Western Cape Government

FOR YOU

Western Cape Green Hydrogen Coordination

Overview of Experience 2021 - 2025

ESMAP H4D Webinar 22 January 2026

Discussion Areas

1. Early efforts
2. Major momentum
3. Slowdown & constraints
4. Acceleration
5. Way forward

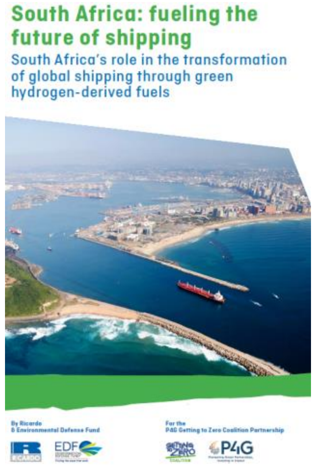
Early efforts – late awakening (2021 – 2022)

Country context:

- H_2 Society Roadmap approved by Cabinet, launched February by DSI
- Green H_2 Panel set up by DTIC, developing Green H_2 Commercialisation Strategy
- 1st H_2 Valley being set up (mining, PGMs)
- Presidency, NC Government and Sasol exploring Boegoebaai for export
- EU H_2 tour in March: DMRE, DTIC, DoT, DSI, Presidency, Transnet, IDC, EIB, CSIR
- EIB: €1 bn for public sector support in SA

Sub-national context:

- Freeport Saldanha Market Study
- GMF study on future of ships fuels – Saldanha in the spotlight
- Market enquiries (30+), hosting large investors
- Local pilot plant developments and University involvement



South Africa is well positioned to produce GH_2 thanks to three structural competitive advantages

SA with large scale, high quality RE potential and sufficient land	Synergies in solving for water security	Unique expertise for beneficiation into e-fuels and endowment of PGMs
✓ Average **RE capacity factors** in South Africa are amongst the best in the world and on par with major competitors like Chile, Australia and Saudi Arabia ✓ SA with vast land available, just **1% of SA land area** (1.1 million ha) would be sufficient to produce **10 mt of GH_2** ✓ ~ 5,4 million ha in REDZ alone (areas not in competition with agriculture or settlements ✓ REDZ zones alone can hold 900+ GW of RE capacity with premium capacity factors	✓ Water required for green hydrogen **less than 0.5%** of SA water demand ✓ Reducing water requirement compared to coal power plants (10 mtpa of GH_2 production is only **31% of current power** sector use in coal based generation) ✓ Increasing water security making financially viable desalination plants at the coast (desalinated water cost is a fraction of a premium commodity like GH_2 **~$0.01/kg**)	✓ Proprietary **Fischer-Tropsch** technology lacking in other countries (critical for power to liquids) ✓ Endowment in **PGMs** required in the GH_2 value chain

Early efforts – late awakening (2021 – 2022)

Catching the wave:

- Position Paper to subnational political Executive (Western Cape Government)
- Approval to develop a strategy and start regional partnerships
- SA Green Hydrogen Summit in Cape Town in Nov. ’22 (by InfrastructureSA)
- GH2 Commercialisation Strategy published for comment (National)
- International Funders (KfW, EIB, WB, IFC)

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CABINET MEETING ....30 NOV 2022............

Minute No. 5 1 4/2022

SUPPORT FOR THE PURSUIT OF MARKET OPPORTUNITIES IN GREEN HYDROGEN AND NOTING THE INTENTION TO CONCLUDE AN APPROPRIATE INTER-GOVERNMENTAL AGREEMENT BETWEEN THE WESTERN CAPE AND NORTHERN CAPE

1.2. For Cabinet to support –

1.2.1. The Position Paper, attached hereto, as the initiating policy position from which the green hydrogen work of the Western Cape Government will continue, and from which a Western Cape Green Hydrogen Strategy is to be developed.

1.2.2. That a Western Cape Green Hydrogen Strategy is developed under the leadership of the Department of Economic Development and Tourism.

SECRETARY: CABINET

Major momentum – policy confirmation (2023)

Policy clarity:

- GH2 Commercialisation Strategy officially launched
- Subnational policy position confirmed, work streams defined
- Strategy published for comment
- World Hydrogen Summit and H4D participation

Projects:

- Government work streams established, resources assigned
- Private project support via bilateral arrangement (team support)
- Common-user infrastructure project scoping and prefeasibility studies
  - Pipeline study
  - Water (desalination project re-actvated)
  - Port and other bulk infrastructure (World Bank study)

Government coordination:

- Partnerships – 3 Capes MOU
- Second SA GH2 Summit in Cape Town (Oct '23)


South African
Green Hydrogen (GH_2)
Commercialisation Strategy
(GHCS)

Summary of the Green Hydrogen Commercialisation Panel Report
Date: 17 October 2023
Final submission to the public


ZERO-CARBON BUNKER FUEL PRODUCTION, STORAGE AND/OR SUPPLY IN SOUTH AFRICA

Pre-Feasibility Assessment Report: Saldanha Bay

REV.01

13 November 2023

THE WORLD BANK
Washington, DC

THE WORLD BANK

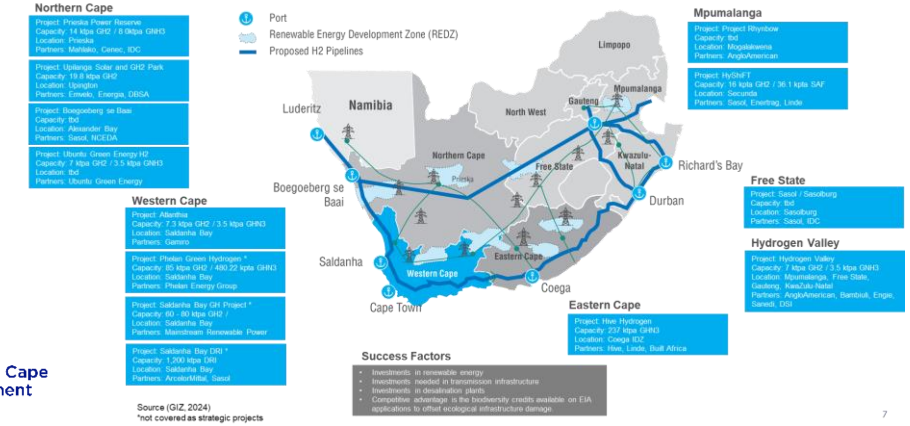
Skepticism, slowdown & constraints (2024)

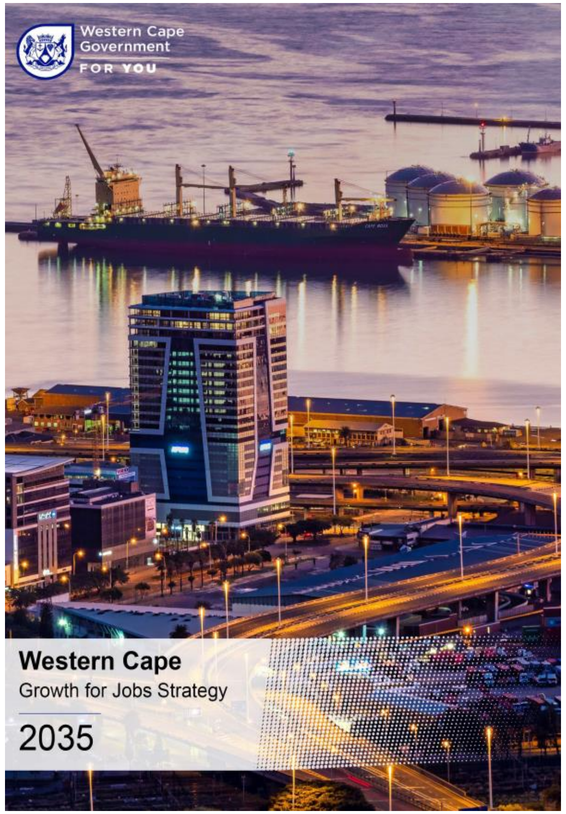
Positive:

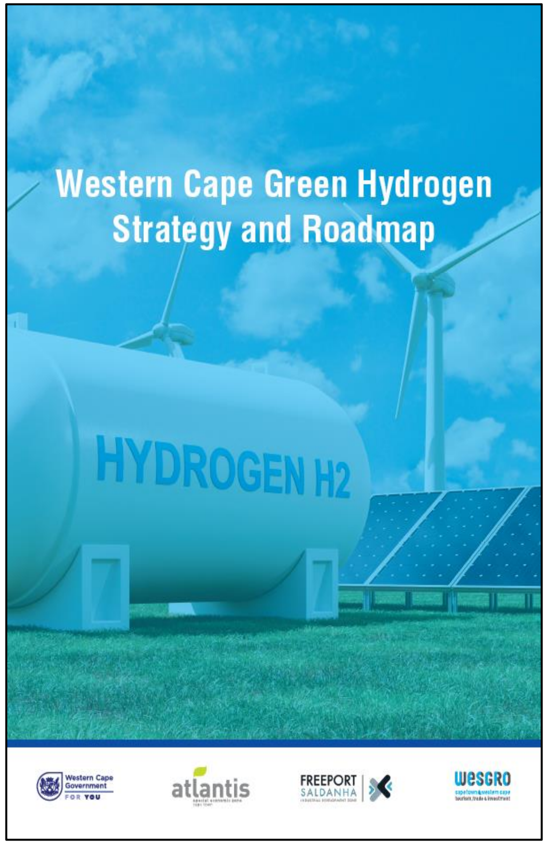
- Growth for Jobs (G4J) Economic Strategy and Implementation Plan
- Western Cape GH2 Strategy approved
- Government of National Unity (GNU) established
- Private project progress (land acquisition)
- Structured project engagements

Negative:

- Major fiscal crunch – lack of resources for GH2
- Sub-national skepticism re. GH2 and SEZs
- Coordination efforts stagnated (3-Capes and inter-governmental)
- Changes in institutional structures (National and Provincial)
- No SA Summit, lower participation at global summit







Acceleration toward implementation (2025)

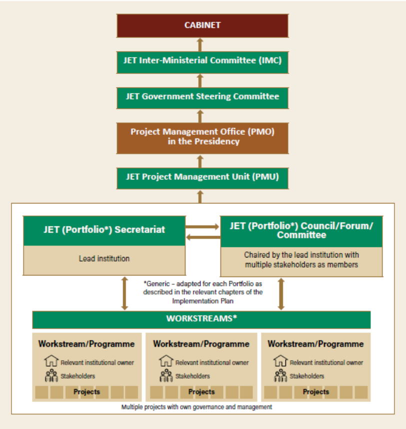
Africa Green Hydrogen Summit (June ‘25)

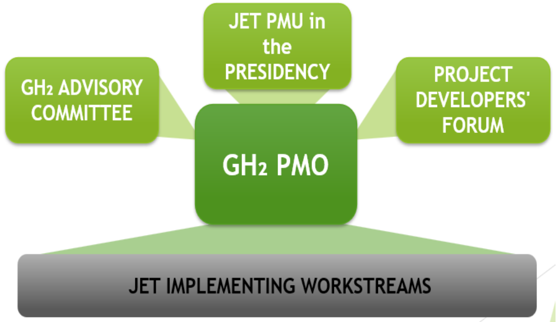
- Collective engagement with project developers

Institutional structures:

- National departmental alignment (infrastructure, electricity, energy)
- PMO for Hydrogen officially structured and resourced (National)
- Sub-national action plan defined (although delayed)
- Mixed success with funding commitments
  - Provincial funding failures
  - Foreign Funding successes-
- Coordination between National and Sub-national efforts
  - Western Cape and others
  - Workstream and project support integration

JUST ENERGY TRANSITION
Green Hydrogen Portfolio





The GH_2 PMO team

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Administrator

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Technical Coordinator

Western Cape Government

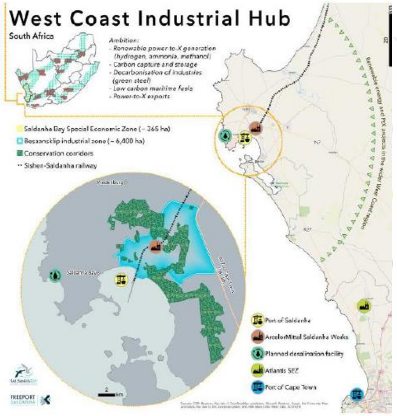
JUST ENERGY TRANSITION
Green Hydrogen Portfolio

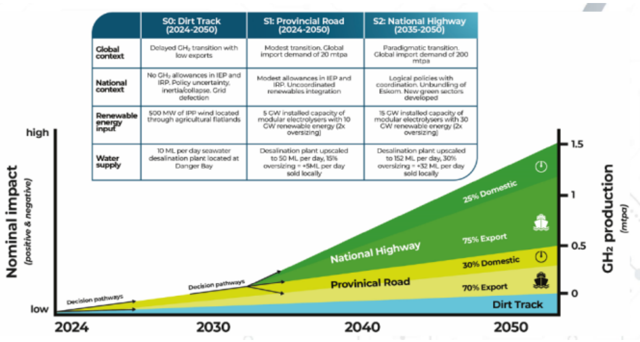
STRATEGIC ROLE AND CORE FUNCTIONS

Acceleration toward implementation (2025)

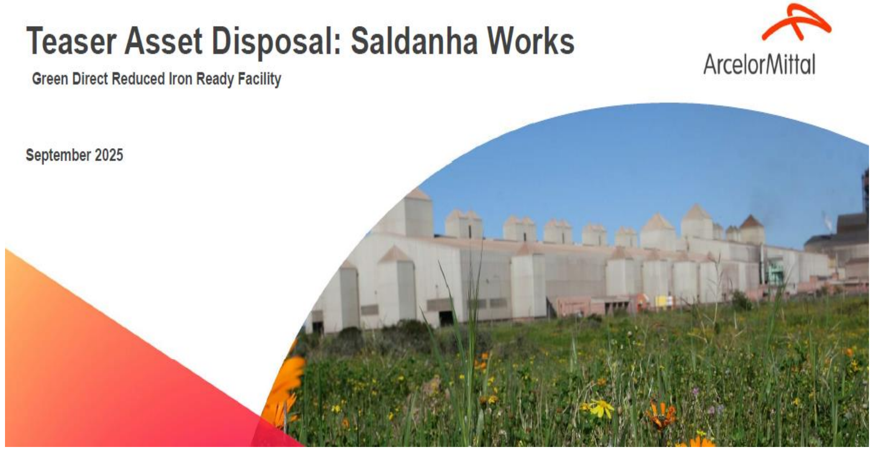
Project progress:

- Western Cape Master Planning Phase 1 concluded
- Varied progress with shared infrastructure projects
- Major progress with private projects, including funding commitments
  - Hyve Energy (funding announcement, EIA approval for 1000MW wind project)
  - 2 - 3 major Western Cape investors (approvals, commercial appointments)
  - ArcelorMittal Green DRI (commercial partnerships / market engagement)





	S0: Dirt Track (2024-2050)	S1: Provincial Road (2024-2050)	S2: National Highway (2035-2050)
Global context	Delayed GH_2 transition with low exports	Modest transition. Global import demand of 20 mtpa	Paradigmatic transition. Global import demand of 200 mtpa
National context	No GH_2 allowances in IEP and IRP. Policy uncertainty, inertia/collapse. Grid defection	Modest allowances in IEP and IRP. Uncoordinated renewables integration	Logical policies with coordination. Unbundling of Eskom. New green sectors developed
Renewable energy input	500 MW of IPP wind located through agricultural flatlands	5 GW installed capacity of modular electrolysers with 10 GW renewable energy (2x oversizing)	15 GW installed capacity of modular electrolysers with 30 GW renewable energy (2x oversizing)
Water supply	10 ML per day seawater desalination plant located at Danger Bay	Desalination plant upscaled to 50 ML per day, 15% oversizing = +5ML per day sold locally	Desalination plant upscaled to 152 ML per day, 30% oversizing = +32 ML per day sold locally



Green Direct Reduced Iron

DRI Production
- A phased approach can be followed to de-risk the project.
- Phase 1 can produce 800 000 t of DRI per annum.
- Phase 2 can produce 1 200 000 t of DRI per annum.

Renewable Energy
- A region with very good renewable energy capacity factors
- Phase 1 of the project requires ~800 MW of renewable energy.
- Phase 2 of the project requires ~1.2 GW of renewable energy.

Green Hydrogen
- Studies have shown that a LCOH of 3 - 4.5 $/kg in the Saldanha region is possible.
- Phase 1: 40 000 tpa of green H_2. 280 MW electrolyser capacity.
- Phase 2: 60 000 tpa of green H_2. 420 MW electrolyser capacity.

Iron Ore
- The Saldanha plant can be operated at high lump ore ratios from locally sourced high quality lump ore.
- Phase 1 will require 710 ktpa of lump ore (60% of input mix) and 460 ktpa of DR grade pellets (40% of input mix).
- Phase 2 will require 178 ktpa of lump ore (10% of input mix) and 1 689 ktpa of DR grade pellets (90% of input mix).

Natural Gas
- The project can run on 76% Hydrogen and 24% Natural Gas.
- Natural gas can be used for heating and carburisation of the DRI.
- An electrical heater can be an alternative to natural gas.

Carbon Footprint
- Scope 1: 93 $kgCO_{2e}/t_{DRI}$.
- Scope 2: 40 $kgCO_{2e}/t_{DRI}$ (200 kWh/t_{DRI}, 80% RE and 20% grid electricity at 1 tCO_2/MWh).
- Hydrogen footprint: 170 $kgCO_{2e}/t_{DRI}$ (Carbon footprint of Green H_2 – 3.38 tCO_2/tH_2 (REDII), H_2 consumption – 50.4 kgH_2/t_{DRI}).

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Saldanha Hydrogen DRI
ArcelorMittal

Short term way forward (2026 – . . .)

2026 Focus:

- Partnerships and coordination (National, Provincial, “regional”)
  - National work streams
  - Sub-national PMO(s)
- Funding allocation from Government and grant funders
- Master planning
  - Sub-national: Phase 2 – Implementation Readiness
  - National: Infrastructure
- Direct project support and unblocking (private sector project)

Government activities:

- Unblocking major policy & regulatory hurdles
  - Grid planning & connections
  - Wheeling Framework
  - SEZs for implementation
- Market engagement (finance and offtake)
- Africa GH2 Summit in Cape Town (Sep ‘25)
- Shared infrastructure projects finalised

Private project milestones:

- FID / Financial Close [2 – 3 projects] and breaking ground

Thank you