However, that has changed in the latest BWs. BW4 recorded the lowest tariffs for Solar PV projects at R670/MWh while the price for BW5 has dropped significantly to R470/MWh. Though some projects are straggling to reach financial close due to increase in EPC cost / Inflation;
5. EThekweni's Municipal Independent Power Producer Procurement Programme (MIPPPP) is changing the KZN landscape and introducing a win-win business model for Public Private Partnership (PPP) model. Ethekeeni has allocated 200 MW for solar PV. Of which, 100 MW is in the procurement pipeline with National Treasury; and
6. EThekweni Municipality is planning to make land available for small emerging manufacturers, especially those that can meet annual demand for 100 MW. This includes making roof space available on municipal owned buildings to further produce electricity from PV.

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# PROCUREMENT PIPELINE FOR POWER GENERATION AND ENERGY FUEL PROJECTS

Immediate energy infrastructure pipeline projects: <ul style="list-style-type: none"> <li>To be delivered through PPP model as outlined in S120 of MFMA and S76 (b) of MSA;</li> <li>Included in the integrated development plan (IDP) and KZN PEC</li> </ul> To be managed exclusively by private entity: PPA Managed exclusively through PPP		PPP Mechanism for Dispatchable and Non-Dispatchable Assets				
		Build	Operate	Own	Maintain	Project stage
Short-term projects, online before 2026	Gas (CCGT) Power Plant – 300 MW	✗	✗	✗	✗	Procurement
	Solar PV Power Plant – 100 MW	✗	✗	✗	✗	Procurement
	Ushaka Marine – 5 MW of PV + BESS	✗	✗	✓	✗	Feasibility
	ICC – 2 MW of Rooftop Solar PV	✗	✗	✓	✗	Feasibility
	Gas Peaking Power Plant – 50 MW	✗	✗	✗	✗	Concept
	Energy and Chemicals Park	✗	✗	✓	✗	Concept
	10 Electric Buses for GO! Durban	✗	✗	✓	✗	Concept
	10 FCEVs Buses for GO! Durban	✗	✗	✓	✗	Concept

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# PROCUREMENT PIPELINE FOR POWER GENERATION PROJECTS

## Project impact



Infrastructure life-cycle  
2025 - 2065



Energy security  
100% Dispatchable

## Product impact



Gas production  
1 576 800 MWh



Solar production  
175 200 MWh



Net energy output  
1 752 000 MWh

## Social integration and economic development impact



Construction jobs  
8000



Operational jobs  
400



Enterprise development  
TBD by DTIC



Private investment  
R10 billion



Local content  
Above 60%



Ownership by community  
TBD by DTIC



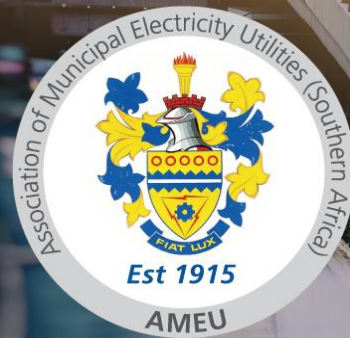
## SDG IMPACT



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**Thank you**

