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

Presentation to NRF Webinar on Hydrogen Regulations, Standards, Codes and Certifications

Date: 23 March 2023

Presentation Outline

1. **History and Opportunity Statement**
2. Demand-driven commercialisation
3. Competitive Supply
4. Summary of strategy
5. Key Enablers
6. Implications for Standards / Regulations / Certification
7. Conclusion

The GHCS is out in the public domain for comments

- This Green Hydrogen Commercialisation Strategy (GHCS) builds on the strong foundation of the work undertaken by the Department of Science and Innovation (DSI) with respect to its HySA programme and the recent development and publication of the Hydrogen Society Road Map (HSRM)
- In June 2021 the Minister of Trade, Industry and Competition established the Green Hydrogen (GH_2) Panel to develop the GHCS
- The Panel consists of private and public sector champions in the potential green hydrogen value chain and is currently being co-ordinated by the Industrial Development Corporation of South Africa (IDC)
- The GHCS was approved by Cabinet for public release and consultation on 28 November 2022.
- Comments welcome until 31 March 2023

A solid historical base supports accelerated commercialisation

1

2007

Development of the National Hydrogen and Fuel Cell Technology Strategy by the Department of Science and Innovation and approval by Cabinet

2

2008-2013

Demonstrator projects include an underground fuel cell powered mining locomotive, solar-to-hydrogen system, battery and fuel cell golf cart, fuel cell generator providing lights for the UWC Nature Reserve

3

2014-2016

Demonstrator projects include: fuel cells for power storage for homes and cellular phone tower base stations; a Hydrogen refueling station; and fuel cell powered forklift.

4

2017

Demonstrator projects include a Green Hydrogen fuel cell system with on-site production and storage and a Hydrogen in Mining test facility.

5

2018

Demonstration projects concluded for Hydrogen production, Liquid Organic Hydrogen Carriers and the use of PGM catalysts for the production of Hydrogen. HySA demonstrated a 2.5kW fuel cell system at Poelano Secondary School

6

2020

The DSI, Hydrogen SA and North West University initiate a process with the South African government to develop a Hydrogen Society Roadmap.

7

JUNE 2021

Presidency announces that GH has been identified as the first of five 'Big Frontier' strategic investment opportunities

8

JULY 2021

The DTIC and IDC coordinated a joint approach to sector planning by establishing a Green Hydrogen Panel

9

SEPTEMBER 2021

Cabinet approves the Hydrogen Society Roadmap developed by the DSI

10

OCTOBER 2021

The drafting of the Green Hydrogen Commercialisation Strategy for South Africa was completed

11

NOVEMBER 2021

At COP 26 in Glasgow, Scotland, South Africa mobilizes funding support for the country's decarbonization

NCEDA releases GH Strategy at COP26

12

FEBRUARY 2022

The HSRM is released to the public marking a momentous milestone for South Africa's hydrogen industry development

The GH_2 economy presents new opportunities for South Africa for energy security, economic, skills, employment and communities

Decarbonisation

- GH_2 will be the global clean fuel of the future and critical to SA decarbonising our economy and ensuring the competitiveness and sustainability of our industries.
- GH_2 can decarbonize much more than RE alone by replacing fossil fuel inputs in industrial processes – i.e. hard to abate sectors

Growing global and local market

Hydrogen will establish SA as a future energy market global trader, securing foreign direct investment, earning foreign income and creating economic growth and development

Import Markets will be the EU, Japan, South Korea and the United Kingdom

Increasing need for hard to abate sectors to decarbonize is a key demand driver for green products

New globally competitive industry development

South Africa's will establish this new hydrogen industry with a comparative advantage leveraged by natural endowments of land, wind, solar, oceans and green minerals and existing petrochemical base, together with innovations in the hydrogen sector, a robust financial system, globally recognised renewable energy programme.

South Africa's clear differentiators are proprietary Fischer Tropsch technology and resources of platinum group metals (PGMs)

Supporting the Just Transition

The ability of GH_2 to penetrate hard to abate sectors and cross sectoral impacts with traditional energy sectors will facilitate the energy transition.

By proactively addressing socio economic needs the development of the new hydrogen industry can be just (this includes skills, social inclusion, gender equality, BBBEE and community participation, job creation and alternative options for potential job losses)

Although this new industry will not necessarily be an immediate solution to the current electricity crisis, it will however be a part of longer term energy security for South Africa

GHCS will enable the achievement of the 2050 green hydrogen vision

Vision

Developing a globally competitive, inclusive and low carbon economy by harnessing South Africa's entrepreneurial spirit, industrial capability, strong financial sector and natural endowments

Role of a commercialisation strategy …

- National coordination / shared vision
- Provide policy certainty
- Encourage investors
- Guide decision makers (government, private)
- Ensure proactive industry development

… to achieve Strategic Objectives

- Secure early positioning for global export market share & competitive trade position;
- Establish domestic markets in mobility applications and hard to abate sectors;
- Secure foreign direct investment and low-cost green finance;
- Maximise Economic and Socio-Economic development benefits;
- Create an enabling policy and regulatory environment to sustain the long term growth;
- Support Local industrial capability and participation and
- Ensure a Just Transition

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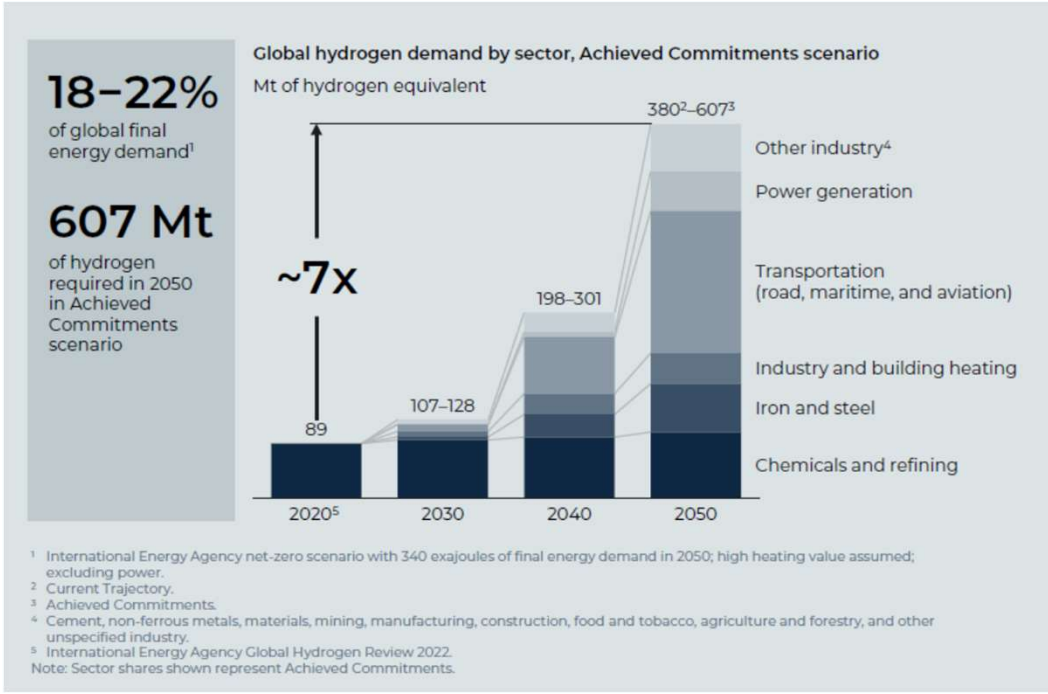
607 mtpa of GH_2 required globally by 2050 in achieved commitments scenario

Demand drivers

- Decarbonisation (e.g. EU regulations, policies, blending mandates)
- Grey to green hydrogen switch (current consumption)
- Supply and demand balances (uneven renewable endowments)
- maturity and acceptance of the application technology (e.g. supply chain, applications, production)
- Cost competitiveness of GH vs fossil alternatives
- Availability and access to GH
- Access to supporting ecosystem / enablers



Source : McKinsey Global Energy Perspective 2022

The size range for the global *import* market by 2050 will be between 30 and 60 mtpa of GH_2

A range of local and export use cases can anchor demand for GH_2 in South Africa with sustainable demand drivers

	Application Hydrogen and derived product use	Application Key Configuration					Long-term competitiveness Considered in demand scenario	Potential end-users in SA (non-exhaustive)
Industry	Ammonia production	H_2	NH_3	MeOH	C_xH_y	Feedstock	✓	For own demand and export
	Methanol production	H2	NH3	MeOH	C_xH_y	Feedstock	✓	For own demand and export
	Refineries	H_2	NH_3	MeOH	C_xH_y	Feedstock	✓	Potential decarb. of PetroSA
	Steel	H_2	NH_3	MeOH	C_xH_y	FC/Comb.	✓	For local steel industry
	High-Temp Process	H_2	NH_3	MeOH	C_xH_y	Combustion	✓	For local glass industry
Mobility	Light Road	H_2	NH_3	MeOH	C_xH_y	FC	✗	BEV assumed dominant alternative
	Heavy Road	H_2	NH_3	MeOH	C_xH_y	FC	✓	FCEV in commercial and public transport HDV as dominant tech
	Off-highway	H_2	NH_3	MeOH	C_xH_y	FC	✓	FECV in commercial HDV as dominant tech
	Rail	H_2	NH_3	MeOH	C_xH_y	FC	?	Potentially relevant (e.g., to replace diesel gen. where grid power unavailable)
	Shipping (Ocean)	H_2	NH3	MeOH	C_xH_y	FC/Comb.	✓	Ammonia for long-distance maritime shipping fuel demand
	Aviation (International)	H_2	NH_3	MeOH	C_xH_y	Combustion	✓	Green kerosene to meet aviation fuel demand
Power & Heat	H2 adapted turbines	H_2	NH3	MeOH	CxHy	FC/Comb.	?	As part of last mile decarbonisation of power
	Backup power	H_2	NH3	MeOH	C_xH_y	FC/Comb.	✗	Assumed negligible
	Long/mid storage	H_2	NH3	MeOH	C_xH_y	FC/Comb.	?	As part of last mile decarbonisation of power
	Grid blending (heat)	H_2	NH_3	MeOH	C_xH_y	Combustion	✗	Assumed negligible

1. Indicative example of long-term (2050) cost competitiveness of presented green tecs 2. Efficiency improvements not included here, but relevant to all categories, P2G power to gas, P2L power to liquid | Source: BCG

Source: NBI, BUSA, BCG, 2021

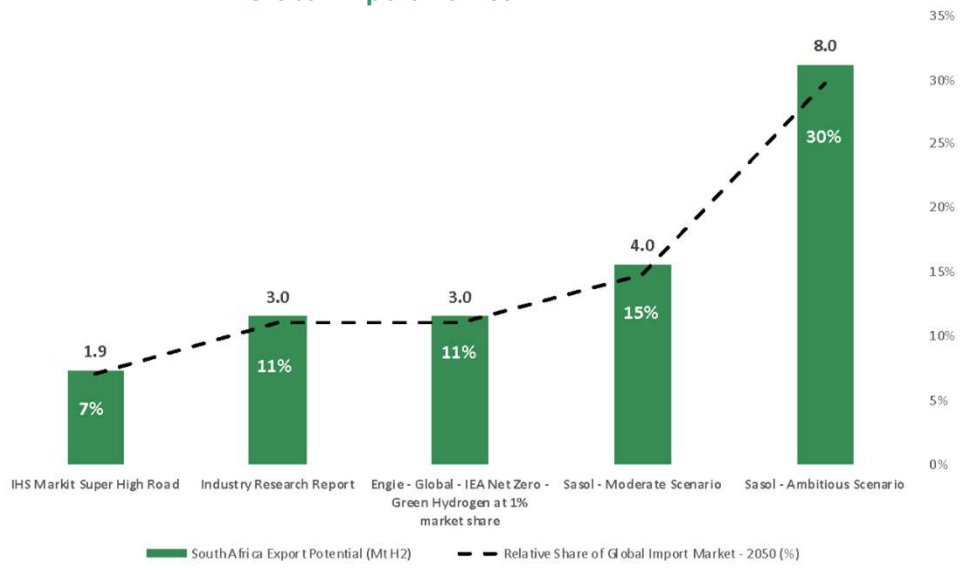
Export potential is estimated at 4 to 8 mtpa by 2050

South Africa will have to secure a long term global market share and competitive trade position against competition from other exporters..

- Global Market for GH_2 is forecast to be 300-320 Mt GH_2 by 2050 using the benchmark International Energy Agency's (IEA) Net Zero GH_2 Scenario to 2050.
- There is potential for 91% of this demand (279 Mt GH_2) to be met within the country or region of demand, with the balance of 9% (27 Mt GH_2) sourced through imports.
- Import Markets for GH_2 to 2050 will be the European Union (2030*: 10 mtpa); Japan (2050: 5 to 10 mtpa); South Korea (2050: 1.0 to 1.2 mtpa) and the United Kingdom (2050: 0.5 to 0.7 mtpa).
- **Export Potential:** South Africa is well positioned for global exports with estimates of the potential ranging between 1.9 to 8.0 Mt GHpa. Positioning on the Indian and Atlantic shipping routes could enable 8-10% market share of the global ammonia / methanol fuels market for shipping, equivalent to a further 0.8 to 1.0 Mt per year of GH_2.

*** Based on the REPowerEU plan (18 May 2022), Europe has increased GH_2 demand projections planning to import 10mtpa by 2030 which was previously planned for 2050.**

South Africa - Export Market Assessment Based on Share of Global Import Market

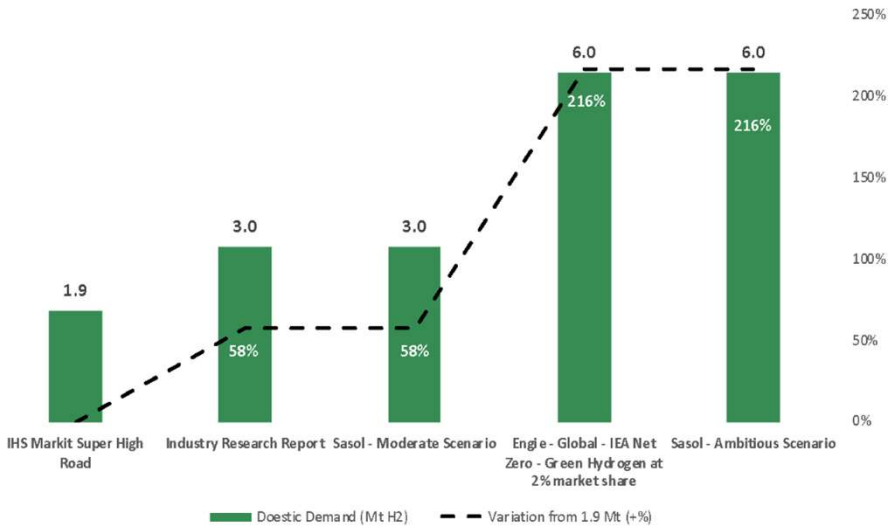


Domestic potential estimated at 3 to 6 mtpa by 2050

Domestic demand will accelerate as price parity gets closer to fossil fuels. Co-located production projects (eg. Mining sector) will have accelerated commercial value due to lower infrastructure and supply chain dependencies and hence lower cost.

- Domestic Market: The domestic market for GH_2 has the potential to range between 1.9 to 6.0 Mt GHpa.
- South Africa's potential to move higher on the range is price sensitive and will require specific co-ordination and intervention between the public and private sector to ensure higher efficiency at scale.
- Broader domestic penetration will take longer due to affordability but co-located projects have expedited commercial benefits due to lower infrastructure cost and dependencies
- **Affordability considerations:**
- Considering GH_2 production cost at 2025 is estimated at $6/kg, which will be 55% more expensive than Diesel (R17,28/l) and 111% more expensive than Eskom (R1.28/kwh) without considering transition costs for users and applications.
- Accelerating price parity will be a combination of GH_2 cost and fossil fuel carbon taxes. Even if energy price parity is achieved (estimated by 2030) the total cost of transition must be considered per sector.

South Africa - South Africa - Domestic Market Assessment



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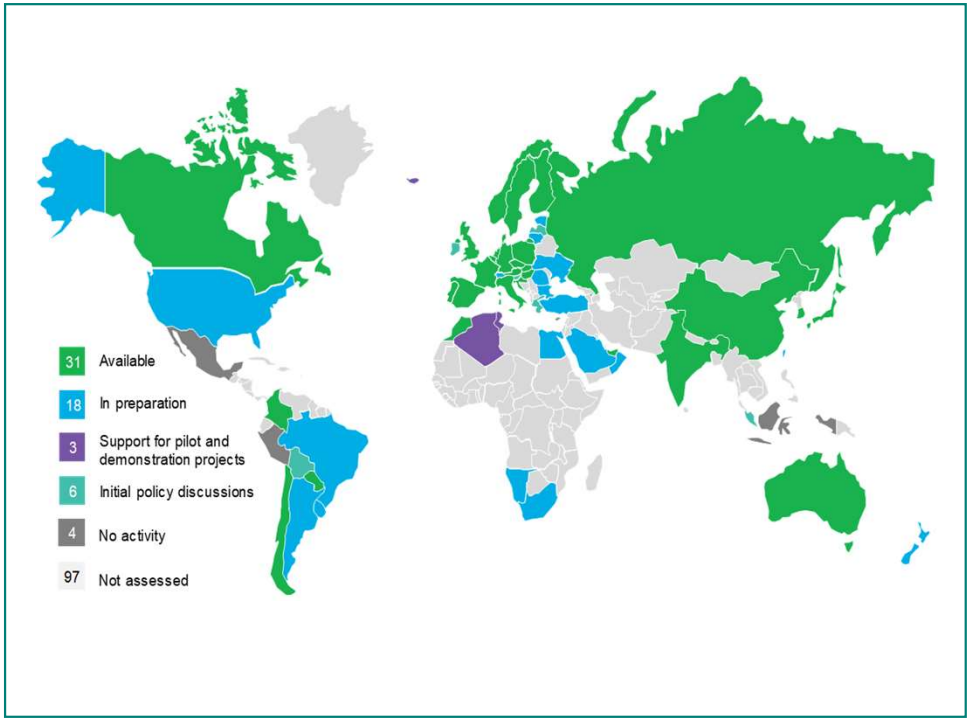
Globally countries and private companies are developing strategies for the commercialisation of the sector.



Global hydrogen strategies
Source: Bloomberg NEF, 16 June 2022

- More than 30 countries have published a hydrogen strategy and over 200 hydrogen projects have been announced with governments committing to over $70 billion in public funding
- Themes of strategies:
  - Early investment support to scale assets and infrastructure required to meet desired targets
  - Opportunities for sector-coupling.- optimising gas and electricity infrastructure to deliver low-cost GH_2
  - Seeding local market focus areas; including setting of national standards and priorities
  - Commercial model assessment inclusive of opportunities and the role of the state
  - Policy and detailed regulatory frameworks
  - Focus on Research and Development to improve technologies and identify initial projects
  - A social licence assessment – looking at the holistic impact of the new GH_2 market
  - International strategies on partnerships, including bi-lateral MOU's and agreements

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

- ✓ 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

Synergies in solving for water security

- ✓ 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**)

Unique expertise for beneficiation into e-fuels and endowment of PGMs

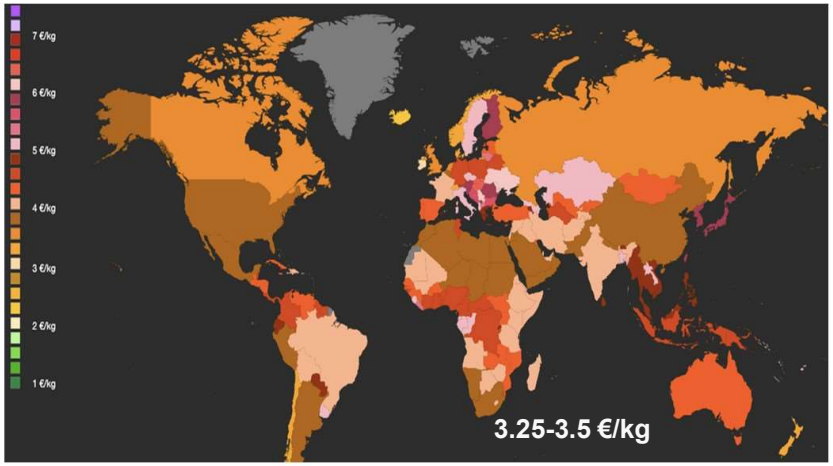
- ✓ Proprietary **Fischer-Tropsch** technology lacking in other countries (critical for power to liquids)
- ✓ Endowment in **PGMs** required in the GH_2 value chain

SA long term potential to be low cost GH_2 producer

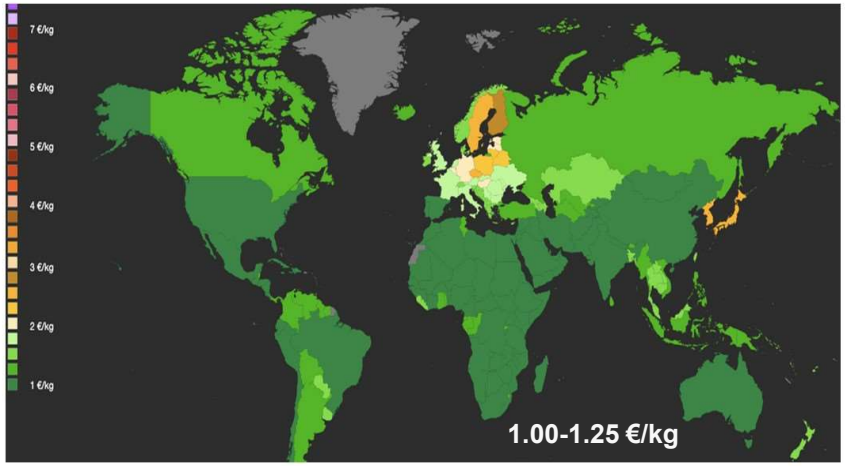
SA GH_2 could approach the **€1/kg GH_2 mark by 2045**, equivalent to indigenous low cost energy, making South Africa **one of the competitive industrial economies**, however South Africa will differentiate itself by using proprietary Fisher Tropsch technology to target export of sustainable aviation fuel and will manufacture electrolysers and fuel cells using PGMs available locally

Levelised Cost of Hydrogen (LCOH) comparable with the lowest cost producers in the world

Global Green Hydrogen Pricing - 2025*



Global Green Hydrogen Pricing - 2050*

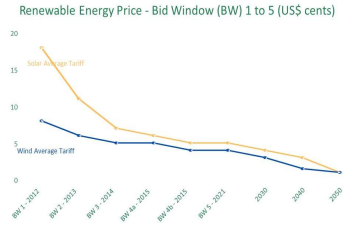


*PwC research (2021) | based on an analysis of various renewable energy sources and electricity generation / hydrogen equipment cost reductions worldwide

Although far from the GH_2 importing markets in Europe and Asia, South Africa has the potential to make up the cost differential through greater efficiency and government support programmes.

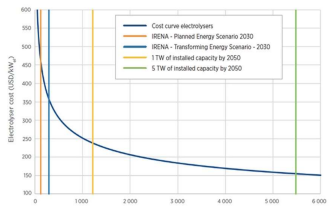
Declining GH_2 prices will unlock opportunities across key sectors to decarbonise industry

Renewable Energy Power Prices declined 67% for Solar and 49% for Wind since 2012

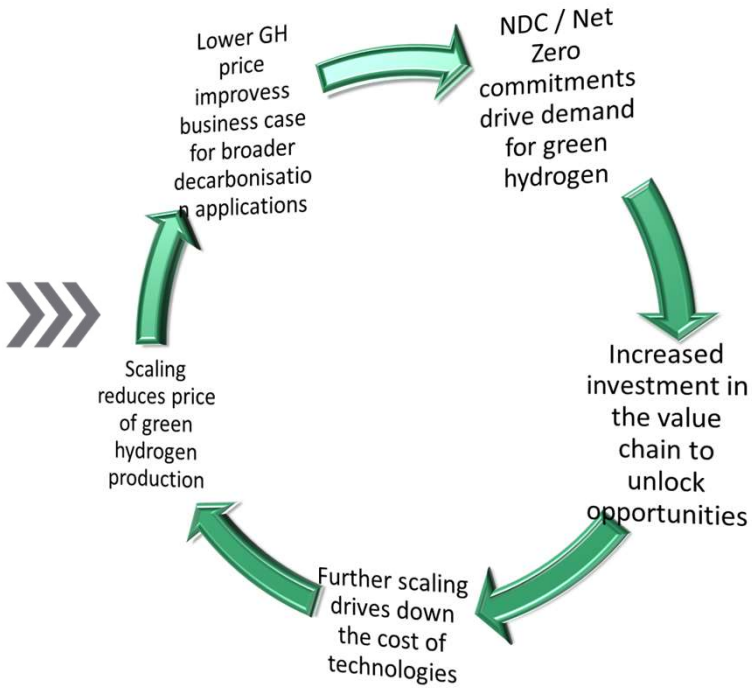


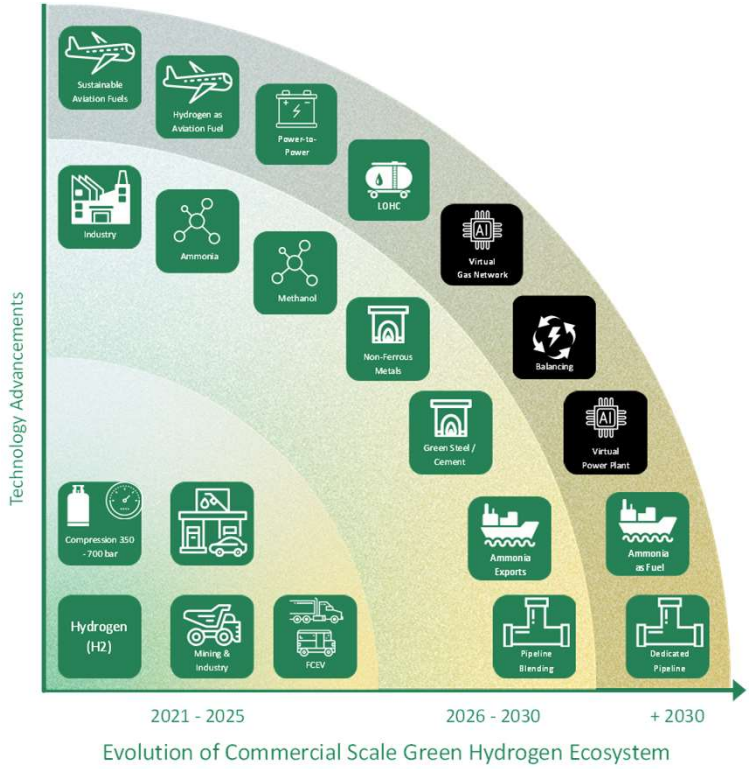
Between 2011 and 2021, four Bidding Windows through competitive tenders resulted in more than US$ 20 bn (R320 bn) of investment in renewable energy generation capacity,

Learning rates and investment in technology will see similar price declines for electrolysers



Potential cost decrease for electrolyzes based on learning rates and costs achieved by deployment in IRENA scenarios 2030 to 2050.
Source: International Renewable Energy Agency (IRENA) Analysis





Evolution of Commercial Scale Green Hydrogen Ecosystem

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Long term growth aspirations could exceed 7mtpa of production by 2050

- $1bn investment could expedite GH_2 export of 20 ktpa.
- Within three to five years, several GH_2 projects, both export and local, will come online increasing GH_2 scale to 270 ktpa, requiring capital of $13bn, displacing carbon emissions by 21 Mtons of CO2.
- The target of 3.8 mtpa by 2040 will require total investment of $164 bn by 2040.
- Between 2040 and 2050, South Africa can aggressively pursue deeper decarbonisation by seeking a GH_2 demand uplift to 7 mtpa. This will displace 541 Mtons of CO_2 and increase investment support to $133bn.
- Emissions calculated from the investment date to the end of the decade (assuming 3 years of development and 7 years of operations) could result in annual emissions reduction of between 18 to 20 % of South Africa's annual carbon emissions.

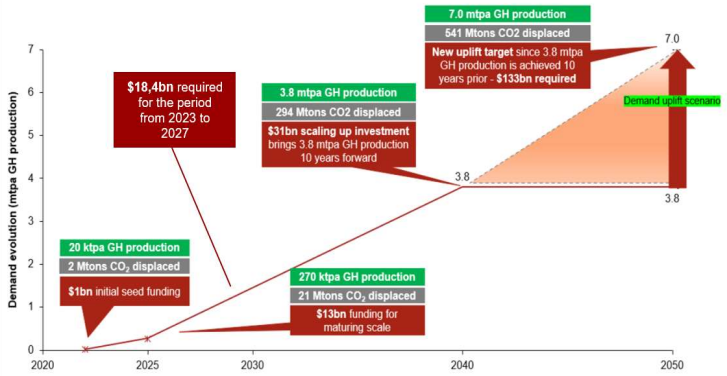
PRODUCTION TARGETS				
YEAR	2025	2030	2040	2050
TARGET	20	1.0	3.8	7
UNITS	ktpa	mtpa	mtpa	mtpa

GH_2 demand uplift and Capital investment required

Key insights

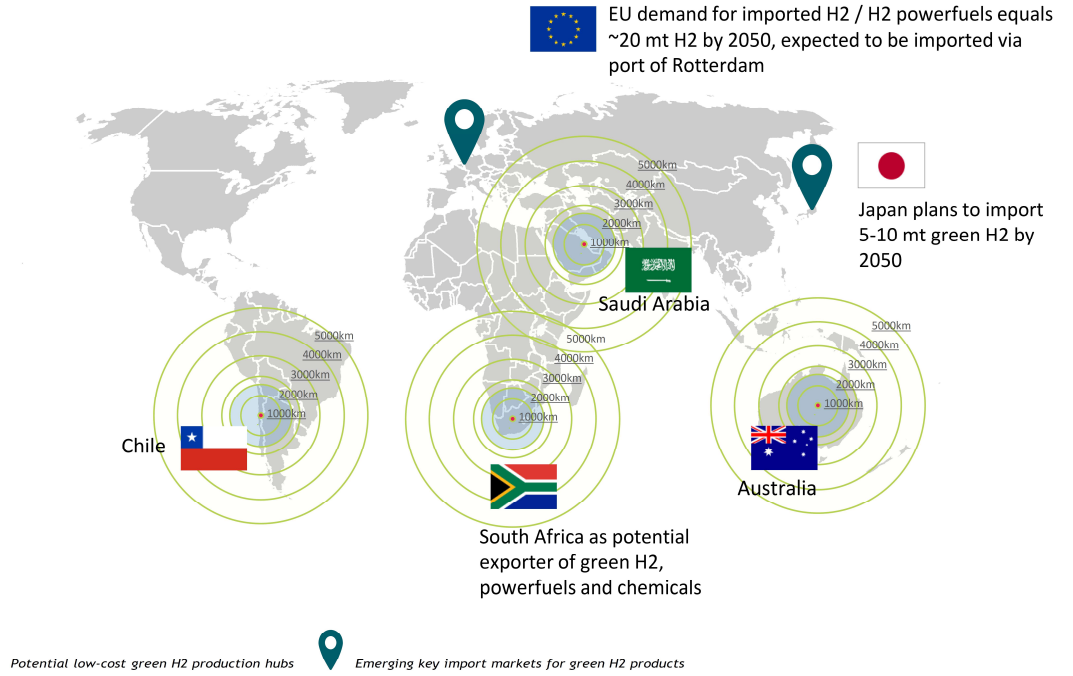
- South Africa requires an **initial seed capital of $1bn to expedite GH export of 20 ktpa**.
- Within three to five years, several GH projects, both export and local, will come online **increasing GH scale to 270 ktpa**, requiring **capital of $13bn, displacing** carbon emissions by **21 Mtons of CO_2**.
- **The target of 3.8 mtpa** is originally set for 2050, however, a **scaling up investment of $31bn** between 2030 and 2040 will enable South Africa to expedite this baseline production **displacing 294 Mtons of CO_2**.
- Between 2040 and 2050, South Africa can aggressively pursue deeper decarbonisation by seeking a **GH demand uplift to 7 mtpa**. This will displace **541 Mtons** of CO_2 and requires **$133bn in investment support**.
- Emissions calculated from the investment date to the end of the decade, assuming 3 years of development and 7 years of operations from the date of investment to the end of the decade. **Annual emissions reduction from 7 mtpa GH equals 76.8 Mtons CO_2, or between 18 to 20 % of South Africa's annual carbon emissions**.

GH demand uplift and Capital investment required



Significant additional GH_2 demand could arise from supply of GH_2 and derivatives to EU, UK, South Korea and Japan

- **Import Markets** for GH_2 to 2050 will be the European Union (2050: 11-15 Mt GHpa); Japan (2050: 5 to 10 Mt GHpa); South Korea (2050: 1.0 to 1.2 Mt GHpa) and the United Kingdom (2050: 0.5 to 0.7 Mt GHpa).
- **Export Potential:** South Africa is well positioned for global exports with estimates of the potential ranging between 1.9 to 8.0 Mt GHpa. Positioning on the Indian and Atlantic shipping routes could enable 8-10% market share of the global ammonia / methanol fuels market for shipping, equivalent to a further 0.8 to 1.0 Mt per year of GH_2.



Source : NBI BUSA BCG, October 2021, “The green H2 opportunity in South Africa”

Imports of 25-30mt GH_2 is expected by 2050

Progressive commercialisation will enable penetrating multiple markets / use cases over time

2023 to 2025		Road transport, primarily Fuel Cell Vehicles (FCVs) with a focus on Heavy- Duty Vehicles (HDVs). Pilot projects already underway including hydrogen-powered trucks (Anglo Platinum's Mogalakwena mine), the Hydrogen Valley (835km industrial and commercial mobility corridor) and Sasol and Toyota South Africa Motor's partnership exploration of a mobility ecosystem.
2025 to 2030		Chemical and Industry, notably the non-ferrous metals, green steel, and cement sectors, which will need to decarbonize to remain globally competitive. Early opportunities in Green steel are under consideration.
2028 to 2030		Green ammonia and methanol, which will replace current production from high carbon techniques. Ammonia is widely traded globally and regarded as an attractive transport vector for exporting and trading in green hydrogen.
2030		Sustainable aviation fuel offers an opportunity to decarbonise air travel.
+ 2030		Power Storage and Balancing - Hydrogen being used for long-duration storage based on daily, monthly, and cross-seasonal balancing requirements.

The successful implementation of the commercialisation strategy will depend on the execution of the six key elements

1 EXPORTS	2 STIMULATE DOMESTIC MARKET	3 SUPPORT LOCALISATION	4 SECURE FINANCING	5 PROACTIVE SOCIO ECONOMIC DEVELOPMENT
Target exports of green hydrogen and green chemicals by leveraging on South Africa's proprietary Fischer Tropsch technology and utilising financing support mechanisms including grants, concessional debt and contract for difference / price subsidies to improve the financial viability of these projects	In parallel to the export strategy, develop projects along the value chain to stimulate demand for green hydrogen in South Africa. "Low hanging fruit" opportunities to be prioritised to provide confidence in the domestic market. Examples include green steel, hydrogen valley mobility programme and sustainable aviation fuel projects.	Develop local industrial capability to produce fuel cells, electrolyser, ammonia cracking and balance of plant equipment and components by leveraging on South Africa's PGM resources. Together with demand stimulation this will drive longer term GH_2 price reduction allowing penetration in various sectors.	"Crowd in" and secure funding from various sources and in various forms including grants, concessional debt and contract for differences.	Maximise development impact (incl. skills and economic development and social inclusion). Ensure gender equality, BBBEE and community participation. Maximise job creation and alternative options for potential job losses.

6 ROLE OF GOVERNMENT IN POLICY AND REGULATORY SUPPORT

Position GH_2 as a key early contributor to decarbonization and a just transition in the country programme of work being collated by the JET-IP Task Team ensuring a fair proportion of climate finance is sourced to enable development of this industry.

Prioritize the execution of the green hydrogen commercialisation strategy and the development of a national GH_2 infrastructure plan

Drive the required policy and regulatory changes required to sustain long term growth of the new hydrogen industry.

Mobilise and coordinate the Government support required to support the development of this new industry for South Africa.

GHCS detailed action plan will guide implementation

		2023 SHORT TERM 2030	MEDIUM TERM 2040	LONG TERM 2050
Private Sector Actions	Export Markets	• Strategically position South Africa as a preferred and reliable provider to key markets, leveraging trade relationships and government support. • Secure global market and off-take with national procurement programmes such as H_2 Global. • Expedite export pilot projects to position South Africa as a serious global player and achieve early market entry. • Progress international strategy working with export promotion agencies.		
	Domestic Markets	• Introduce supportive policies and regulatory framework for GH2 to aid price parity to increase domestic GH2 demand. • Support demonstration projects in hydrogen mobility applications, specifically focused on Heavy Duty Fuel Cell Vehicles. • Demonstrate feasibility of GH2 applications in industry including non-ferrous metals, green steel, cement and petrochemical industries for short term pilot projects and long-term commercialisation		
	Investment and Finance	• Secure strong inflow of foreign direct investment and outflow of GH2 exports by means of comprehensive incentive packages including tax incentives, grant schemes and reduced import surcharges on technology options. • Establish a regulatory and market framework to drive investment • Support a key set of "catalytic" infrastructure projects that frames the national GH2 strategy, enabling private sector players while meeting Government's objectives for inclusive economic growth.		
Public Sector Actions	Economic and Socio Economic Development	• GH2 can significantly contribute to achievement of South Africa's revised Nationally Determined Contribution targets. • Focus on hard-to-decarbonise industrial sectors by aligning sectoral carbon budgets with GH2 mitigation potential and financial support required for a just transition • Ensure integration of RE through a robust GH2 sector and regulatory framework. • Extension of the HySA programme to support further R&D for innovation as a means of developing South Africa's competitive advantage and supporting identified "deep dive" studies		
	Local industry capability and participation	• Integrate the potential for industrialization of the RE manufacturing supply chain aligning to the masterplans for renewable energy, steel and automotive sectors as well as other relevant initiatives. • Create partnerships and joint ventures to secure investment in the local manufacturing of equipment and components in the GH2 value chain including fuel cells, electrolysers, ammonia cracker and balance of plant equipment. • Implement projects to develop skills and support localised industrialisation for key parts of the GH2 value chain.		
	Just Transition	• Quantify the macro economic and socio economic impact and sustainability of GH2 applications in industrial sectors to advise a socio-economic and just transition plan. • Develop GH2 Socio-economic plan to enhance local content inclusion of SMME's and entrepreneurs and empower previously disadvantaged groups. • Analyse and plan for a Just Transition, ensuring appropriate public and social dialogue and understanding. • Ensure appropriate training and skills development programmes as part of the Just Transition plan.		

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Aligned focus on 6 **key enablers** will expedite development

1. 

   Co-ordinated development of an efficient value chain : Infrastructure requirements will need significant co-ordination between the various government departments, public sector institutions and the private sector for ports pipelines, rail and electricity transmission.

2. THE PRESIDENCY
   REPUBLIC OF SOUTH AFRICA

   Regulatory and Policy Framework (including codes, standards and certification) : Drive the required policy and regulatory changes required to sustain long term growth of the new hydrogen industry. Outline detail and timing of regulatory review including introduction of new laws and policies.or amendments to existing laws and policies

3. **Funding and Investment** : Potential sources of funding will need to be obtained from government, private finance and development finance institutions

4. 

   Project development and execution : Support the development and execution of projects as listed in the government gazette as SIP projects. Increase the pipeline of projects to achieve targets set.

5. 

   Skills development : The creation of a hydrogen economy will require a new skill sets as well as an increase in capacity of a productive workforce. The DHET will be central to the implementation of the skills action plan with consultation of the DSI.

6. **Financial Support** : Develop financial support mechanisms to incentivise the early development of the industry including tax incentives, grants, price subsidies, concessional debt, carbon subsidies

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Implications for Standards / Regulations / Certification

Safety	• Robust safety and environmental regulations are critical to maximize benefits and minimize harms of green hydrogen • There must be new rules governing safety of hydrogen production, transport, storage and end use
Standards	• Definition of what is green hydrogen • Definition of what are green derivatives i.e. use of sustainable chemicals like carbon • Infrastructure for refuelling stations • Blending of green hydrogen with other sources within transmission and storage facilities
Certification	• Certifications and tracing of green hydrogen will then be critical for ensuring that fossil-based hydrogen is not passing for green hydrogen.- guarantees of origin system • Design and introduce a Guarantees of Origin system to install investor confidence in key import nodes. Engage with zaRECs Pty Ltd to explore expansion of current renewable energy certificate system to include GH2. • Book and claim system to facilitate access to export markets. “Book and Claim” is a chain of custody model that allows to 'de-couple' specific attributes from the physical flow of the goods.
Regulations	• IEP update to align with GHCS, IRP update to include planning for RE for GH_2 • Classification as gas or energy • Review and amend specific regulations e.g. regulation to support 700bar pressure vessels on SA road, homologation of hydrogen vehicles

SABS is currently driving the process - working groups has been set up recently

Presentation Outline

1. History and Opportunity Statement
2. Demand-driven commercialisation
3. Competitive Supply
4. Summary of strategy
5. Key Enablers
6. Implications for Standards / Regulations / Certification
7. **Conclusion**

The commercialisation action plan will enable the realisation of the GH_2 vision

- The development of this **new green hydrogen industry** will support South Africa's Economic Reconstruction and Recovery Plan
- Implementation of the action plans should **ensure a just transition** tackling gender equality and social inclusion, addressing the triple challenge of poverty, inequality and unemployment.
- **Stronger partnerships** will be built between Government, the private sector and civil society by creating an enabling environment
- Implementation should drive international partnerships **while protecting national interest**
- South African should be rebranded as a destination for sustainable investment incorporating **Environmental, Social and Governance principles**

VISION 2050 – A WELL ESTABLISHED NEW SUSTAINABLE GREEN HYDROGEN INDUSTRY FOR SOUTH AFRICA

Thank you

Partnering with you.
Growing the economy.
Developing Africa

Here is the link to download the GHCS : https://idc.co.za/key-policies/
Please submit any comments or queries by 31 March 2023 to hydrogen@idc.co.za