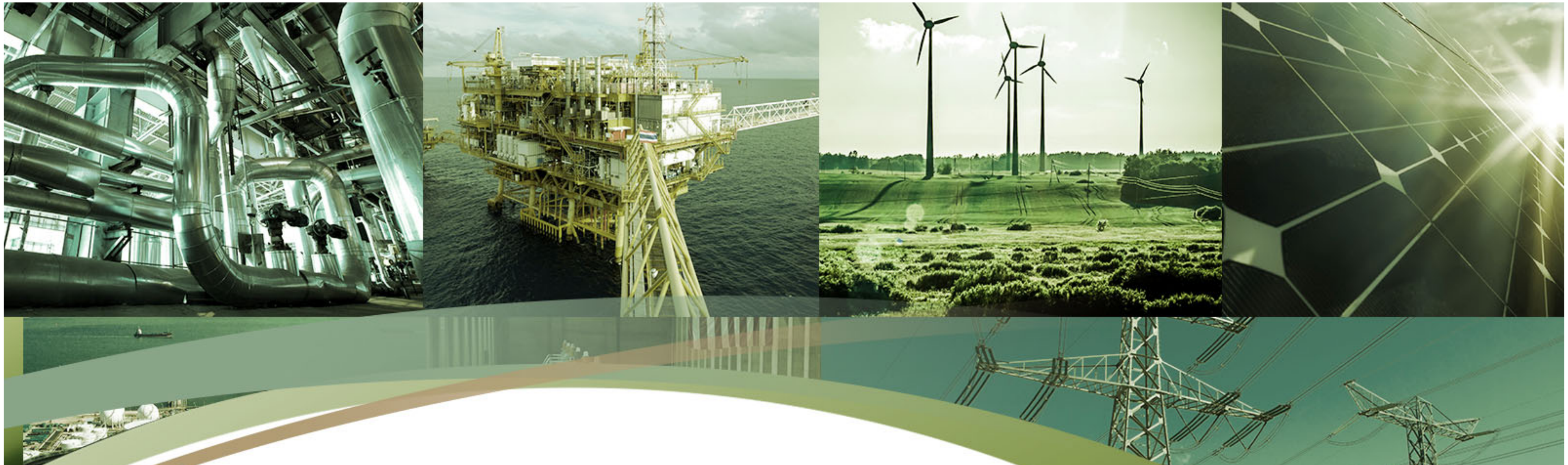

4th IEF OFID Symposium on Energy Poverty

-Synergies and Collaborations-

Gas Projects

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Mr. Thabang Audat

Presentation Outline

1. South Africa's Energy Planning

2. Cross Border Opportunities.

    1. Gas, Hydro and Oil

    2. Coal fleet decommissioning

    3. Gas opportunities

3. Enabling environment.

1. National Energy Planning

South Africa’s Energy Planning Context:

- **White Paper** on the Energy Policy of the Republic of South Africa of 1998.
- Further anchored in the **National Energy Act**, 2008 (Act No. 34 of 2008)
  - [Mandates Minister of Energy to develop and publish and review the Integrated Energy Plan] .

Integrated Energy Plan:

- **Electricity Master Plan**
  - Provides least cost electricity generation mix, including consideration for **imports** and **exports**
- **Liquid Fuels Infrastructure Roadmap**
  - Future supply/ demand analysis and provision for required infrastructure (refinery)
- **Gas Master Plan**
  - **Market development** – increased demand for gas in South Africa

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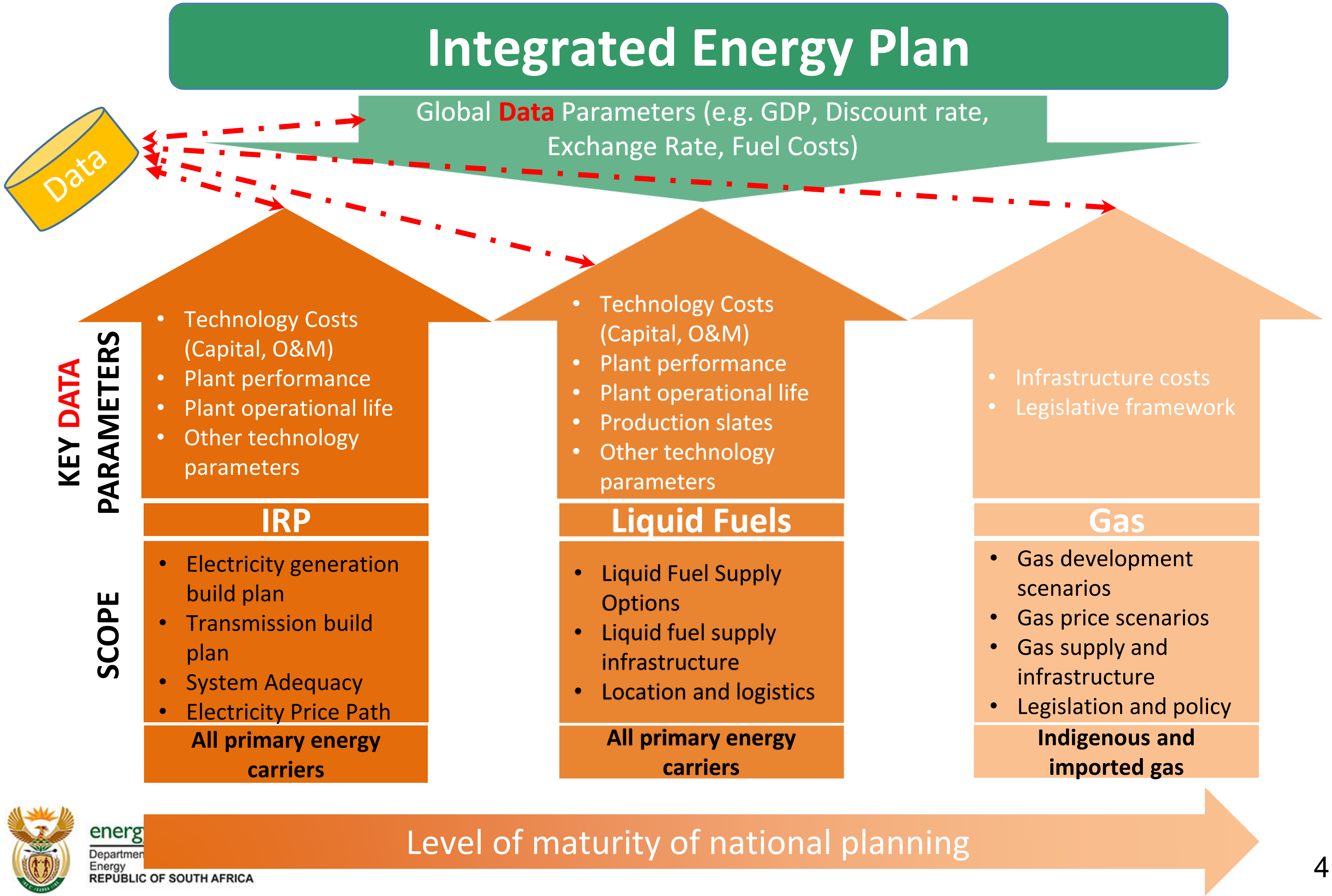
1. National Energy Planning



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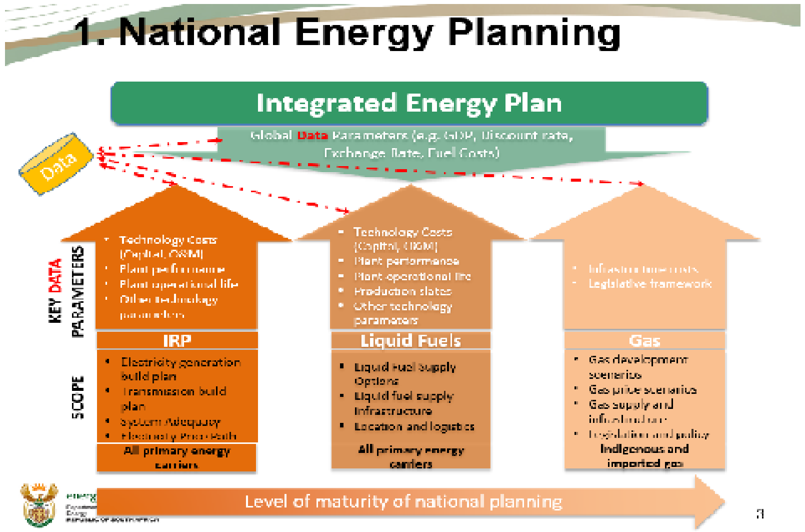
Cross Border Oppotunities

2. Cross Border Opportunities

1. Hydro electricity scheme;

- Grand Inga (2500 MW) - import
- Cahorra Bassa (1000 MW) – import/export



2. Gas importation

- Gas –to- power (new) 3500 MW.
- Coal conversion.
- Gas market development (industrial, commercial and residential)

3. Retiring Refineries

- New Oil refinery (opportunities for cleaner fuel specification)

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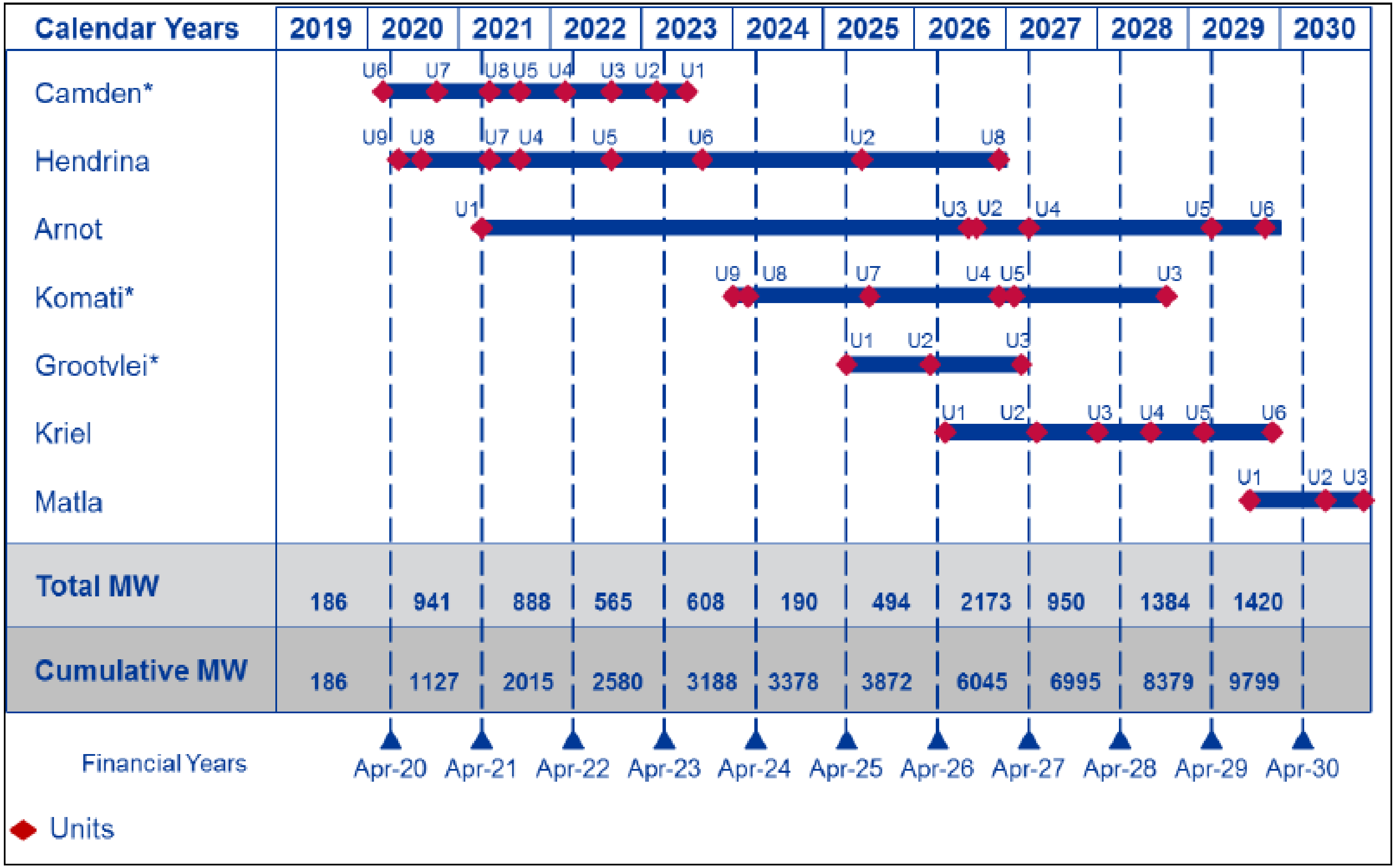
South Africa's Coal Fleet Reaching End Of Life*



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*Source: Eskom 2018 Tariff Application. EOL @ 50 years

Opportunities

1. Replacement of coal fleet - options
    1. Clean coal technologies
    2. Conversion from coal-to-power → to gas-to-power
        1. Will require increase in gas import.
2. New power generation technologies –
    1. Lenders bias towards funding cleaner tech.
3. Need for cross border energy trading (oil, gas and electricity).
    1. Will require transportation infrastructure to be strengthened.

Ongoing local gas initiatives –Opportunities to convert diesel power plants to gas power. -Eskom

Undeveloped reserves   Gas reserve

Ibhubesi gas field ***(2018)***
- Proven reserves of 0.2TCF
- GSA Negotiations delayed due to OCGT utilisation profile changes

Waterberg CBM ***(pilot operating)***
- Reserves estimated at 2-14 TCF
- Company's involvement is yet to be clarified

Ankerlig Power station ***(operating)***
- Multi-fuel Siemens OCGT (1,338 MW)
- Dual fuel burners conversion completed

Gourikwa Power station ***(operating)***
- Multi-fuel Siemens OCGT (746MW)
- Engagement continues between Eskom and PetroSA for feedback on fuel sourcing

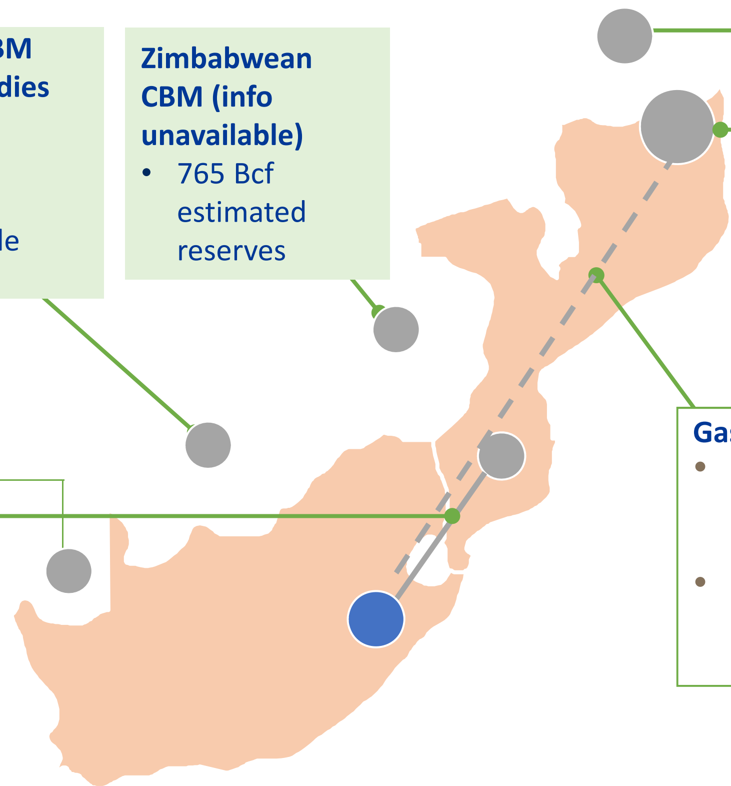
Karoo shale gas (2030)
- Ranked top 10 in the world with estimated 15-485 TCF gas reserves[1]
- Strategy allows Eskom to participate as main offtaker
- Company's involvement is yet to be clarified

*1. SOURCE: IEA; press search; PDD

Cross Border Opportunities. Gas Discoveries

Current pipeline — Gas reserve — Future pipeline

Undeveloped reserves — Eskom power stations



Tanzania Songo-Songo and Mnazi fields (operating)
- 8 Tcf estimated reserves
- Total Tanzanian estimated reserves: 42.7Tcf

Botswana CBM (desktop studies underway)
- 6.7 Tcf estimated recoverable reserves

Zimbabwean CBM (info unavailable)
- 765 Bcf estimated reserves

Kudu gas field *(2021)*
- 1.3 Tcf estimated reserves

Rovuma Basin – onshore and offshore (2023)
- Reserves estimate 170 TCF

Rompco pipeline *(operating)*
- 865 km from Pande and Temane
- Eskom can source gas at the field or through the pipeline to generate ~600MW

Gasnosu North-South pipeline (2022/3)
- Proposed pipeline intended to transport gas from Rovuma to south Mozambique and South Africa
- Will be anchored by 5000MW of generating capacity between Mozambique and South Africa

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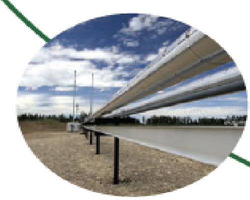
1 Range from Energy Information Administration (EIA)

SOURCE: IEA; press search; PDD

What is required

1. Cross border regulatory framework.
    1. Gov-to-Gov collaboration (at a policy level)
    2. Legislative amendments.
    3. Respective country regulators need to re-calibrate processes
2. Regional Energy Plans
3. Bankable projects
4. Coordinated project development – appropriate risk allocation
5. International experience incorporated into regional projects.

Thank You



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