



# Hydrogen and Alternative Fuel Outlook: South African Ports

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# 1. UTILITIES DEVELOPMENT PORTFOLIO



## WATER MIX

- Desalination
- Borehole
- Rainwater Harvesting
- Beneficiation of water catchment areas
- Atmospheric Water generation

## ENERGY MIX

- Liquid Fuels and chemicals
- Renewable Energy
- Gas (incl. Shale)
- Energy Storage
- Hydrogen
- Microgrids
- EV Charging stations

## BUSINESS MODEL

*(High-level)*

- Turnkey
- Equity Participation
- Joint Ventures
- Import and Export
- Special Purpose Vehicles
- PPP/PSP
- Concessions

## Outcomes

**Own/Localised Generation | Security of Supply | Alternative Revenue | Increase Export & Imports**

# 3. TNPA HYDROGEN MAP



**LEGEND:**



Oil/Condensate Export (Enabler of Natural Gas to Gourikwa)



LNG Terminal (FSRU/FSU/Land facilities)



Small to medium scale LNG Import



New land-based Gas to Power Station



National Energy Action Plan Focus – Jan 2023



Gas Pipeline network



Grey Hydrogen



Green Hydrogen/Ammonia



Generator Sets



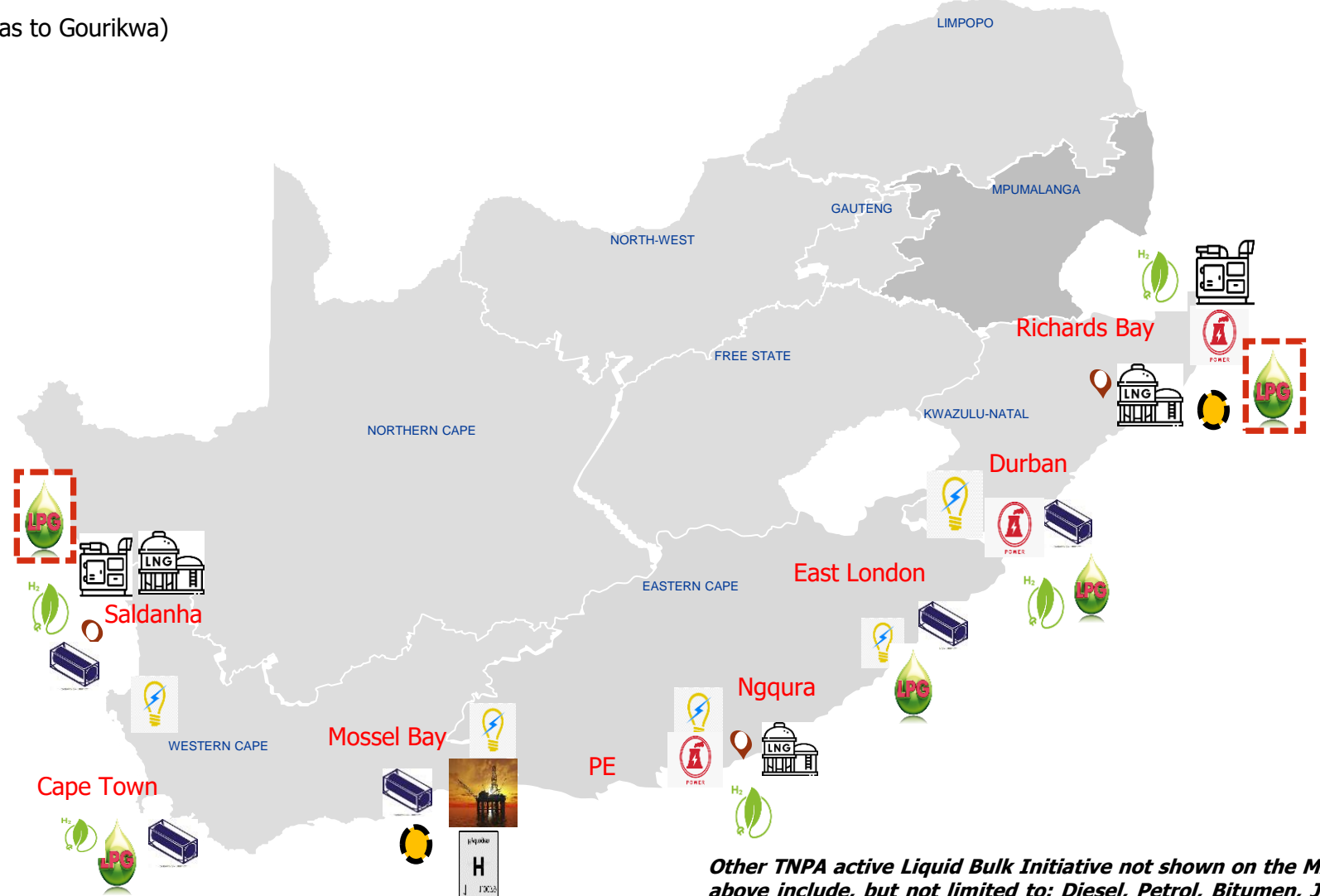
Power Stat Existing Peaking Stations (Diesel Operated)



Small/Medium scale LPG Importation



Existing Large Scale LPG Infrastructure



*Other TNPA active Liquid Bulk Initiative not shown on the MAP above include, but not limited to: Diesel, Petrol, Bitumen, Jet, Chemicals, etc*

## 2. SA GHCS

Hydrogen related projects successfully registered with Infrastructure South Africa (ISA). These include component manufacturing, production and export activities.

Project	Province
Atlantia Green Hydrogen	Western Cape
Mainstream Renewable Energy Hydrogen	Western Cape
AMSA Saldanha Steel Hydrogen project	Western Cape
Saldanha Bay Green Hydrogen Project	Western Cape
Enertrag Indigen Project (e-methanol)	Eastern cape
HIVE Ammonia	Eastern cape
The Ubuntu Green Energy Hydrogen Project	Northern Cape
Enertrag Postmasburg Project. (Ammonia)	Northern Cape
Boegoebaai Green Hydrogen Development Programme	Northern Cape
Upilanga Solar and Green Hydrogen Park	Northern Cape
Isondo Fuel Cell MEAs Manufacturing	Gauteng
Hydrogen Valley Programme of Anglo-American & their JV Partners (9 projects) along the Limpopo, GP to KZN Corridor	Gauteng
Bambili Hyplat Fuel Cell Manufacturing	Gauteng
Sasolburg Green Hydrogen Programme in the Free State	Free State
Project Phoenix Fuel Cell Manufacturing in Free State	Free State
SASOL HySHiFT (Secunda) in Mpumalanga	Mpumalanga
Hydrogen Valley Programme of Anglo-American and their JV Partners (9 projects) along the Limpopo, Gauteng to KwaZulu-Natal Corridor	KwaZulu Natal

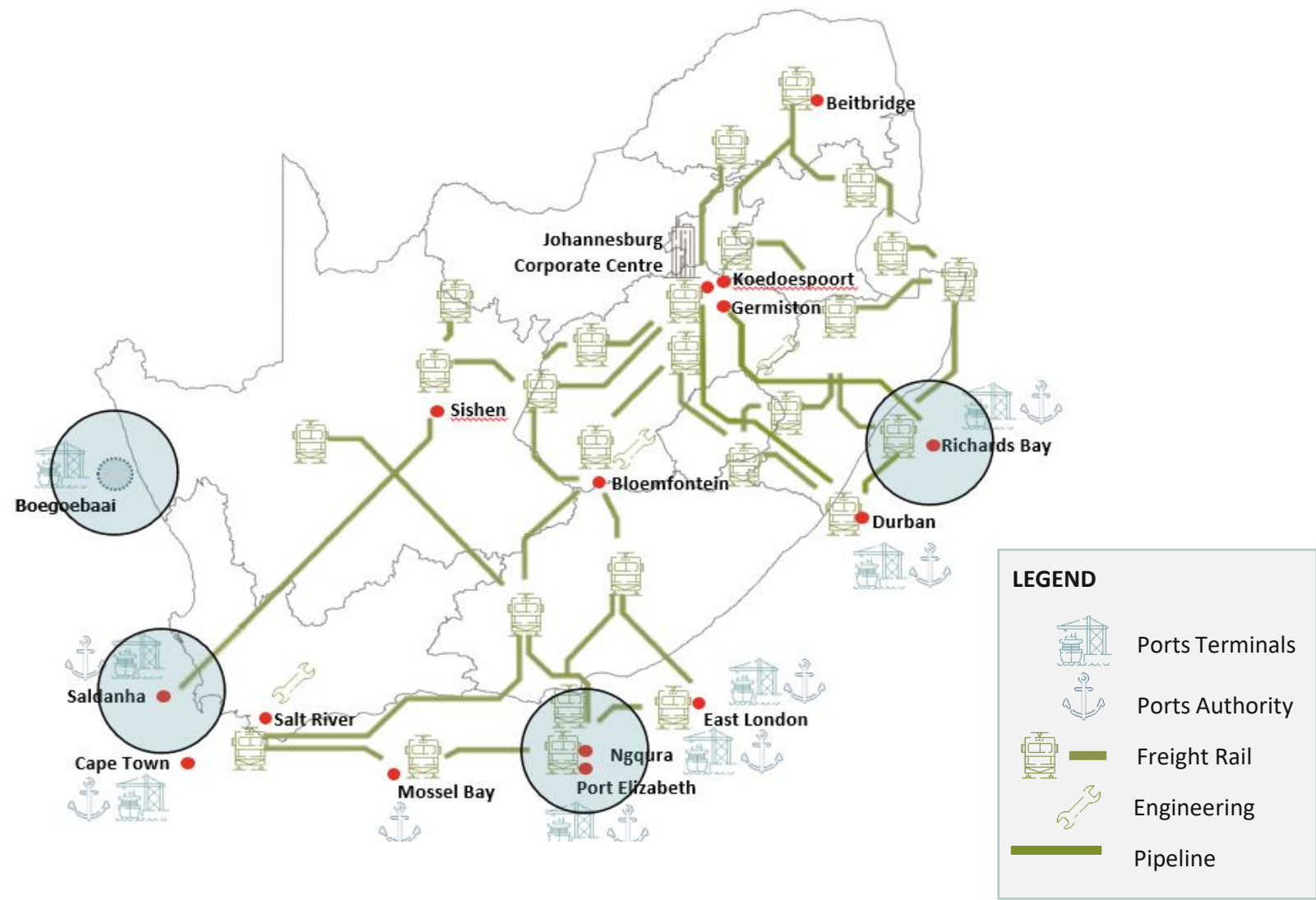
# 4. TNPA HYDROGEN OUTLOOK



## POTENTIAL GREEN AND/OR GREY HYDROGEN HUBS:

1. Saldanha
2. Ngqura
3. Richards Bay
4. Other (based on Market response to RFI)

- **Decarbonise Maritime/Marine fleet**
  - Tugs, Dredgers, fishing boats
- **Develop top structures**
  - Component conveyancing (electrolysers, membranes etc.)
- **Develop Port Infrastructure**
  - Tank Farms, pipelines, berths
  - Bunkering at berth / Single Point Mooring / Offshore



# 4. MARITIME DECARBONISATION

## Alternative cleaner fuels



Port	Commodity	Proposed Model and Capacity
All Ports	<ul style="list-style-type: none"> <li>• Marine Biofuels</li> <li>• Sustainable Aviation Fuels</li> <li>• Hydrogen</li> <li>• LNG</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Tugs</b></li> <li>-<b>Dredgers</b></li> <li>-<b>Helicopters</b></li> </ul>
Ngqura	EV charging station	<b>Set up a pilot station</b>

# 6. PROGRESS ON HYDROGEN PORTFOLIO

## Market Interest/Feedback

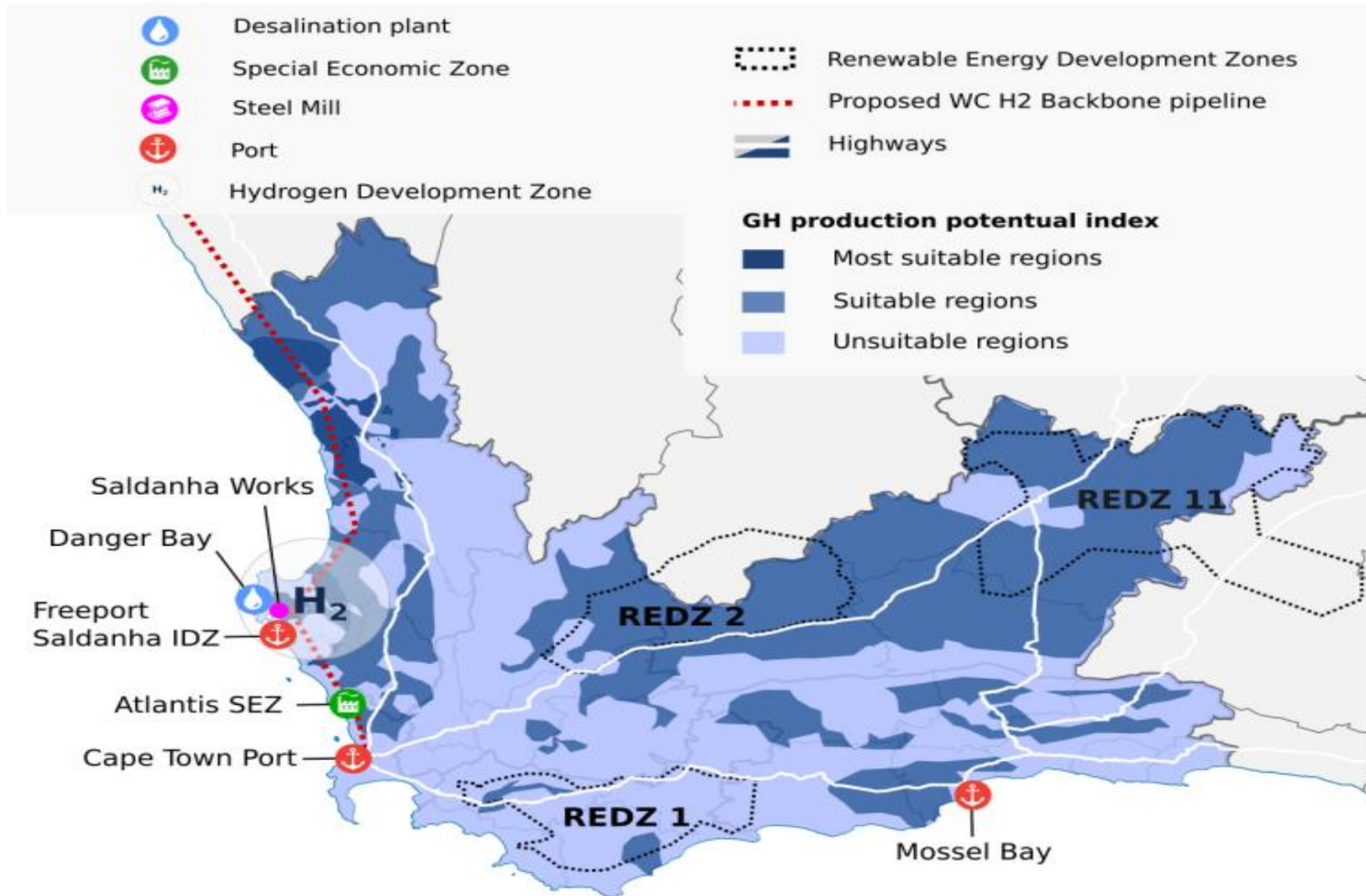


Port	No. of Bids	Hydrogen commodity type	Volume
Durban	2	Green Ammonia, Green Methanol and/or Grey Hydrogen and other	TBC
		Green Ammonia, Green Methanol and/or Grey Hydrogen and other	TBC
East London	1	Green Ammonia and Green Hydrogen	650- 6,500 tons/year
Cape Town	2	Green Ammonia	360 000 tons/year
		Green Ammonia, Green Methanol and/or Grey Hydrogen and other	TBC
Saldanha	5	Green Hydrogen and Green Ammonia	100 tons/day - 2500 tons/day
		Green Ammonia, Green Methanol and/or Grey Hydrogen and other	TBC
		Green Hydrogen	32,139 tons/year
		Green Ammonia	440,000 tons/year
		Green Methanol and Green Ammonia	500,000 tons/year



# 6. PROGRESS ON HYDROGEN PORTFOLIO

## WC Market Interest/Feedback/Potential



TRANSNET



Thank you

