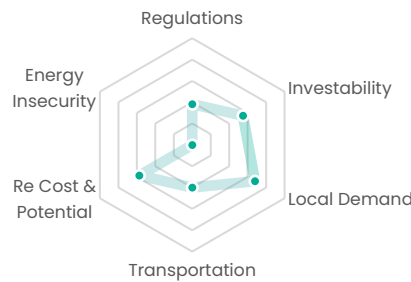
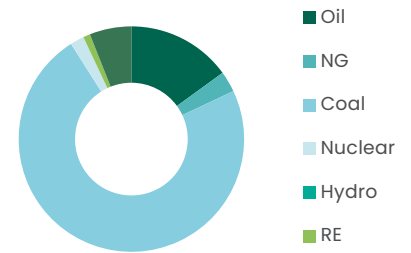


| | |
|--|--------------|
| GDP – USD (bn): | 302 |
| GDP per capita – USD: | 5,091 |
| Land area ('000 km ²): | 1,213 |
| Population density (per km ²): | 48 |
| Grid emissions factor (gCO ₂ /kWh): | 953 |

Hydrogen Drivers Matrix



Primary Energy Mix



1.9 Regulatory commitment

- 2050 net zero target
- Carbon tax exists but prices low

2.0 Transportation

- Integrated infrastructure between Sasolburg & Secunda

2.7 "Investability"

- Rated BB- by S&P
- 84th in WB Ease of Doing Business

2.9 RE cost and potential

- World class solar resource
- Excellent onshore wind resource
- Eskom troubles have significantly delayed procurement

3.4 Local demand potential

- Some oil refining; modest steel sector
- PGM and mining sector synergies
- One of the dirtiest electricity grids in the world

0.0 Energy insecurity

- Net energy exporter

Roadmap, implementation and funding needed to realise hydrogen potential

South Africa targets net zero in 2050 and is in the process of finalising its Hydrogen Society Roadmap. In 2019, the cabinet approved the Integrated Resource Plan (IRP2019) for the power system that plans for coal decommissioning and the addition of c.2.6GW PV and wind every year through to 2030, but the Integrated Energy Plan for the energy sector as a whole has not been updated. In 2019, the country launched a comprehensive carbon tax system covering 80% of the country's GHG emissions, but prices have hovered at the USD8/ton mark, limiting its effectiveness.

Considering its strong solar and wind potential, South Africa's renewables market is significantly under-utilised. The country's success with the early landmark REIPPP renewable energy procurement rounds has been dogged by delays in later rounds, in both signing PPAs and launching new tenders, and less than 10GW of wind and solar has been installed to date despite critical electricity shortages. Results from the recent 2.6GW REIPPP5 would be an important indicator of how well South Africa's LCOH may position against other competing export countries like the Middle East and Australia, who on top of cheap renewables have ammonia and LNG export infrastructure. South Africa's government debt has also close to doubled, to 77% of GDP as of 2020, which will impact cost and availability of financing and the perceived strength of any Government support schemes, although the market remains well-banked.

South Africa is also home to more than 80% of the world's platinum reserves and the largest platinum mining companies, giving the country an edge in establishing PEM electrolyser and fuel cell manufacturing supply chains¹ for global equipment export. South Africa has all the building blocks to a green hydrogen economy, and consistent implementation of a clear roadmap to attract private investments is now key.

Creating a Platinum Valley

Plans for an industrial cluster to unite various hydrogen applications and kickstart hydrogen activities and hubs is underway – South Africa's version of a "hydrogen valley". The 835km corridor will stretch from Anglo American's Mogalakwena platinum group metals (PGMs) mine in the Limpopo province in the north to Johannesburg and then Durban.

Leveraging FCEV potential

Certain sectors in South Africa are already pursuing FCEVs, especially within the sizeable mining industry. Impala Platinum has deployed a fleet of FCEV forklift trucks and Anglo-American Platinum is pioneering its first FCEV mining truck in Limpopo. South Africa could use its significant vehicle manufacturing facilities as a springboard for more R&D and FCEV production, with leading automotive players like BMW, Mercedes-Benz, Toyota, Volkswagen and Nissan operating across the country.