



HYDROGEN
ENERGY

HYPHEN

Hyphen Green Hydrogen Project SCDI, Namibia:

**Hyphen Project Overview
Effective Communicators Conference**

18 July 2025



Quiver Trees – Konkerboom Woud, Keetmanshoop Namibia
(Andreas Glockner)

Item Topic

1. The Case for Green Hydrogen and Why Namibia
2. Who is Hyphen
3. Technical Project and Location
4. Environmental De-risking
5. Socio-Economic Development
6. Early Stakeholder Engagements

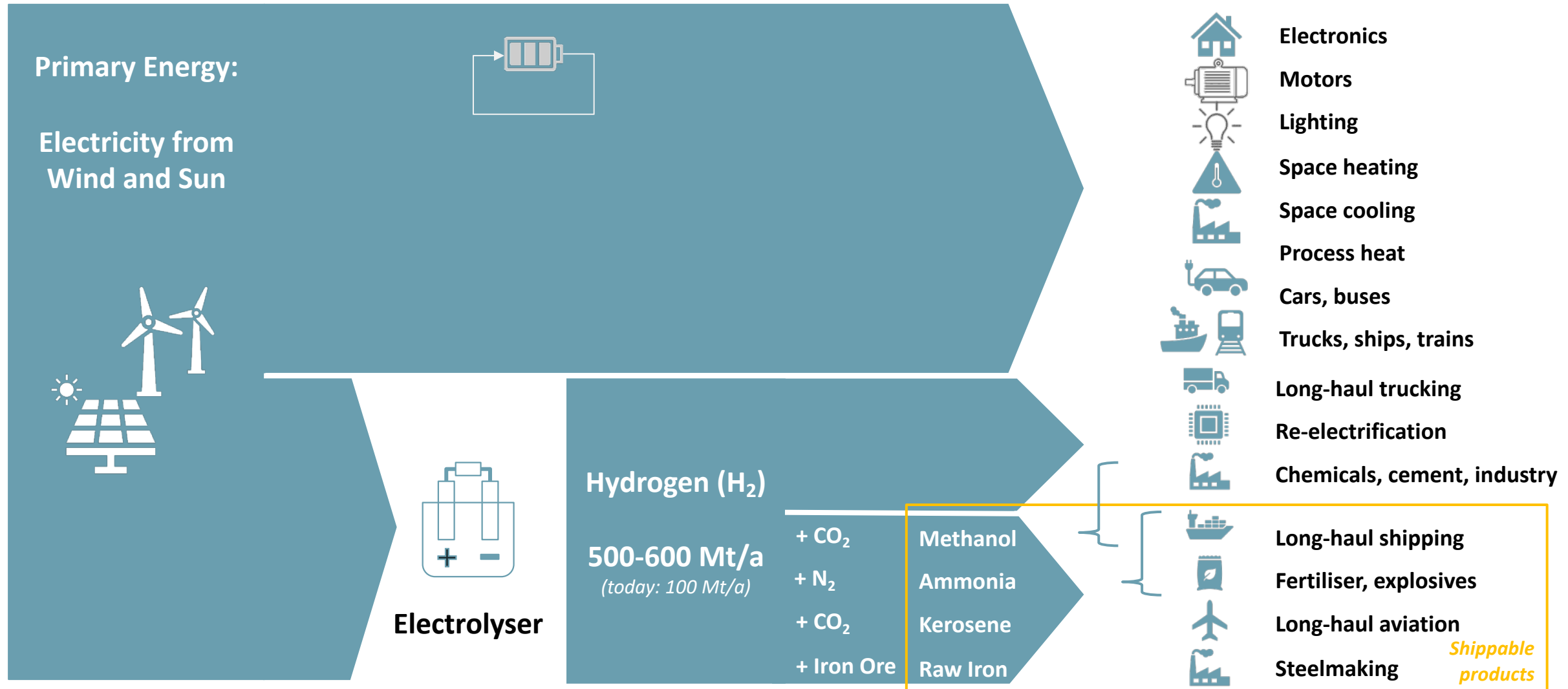
Article 1: Establishment of the Republic of Namibia and Identification of its territories

(1) The Republic of Namibia is hereby established as a **sovereign, secular, democratic, and unitary state** founded upon the principles of **democracy, the rule of law and justice for all.**

1

The case for Green Hydrogen and why Namibia?

Sun + Wind + Hydron = Global Energy System in 20xx

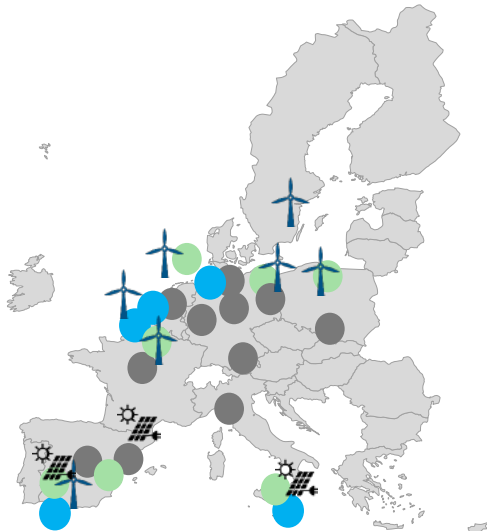


Namibia as a key supply hub for green-hydrogen products

Illustrative figure

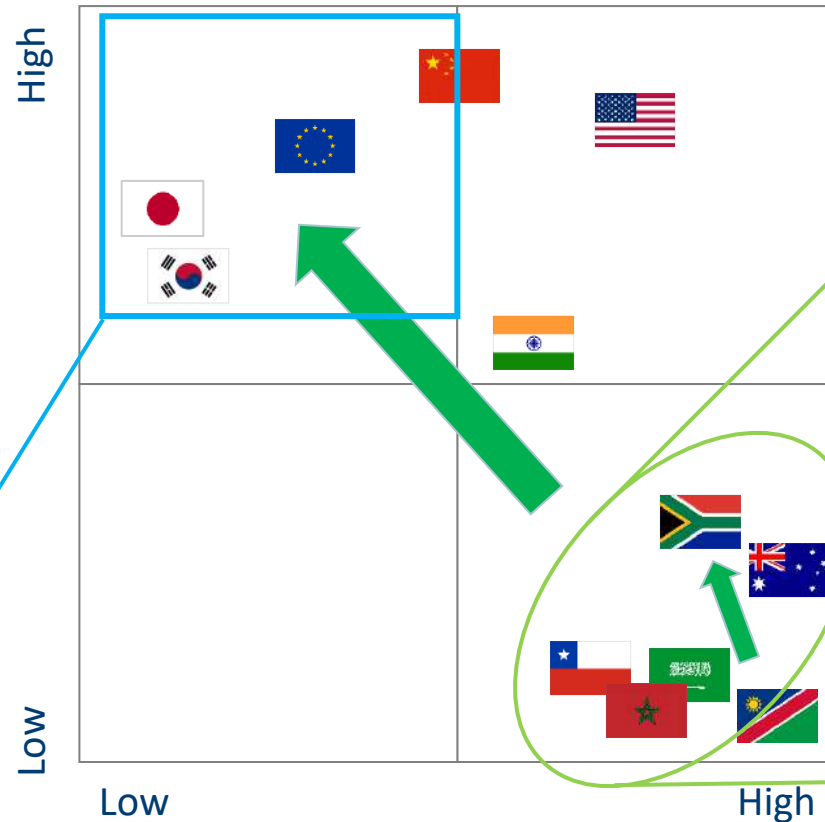


Import hubs in the EU



- Import hub
- Major off-taker
- Major production area

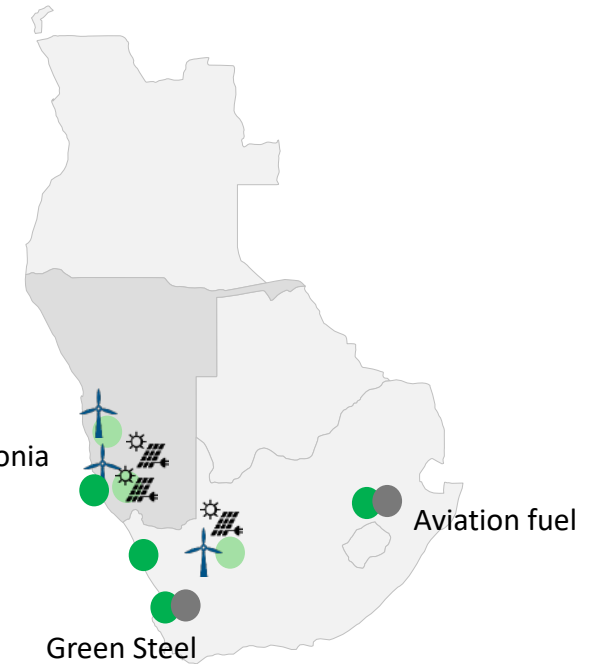
Hydrogen demand



Supply potential for low-cost hydrogen



Export hubs in Southern Africa



- Export hub
- Major off-taker
- Major production area

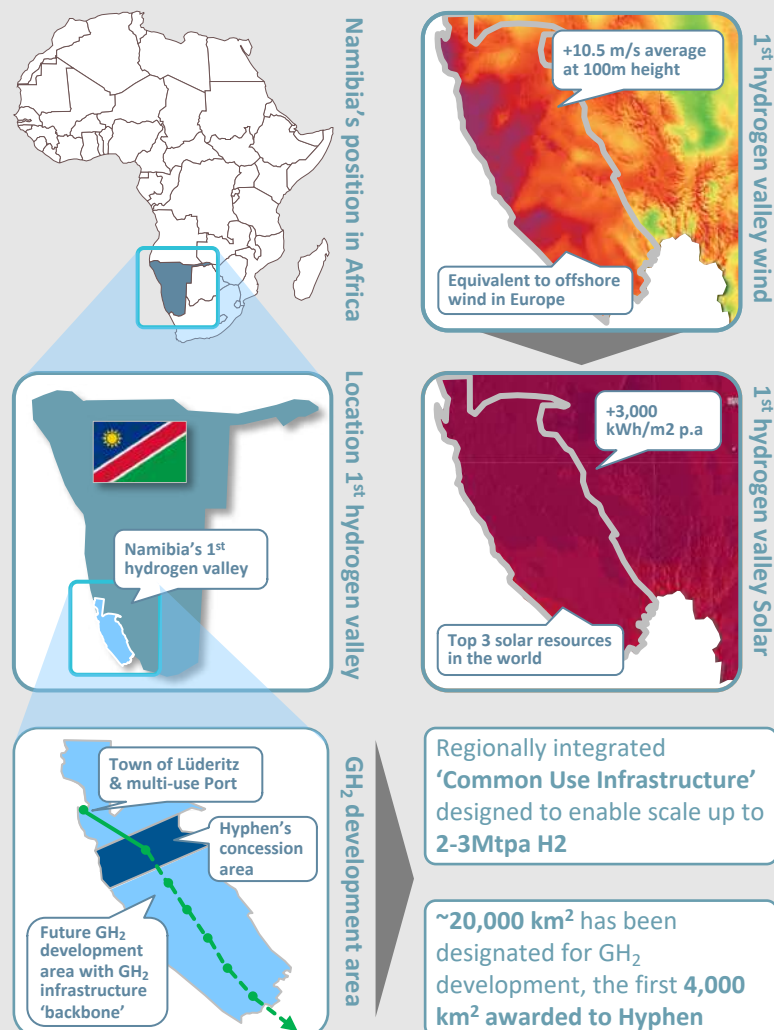
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Who is Hyphen?

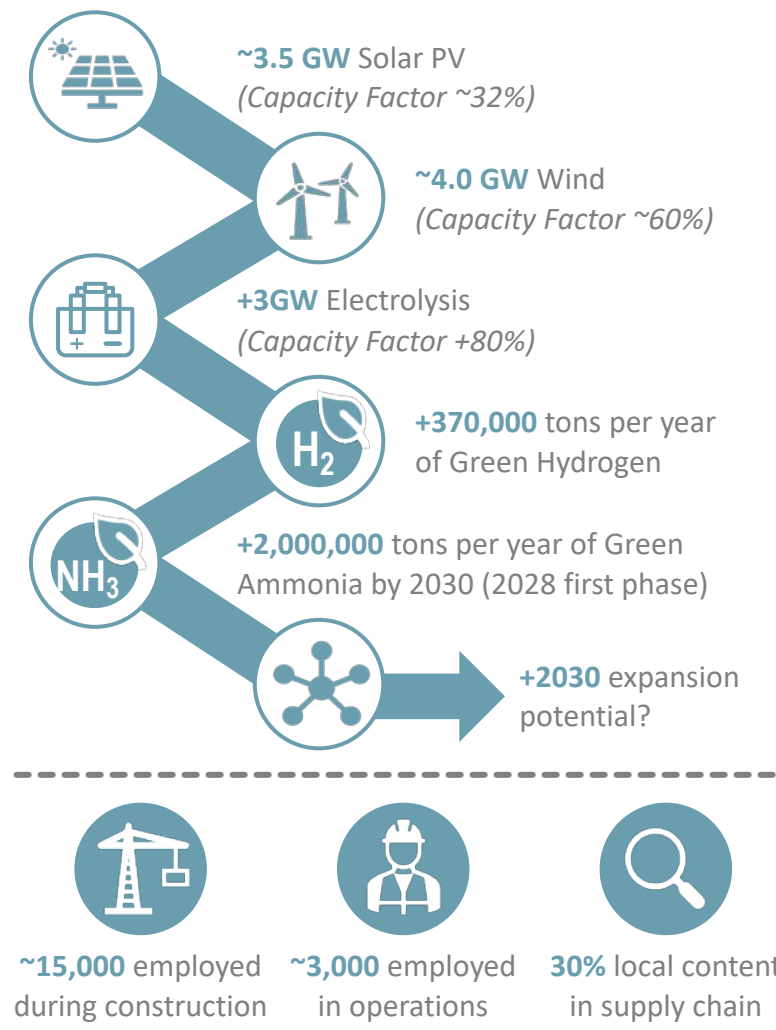
Project Hyphen: The first step in Namibia's GH₂ industrialisation



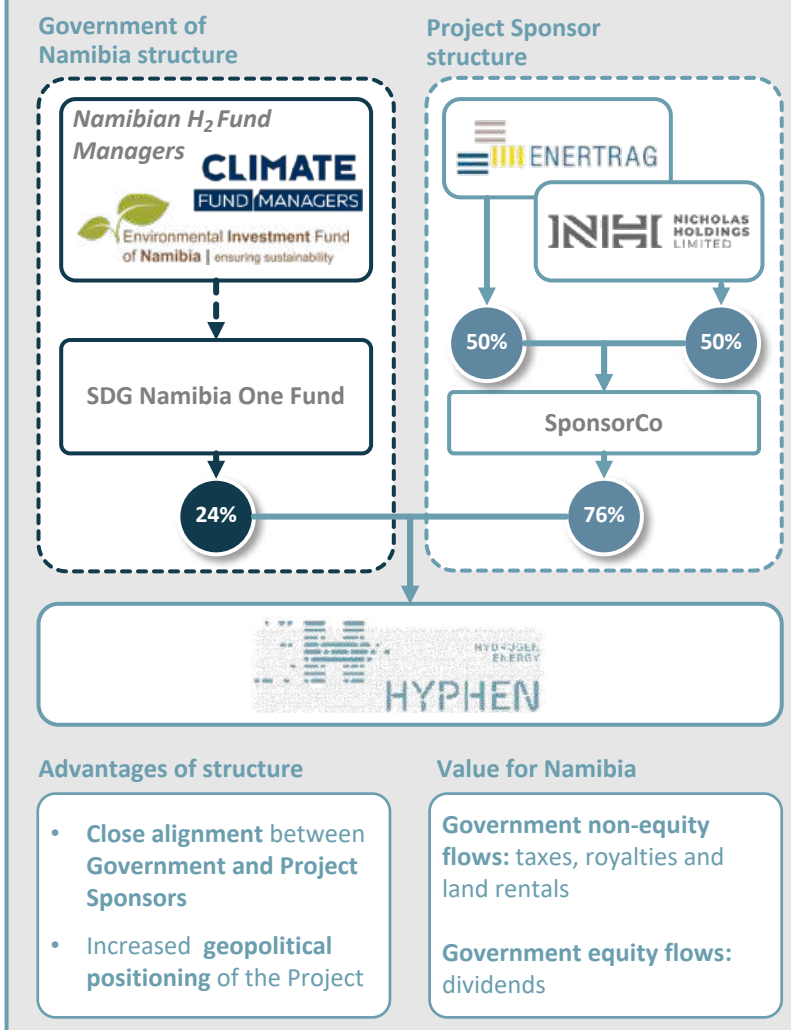
Namibia: one of the worlds best GH₂ production areas



Hyphen: fully integrated & one of the world's lowest cost



Ownership: a broad based equitable & sustainable model

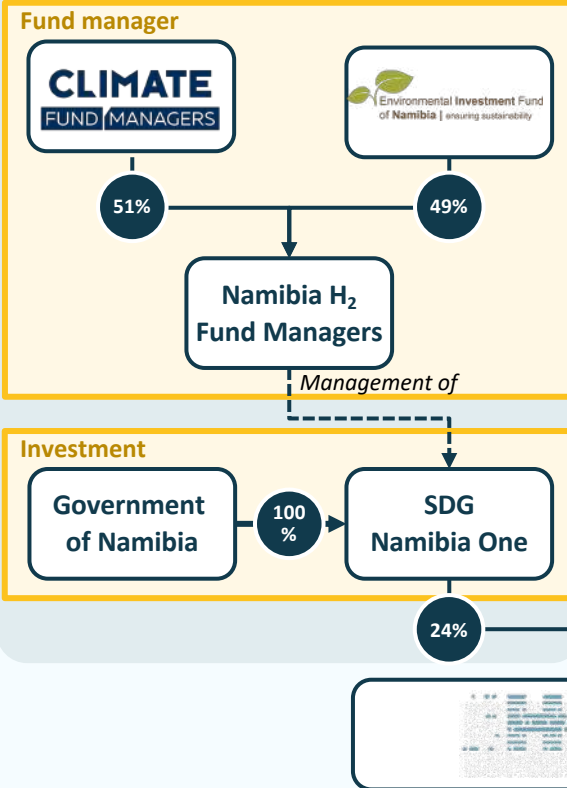


Government is 24% shareholder in the project

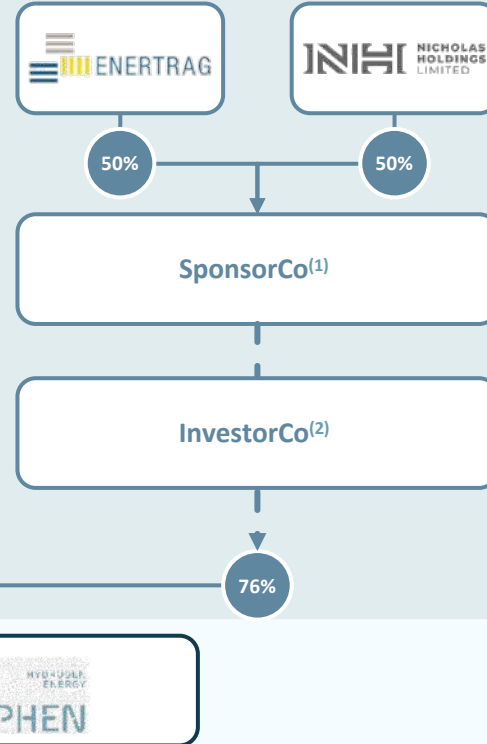
Government has established an independent professionally managed fund manager to manage its investment in Hyphen, with its equity interest owned via a sovereign wealth fund

Shareholders structure

Government Structure



Project Sponsor Structure



Key insights

- Namibia has established an independent professionally managed fund manager to manage its investment in Hyphen via its sovereign wealth fund, SDG Namibia One
- The fund manager is a joint venture between two climate focused fund managers:
 - International fund manager Climate Fund Managers, which is co-owned by the Dutch development financial institution, FMO, and insurance company, Sanlam (www.climatefundmanagers.com)
 - Environmental Investment Fund of Namibia, which was established under an act of the Namibian Parliament (www.eif.org.na)
- Government is currently the 100% equity shareholder of SDG Namibia One which shareholding is *pari passu* with Sponsors (no free carry)
- SDG Namibia One is fully funded up to Final Investment Decision (with €40m in grants from the Dutch development financial institution, Invest International) and has secured letter of intent from the EIB of up to €1bn to fund its GH₂ industry

Historical Hydrogen Industry and Project Governance Structure HYPHEN

Namibia's broader green hydrogen industry and the Hyphen project have benefited from the clear policy and strategic commitment of Government to the industry under an effective governance structure

Overview of the historical bipartisan governance structure



Green Hydrogen Council

- **Inter-ministerial, regional and executive council** with overall responsibility for broader hydrogen strategy and the Project
- **Bipartisan**, including representatives from across the political aisle and **leadership from the Southern region**



Joint Implementation Committee

- **Sub-committee of the GHC** tasked with more detailed Project execution as the primary line ministries
- The Green Hydrogen Programme reported to the Joint Implementation Committee and Green Hydrogen Council



FCC

- **Project working group committee**, the operation of which is defined in the Feasibility and Implementation Agreement



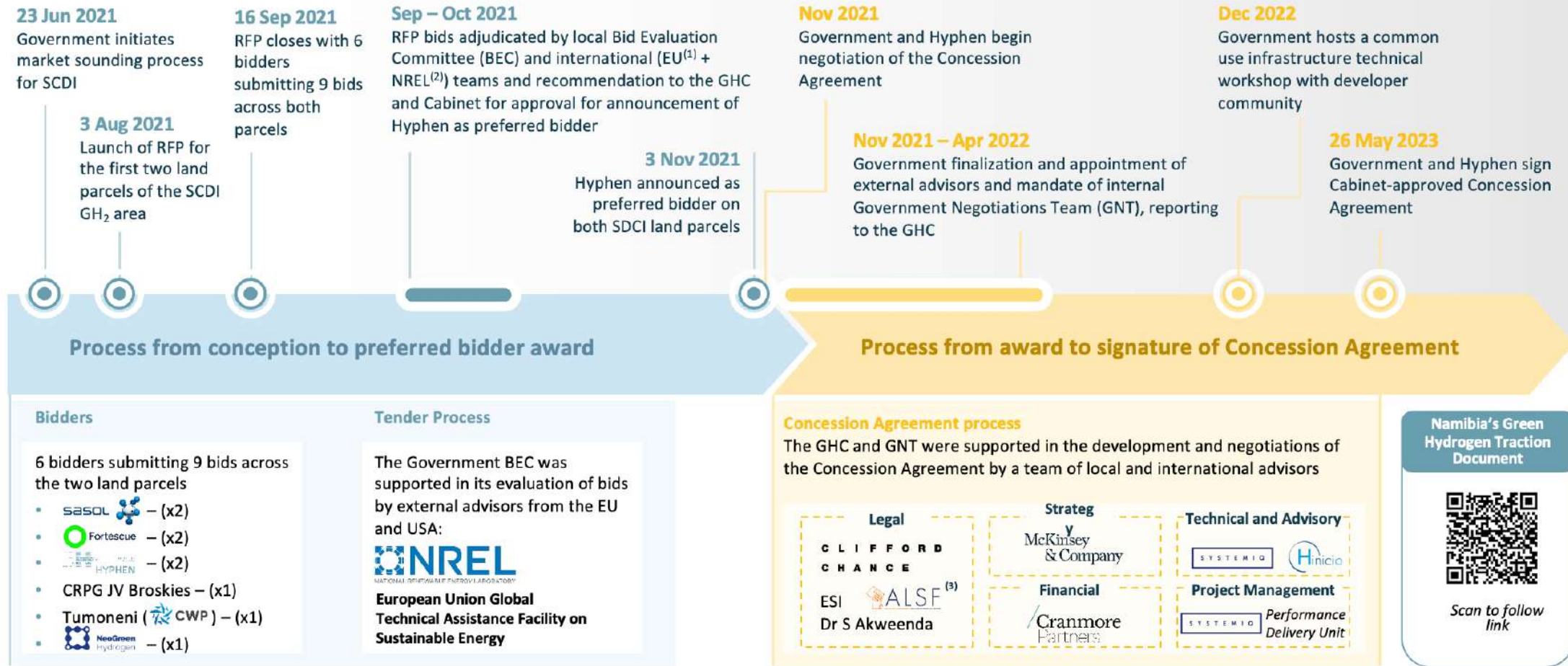
Namibian Green Hydrogen Programme

- **Programme established by Government** to oversee and coordinate at an operational level the **implementation broader green hydrogen strategy** and the **Project**

Hyphen won competitive tender to develop the project

Government utilized international experts throughout the process

May 2021 – May 2023 - Detailed tender, negotiations and market sounding process to conclude Concession Agreement



Sources: Company, Press

Notes: (1) European Union Global Technical Assistance Facility on Sustainable Energy (2) National Renewable Energy Laboratory of the US Department of Energy

(3) Also provided funding

Proudly Namibian team of >25 people across 2 offices



Windhoek office



Lüderitz office



Overall Project Development Well Advanced (1 of 2)

Significant advances following signature of the FIA, with Hyphen having spent ~€27m to end of May 2025, which excludes >€8m in shareholder costs

Early Project De-risking

- **Technical:** project uncertainty addressed through completion of early engineering studies and project now advanced into Front End Engineering Design (“FEED”)
- **Environmental:** baseline data collection completed, long lead time studies initiated, IFC commitment on boarded to work with the Project, GRN’s strategic environmental assessment initiated



Environmental specialists in the Tsau //Khaeb

Engineering

- **System Optimization Modelling:** led by ENERTRAG, independently verified by ILF, Siemens and Fraunhofer
- **FEED:** Completed Basis of Design, Block Flow, Process Flow Diagrams and Overall Layouts and FEED RFQ documents
- **Port Master Plan:** Completed, including bridging study for FEED & project cargo berth, plus >12m data collection for wind, wave, currents and bathometric survey (resistivity and jet probes)
- **Engineering:** Electrolyser Position, CUI route, Geotechnical, Construction Water



New Lüderitz Port Masterplan (Aug 24)

Project Capacitation

- **Offices:** Windhoek & Lüderitz offices established
- **Owner’s Engineer:** ILF appointed
- **Project team:** integrated team of over 60 people from Hyphen, owner’s engineer, and shareholders
- **Full time staff:** 25 people over two offices, with multiple roles in recruited (over 90% Namibians)
- **Project Management System:** up and running to ensure effective project management incl risk & schedule updates



Hyphen Windhoek office opening ceremony (May 23)

Met Mast Data Collection

- **Construction:** 10x new masts constructed in 2023 and 2024
- **Refurbishment:** 1x new measuring equipment on old mast purchased from NamPower
- **Official Inauguration:** Metmast campaign officially inaugurated by H.E. President Mbumba in April 2024
- **One year data collection:** by end of June 2025 Hyphen will have collected 1 full year of data from all 11 masts and final design of the windfarm will commence



Hyphen Met mast and construction teams (Oct 23)

Overall Project Development Well Advanced (2 of 2)

Significant advances following signature of the FIA, with Hyphen having spent ~€27m to end of May 2025, which excludes >€8m in shareholder costs

Procurement

- **RFI launched:** Request for Information (RFI) sent to ~40 potential OEMs/EPCs
- **Procurement Strategy & Procedures** developed, incl procurement structure. FEED RFQ packages finalized and on-going direct negotiations with two strategic FEED / EPC partners
- **RFQs launched:** FEED RFQs for Ammonia, Renewables & Electrolyzer issued, with remaining RFQ packages to follow in Q2/2025
- **Approved Vendor List (AVL):** List of OEMs for main components underway
- **FEED Contractual framework:** under development



Hyphen RFI issued to +40 EPCs (Nov 23)

Environmental Studies

- **Environmental Assessment Practitioner appointment:** Appointed international environmental consultancy, SLR
- **Baseline studies:** undertake to inform Project design (flora, fauna, herpetofauna and avifauna)
- **Long lead time studies:** in progress to ensure Project timelines met
- **IFC engagement:** Agreed IFC advisory scope to the Project
- **ESIA:** Registration of ECC application and 1st round of stakeholder engagement planned for Q3 2025



New Hyphen fleet vehicle being used by EIA team (Oct 23)

Socio-Economic Development

- **SED launch and roadshows:** Visited 12 of 14 regions nationally (+27 townhall meetings) to be concluded by end June 2025. Local Content Roadshow launched with visits to 3 regions
- **SED baseline studies:** Completed Workforce Competency and Planning Model & Value Chain Mapping. Launched Skills Census and ESD Plan in development
- **Town planning studies:** Provided town transformation specialist support to GRN via Salients consulting for Lüderitz & Aus town readiness assessment



Hyphen / GRN SED strategy kick-off workshop (Sep 23)

Commercial Development

- **Sovereign offtake support:** Hyphen advanced to final stage to be awarded strategic foreign project status in Germany in 2024
- **New German Government.** Engaging new BMW (Ministry of Economics & Energy) on Project specific Contract for Difference mechanism ("CfD")
- **Debt guarantees:** Euler Hermes (Germany), Atradius (Netherlands) and MIGA (World Bank) on commercial & political risk insurance
- **Offtake:** MoUs signed with potential clients from Europe (RWE), Japan (Itochu), Korea (Approtium), UK (confidential). Long list of target customers
- **Financing:** Concessional funding from reputable institutions in various stages of finalisation: DBSA (€6.7 million), EIB (€10 million) and AfDB (\$10 million)

3

Technical project overview and location

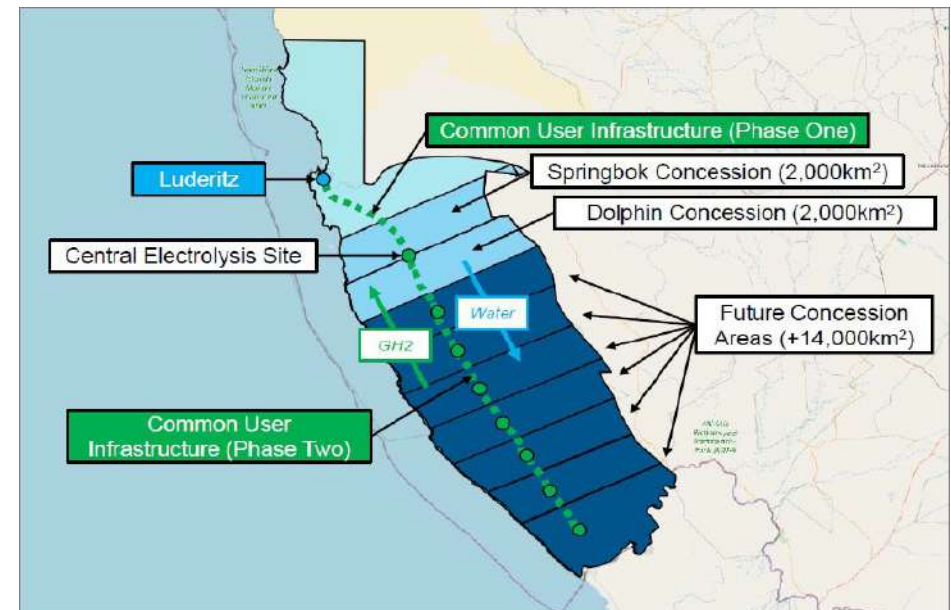
Hyphen project layout and SCDI

Conservative estimates¹

Hyphen Hydrogen is targeting a promising market: green ammonia



- Hyphen will produce green ammonia for export from the port of Lüderitz primarily to Europe, and possibly to other markets (Asia)
- As an illustration, this represents c. 50% of the current German ammonia production, which is currently made with Russian gas
- Hyphen will thus have a key role in ensuring security of supply for the EU



Ⓢ Springbok land parcel (2000 km²)

ⓓ Dolphin land parcel (2000 km²)

Ⓜ Angra Point Industrial Facility

Ⓛ Lüderitz town

Ⓢ Substation connecting to Nampower grid

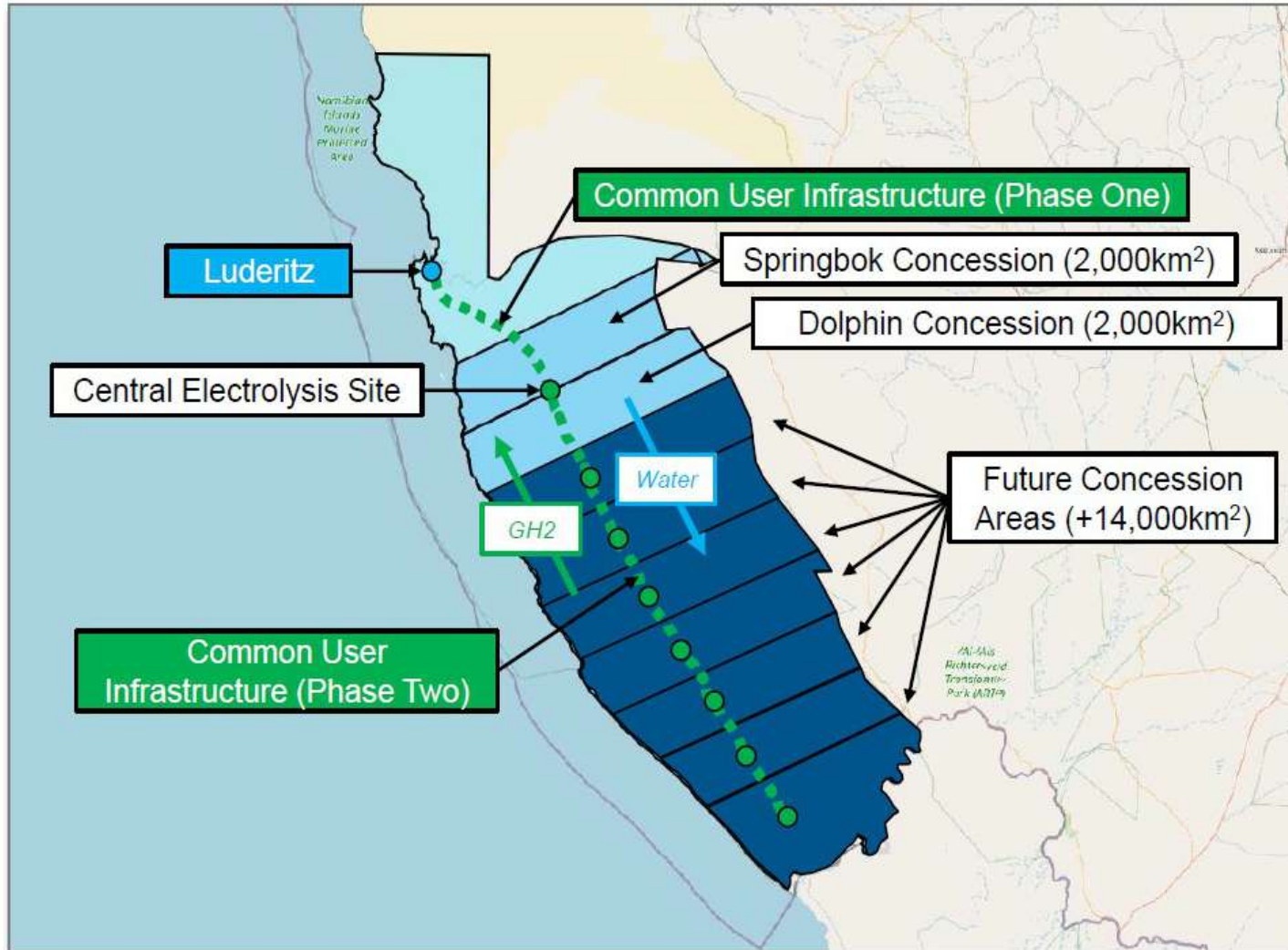
ⓔ Electrolyser Site

ⓐ Town of Aus

➡ Renewable Electricity
➡ Green Hydrogen
➡ Water

Note: (1) Engineering studies under way
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Hyphen to unlock SCDI potential through “CUI”



Common User Infrastructure (“CUI”) Corridor



*Green
Hydrogen
Gas
Pipelines*

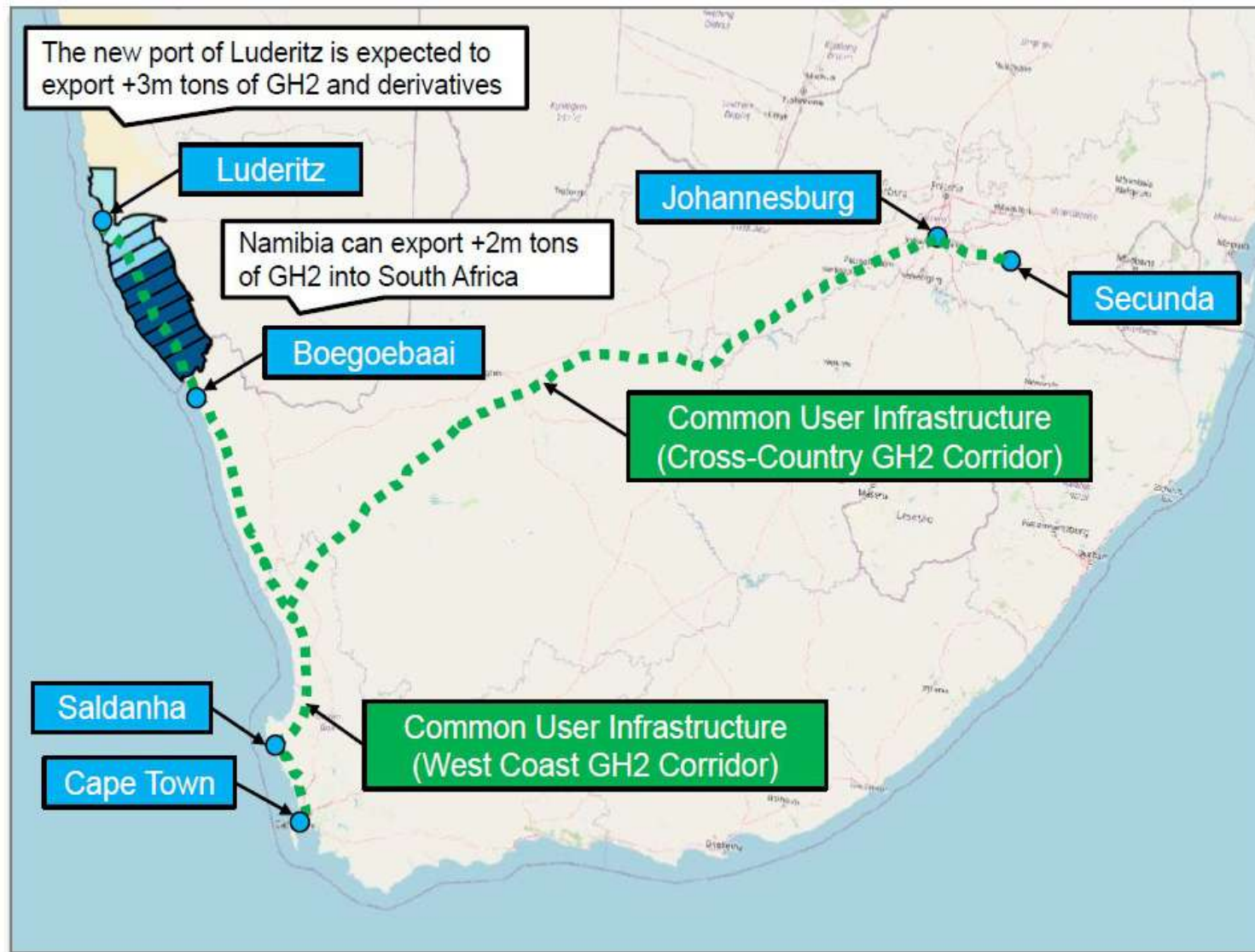


*Water
Pipelines*



*Transmission
Lines*

SCDI being planned to enable regional integration



Regional Common User Infrastructure ("CUI")



Green Hydrogen Gas Pipelines

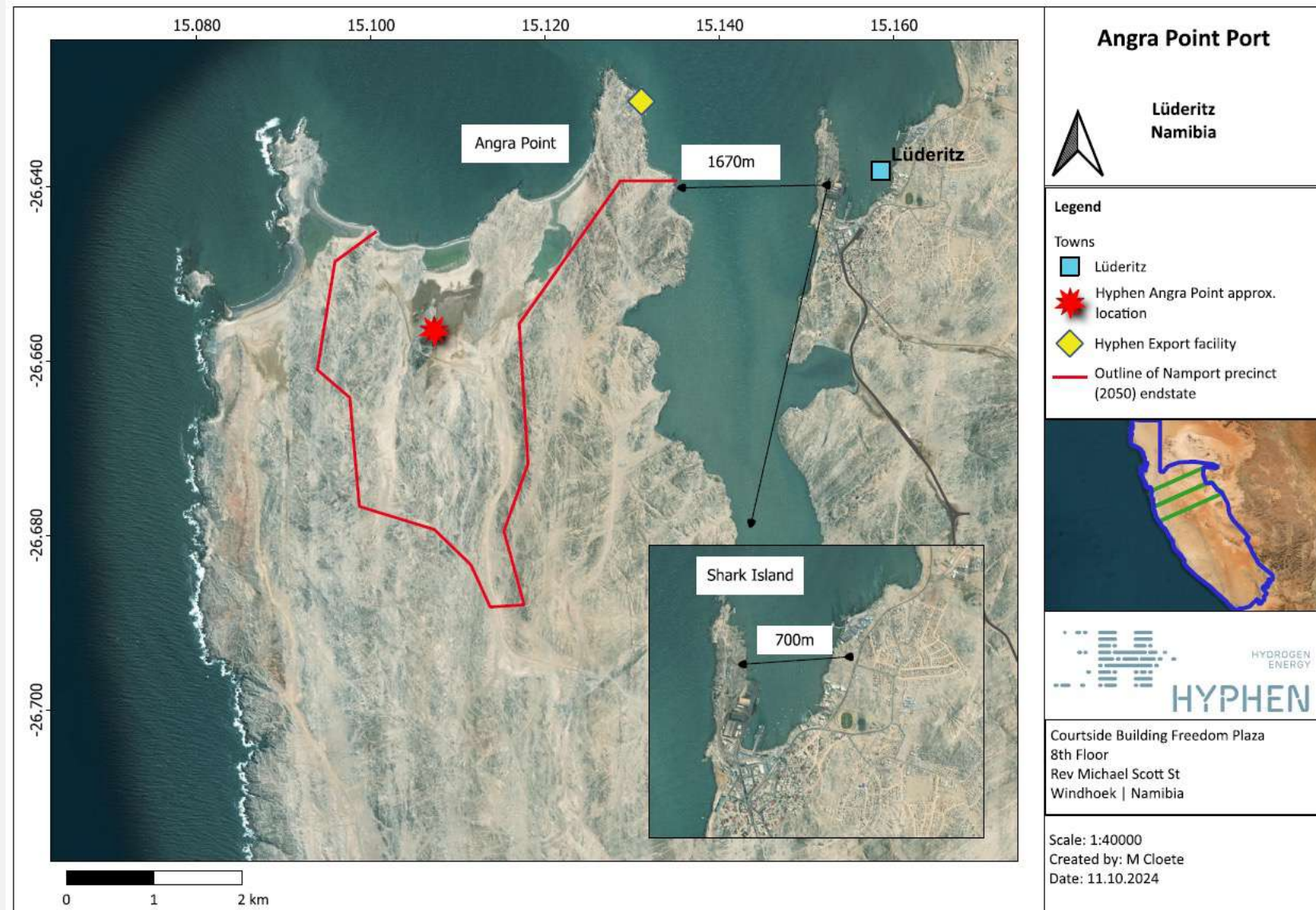
Transmission Lines



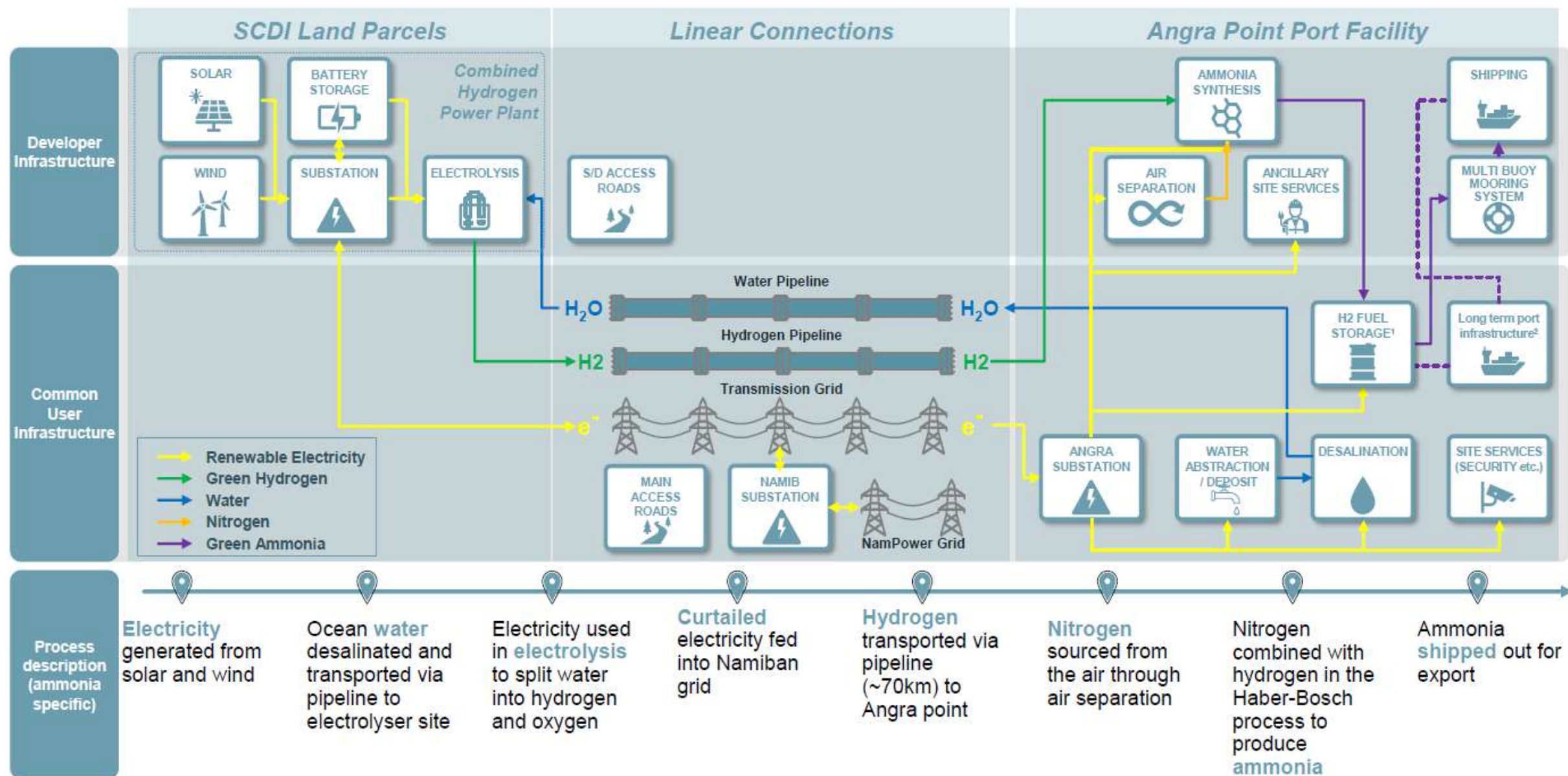
Namibia has the aspiration to fully unlock the world class GH2 potential of the SCDI National Park. The country will be able to export green molecules and excess electricity into South Africa via CUI corridors

Angra Point location for new port development

- Proposed location for the new port infrastructure for the importation of project cargo for the construction of the project and the location for the export of ammonia
- The location for the chemical and port industrial complex site (location of water desalination, ammonia production and storage and other cargos being targeted for export)

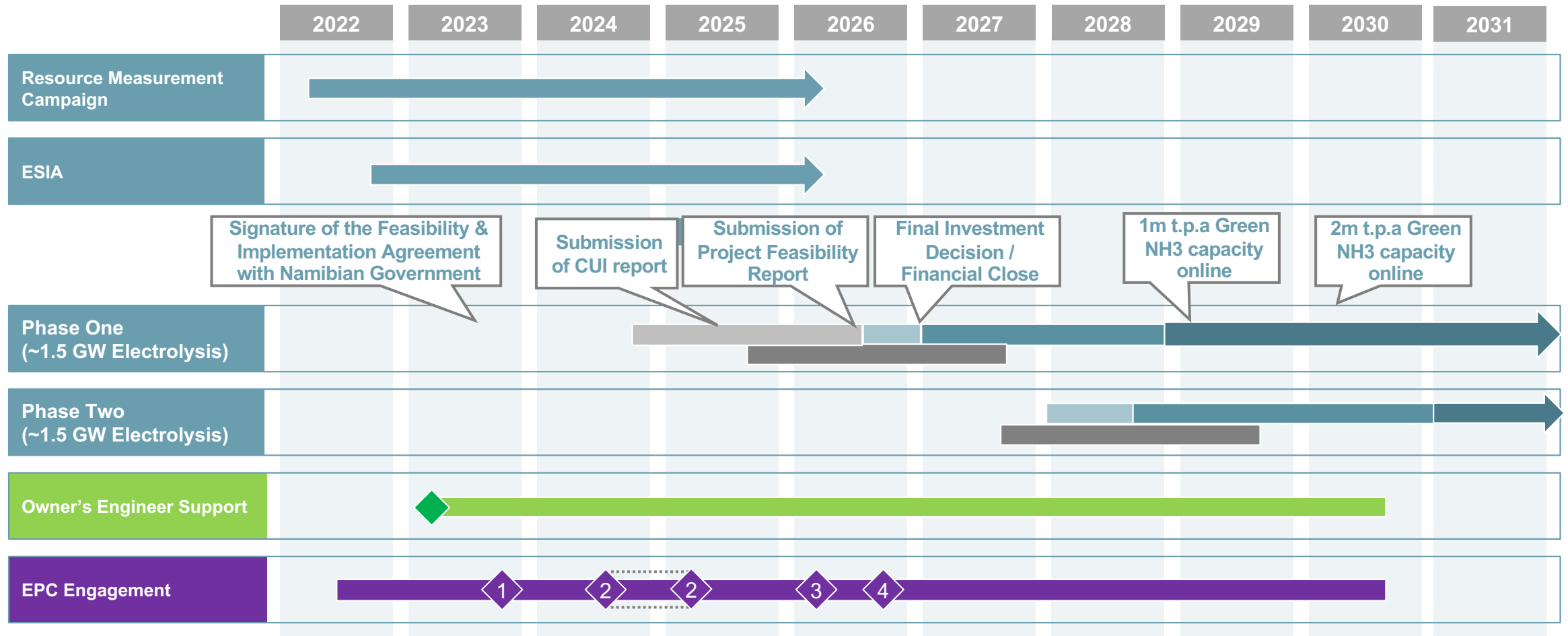


'Common User Infrastructure' will enable low-cost future projects



1. Could also store other synthetic fuels. The product stored as part of the first project is ammonia 2. Long term physical port infrastructure to be build in the future, with exact ownership and operating structure to be determined

Hyphen Timelines (High-level)



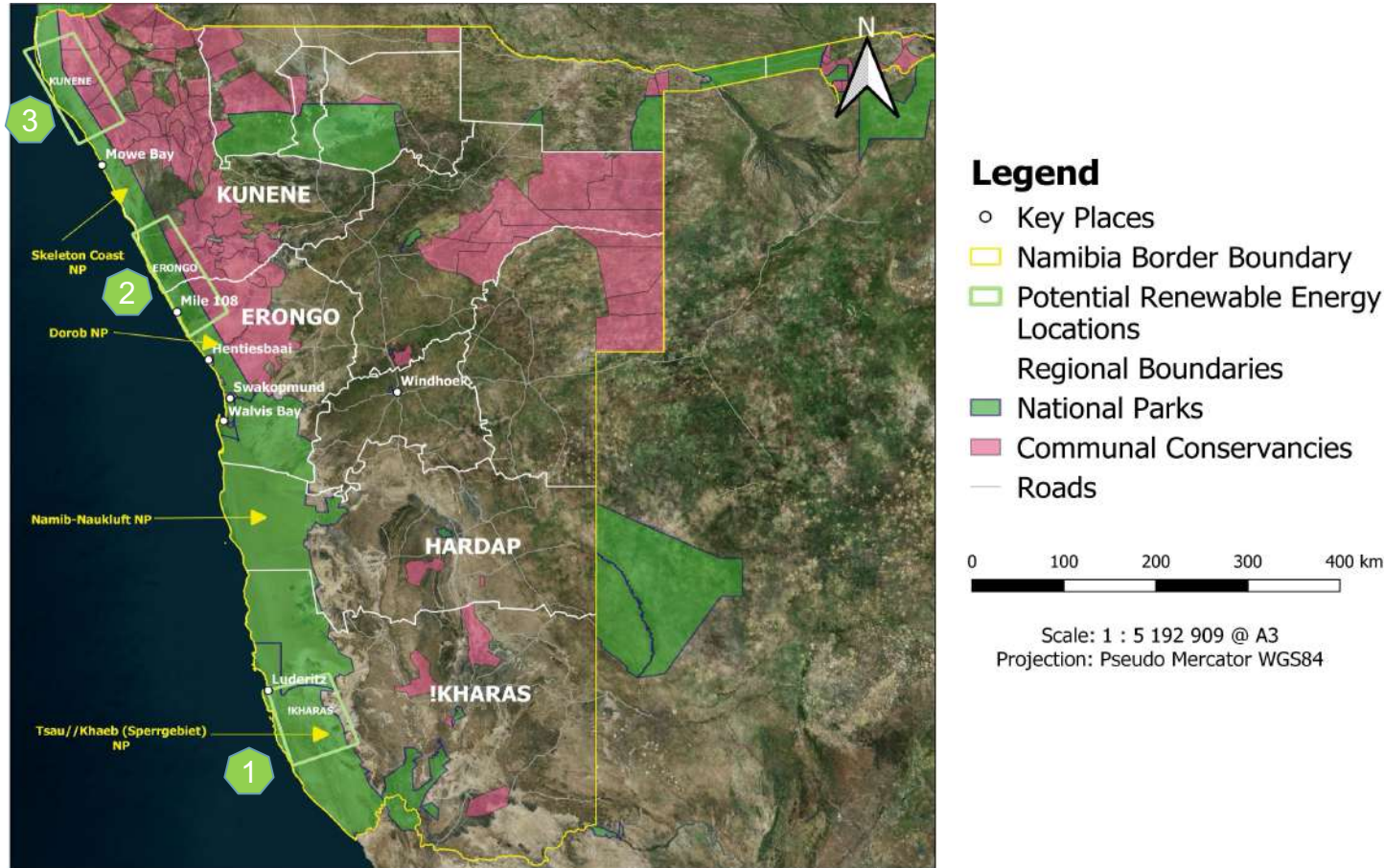
 Appointment OE
  FEED
  Detailed Design
  Mobilisation
  Construction
  Operations

 1 RFI to EPCs
  2 Selection of EPCs
  3 FEL3 Design
  4 Contract Award

4

Environmental de-risking

Environmental constraints unavoidable as ~42% of Namibia's landmass under conservation mgmt;
National Parks extend entire length of coast



Both Hyphen and the Namibian Green Hydrogen Council (GHC) **understand the complexities of biodiversity** in the Tsau //Khaeb National Park (TKNP)

Hyphen has prioritised the **Mitigation Hierarchy** to limit as far as possible the negative impacts on biodiversity

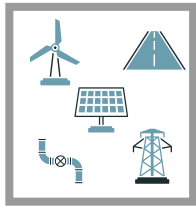
Hyphen with SLR and local specialists conducted site **alternative assessment**. The findings were shared with the stakeholder as part of the initial Stakeholder Engagement

All **first mover** alternative sites fall within **Protected Areas**

GHC has recognised that the **TKNP** holds significant potential to contribute to the development of the **green hydrogen industry in Namibia**, and is an extremely favourable location for a first mover in Namibia

Infrastructure design optimised to ensure smallest footprint

Preliminary



Worst case <3% of concession areas will be disturbed through **surface infrastructure footprint**

Total TKNP

Area
(ha)

2 175 000

Proposed
footprint as %

0.5%

Total Springbok & Dolphin concession

459 100

2.5%

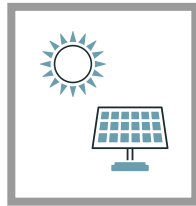
Proposed Springbok & Dolphin development areas

123 000

9.4%

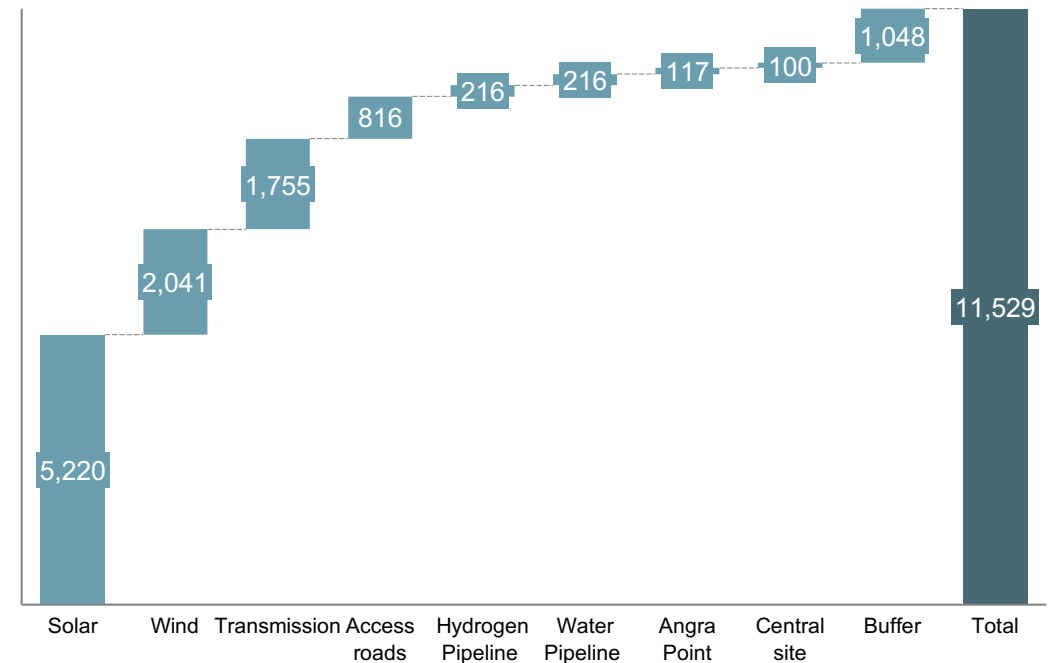
Estimated disturbed surface area from Hyphen Phase 1 & 2

~11,529



Solar infra accounts for **~1/2 of the total disturbed area**, and has therefore been located in the least environmentally sensitive zone of the TKNP

Breakdown of individual infrastructure footprints (ha)



Note: Central site consists of BESS, Buildings, Electrolyser, Control Systems; Angra point consists of Desalination, N2 plant, Ammonia plant, Ammonia storage; Buffer of 10% added to ensure estimate is conservative
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Socio-Economic Development

Socio-Economic Development Framework Overview



Hyphen is central to Namibia’s economic recovery plan and is aligned to Harambee Prosperity Plan II (HPP2) which aims to complement and accelerate the long-term goals for prosperity under Vison2030 and the NDPs

The project will bring unprecedented developmental impact and important co-benefits for Namibia (through taxes, royalties, land rentals, employment, local content, infrastructure, etc.)



1 The SED Framework incorporates mechanisms that will enable Government to provide meaningful input, exercise oversight and monitor compliance with the principles and objectives contained in the SED Framework

2 The SED Framework supports Government’s national social progression imperatives without compromising Project delivery

3 The SED Framework will be evolved into a comprehensive SED Strategy and Plan

NDP6 – Green Hydrogen Identified as Key Economic Enabler



SIXTH NATIONAL DEVELOPMENT PLAN (NDP6)

Fostering Economic Growth, Inclusiveness and Resilience for Quality Sustainable Development



Foreword to NDP6



Dr. Netumbo Nandi-Ndaitwah

President of the Republic of Namibia

June 2025

“I contend it is possible to **double the per capital GDP** income . . . **by 2030**, only if the **economy will grow at more that seven percent** per annum in real term.

The public sector investment in prioritised infrastructure and **surge in investment** in **oil, gas and green hydrogen** and its derivatives will serve as a **bedrock for further investment and inclusive economic growth.**”



Hyphen is the **SCDI's anchor project**, beneficiating renewable energy for export **as 2MTPA of green ammonia**, including **Common User Infrastructure**, with the project directly aiding in the achievement of NDP6 Desired Outcomes

Delivering NDP6 Priorities – Pillar 1 (Economic Recovery, Transformation, Inclusiveness & Resilience)



SIXTH NATIONAL DEVELOPMENT PLAN (NDP6)
Fostering Economic Growth, Inclusiveness and Resilience for Quality Sustainable Development



NDP6 selected goals & desired outcomes

Pillar 1: Economic Recovery, Transformation, Inclusiveness & Resilience:

Manufacturing – Increase production & export of value added products in the economy

Green Industries – Develop a cluster of green industries as new source of sustainable economic growth & employment

MSME's – To transform MSME's into productive, competitive & resilient business units of the Namibian economy

International Relations & Trade – Enhanced strategic international relations and economic growth

Transport & Logistics – A safe, reliable, affordable & sustainable transport infrastructure . . .

Energy Infrastructure – Increase local power generation . . . for improved electricity access and affordability . . .

Bulk Water Infrastructure – Develop and maintain bulk water infrastructure . . .

Hyphen supporting NDP6 & Desired Outcomes (DO)

Hyphen is the SCDI's anchor project, benefiting renewable energy for export as 2MTPA of green ammonia. DO: increasing the share of local manufacturing (0106), green base load electricity (0107) and assisting in meeting green job creation targets (0108).

Hyphen local content to support MSME's. **DO:** increase share contribution of MSME's to economy (0113)

DO: Increase in Foreign Direct Investment (0117) and increase in the value of exports (0118) by the project

The project will assist in the expansion of infrastructure and renewable energy generation to Namibia. **DO:** establishing 2MTPA of ammonia export capacity at new port (0122), increasing power generation and supply to NamPower (0124) to extend electricity supply to Namibians (0125) and establishing desalination in Lüderitz to extend bulk water supply to NamWater (0126)

Delivering NDP6 Priorities – Pillar 2

(Human Development & Community Resilience)



SIXTH NATIONAL DEVELOPMENT PLAN (NDP6)
Fostering Economic Growth, Inclusiveness and Resilience for Quality Sustainable Development



NDP6 selected goals & desired outcomes

Pillar 2: Human Development & Community Resilience

TVET & Skills Development – Skilled graduates aligned and responsive to industry demand

Research, Science, Technology & Innovation – ... RSTI system that contributes to achievement of socio economic objectives

Sport Development – Sport for sustainable socio economic development

Youth Development – Youth empowered for self-actualisation and reliance

Water & Sanitation – improved access to water . . .

Human Settlement – ... inclusive and sustainable human settlements

Hyphen supporting NDP6 & Desired Outcomes (DO)

TVET focus. Combine direct training & capacity / ecosystem building: **DO:** Contribution to graduates being equipped with skills aligned to demand (0212)

Support educational RSTI initiatives. **DO:** Contribution to RSTI investment through training (0216)

Support sports initiatives through our CSI initiatives. **DO:** Increase sports participation (0218)

Targeting 30% youth employment and MSME support. **DO:** Improved livelihoods of youth (0219)

Supply of water to NamWater to supplement Lüderitz supply. **DO:** Improved potable water access (0228)

Increase housing in Lüderitz for Hyphen staff & families. **DO:** Increased housing (0230)



Employment and Local Procurement were the only elements included by GRN in its RFP

Procurement Initial Employment and Procurement numbers were **good faith estimates**, and are subject to further **verification** during Feasibility Period

SED Elements

Hyphen and GRN have gone beyond legal requirements to design an SED framework that covers seven elements and ensures that the benefits and opportunities under this pioneering green hydrogen project are enjoyed by all Namibians throughout the country:



Transitioning SED Framework to IFC compliant SED Strategy & Plan

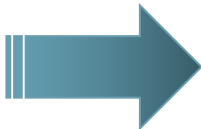
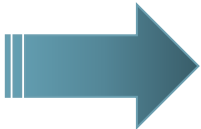


The SED Framework will be evolved into a **comprehensive SED Strategy and Plan** within 18 months of the FIA becoming effective



SED Framework

- 1 Employment
- 2 Local Procurement
- 3 Skills Development
- 4 Enterprise and Supplier Development
- 5 Supplementary Infrastructure
- 6 Corporate Social Investment (CSI)
- 7 Reporting, Monitoring & Evaluation



SED Strategy & Plan

- 1 Hiring Policy & Procedure
- 2 Local Content Plan
- 3 Skills Development Plan
- 4 Enterprise and Supplier Development Plan
- 5 Project Housing Strategy
- 6 Corporate Social Investment Plan
- 7 Reporting, Monitoring & Evaluation Protocols

6

Early Stakeholder Engagement Activities

Key Stakeholder Engagement Activities



SED FRAMEWORK LAUNCH

The SED Framework was launched in Keetmanshoop on 24 July 2023. Over 300 attendees included Ministers, Regional and Local Government officials, political and traditional leaders, civil society representatives, private sector, and youth. This marked the first release of the SED Framework booklet, translated into 8 indigenous languages, outlining the project's potential impact on Namibians through job opportunities, skills development, and local procurement.

NATIONAL ROADSHOW

The national roadshow started on 21 August 2023 in Windhoek after the launch of the SED Framework. This collaborative initiative between Hyphen and the GRN aims to tour all 14 Regions, educating local communities on Namibia's GH2 strategy, the project, and the benefits outlined in the SED Framework. To date, the roadshow has successfully visited multiple regions, including **Khomas, Hardap, //Kharas, Omusati, Oshana, Oshikoto, Ohangwena, and Kunene**, attracting hundreds of attendees across more than 20 town-hall meetings.



Key Stakeholder Engagement Activities... Cont.'



We've arranged and participated in a host of other stakeholder meetings including, but not limited to:

- ALAN collaboration in Lüderitz in March '24 with over 50 local authorities
- Event with Namibian State-Owned Enterprises' CEOs Gala Dinner in June '24
- Project and SED Framework info sharing session with local media in August '23
- Meetings with the Vaalgras community, and Nama Traditional Leaders in '23 & '24
- Regular progress meetings with Lüderitz Town Council and Constituency Council
- Hosted //Kharas Governor and Regional Council in Windhoek Office
- Meeting with the Baster Traditional Leadership
- Meeting with the Hardap Regional Education Director etc.

//KHARAS GOVERNOR



NAMA TRADITIONAL LEADERS



//KHARAS REGIONAL COUNCIL



BASTER TRADITIONAL LEADERS



LÜDERITZ MAYOR & LTC



MEDIA EVENT



HARDAP EDUCATIONAL DIRECTOR

LÜDERITZ CRAYFISH FESTIVAL



Key Themes emerge from FAQs encountered on Roadshow



During the SED roadshow townhall meetings, numerous questions were received from an array of stakeholders regarding the project and the SED framework. Several key themes have emerged reflecting some of people’s main concerns about the Project

What is the strategy for employing and ensuring the youth in the Karas region?	What platform was and will be used for scholarships?
How will the government enhance local people?	How will you ensure that the 20% youth employment requirement is met in all regions? What level of qualifications will be necessary for this allocation?
How do we ensure a fair and the Namibian workforce? Current group is represented.	Are individuals with lower academic scores and without degrees eligible for scholarships?
Should there be another Hydr Kunene to address poverty issues?	What is Hyphen's procurement policy?
What procedures and what criteria?	Do you have agreements with regarding graduate outputs to annual number of graduates a project?
	Will the government cover the costs associated with its stake and operational expenses?
	Can more Namibians be involved in shareholding, rather than outsiders owning 76% of Hyphen, with the government holding the remaining 24%?
	What distinguishes Hyphen from the Daures project?



Concerns regarding Distrust of GRN and Equity held



Appeals for CSI Support



Safety Worries Pertaining to GH2, Ammonia, and Brine Disposal



Appeals for Urgent Focus on Youth Opportunities and Support



Ensuring Fairness and Inclusion in Benefit Sharing



Appeals for Educational Assistance and Study Support



Prioritization of the South for Jobs and Skills



Transparency Issues and Fears of Being Left Behind



Fears about Corruption and Bribery



Appeals for Access to Affordable Electricity and Water

