



Engineering the Future We Want:
Mobilising for Sustainable
Development

18-19
MARCH 2025
Indaba Hotel,
Fourways,
Johannesburg

A Vision of Sustainable Mobility
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PRASA



CESA IS A LONG TERM PARTNER

CESA is an Engineering partner that PRASA engages with regularly.

At Transport Planning level members of CESA assist PRASA, Provinces and Provinces and Cities develop Integrated Transport Plans (ITPs).

Since 2020, members of CESA have played an integral role as designers & designers & management consultants, in the construction of PRASA's Rail PRASA's Rail Management and Train Control Center (RM & TCC) in Cape Town. Cape Town. Various Railway Stations (upwards of 200) & rebuilding of bridges (Boksburg (Boksburg in Gauteng and the Illovo Bridge in KZN).

The GCC 2015 forms the bedrock of Contracting chosen by PRASA for its for its Permanent Way (Perway) rebuild works.

This collaboration delivered an iconic private, public partnership (PPP) project (PPP) project in the redevelopment of Cape Town Station into a transit hub, transit hub, mixed-used development, student accommodation & retail space. retail space.

Estimated Economic Impact of PRASA's program

R50bn over the MTEF has the following estimated conservative impact:

Direct Economic injection R53.5 bn

Indirect Economic Injection R55.5 bn

Induced Economic Injection R80.5 bn with Total Economic injection estimated to be at least R189bn

Job creation Per R one million spent on infrastructure will see at least 2 Direct jobs, 2 indirect jobs and 3.5 induced jobs. Total estimated jobs created through the program: 350 00 to 400 000 jobs.

Excludes impact of lower fares on disposable income, GHG emissions, reduction in accidents & associated costs of responding etc. Taken into consideration, the current opportunity cost of high transport fares adds another R10-20bn per year to the economic impact.



SOCIAL IMPACT

PRASA's mandate is to move people safely, efficiently and with dignity but an efficient, affordable passenger rail network delivers both economic and socioeconomic benefits. **Enables affordable mobility e.g. access to schooling and healthcare services; For many households the cost savings from switching to rail are financially transformative.**

- **The biggest potential benefit is the reduction in traffic congestion. especially vehicle ownership and operating costs, travel time, accidents and environmental emissions.**

The economic benefit of a fully recovered rail system



A fully recovered PRASA just makes sense...

Affordable fares (R7.50 vs. R25-R35 taxi fare) uplift low-income groups.

Estimated impact on annual GDP: ± R34bn per annum

Impact on employment sustained per annum: ±150k
Impact on Households: ±R15bn per annum

Fiscal Impact: ±R11 bn per annum

Over the last year: R1bn back into household pockets and at least R1bn in taxes – this will more than double next year and accelerate thereafter.



Our Vision of Sustainable Mobility

Our own modernization drive fits neatly within the theme of the conference, "Engineering the Future We Want: Mobilising for Sustainable Development"

Mission

At PRASA we provide excellent rail and bus services to our passengers, invest wisely for operations and use our properties to generate other revenue.

Vision

To be the preferred provider of safe and reliable public passenger transport services with investment in infrastructure, property and rolling stock manufacturing.

Safe, Affordable & Efficient Passenger Rail

- Given our dual mandate we have to invest in infrastructure, rolling stock manufacturing and property development.
- Our network was destroyed and vandalized during the COVID-19 period, resulting in the collapse of the passenger rail network, impacting many commuters.
- In response, we embarked on our rebuild that prioritised the recovery of electrical infrastructure - overhead traction equipment (OHTE), substations, tracks and the perway. The final piece of the puzzle was the re-instatement of signalling and telecommunications.
- We run EMUs on most of the service lines that we have reopened in Gauteng, Western Cape and KwaZulu-Natal. The Eastern Cape is running our legacy fleet.
- Today we transport millions of passengers with our patronage growing at exponential rates on an annual basis.



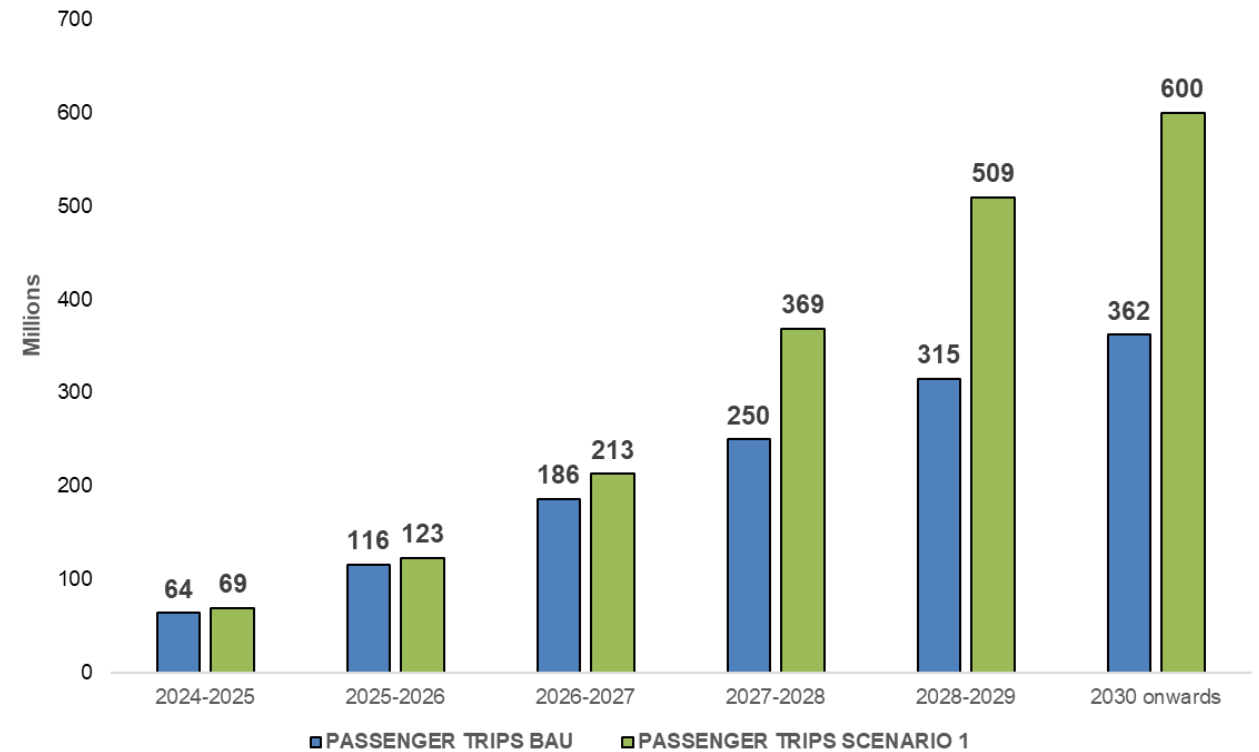
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SUSTAINABLE TURNAROUND

- Since we embarked on our turnaround we have successfully restored services on 34 of our 40 rail corridors. This year our passenger trips will exceed 60 million per annum. The target for passenger trips in 2025/26 is 116 million.
- None of this growth in passenger numbers would be possible without the investment in the recovery of our infrastructure. We are laying the foundation for sustainable growth even as we enhance public trust in our services.

Passenger Trips and Growth Scenarios



INVESTING IN ROLLING STOCK MANUFACTURING

- Our modernisation programme has a key focus has on the **fleet renewal program**. The introduction of our world-class EMUs, the much loved **Isitimela Sabantu** has brought modern, efficient trains into service.
- This is a mega project, with an initial R51 billion contract was signed with Gibela. **These trains, can be seen in GP, KZN and WC, manufactured in South Africa, on the East Rand.**
- The Gibela factory has acted as a catalyst for the development of **local manufacturing skills**.





metrorail

metrorail

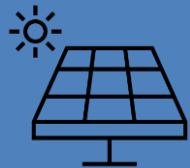
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OPTIMISING OUR ENERGY SUPPLIES



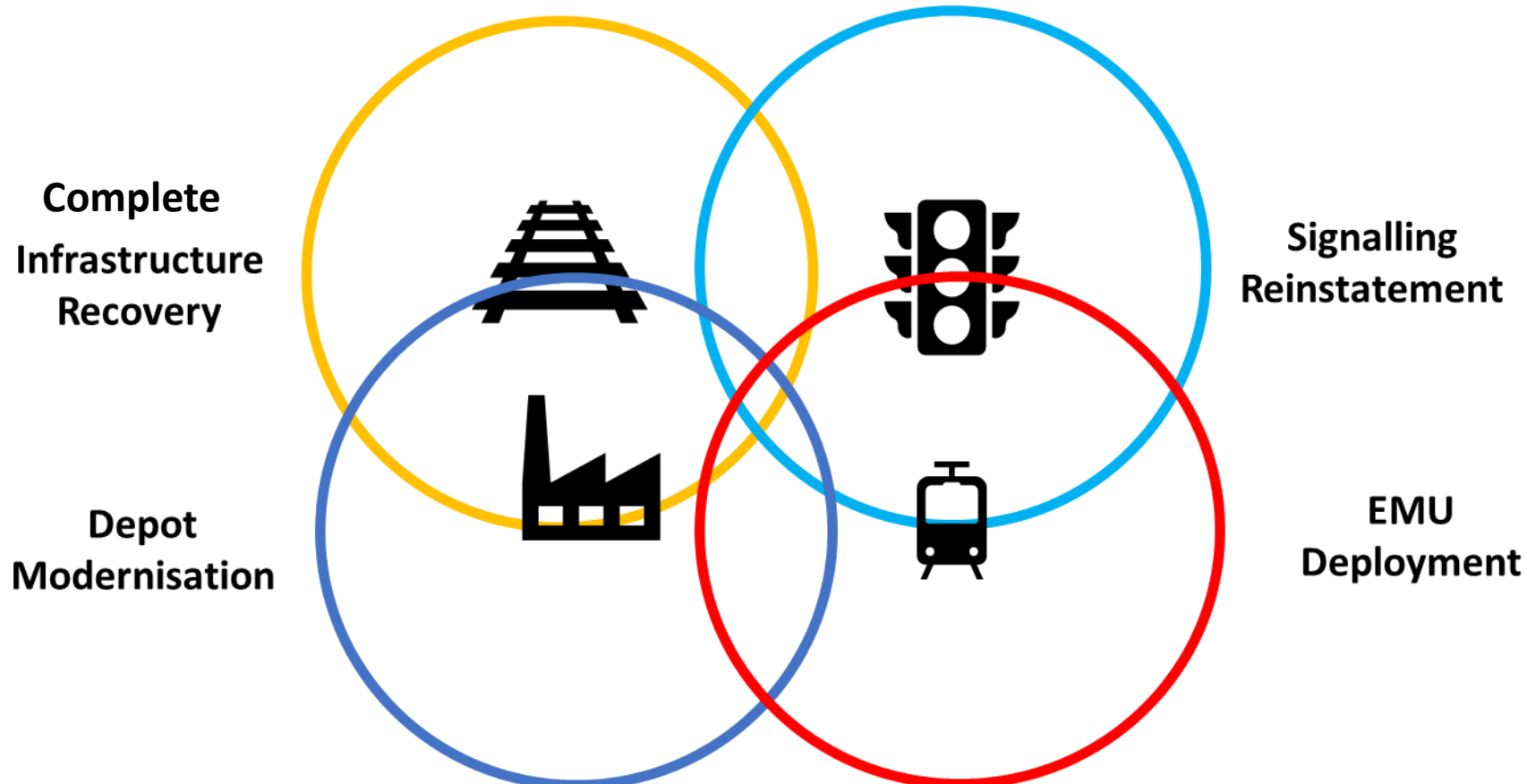
- The cost of electricity has been rising by an average of 15% annually. Our goal is to increase energy efficiency and leverage renewable energy sources to improve our energy efficiency, reduce the cost and embrace environmentally friendly sources of energy.



- Some of our efforts include: Installation of solar plants at Benrose rolling stock depot, Braamfontein rolling stock depot and Pretoria station in Gauteng. In the Eastern Cape we intend to install a solar plant at East London station and in the Western Cape we plan to install a solar plant at Culemborg station.

OTHER MEGA PROJECTS

In order to reach sustainably increase our passenger trips to the levels that return passenger rail to its status as the backbone of public transport, we have to.....





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SIGNALLING & TELECOMMUNICATIONS

We cannot achieve the growth in passenger numbers without a significant investment in the modernisation of signalling and telecommunications systems.

Our goal is improve safety as we increase train frequencies. Our priorities include:

- Modern signals: + Positive Train Control Systems Hybrid (European Train Control System (ETCS) Level 2/Level 3).
- Wireless signalling with variable block working. Align transition of 4th Industrial Revolution (IR) to 5th IR technology roadmaps.
- The digitalisation and modernisation of telecommunication networks and devices and the development of integrated big data analysis capability.



Security technologies

- The implementation of security technologies to provide a multiplier effect for continued security stability. The programme includes: + Installation of CCTV (closed circuit television) in critical operational areas such as substations and tie stations, high sites, warehouses and control rooms.
- This will improve the security efficacy as technology is a critical force multiplier to physical security, resulting in higher productivity and reduced security costs.
- Four depots, namely East London, Paarden Eiland, Salt River and Springfield depots, have fully implemented the e-security solution. In addition, we expect that the technology to drastically reduce crime and security incidents.



Conclusions - Way forward



Early Steam Train



1890
First Motor Coach in South Africa



1860
First Passenger coach in South Africa



1937
2M First electric train in the Rand



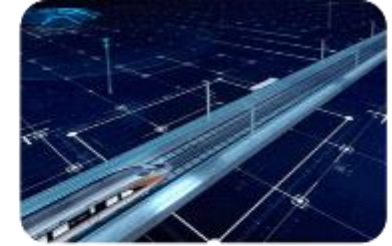
1950-1990
4M



1948
3M first motorized coach on the Natalspur line



2005
10M5- Durban



Data becomes the "fifth element", and AI gives new impetus to development.

Machine production instead of manual labor

**Industrial era
(1770s~)**

Oil and electricity become the main energy sources.

**Electrification era
(1870s~)**

The computing power : production tool

**Information era
(2010s~)**

**Intelligent era
(2020s~)**

At PRASA we believe that innovation, especially in **AI driven solutions**, will significantly impact our environment and operations. The future is in the **intelligent era**, where we leverage **operational technology and information technology** to drive **performance and innovation** which will enable us to deliver a **world class rail service**.



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