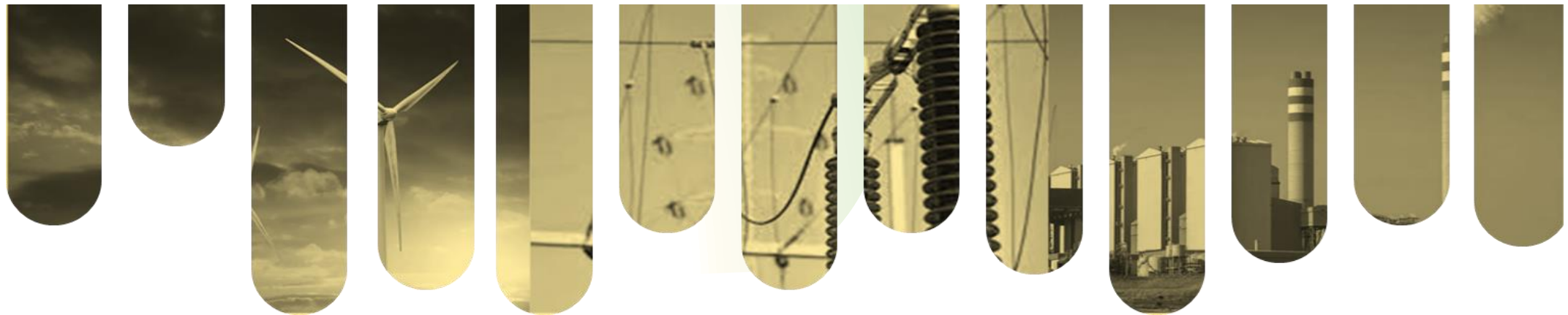




MINISTER IN THE PRESIDENCY FOR ELECTRICITY



ADDRESS TO THE 69th AMEU CONVENTION 2023

DR KGOSIENTSHO RAMOKGOPA

Minister in the Presidency for Electricity

02 OCTOBER 2023 | CSIR CONVENTION CENTRE • TSHWANE



PROBLEM STATEMENT: ECONOMIC

LOADSHEDDING IMPACT ON THE ECONOMY

Loadshedding & high input costs, e.g. electricity & fuel costs, continue to erode company profitability compromising jobs; spillover effects on tax collection and service delivery capacities

SARB modelling probes the economic impact from 2014 to 2022 based on load-shedding intensity

Load-shedding exerts a statistically significant negative impact on total real GDP growth: estimated between R204m and R899m daily

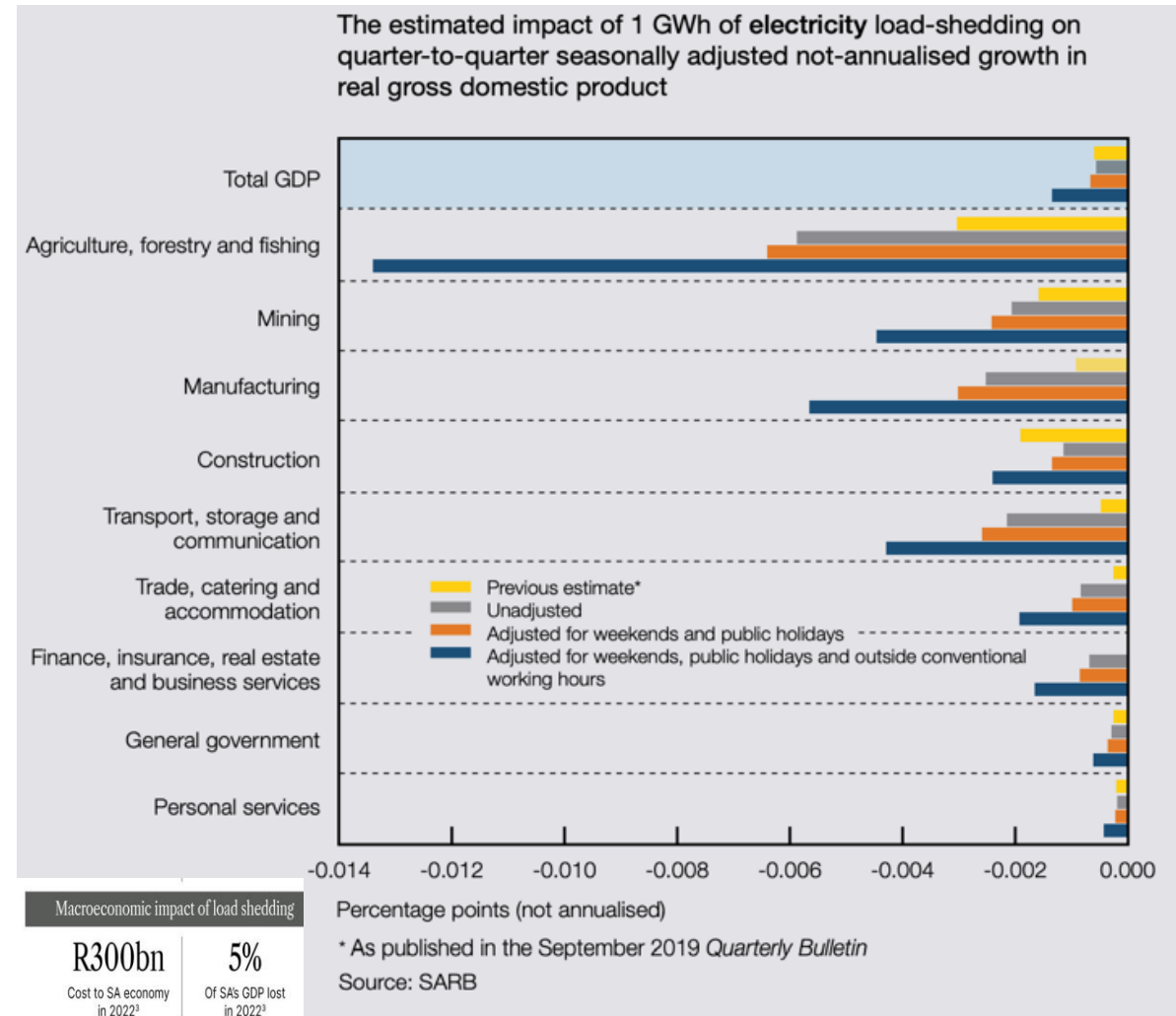
Most affected sectors: agriculture, forestry and fishing; manufacturing; mining; and transport, storage and communication

Q3 2022: Reduced quarterly real GDP growth by 2.1 percentage points*

* unadjusted load-shedding intensity index exhibited record high of 3 736 GWh

Q3 2022: 2.3 percentage point decrease in quarterly real GDP growth*

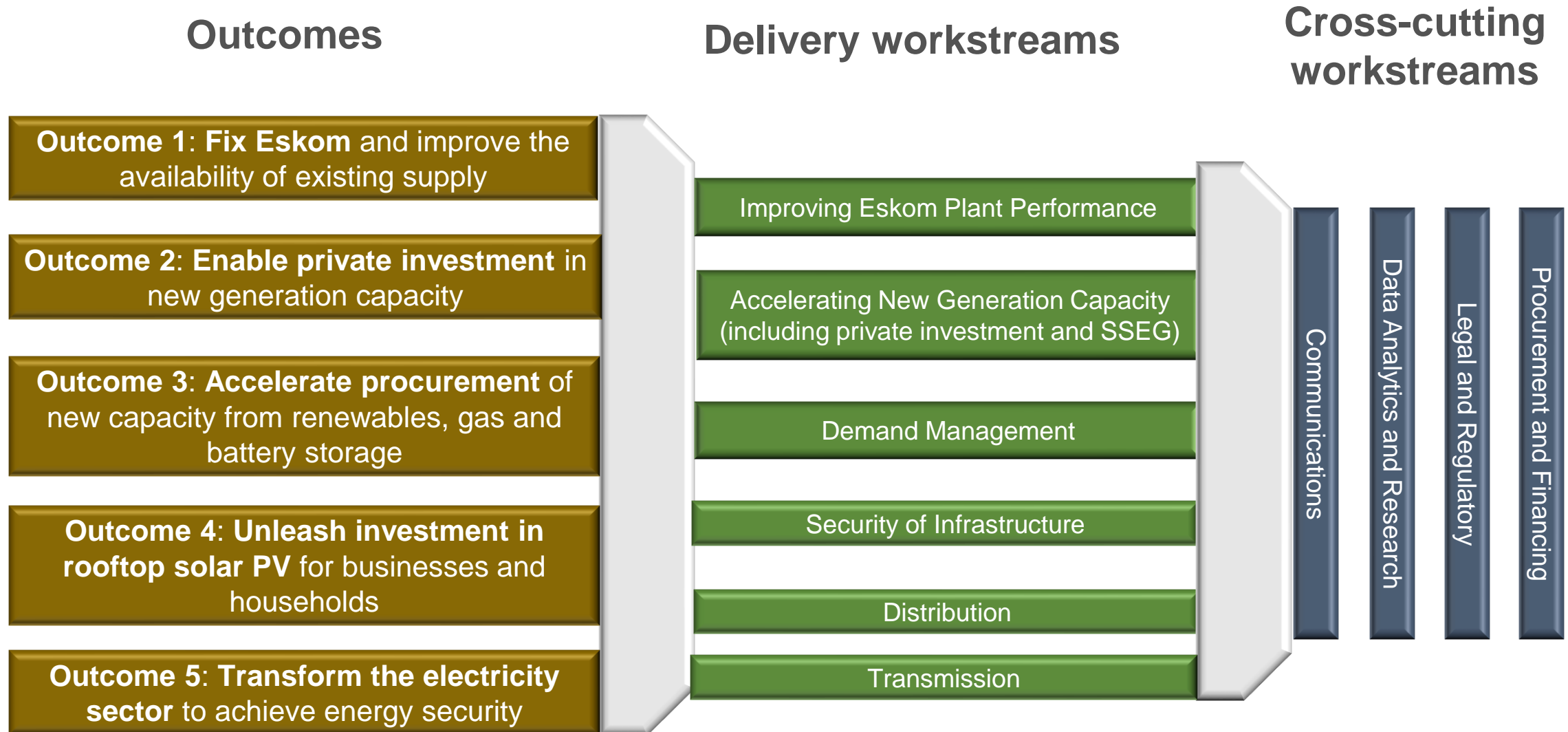
* load-shedding intensity index was at 1 692.5 GWh adjusting for weekends, public holidays and non-conventional working hours





RECAP: ENERGY ACTION PLAN (EAP)

PRIORITY OUTCOMES





KUSILE - CRITICAL PATH

Kusile remains on the critical path to restoring the supply-demand balance.

KUSILE UNIT 4

800 MW

Planned Date
17-Sep 2023, returned
as planned.

KUSILE UNIT 3

800 MW

Original Date
28-Nov 2023
Revised Date
14 Oct 2023, Returned
on 29 Sep 2023

KUSILE UNIT 1

800 MW

Original Date
11-Dec 2023
Revised Date
30-Oct 2023

KUSILE UNIT 2

800 MW

Original Date
24-Dec 2023
Revised Date
30-Nov 2023

KUSILE UNIT 5

800 MW

Original Date
28-Oct 2023
Revised Date
30 Dec 2023

KUSILE UNITS 1-5

4000 MW

Between Sep – Dec
2023

KUSILE UNIT 6

800 MW

**Planned
synchronization date**
August 2024



ACCELERATING ENERGY PROJECTS

The Embedded Generation Task Team supports over 100 projects to clear regulatory hurdles and enter construction as quickly as possible.

DEPARTMENT	REGULATORY APPROVAL	PREVIOUS TIMEFRAME	REVISED TIMEFRAME
Environmental Consent			
DFFE	Scoping and Environmental Impact Assessment (EIA) Basic Assessment (BA) Atmospheric Emissions Licence (AEL)	150 days and 90 days appeal period 107 days and 90 days appeal period	Process underway to exempt solar PV and battery storage in areas of low and medium sensitivity Embedded generation projects classified as Strategic Integrated Project (SIPs), reducing timeframe to 57 days
DWS	General Authorisations (GA) Water Use License (WUL)	Over 300 days for WUL and GA	Notice gazetted to require only a GA for wind, solar PV and battery storage projects with 90 days timeframe for water use license applications
Grid Connection			
Eskom	Cost Estimate Letter	90 days	50 days
Eskom	Budget Quotation	6 months	4 months
NERSA	Registration	3 months	19 days
Land Access			
DALRRD	Subdivision of Agricultural Land Act consent of land use authorisation	90 days	30 days
DMRE	Section 53 approval	No specific timeframes	60 days
DPWI	Any servitudes or options registered or to be registered in favour of the Project Company and/or Eskom over the project sites	No specific timeframes	94 days



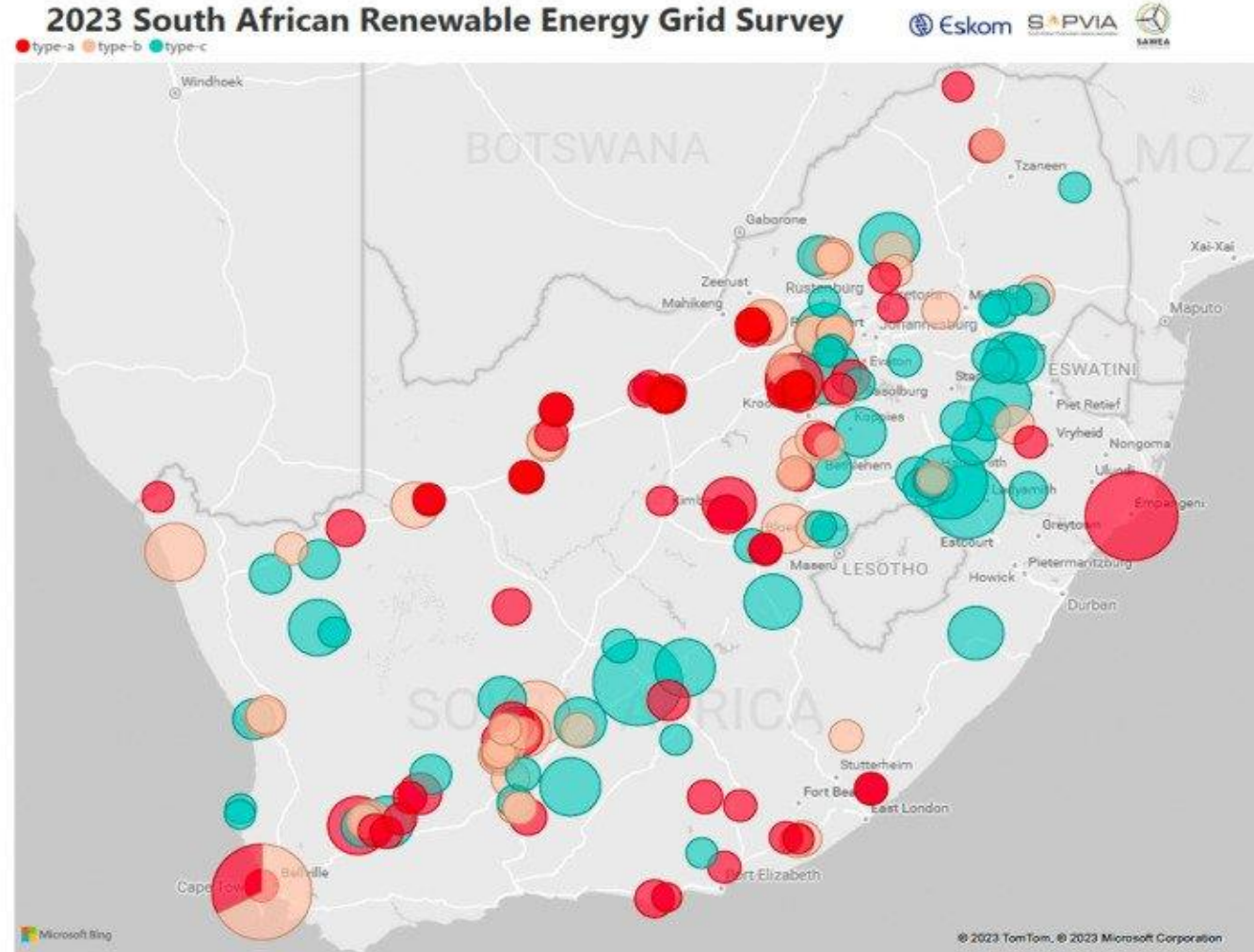
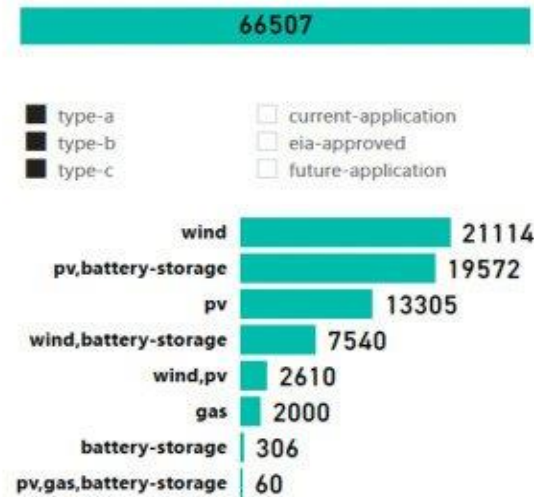
ACCELERATING ENERGY PROJECTS

The Embedded Generation Task Team is supporting over 100 projects to clear regulatory hurdles and enter construction as quickly as possible.

A survey of project developers conducted by Eskom and the South African Wind Energy Association (SAWEA), and the South African Photovoltaic Industry Association (SAPVIA) shows that **66 GW of wind and solar projects are in development across the country.**

This demonstrates a robust pipeline of private sector investment in new-generation capacity. **Strengthening the transmission network will be key to enabling this investment.**

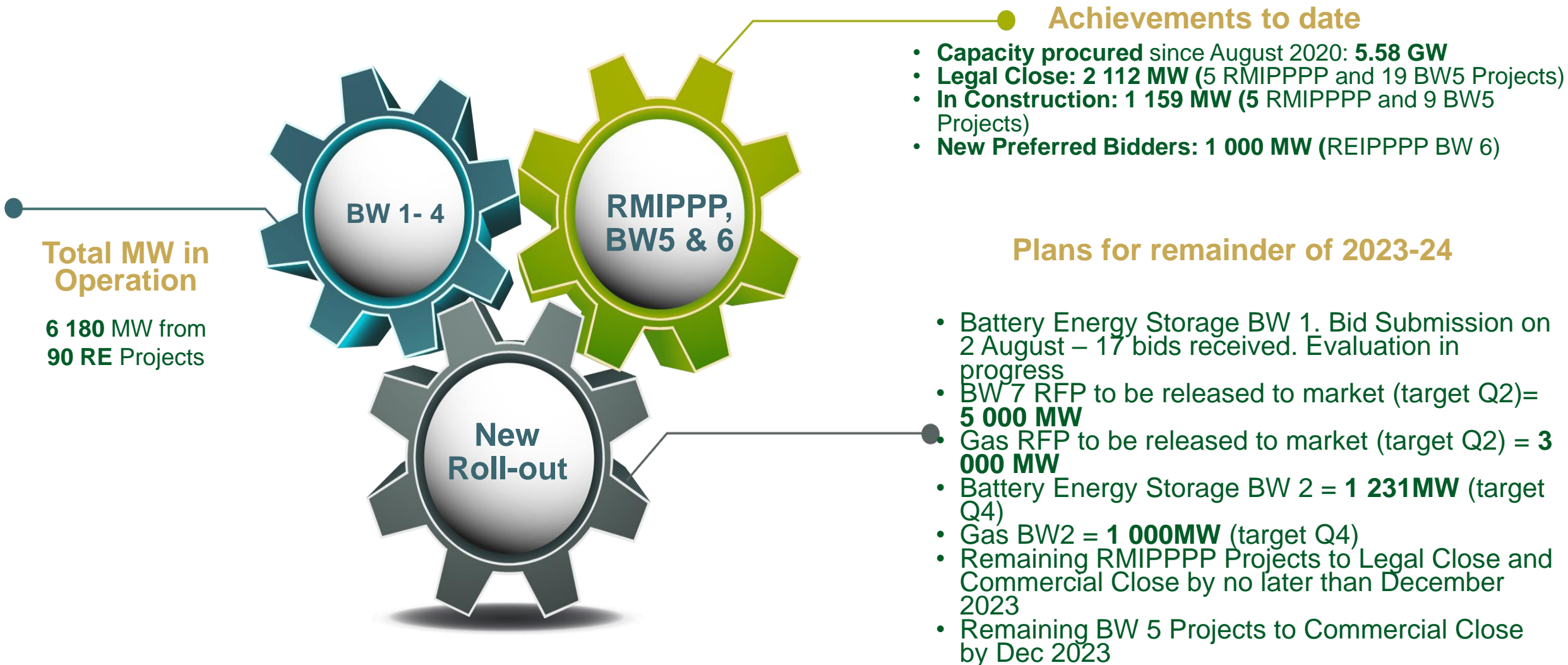
Project Type / Status





INDEPENDENT POWER PRODUCER PROGRAMME

CURRENT STATUS





LOAD REDUCTION INTERVENTION

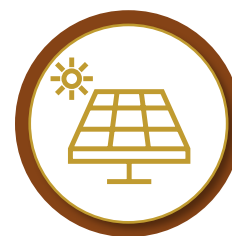
UPSCALING ROOFTOP SOLAR PV & SOLAR WATER HEATING

Approximately 500,000 burst electric geysers are replaced in SA per annum by banks and insurers on bonded houses. Of the 4 million residential deeds, there are 2.5 million active bonds. A **partnership with Financial Services** has the potential to **accelerate market implementation**.



SOLAR WATER HEATERS

Replacement of Electric Geysers with Solar Water Heaters in residential households



ROOFTOP SOLAR PV

Upscaling businesses & households investment in rooftop Solar PV

- ❑ **Increase the replacement of electric geysers with solar water heaters (SWH)** in residential households through partnering with the insurance industry and banks; and
- ❑ **Scale up the installation of rooftop solar PVs** for residential and commercial use (distributed energy generation).
- ❑ **Government Interventions** : The solar panel tax incentive and the Energy Bounce-Back Loan Scheme
- ❑ **Areas of Development**: Manufacturing capacity to meet the demand for solar energy generation and storage components; and Anticipated increase in the demand for solar installation capacity.

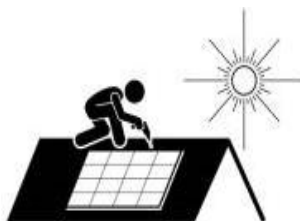


ENERGY ACTION PLAN

A FOCUS ON DEMAND SIDE INTERVENTIONS

INSURANCE AND BANKING SECTOR RESIDENTIAL MARKET OVERVIEW

- Geysers / water heating consumes the greatest amount of electricity which drives peak demand i.e. between 30%-50% of household consumption
- For every 10 insurance claims, 1 electric geyser is replaced with a solar water heater that has an upfront cost i.e. 10% of insurance claims
- The current take-up of rooftop solar is estimated at less than 5%;
- For every 1000 households that install a medium sized system, 5MW of power is taken of the grid. To reduce 1 stage of load shedding, or 1000MW, 200 000 HHs to implement a similar system.



200 000
HOUSEHOLDS

Install medium
sized solar system



1 STAGE
LOAD-SHEDDING

Can Be Reduced

Upscaling the uptake of energy efficient solutions needs to be aided by a significant **(i) increase in stock management** and ability for **(ii) human capital** to meet the demand and support to ensure **(iii) financing is more inclusive**





DISTRIBUTION INDUSTRY REFORM





ELECTRICITY DISTRIBUTION INDUSTRY

Global trends disrupting EDI

Lender preference

Paris Agreement

IRP 2019, REIPPP,
License reprieve

Load shedding, PV
proliferation

Decarbonisation



Democratisation



- Energy markets, Bilaterals
- ERA: TSO, Aggregators, Traders
- Requires a neutral facilitator
- Explosion of the wheeling business

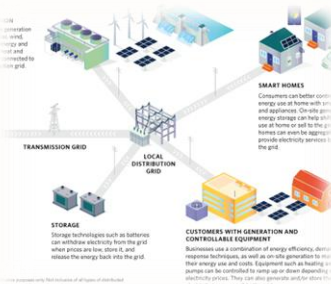


IPPs are on Dx grid

Rooftop PV, Own
Generation

Most economical

Technology
disruptors, DERs



Decentralisation



Digitalisation

- Bi-directional energy - technical challenge
- Dx grid unable to integrate DERs
- Grid and systems modernization
- LV Visibility



ELECTRICITY DISTRIBUTION INDUSTRY

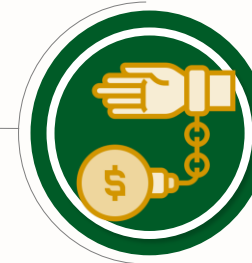
Municipal Debt overview

Eskom provides electricity services to **238** (158 bulk , 72 non-bulk, 8 metros) and **various municipalities** are currently in a state of paralysis and **are unable to perform their mandated duties**

The total (July 23) **Overdue Debt is R63.2 bn** of which the **Top 20 defaulters is R48.9 bn (77%)**
The current YTD Growth is **~R4.7Bn**

A total of **44 Municipalities** inclusive of all **Top 20 Debtors** have been identified by Eskom and the government as having low electricity distribution competence

27 active payment plans are in place as at July 23, **11** were honoured and **6** partially honoured



In 2018 Dept of CoGTA identified **87 Municipalities** that are **distressed** or **dysfunctional** and 48 of these municipalities have arrear overdue bulk debt with Eskom

Debt resolution via the prescribed processes continues with the IRFA process, litigation, signed payment arrangements and ongoing negotiations and implementing agreed government interventions..

The 2019/20 **Auditor General reports** that **Municipalities continue to regress** in terms of financial management

There are currently **four active partnering agreements** in place, with Phumelela, Msunduzi and Maluti-a-Phofung and Bela-Bela municipalities



SUPPORTING INVESTMENT IN PRIVATE GENERATION

THE FOCUS IS ON NET BILLING, FEED-IN TARIFFS AND WHEELING.

- The development of a **net billing framework has been complete**, and is with the regulator, NERSA, for adoption as rules.

**Net billing
framework**



- The development of the **wheeling framework is well advanced**, and will be submitted to NERSA shortly

**wheeling
framework**



- Work on the options to achieve a **standardized feed-in-tariff approach is underway** – there are greater legal, regulatory and system complexities than for net-billing

**feed-in-tariff
approach**





ELECTRICITY DISTRIBUTION INDUSTRY

Key challenges facing distribution industry

Systemic challenges

1

Municipality Debt

Advocacy for municipalities to pay for electricity or lose license
Advocacy for the Active Partnering Program

2

Energy Losses

Energy Losses is not just a Dx problem.
Requires organisation synergy and shareholder intervention.

3

Income vs Cost of Sales

Advocacy for cost-reflective tariffs.
Transfer Pricing

Future Revenue depends on Policy

4

Industry Transformation

Dx is critical to the future ESI,
Provides security to the grid
Enables a liberalized market

5

Policy & Regulation

Advocacy for DSO-DET to be licensed
Licensing of rooftop PV, microgrids
Tariff unbundling, green energy

6

Sales Decline vs Revenue Augmentation

Load shedding - grid defection.
Revenue augmentation:
Wheeling, DSO-DET, Green energy, E-mobility

Funding Solutions for transitioning

7

Strategic Partnerships

Constrained Balance Sheet – Limited Capex
Explore strategic funding opportunities

8

Decarbonise, Decentralise Digitalise, Democratis

Enable IPP, DERs connections, Grid modernisation, Security of Supply, Enable IRP and JET

Inability to respond to new energy market due to inflexible grid, loss of potential income and customers

Creating value for customers - Enabling customers to trade and lower energy costs



ELECTRICITY DISTRIBUTION INDUSTRY

Case for change – re-imagining the distribution industry is critical to energy security

01

South African Energy Crisis

Demand exceeds supply. New Gen is fast-tracked.
Tax reprieve for business and households to establish own generation. Economy damaged

02

The ESI is restructuring and has consequences for the EDI

New Developments: System Operator, Central Purchasing Agency, Energy Markets, NERSA licenses Traders and Aggregators, DMRE lifts license threshold for own gen, DTICC promotes energy communities

03

The EDI is critical to solving the energy crisis

Most IPPs are connected on the Dx grid. DERs such as rooftop solar, customer own gen, demand response programs, energy efficiency, load curtailment. DX provides these solutions and grid access

04

An unstable, volatile EDI

Eskom faces revenue recovery challenges.
Municipalities raised as risk by Auditor General. Municipal networks in poor condition.

05

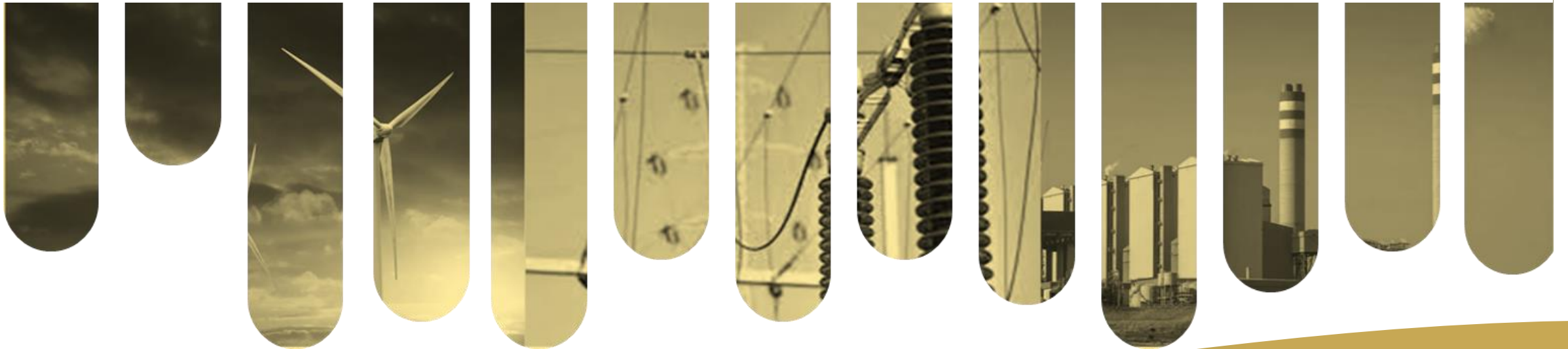
The Private Sector is cherry-picking while the utility model is being eroded

Utilities dilute risk by having a mix of good paying, high volume customers with lower and risky customers.
The Private Sector is being licensed to be traders, aggregators, and generators and is setting up wheeling and bilateral contracts





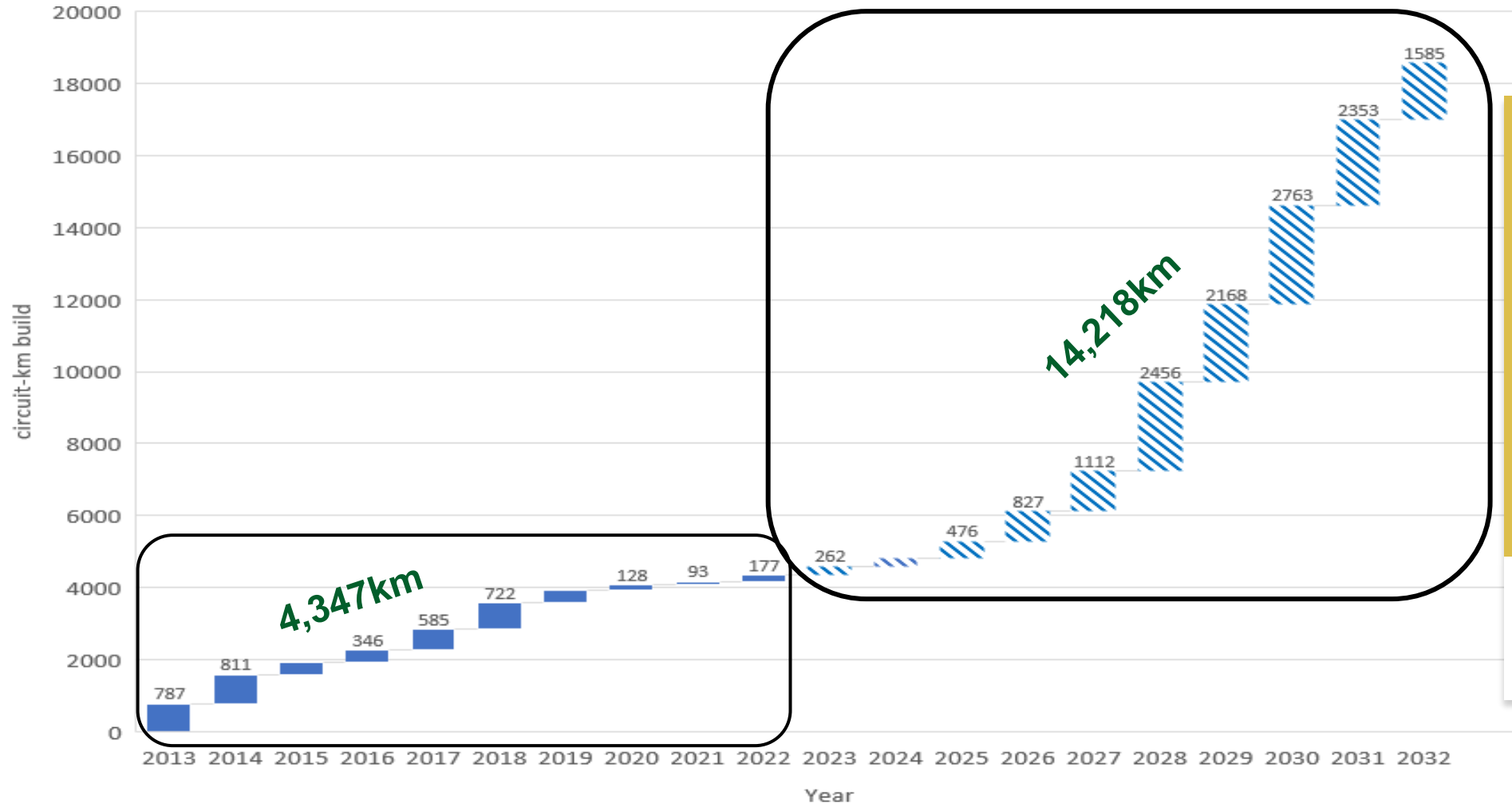
TRANSMISSION INDUSTRY REFORM





PLANNED INFRASTRUCTURE REQUIREMENTS

Eskom Transmission circuit-km built per year



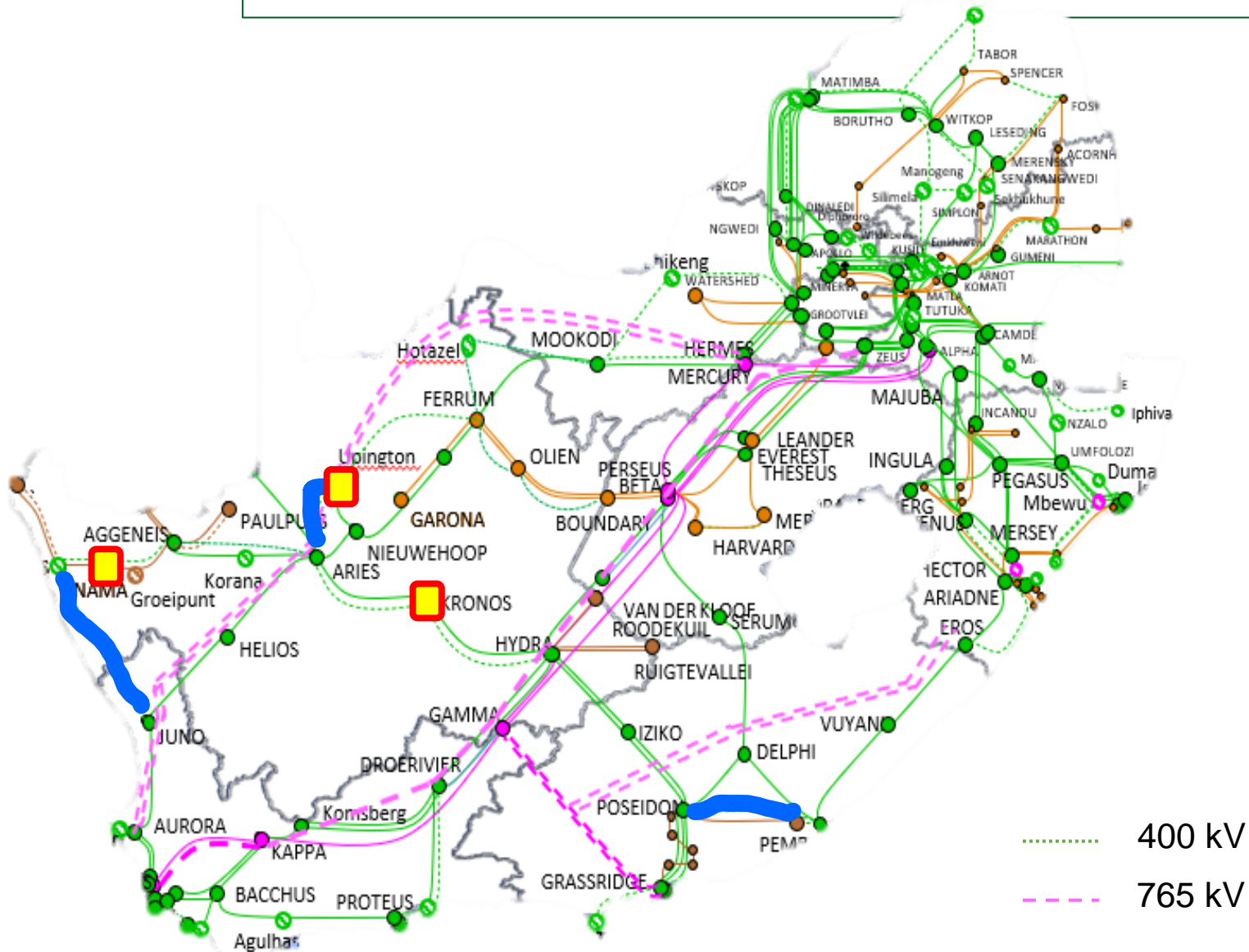
325% increase in Transmission infrastructure is required in the next 10-years

14 218 circuit km is 43% of current 33 000 circuit km




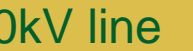

PLANNED INFRASTRUCTURE REQUIREMENTS

GRID CAPACITY IN CONSTRUCTION



Several projects in execution improve **generation connection capability**, over and above the two priority programs

The following Projects **will deliver 2,335MW** of new grid capacity:

- Aries Upington 400kV 
- Juno Gromis 400kV line 
- Poseidon Pembroke 400kV line 
- Transformers at Nama, Kronos and Upington 



SUMMARY: THE IMPACT OF ENERGY INFRASTRUCTURE IN DRIVING GROWTH

CASE STUDY: SOUTH AFRICA'S TRANSMISSION INFRASTRUCTURE DEVELOPMENT PLAN

01

FACILITATING RENEWABLE ENERGY DEPLOYMENT

- Tx infrastructure plays a vital role in integrating renewable energy sources into the grid
- Robust transmission networks enable the efficient transportation of renewable energy across regions, unlocking the potential for significant economic growth

02

ATTRACTING INVESTMENTS AND BUSINESS GROWTH

- Industries require a stable and ample power supply to operate efficiently and expand their operations
- Regions with well-developed transmission networks are often favoured by investors, as they offer the necessary infrastructure to support business growth

03

JOB CREATION AND ECONOMIC OPPORTUNITIES

- Construction, operation and maintenance of transmission lines and associated infrastructure require a skilled workforce
- Transmission infrastructure development projects have the potential to generate significant employment and localisation opportunities

04

TECHNOLOGICAL ADVANCEMENTS AND INNOVATION

- Transmission infrastructure development often incorporates technological advancements, such as smart grid technologies and digitalization
- Adoption of advanced technologies in transmission infrastructure drives, fosters a conducive business environment, and attracts investments in related sectors





THANK YOU

