

Boegoebaai Port, SEZ and Namakwa Region SEA

Working Group Meeting 1 Key Notes & Actions

Document version: Draft, 30 May 2024

Date: 23 May 2024

Time: 14:00 – 16:00

Platform: Microsoft Teams

Attendees: Appendix A

Purpose: To introduce the Strategic Environmental Assessment (SEA), provide an overview of the proposed development programme and present a broad scope of issues (themes) to be addressed.

Agenda:

1. Welcome and opening
2. Introduction to Working Group
3. Overview of the Northern Cape green hydrogen vision
4. Overview of the proposed Boegoebaai port
5. Approach to the SEA
6. Closure and next steps

Key Notes

1) **Welcome and opening:**

- The purpose of the meeting was outlined by the Chairperson, the role of the Chairperson highlighted, and Working Group (WG) principles of engagement defined.
- The meeting aimed to introduce the SEA for the Boegoebaai Port, Special Economic Zone (SEZ), and wider Namakwa Region development.

2) **Introduction and Overview of Working Group (Appendix B):**

- The WG composition was presented:
 - Current representatives drawn from national, local or provincial government departments, state agencies, research or academia organisations, non-governmental and community-based organisations, and industry or private sector.
 - Indication provided of where WG nominations were requested but no response had yet been received.
- The names of WG attendees in the meeting were read out, as per the MS Teams participants list (**Appendix A**).
- Attendees were encouraged to suggest other key institutions that should be included in WG formation via email to the Project Manager or via the survey shared.
- The purpose and expectations of the WG over the 18 – 24 month SEA process were outlined, emphasising the WG's role in attending virtual meetings, scoping stakeholder issues and concerns, referring the project team to important data, and engagement as it pertains to SEA document outputs and specialist studies.

3) Green hydrogen project overview (Appendix C):

- Presentation on the potential for a green hydrogen project in South Africa, focusing on the importance of Boegoebaai and the need for an SEA.
- Outlined the demand for green hydrogen in the country, the potential for renewable energy.
- Discussed the need to consider the cumulative effect of renewable energy and the SEA for responsible planning and stakeholder engagement.
- Highlighted the importance of local community involvement and providing information to potential investors for the green hydrogen project.
- A WG member enquired on the reasoning of building a hydrogen pipeline between Boegoebaai and Secunda, considering the associated risks, and whether it would not be more feasible to rather transport green electrons and water.
 - The benefits of a concentrated production approach, the challenges of transporting water and building a potential dedicated hydrogen pipeline between Boegoebaai and the highveld were explained.

4) Boegoebaai port development overview (Appendix D):

- An overview of the port development programme in terms of the planned project phases, the port as enabler for the South African green hydrogen strategy, and ongoing land acquisition process.
- Outlined the core commodities driving the development (i.e., manganese, green hydrogen, green ammonia commodities).
- Outlined the port layout in a phased approach in terms of construction (short and medium term).
- Highlighted the required infrastructure, including terminals, berths and stockpiling warehouses.
- Discussed the current focus of engagements with the landowner communities, as well as the commissioned socio-economic impact assessment study.
- A WG member elaborated on the strategic importance of green hydrogen within South Africa's Economic Reconstruction and Recovery Plan, highlighting its designation as a key sector in the 2021 plan and subsequent 2022 country investment strategy.
 - Key points included:
 - the necessity for government commitment and planning for green hydrogen production and infrastructure;
 - need for clear capacity targets for green hydrogen, green ammonia, and green methanol production and storage at port nodes;
 - a comprehensive vision for the Boegoebaai project detailing its phases and end goals, including market needs; and
 - effective planning requiring collaboration among various state-owned companies to build infrastructure serving national needs rather than individual project needs.
 - Emphasised that the real value out of the SEA is on a coordinated approach to developing the green hydrogen sector, integrating it into broader economic and infrastructural planning to maximise its potential benefits and ensure sustainable development.

5) Approach to the SEA (Appendix E):

- SEA Experience:
 - CSIR's experience in SEA processes was provided, including detailing CSIR's recent focus on the green hydrogen issue and undertaken research into the social and ecological impacts of a South African green hydrogen economy.
- Difference between SEA and Environmental Impact Assessment (EIA)
 - A comparison of SEA and Environmental Impact Assessment (EIA) was provided, emphasising that SEA is designed by stakeholders and aims to guide sustainability planning at different scales, while EIA is regulated, project-focused, and involves standard public participation.
 - Discussed differences in funding, spatial scale, time horizons, decision-making, consideration of cumulative impacts, methods, and level of stakeholder participation between SEA and EIA.
- Green Hydrogen Economy and Social-Ecological Impacts in South Africa
 - Provided an overview of the complexities and potential opportunities of developing a green hydrogen economy in South Africa, particularly in the Northern Cape region.
 - Emphasised the need for an integrated strategic-led approach to planning and decision making, considering the ecological impacts and the need to manage cumulative effects.
 - Discussed the social and ecological impacts associated with the green hydrogen economy, highlighting both the opportunities and concerns identified through research and surveys.
- Objectives and Work Packages of the SEA Process
 - Outlined the objectives of the SEA process, emphasising the assessment of social and ecological sensitivity, classification of regions based on multiple criteria, and the identification of strategic level constraints and opportunities.
 - Introduced the two Work Packages (WPs) of the SEA process: WP 1) focusing on the sensitivity of the local receiving environment i.e., port and SEZ, and WP 2) a broader scale approach for the wider Namakwa region, including scenarios and risk-based assessment.
 - Outlined the local scale and regional scale issues (i.e., specialist studies) that will be considered by expert teams for WP 1 and WP 2, respectively.
 - Presented pre-identified expert teams who were suggested by various organisations and agencies.
 - WP 1 entails:
 - a desktop screening exercise, inclusive of site sensitivity verification and field work to report on the sensitivity of the receiving environment.
 - producing sensitivity maps and inform the port and SEZ layouts.
 - informing biodiversity offset planning.
 - provide guidance on sustainable port planning for consideration following the SEA process.
 - WP 2 entails:
 - a scenarios and risk-based approach:

- drawing from provincial and national planning with regards to green hydrogen in the Northern Cape.
- a multi-layer GIS suitability mapping in terms of identifying regions more or less suitable for development.
- identifying impacts across the different scenarios.
- at a broad level, assessing opportunities and risks and making recommendations around management actions.
- the results will inform national planning and green hydrogen policy, as well as regional and local planning.

6) **Stakeholder engagement and project schedule (Appendix E):**

- An elaborate governance and stakeholder engagement strategy has been developed to ensure the SEA engages with stakeholders and incorporates their views, consisting of various groups and tools.
 - Project Steering Committee (PSC):
 - consists of the project partners (SANEDI, NCEDA & TNPA).
 - WG:
 - Consisting of experts and individuals representing organisations with an interest in the Northern Cape, its socio-ecological system and future development prospects.
 - Contributing expertise, data and disseminating information and outputs from the SEA process.
 - CSIR project team:
 - Managing and integrating the SEA process.
 - Expert teams:
 - Undertake the assessments and reporting.
 - Present plan of studies and findings, for the respective themes, to the WG as needed.
 - Main repository for SEA information and outputs will be on the project website (<https://csir.co.za/boegoebaai-port>).
 - Available outputs will be open to comment through the WG and to stakeholders during comment windows.
 - Local briefings at draft SEA report phase:
 - One public briefing in Cape Town coordinated by CSIR.
 - Regional public engagements will be facilitated and carried out by NCEDA in the 4 local municipalities.
- Highlighted the project schedule, mentioning specialist studies will be initiated shortly and the release of Work Package 1 and Work Package 2 reports in quarter three of 2025 and early 2026, respectively.

7) Key feedback / discussion points:

- Several members provided feedback on the availability of data (or data that will soon be available) that would be valuable to the SEA and can be sourced from their organisations or departments, including suggesting other organisations to source data from:
 - updated data on sensitivity of the area through Alexkor RMC JV.
 - accurate data from SANBI through a data sharing process.
 - coastal areas data (i.e., ecological data, marine quality, storm surges, marine hydrology etc) from DFFE: Oceans and Coasts.
 - fisheries data via DFFE: Fisheries Research and Development.
 - revised CBA map data (final version will be available within a month) from DAERL.
- A comment was made that, as part of the programme planning, it is important that the flora field surveys are conducted within the suitable flowering season for that area.
- The importance of including a botanist on the specialist expert teams, with detailed experience in the succulent Karoo and desert biomes was emphasised.
- A comment was made that it is understood why WP 2 will be a desktop exercise and noted there could be benefits to having a specialist conduct high-level ground truthing in some cases. It was enquired whether there is any intention to include provisions for this in biodiversity assessments.
 - It was stated there are no foreseen issues with conducting additional ground truthing, as field visits to the 33,000 hectares port and SEZ region are already planned. The process will be open to further ground truthing if it fits within time and budget constraints.

8) Next Steps and Survey:

- Updates on the next steps for the project were provided, including drafting notes from the meeting and setting up expert teams.
- The WG members were also urged to fill out a two-question survey <https://forms.office.com/r/MsaHPyW62t>*:
 1. Members’ main interest and what they hope to contribute to the Boegoebaai SEA
 2. Any other recommendations for key institutions to be included in the Working Group

*Note that this survey remains open to WG members to complete till end June 2024. Responses are invited and encouraged.

Key Actions

Action	Responsibility
1. Compile WG meeting notes of key issues and action items (these notes)	CSIR
2. Publish WG meeting notes on the project website for WG and stakeholders to access	CSIR
3. WG members to complete survey or email CSIR for any other key institutions to be included in the Working Group	WG
4. Consolidate feedback on composition of the WG and members’ main interest/contribution to the Boegoebaai SEA for input into process:	CSIR

Action	Responsibility
a. Reach out to recommended additional contacts to request WG nominations. b. Consider members' input in SEA process, information sharing and bilateral engagements as needed.	
5. Plan for flora surveys to be undertaken in July/August – suitable season for species in the area (winter rainfall area)	CSIR
6. Data collation	
a. Obtain updated data on sensitivity of the area (LiDAR imagery)	CSIR > Alexkor RMC JV
b. Initiate data sharing agreement process to acquire accurate data from SANBI	CSIR > SANBI
c. Obtain coastal areas data (such as marine ecology data) from DFFE: Oceans and Coasts and contact DFFE: Fisheries Research and Development for fisheries data	CSIR > DFFE
d. Obtain revised CBA map data (final version will be available within a month) from DAERL	CSIR > DAERL
7. Specialist assessment planning and appoint expert teams	CSIR
8. Arrange 2 nd WG meeting for August 2024 (<i>the actual date and time of the meeting will be communicated to the WG a month prior to the meeting</i>)	CSIR
9. Specialists to present their plan of study for each theme at 2 nd WG meeting for discussion	Expert teams

Appendix A: Working Group meeting 1 attendance

Organisation	Name and Surname
Council for Scientific and Industrial Research (CSIR)	Paul Lochner
	Greg Schreiner
	Luanita Snyman-Van der Walt
	Lizande Kellerman
	Babalwa Mqokeli (Project Manager) Abulele Adams (Chairperson)
Northern Cape Economic Development Trade and Investment Promotion Agency (NCEDA)	Hendrik Louw
	Shawn Modise
	Walter Venter
South African National Energy Development Institute (SANEDI)	Jainy Thomas
	Anza Tshirame
	Mandisa Nkosi
	Themba Mokoena
Transnet National Ports Authority (TNPA)	Thulisa Zukulu
	Jabulani Maluleke
Department of Forestry Fisheries and Environment (DFFE): Climate Change and Air Quality Management	Hendrik Louw
DFFE: Oceans and Coasts	Gerhard Cilliers
DFFE: Integrated Environmental Authorisations (IEA)	Sindiswa Dlomo
Department of Science and Innovation (DSI)	Cosmas Chiteme
	Mandy Mlilo
Department of Trade, Industry and Competition (the dtic) (via the Green Hydrogen Panel)	Mike Levington
Department of Water and Sanitation (DWS): Northern Cape Region	Bennie Viljoen
Infrastructure South Africa: Provincial Lead	Avik Singh
Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL)	Elsabe Swart
	Louise Geldenhuys
Namakwa District Municipality	Gareth Cloete
Richtersveld Local Municipality	Lara Young
Nama Khoi Local Municipality	Judy Hollenbach
South African Heritage Resources Agency (SAHRA)	Natasha Higgitt
South African National Parks (SANParks)	Jeffrey Manuel
South African National Biodiversity Institute (SANBI)	Tsamaelo Malebu
Wilderness Foundation Africa (WFA)	D'Reull de Beer
Endangered Wildlife Trust (EWT)	Zanne Brink
	Oscar Mohale
World Wide Fund for Nature (WWF)	Katherine Forsythe
BirdLife South Africa	Samantha Ralston-Paton
Richtersveld Sida !Hub	Nicodemus Swartbooi
The African Climate Foundation	Godrej Rustomjee
South Africa Wind Energy Association (SAWEA)	Siyabonga Mhlongo
SLR Consulting	Stephan Van Den Berg
Zutari	Reuben Heydenrych
Desalination Community of Practice	Dawid Bosman
Alexkor, Richtersveld Mining Company and Joint Venture (Alexkor RMC JV)	Leilani Swartbooi



Appendix B: Introduction and Overview of Working Group (including next steps) presentation

Strategic Environmental Assessment

for the Boegoebaai Port, Special economic Zone and Namakwa Region



WORKING GROUP MEETING #1



23 May 2024
14:00 – 16:00
Microsoft Teams



Agenda

Item/Status	Timeslot	Presenter
1 Welcome and opening	14:00-14:10	Abulele Adams • Director of International Association of Impact Assessment (IAIA) Board
2 Introduction to Working Group	14:10-14:20	Babalwa Mqokeli • SEA Project Manager Council for Scientific and Industrial Research (CSIR)
3 Overview of the Northern Cape green hydrogen vision	14:20-14:40	Hendrik Louw and Shawn Modise • Acting CEO & Acting Project Management Executive Northern Cape Economic Development Agency (NCEDA)
4 Overview of the proposed Boegoebaai port	14:40-15:00	Thulisa Zukulu • Programme Manager: Ports Transnet Ports Authority (TNPA)
5 Approach to the SEA	15:00-15:50	Greg Schreiner • SEA Advisor CSIR
6 Closure and next steps	15:50-16:00	Paul Lochner • SEA Project Leader CSIR

Welcome and Opening

– Purpose of 1st Meeting :

- Introduce the Strategic Environmental Assessment (SEA).
- Outline the purpose and role of the Working Group (WG).
- Provide an overview of the Boegoebaai port, SEZ and regional development programme.
- Discuss the approach to the SEA.
- Discuss the process over the next 18 – 20 months and what is expected from the WG.

– Chairperson's role:

- Facilitate the meeting – check that we get through the agenda.
- Ensure fairness and balance in participation.
- Presiding as a Director of International Association of Impact Assessment (IAIA).
- Chairperson is not part of the Project Team.



Welcome and Opening

– Working Group Principles of Engagement :

- Members **encouraged to engage with their constituencies** before and after WG meetings (two-way information flow).
- Everyone will be provided an **opportunity to ask questions, in a fair and balanced manner** (raised hands & acknowledged by Chairperson).
- **May be called upon (on a voluntary basis) to present relevant data/information** as applicable.
- Chairperson will politely and respectfully guide lengthy presentations or repetitive discussions to keep meetings on track and within the allotted time.
- Members can resign from the WG at any time and nominate their replacements.





Project Steering Committee



National Government

- Forestry, Fisheries & Environment
- Science & Innovation
- Trade, Industry & Competition
- Water & Sanitation



Provincial Government

- Office of the Premier
Economic Development & Tourism
Agriculture, Environmental Affairs,
Rural Development & Land Reform
- Social Development
 - Roads and Public Works
 - Cooperative Governance, Human Settlements and Traditional Affairs



District & Local Government



WORKING GROUP



Industry / Private Sector



NGOs & Research Organisations

- Richtersveld Sida !Hub



- Desalination Community of Practice



- Vrywillige Vooraf en Voortdurende Ingeligde Toestemming (VVVT)

- Communal Property Associations



Statutory Bodies



WORKING GROUP

Project Steering Committee



South African National Energy Development Institute (SANEDI)

Sampson Mamphweli, Jainy Thomas, Anza Tshirame/Themba Mokoena



Northern Cape Economic Development Trade and Investment Promotion Agency (NCEDA)

Walter Venter, Shawn Modise, Hendrik Louw, Napo Ramabina



Transnet National Ports Authority (TNPA)

Thulisa Zukulu, Magenthran Ruthenavelu, Jabulani Maluleke

National Government



**Department of Forestry Fisheries and the Environment (DFFE)
Chief Director: Integrated Environmental Authorisations**

Sabelo Malaza

DFFE Director (Acting): IEA Strategic support, co-ordination, and reporting

Sindiswa Dlomo

DFFE: Control Environmental Officer Grade A

Muhammad Essop

DFFE: Director: Appeals & Strategic Environmental Instruments

Simon Moganetsi

DFFE: Specialist: Policy Support and Strategic Programme implementation

Dr Dee Fischer

DFFE: Fisheries Research and Development

*Dr Stephen Lamberth**

DFFE: Climate Change and Air Quality

Hendrik Louw / Jongikhaya Witi

DFFE: Oceans & Coast

Dr. Gerhard Cilliers

Department of Trade, Industry and Competition (via the Green Hydrogen Panel)

*Mike Levington**

Department of Science and Innovation (DSI)

Dr Cosmas Chiteme / Mandy Mlilo

Department of Water and Sanitation (DWS) (Northern Cape Region)

Bennie Viljoen

** Confirmation pending*

WORKING GROUP



Provincial Government

- 
Premier
Department
Office of the Premier
PROVINCE OF THE NORTHERN CAPE
- 
economic development & tourism
Department:
Economic Development & Tourism
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA
- 
agriculture, environmental affairs,
rural development and land reform
Department:
agriculture, environmental affairs,
rural development and land reform
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA
- 
social development
Department:
Social Development
NORTHERN CAPE
- 
the dr&pw
Department:
Roads And Public Works
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA
- 
COGHSTA
Department:
Cooperative Governance, Human Settlement
and Traditional Affairs
Northern Cape Province

District & Local Government

- 
Namakwa District Municipality
- 
**MUNISIPALITEIT
RICHTERSVELD
MUNICIPALITY**
- 
**Nama Khoi
LOCAL
Municipality**
- 
**KAMIESBERG
MUNICIPALITY**
"going beyond from mountains to share"
- 

Office of the Premier

*Dr Zamani Saut**

Department of Economic Development and Tourism (DEDAT)

*Lesole Dichaba / Ursula Ngomane / Thandiwe Modibela / Johann van Schalkwyk**

Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL)

Elsabe Swart / Louise Geldenhuys /Natalie Uys

Department of Social Development (DSD)

*Ichabod Manyane**

Department of Roads and Public Works (DRPW)

*Rozelle Sass**

Department of Cooperative Governance, Human Settlements and Traditional Affairs

*Bafidile Lenkoe**

Namakwa District Municipality

*Sydney Adams / Gary Cloete**

Richtersveld Local Municipality

Lara Young

Nama Khoi Local Municipality

*Jan Swartz**

Kamiesberg Local Municipality

*Rufus Beukes**

Khai-Ma Local Municipality

Mr Green

** Confirmation pending*

WORKING GROUP

Statutory Bodies



NGOs/CBOs & Research Organisations

South African Heritage Resources Agency (SAHRA)

Natasha Higgitt

Eskom Distribution

*Ronald Marais**

South African National Parks (SANParks)

Jeffrey Manuel / Martha Theart

South African National Biodiversity Institute (SANBI)

Domatilla Raimondo / Tsamaelo Malebu

Wilderness Foundation Africa

D'Reull de Beer

Endangered Wildlife Trust (EWT)

Zane Brink

World Wide Fund for Nature (WWF)

*Katherine Forsythe**

Birdlife South Africa

Samantha Ralston-Paton

University of Cape Town

*Merle Sowman**

The African Climate Foundation

Godrej Rustomjee

Richtersveld Sida !Hub

*Annemarie de Wet**

Communal Property Associations

*Nicodemus Swartbooi / Annemarie de Wet**

Vrywillige Vooraf en Voortdurende Ingeligde Toestemming (VVVT)

*Shereen Fortuin**

** Confirmation pending*

WORKING GROUP

Industry /
Private
Sector



South Africa Wind Energy Association (SAWEA)

Nombukiso Ntshalintshali



South African Photovoltaic Industry Association (SAPVIA)

*Norman Moyo**



SLR Consulting

Stephan Van Den Berg



Zutari

Reuben Heydenrych



Alexkor, Richtersveld Mining Company and Joint Venture (Alexkor RMC JV)

Leilani Swart Booï / Deon Bowers / Wayne Losper



De Beers Namaqualand Mines

*Innocent Mabusela**



Vedanta

*Ritu Jhington**

Desalination Community of Practice

Dawid Bosman

* Confirmation pending

Introduction to Working Group

– Purpose of the WG:

- Pool of **experts with technical expertise and in-depth sectoral and local knowledge** which can be drawn upon at certain intervals.
- Information channel - each member will act as **liaison between their constituency and SEA process**.



– What is expected from members?

- **Attend virtual workshops** on a ~ quarterly basis.
- **Scope important stakeholder issues and concerns.**
- **Disseminate** important SEA information.
- **Refer the project team to important data.**
- **Review draft documents.**



Introduction to Working Group

– Purpose of *THIS* 1st Meeting:

- Introduce the SEA, an overview of the proposed development programme & present broad scope of issues (themes) to be addressed

– Expectations over the next 18 – 20 months:

- ~ 8 engagements throughout SEA + bilateral engagements as needed.
- Appoint team of experts (Co-authors/Specialists).
- Scoping exercise at 2nd meeting to discuss each study/theme.
 - Specialists to present their plan of study at this meeting for discussion.
- Discuss draft specialist findings (~4th meeting).
- Public briefings at Draft SEA reports phase (~Oct '25):
 - One in Cape Town (coordinated by CSIR).
 - Regional engagements at the 4 affected Municipal areas (coordinated by NCEDA).



<https://www.menti.com/alkwyymkrqby>

What is your main interest and what do you hope to contribute to the Boegoebaai SEA?

Who else should be in the room? (Who else should be represented in the WG?)



WG input -

Closure and next steps

- CSIR to draft WG meeting notes of key issues and action items
- Meeting notes published on the project website for all to access.
- Members to email CSIR for any other key institutions to include to WG.
- Planning and appointment of Specialists by ~ June/July '24
- Scoping exercise at the 2nd WG meeting (~ mid/end August '24)

Other actions (to be captured during the meeting)

Closure and next steps

- Captured during the meeting:



Thank you



Project Website:
www.csir.co.za/boegoebaai-port



SEA email: ems@csir.co.za

CSIR Project Team:

Babalwa Mqokeli <BMqokeli@csir.co.za>

Gregory Schreiner <GSchreiner@csir.co.za>

Luanita Snyman-van der Walt <LvdWalt1@csir.co.za>

Paul Lochner <PLochner@csir.co.za>



Appendix C: Green hydrogen project overview presentation



Northern Cape: The road to the sun

NORTHERN CAPE: SEA WORKING GROUP PROJECT BACKGROUND

Presented by : Mr. Hendrik Louw
Northern Cape Economic Development,
Trade and Investment Promotion
Agency (NCEDA)

Date: 23 May 2024



Richtersveld National Park



Solar panels on a Karoo farm



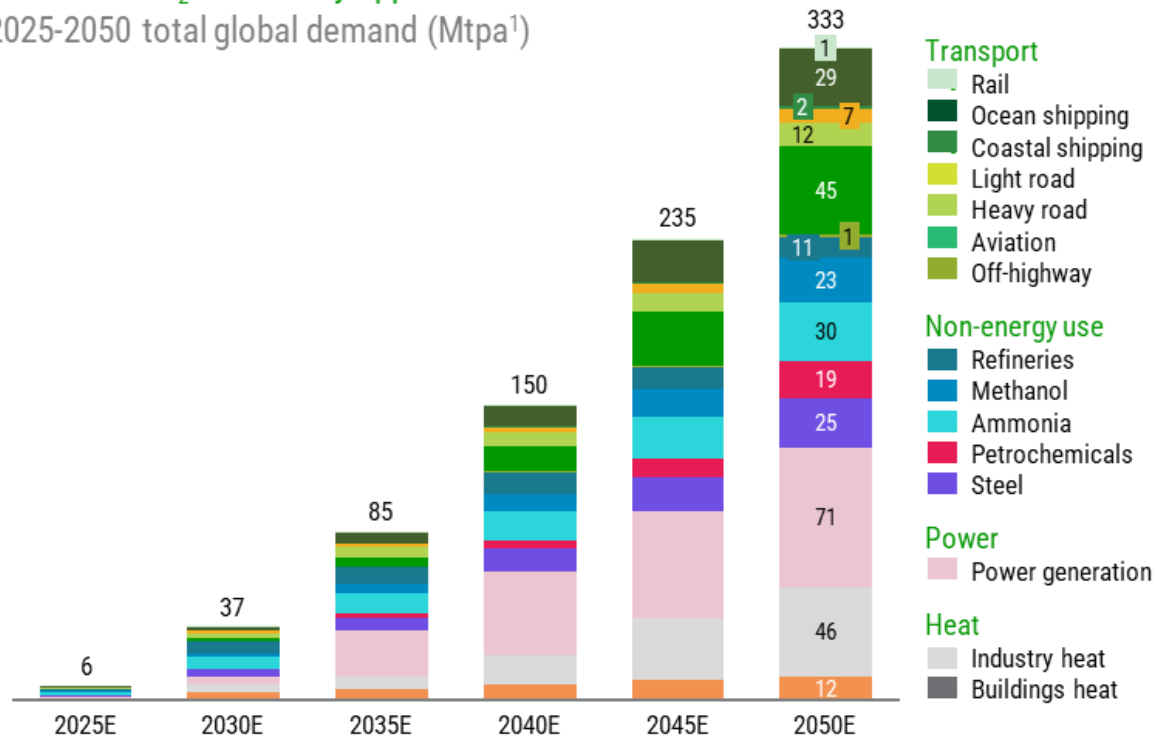
Province of the
Northern Cape
REPUBLIC OF SOUTH AFRICA

nceda
Northern Cape Economic Development
Trade and Investment Promotion Agency

Low-carbon hydrogen market poised to grow over 50-fold by 2050, driven by cross-industry applications, with the green hydrogen market projected >200Mt annually by 2050

Low-carbon H₂ demand expected to grow rapidly between 2025 and 2050, with diverse industry use-cases driving its expansion ...

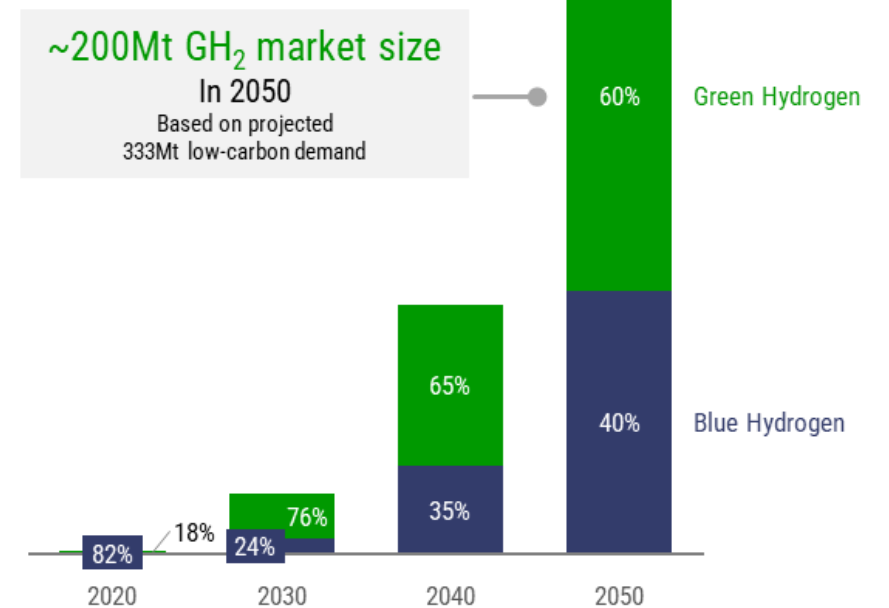
Low-carbon H₂ demand by application
2025-2050 total global demand (Mtpa¹)

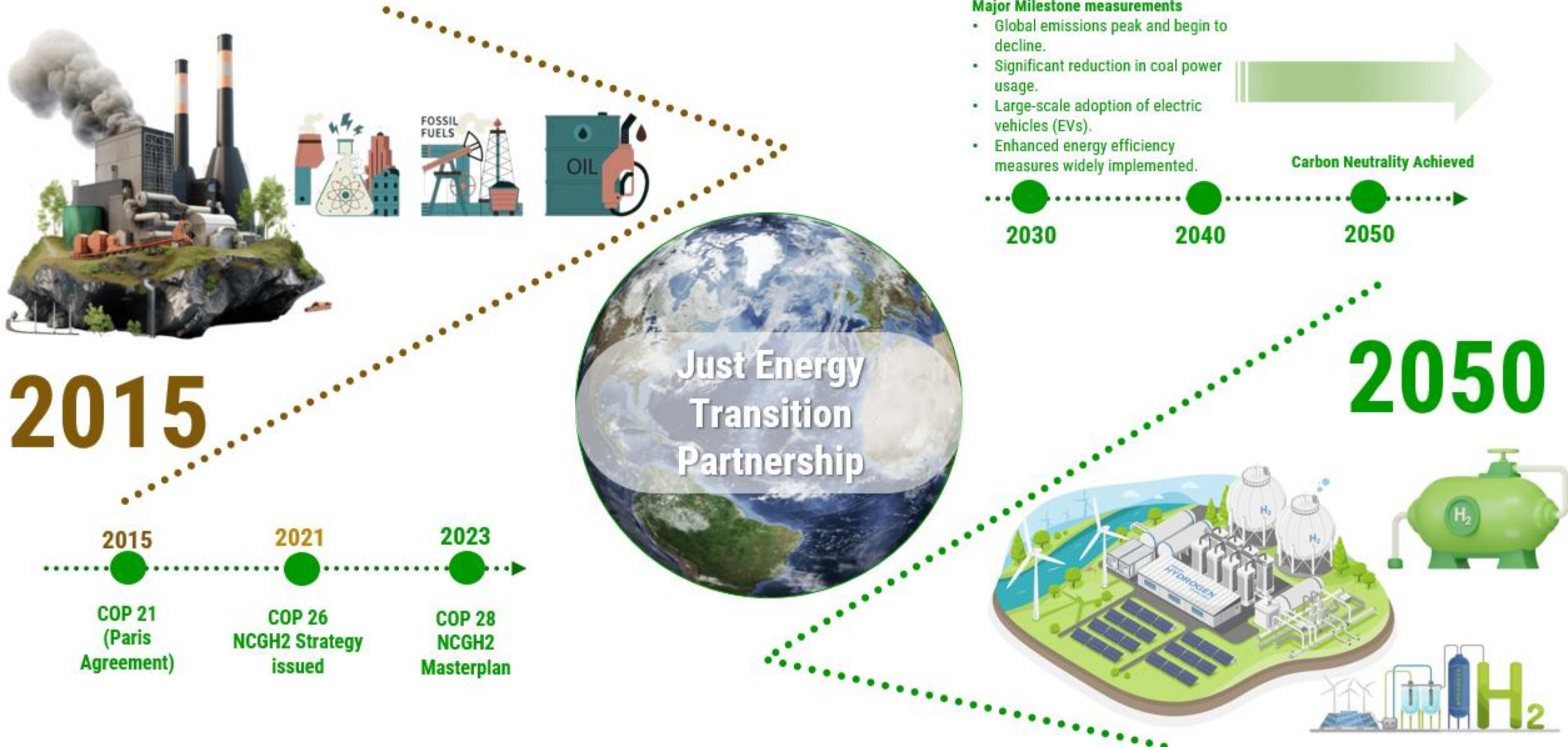


1. H₂ derivatives are normalised to H₂ input required
Source: IEA World Energy Balances; IEA WEO 2021; GlobalData; Nexant; BCG Global H₂ Demand Model – Mar2023

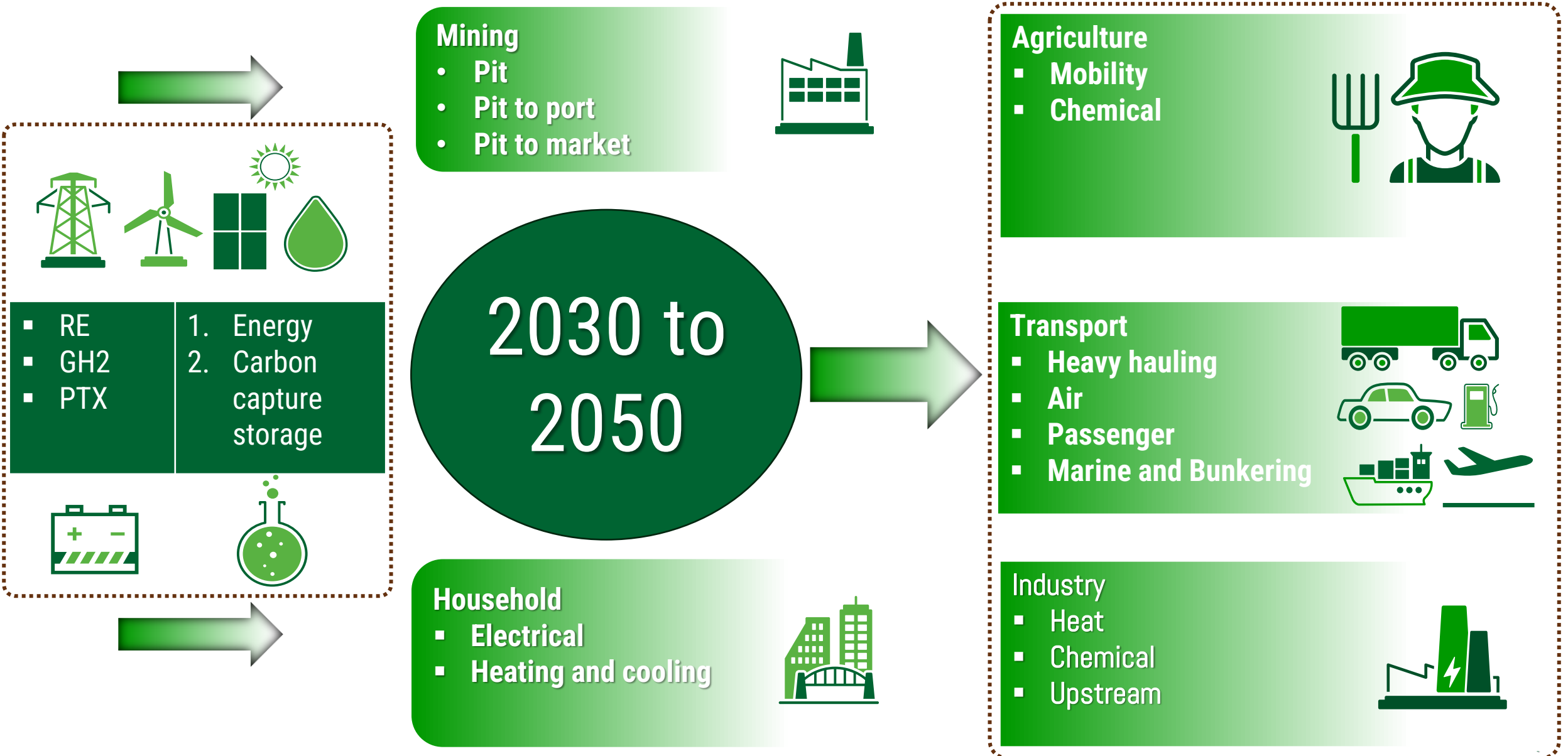
... with GH₂ projected to be 60% of the total low-carbon hydrogen market by 2050

Low-carbon H₂ demand by product type
2025-2050 total global demand (Mtpa¹)





ROADMAP TOWARDS THE JETP



Mining

- Pit
- Pit to port
- Pit to market



2030 to 2050

Household

- Electrical
- Heating and cooling



Agriculture

- Mobility
- Chemical



Transport

- Heavy hauling
- Air
- Passenger
- Marine and Bunkering



Industry

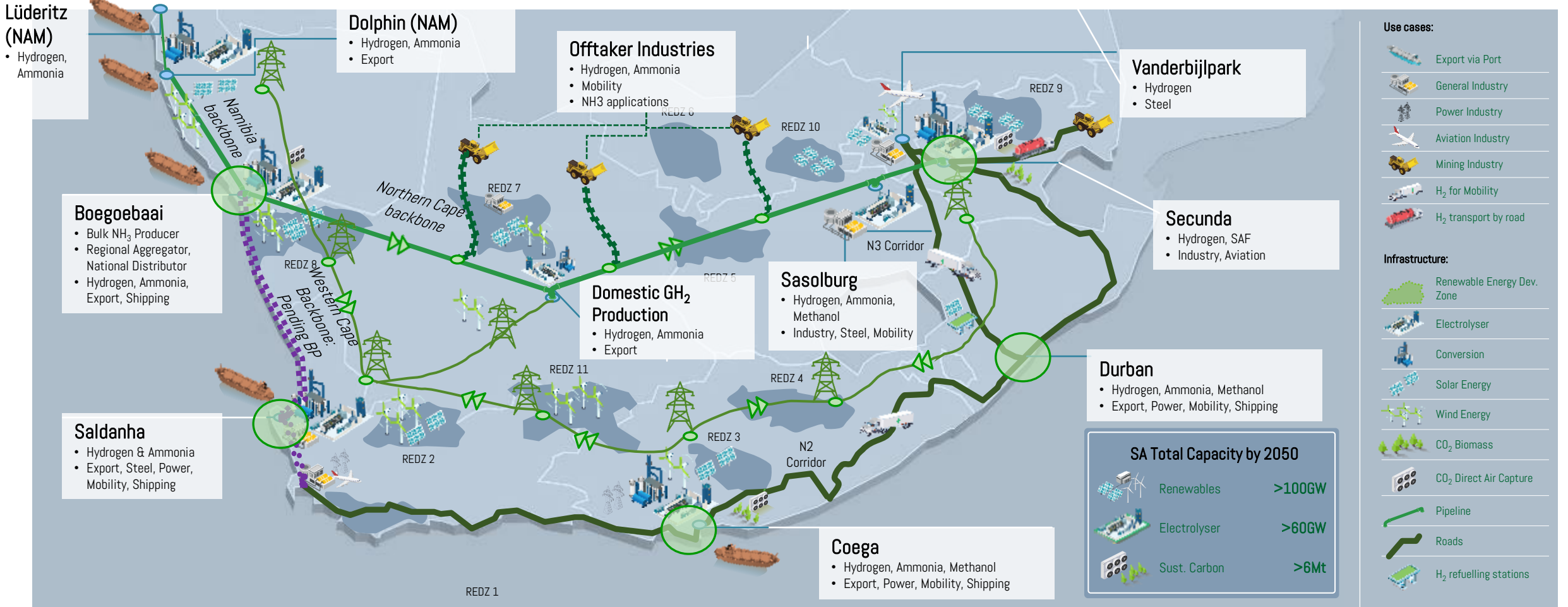
- Heat
- Chemical
- Upstream



THE SOUTHERN AFRICAN GREEN HYDROGEN VISION



The Northern Cape wants to position itself as a leader in the GH₂ economy, creating benefits for the province and South Africa and the Southern African Development Community (SADC), that ultimately feed into and leverage opportunities nationally and even regionally.



National GH₂ production capacity could be in the order of 10MT by 2050

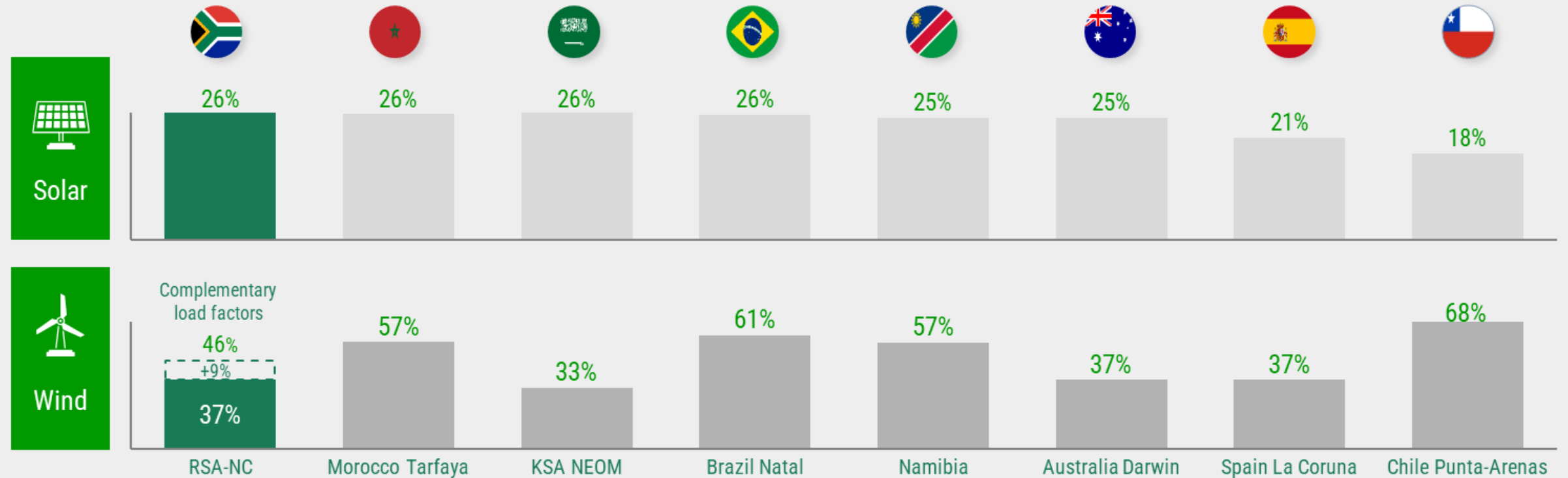
Moving at speed with a co-ordinated approach across the SA landscape is critical to building optimal capacity and capabilities

THE SOUTHERN AFRICAN GREEN HYDROGEN VISION



The Northern Cape also has exceptional RE resources, featuring globally top-ranking solar and complementary wind load factors, ensuring an optimised combined load factor

Solar and wind renewable energy load factors



Northern Cape's globally top-ranking solar load factors, strengthened by favourable overnight wind load factors, along with complementary load factors on West Coast, ensure a robust & optimised combined load factor

The Northern Cape excels in land competitiveness, boasting abundant availability surpassing 40 GW ambition requirements, affordability, and strategic coastal positioning

NC has available land area of ~285,000km², far surpassing the 40 GW ambition requirement ...

22,589TWh/year

11,400 GW Nominal Solar Capacity

Northern Cape boundary

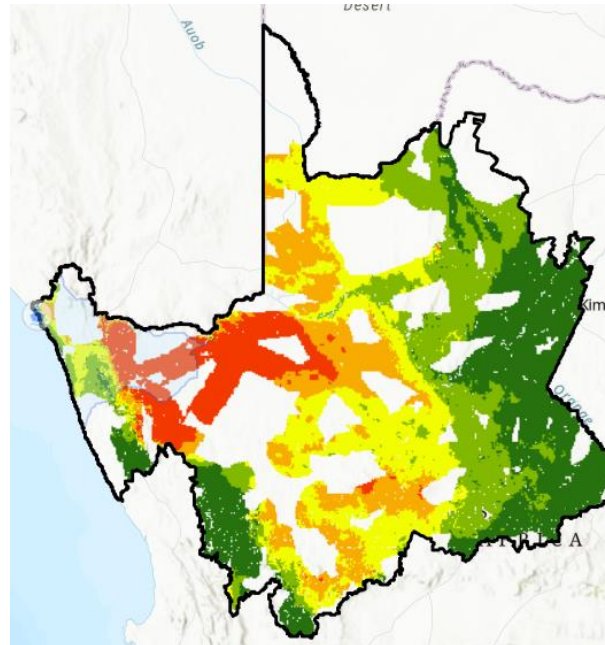


Boegoebaai boundary



Solar potential
TWh/year/km²
Range = 0.014TWh

- 0.070-0.078
- 0.079-0.079
- 0.080-0.080
- 0.081-0.081
- 0.082-0.084



2,730TWh/year

846 GW Nominal Wind Capacity

Northern Cape boundary

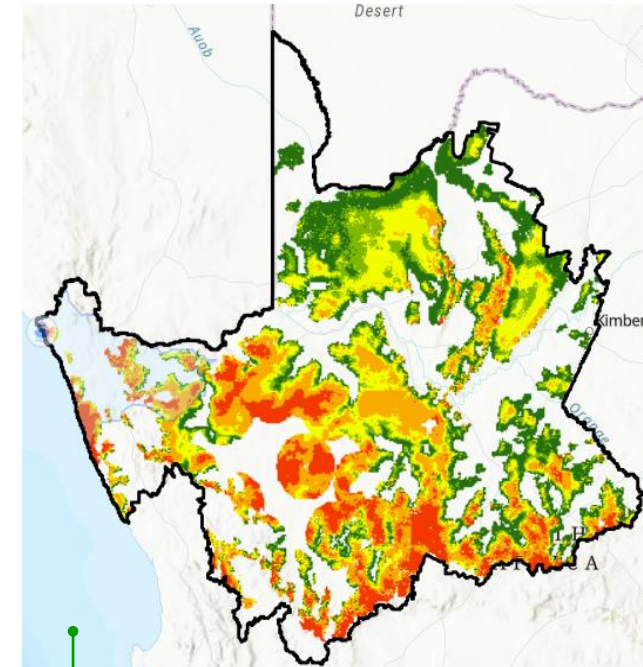


Boegoebaai boundary



Wind potential
TWh/year/km²
Range = 0.01TWh

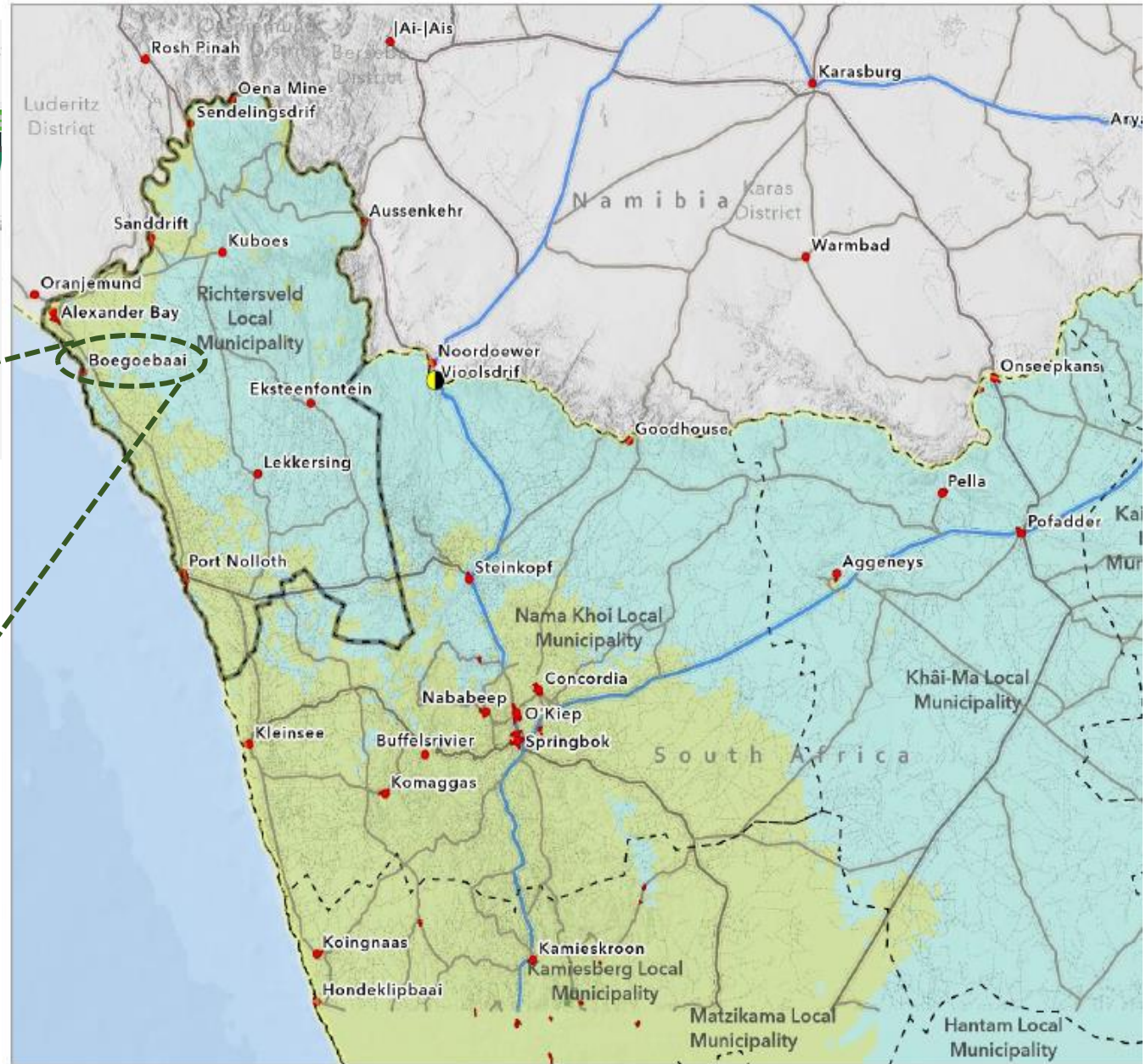
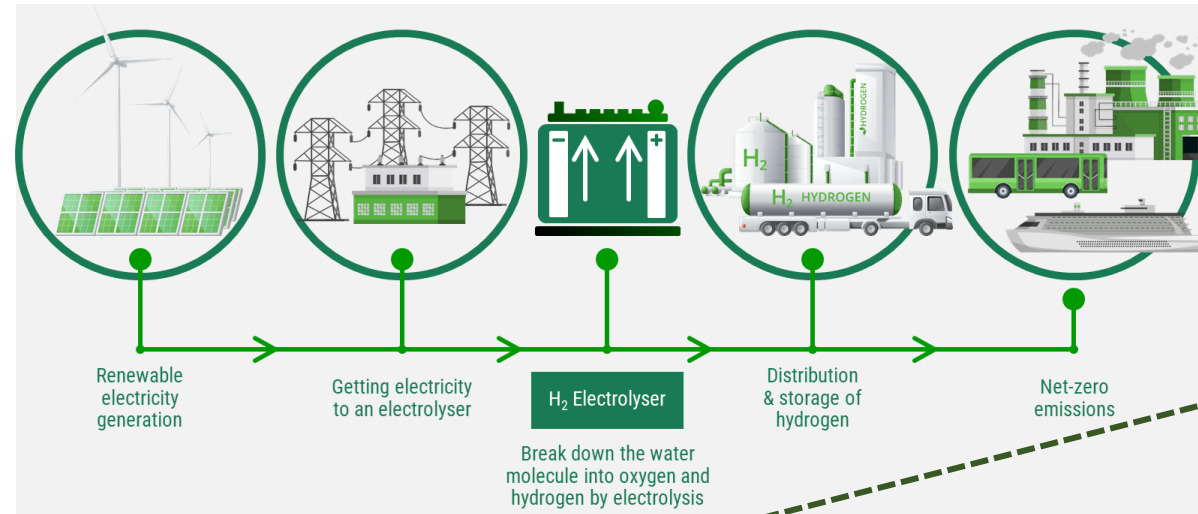
- 0.010-0.009
- 0.010-0.011
- 0.012-0.011
- 0.012-0.012
- 0.013-0.020



Located on the South Atlantic Ocean coast, NC faces no water constraints, with minimal desalination costs in final LCOH, eliminating constraints on fresh-water access

NORTHERN CAPE GH2 MACRO AGGREGATION

BOEGOEBAAI SEZ SPATIAL REFERENCE



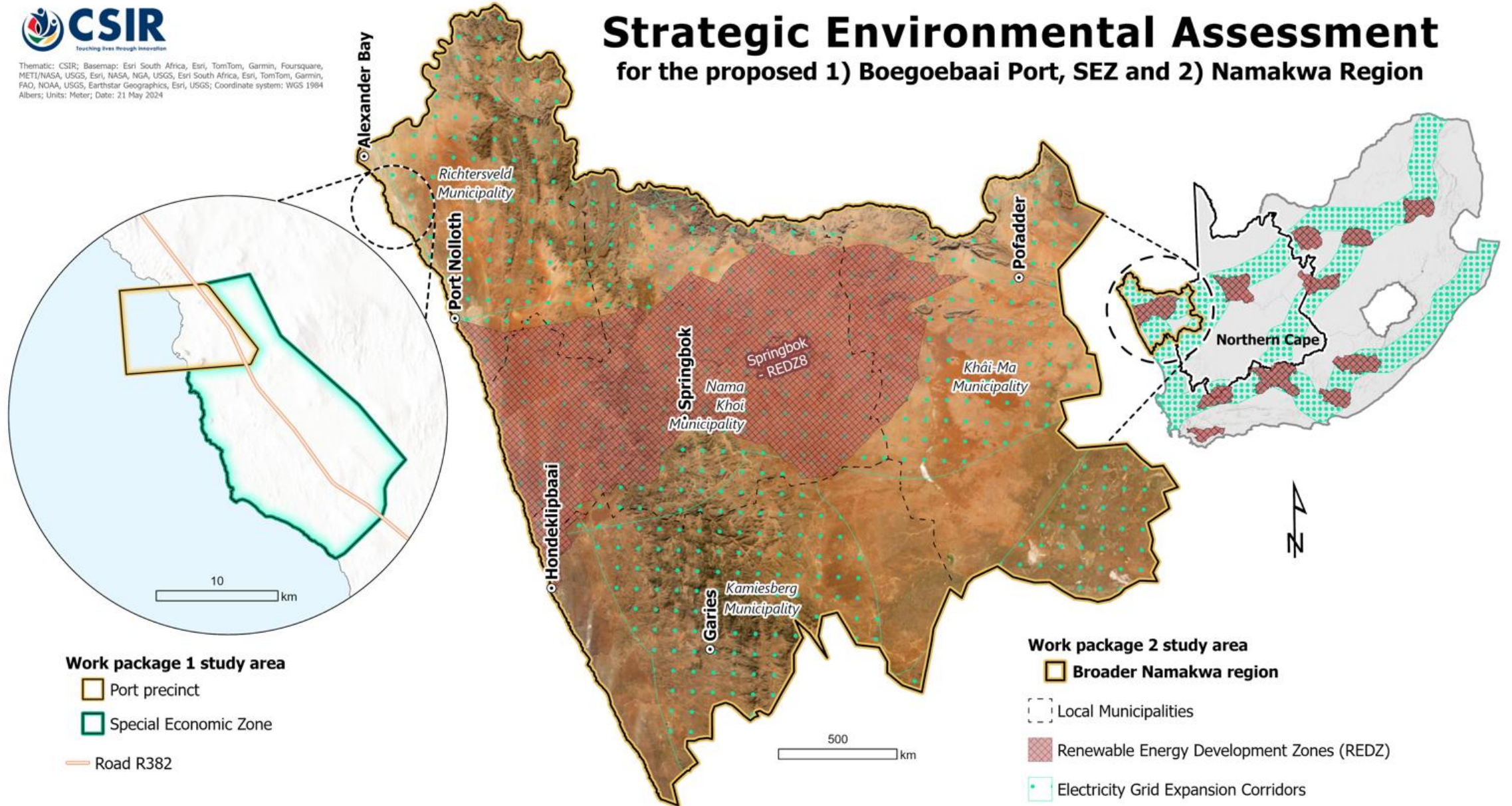
Northern Cape SEA study area

Boegoebaai SEZ Layout



Thematic: CSIR; Basemap: Esri South Africa, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS, Esri, NASA, NGA, USGS, Esri South Africa, Esri, TomTom, Garmin, FAO, NOAA, USGS, Earthstar Geographics, Esri, USGS; Coordinate system: WGS 1984 Albers; Units: Meter; Date: 21 May 2024

Strategic Environmental Assessment for the proposed 1) Boegoebaai Port, SEZ and 2) Namakwa Region



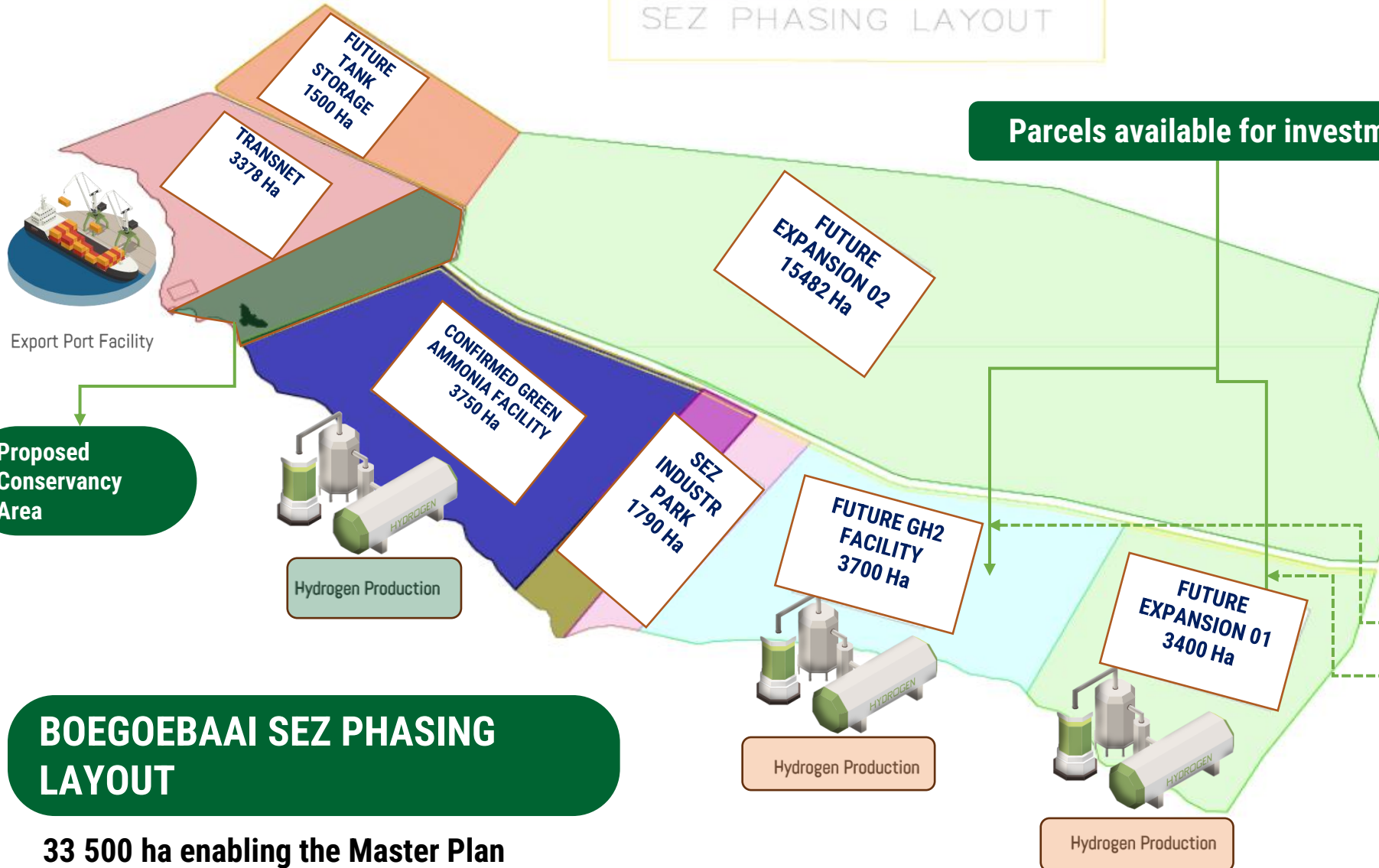
NORTHERN CAPE GH2 DEVELOPMENT PROGRAMME

BOEGOEBAAI SEZ LAYOUT



SEZ PHASING LAYOUT

Parcels available for investment



USER EXTENT IN m ² / ha		
Users	Extent (m ²)	Extent (ha)
1. Transnet	33 780 000m ²	3 378 ha
2. Confirmed 1st phase investor	37 500 000m ²	3 750 ha
3. Proposed Conservancy	5 000 000m ²	500 ha
4. Industrial park Ph 1	5 000 000m ²	500 ha
5. Industrial park Ph 2	4 600 000m ²	460 ha
6. Industrial park Ph 3	8 300 000m ²	830 ha
7. Future GH2	37 000 000m ²	3 700 ha
8. Future Expansion 01	34 000 000m ²	3 400 ha
9. Future Expansion 02	154 820 000m ²	15 482 ha
10. Future Tank	15 000 000m ²	1 500 ha
Total	33 500 000m²	33 500 ha

BOEGOEBAAI SEZ PHASING LAYOUT

33 500 ha enabling the Master Plan

Enablement of regional & national green hydrogen ecosystem

Other projects stand to gain infrastructure, talent and policy-related benefits from Boegoebaai



Access to logistical enablers

- Development of roads + rail to create an inland GH₂ corridor into NC, giving land-locked projects access to the proposed Boegoebaai port
- Alternatively, installation of a pipeline to inland projects enables cost-effective, at-volume port-access



Regulatory and policy benefits

- Efficient environmental permitting streamlines the process for all IPPs
- Ensuring power can be sold and brought from the grid at optimal rates improves economics for all projects that leverage this benefit



Local skills pool to leverage

- The massive 40 GW build-out leads to a significant concentration of skills
- NC contractors can benefit future GH₂ developments nationwide

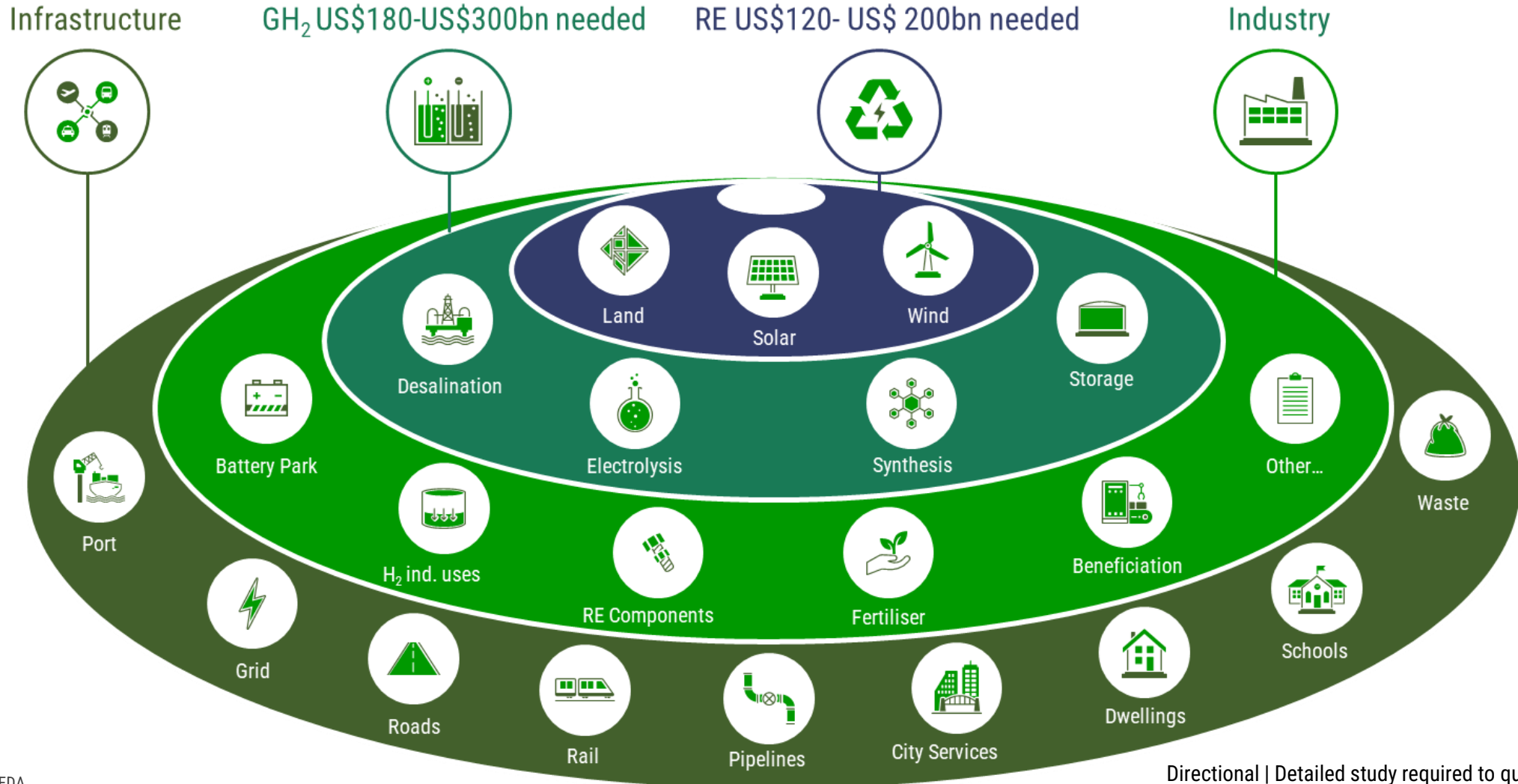


High quality employment

- A large skills force will be required for the 40 GW ops
- GH₂ value chain encourages a just transition, absorbing local ex-mining employees and later migrant labour across SA
- The increase in population density encourages town development

Key investment areas

Estimated at US\$300-500bn required for RE and green hydrogen production, with additional investment required for industrialisation and infrastructure for 40 GW electrolyser operations



Directional | Detailed study required to quantify



THANK YOU



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www.ncgh2.co.za



Appendix D: Boegoebai Port Development presentation

SEA Working Group Meeting #1

TRANSNET

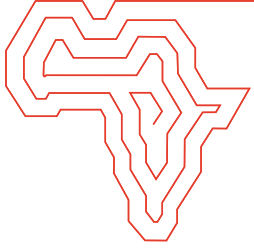


Boegoebaai Port Development

Date: 23 May 2024

Agenda

Boegoebaai Port Development

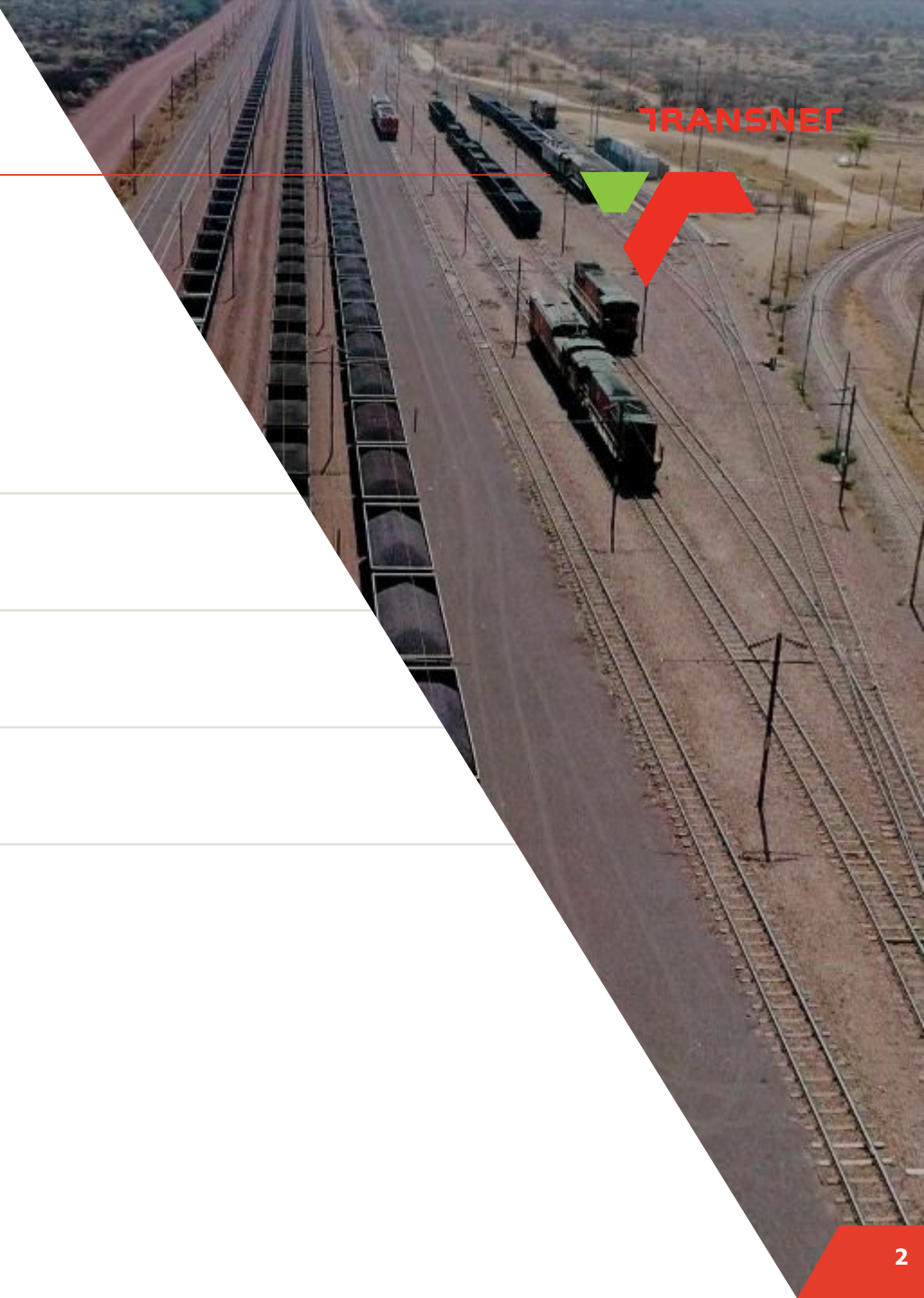


01 Programme Overview

02 Port Layouts

03 Status Updates (Land, SEA, SEIA)

04 Conclusion





TRANSNET



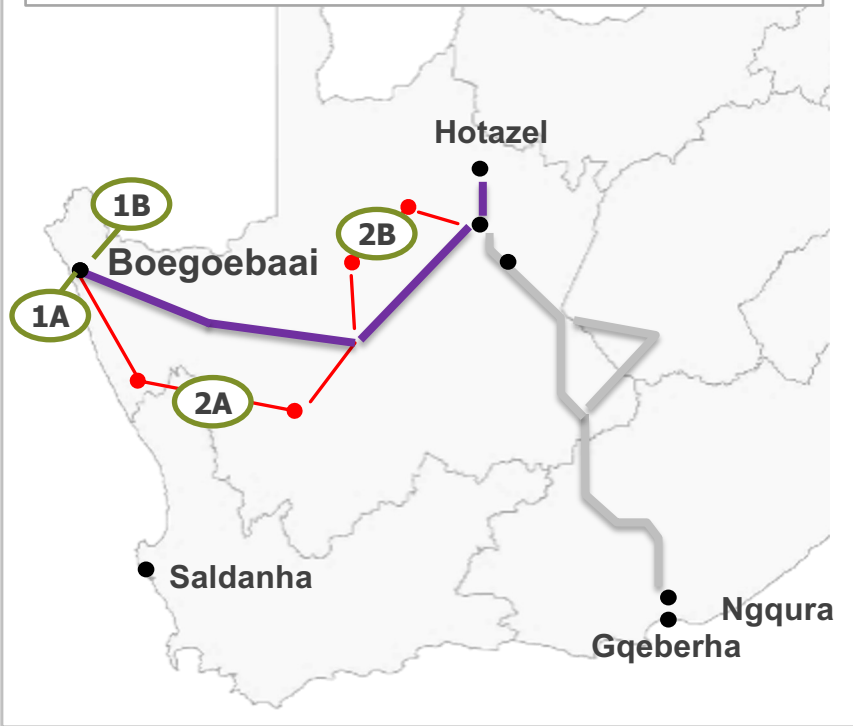
PROGRAMME OVERVIEW





Rationale

Provide a supplementary, optimised bulk export channel from the mining and industrial complex in the Northern Cape to a greenfield deep-water port in the same province



<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Port Development</p> <p>3</p>	<p>Capacity</p> <p>Planned</p> <p>5 - 9 mtpa</p>	<p>Brief Scope</p> <p>1A: Rubble mound breakwater, provision of berths, roads, civil services, marine services, admin craft harbour, open stockpile areas.</p> <p>1B: Expansion of port facilities and associated rail infrastructure for the SEZ</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Rail Development</p> <p>4</p>	<p>Capacity</p> <p>Planned</p> <p>5 - 9 mtpa</p>	<p>Brief Scope</p> <p>2A: Construction of a ~550km new rail line connecting the new deep-water port to existing rail infrastructure in the Northern Cape</p> <p>2B: Upgrade of existing rail infrastructure connecting to the new rail link to provide capacity for planned demand</p>



TNPA has decided to pursue the development of the Port of Boegoebaai and has established a team to advance the project. **Transnet has committed to:**

- a) Explore land acquisition options.
- b) Develop a bankable business case.
- c) Assess what will be the initial investment required to dock the first vessel (project phasing).
- d) Explore available funding options for the project.
- e) Volume validation exercise.
- f) Identify which pockets of the proposed area for port development belongs to the state.
- g) Freight Rail to establish a team that will investigate the most cost-effective rail solution to connect the mines to the port.



Eight industry segments have been identified for immediate analysis due to their importance to the economy and Transnet:

Containers	Automotive	Fuel	Gas	Coal	Iron Ore	Manganese	Chrome & Magnetite
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New Addition

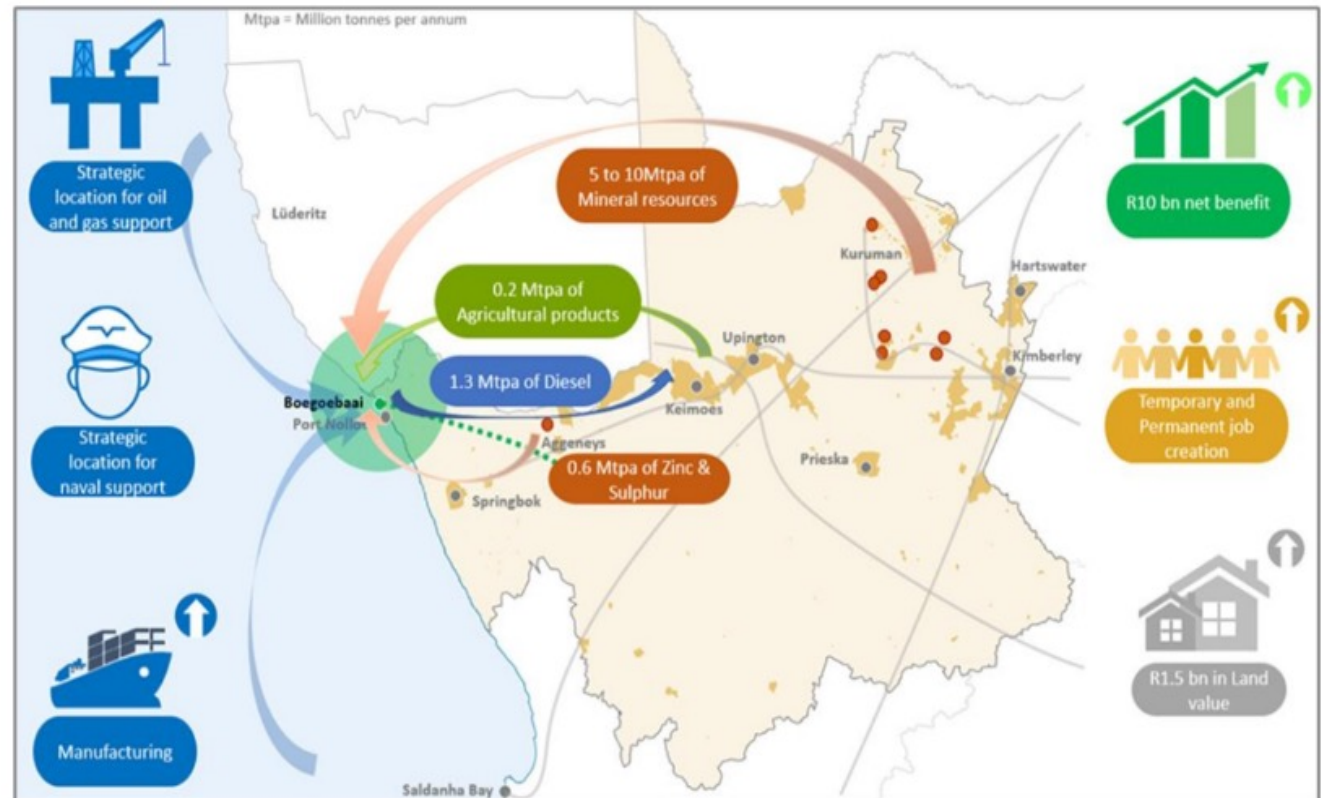
Commercial Drivers

Commodity Mix Analysis



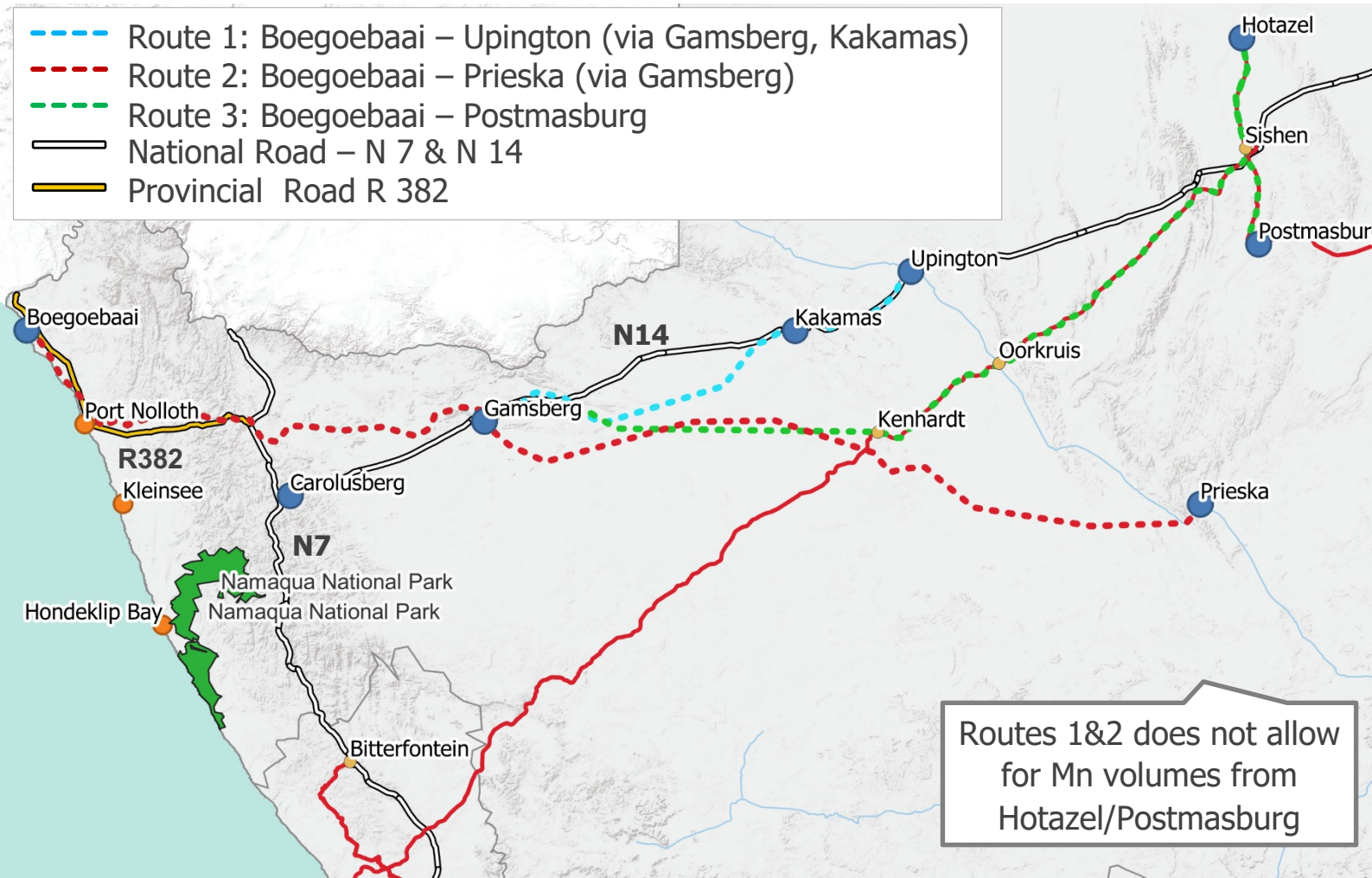
- The demand for commodity export exceeds the capacity of the existing export routes
- The proposed first phase of the new port is designed to export and import the commodities shown below
- All exports and imports will be transported by road in the first phase, Green Ammonia and Manganese are the main export volumes used in the business case

Cargo Type-Commodity	Volume (Mtpa) 2028	Volume (Mtpa) 2035	Volume (Mtpa) 2047
Dry bulk – Manganese	9.0	9.0	9.0
Break bulk – Lead/Zinc	0.4	0.4	0.3
Break bulk – Magnetite	0.3	0.3	0.3
Break bulk – Ilmenite	0.3	0.3	0.3
Break bulk – Copper	0.1	0.1	0.0
Liquid bulk – Diesel Oil	1.3	1.4	1.6
Liquid bulk – Green Ammonia	0.1	1.2	1.4
Liquid bulk – e-Kerosene	0.0	0.1	0.4
Liquid bulk – Methanol	0.0	0.1	0.3
Liquid bulk – Naphtha	0.0	0.0	0.1
Containers – Agricultural Products	0.2	0.0	0.0
Containers – Tantalum	0.1	0.1	0.0
Containers – General Cargo	0.5	0.0	0.0
Total Demand	12.3	13.0	13.7



Hinterland Routing Options

Proposed Port in the Northern Cape to existing road & rail network



- Common challenge identified related to the terrain and geometric constraints of penetrating and descending the Anenous Mountains Pass.
- The remoteness of Boegoebaai port location raised concerns regarding the economic viability of rail connectivity to the proposed port location.
- The view was informed by estimates derived from earlier concept studies that identified three potential routes.
- The rail solution was initially planned for future phases of the port development, alternative rail alignments were explored at concept level to develop a view of the optimal least cost Port and Rail solution.

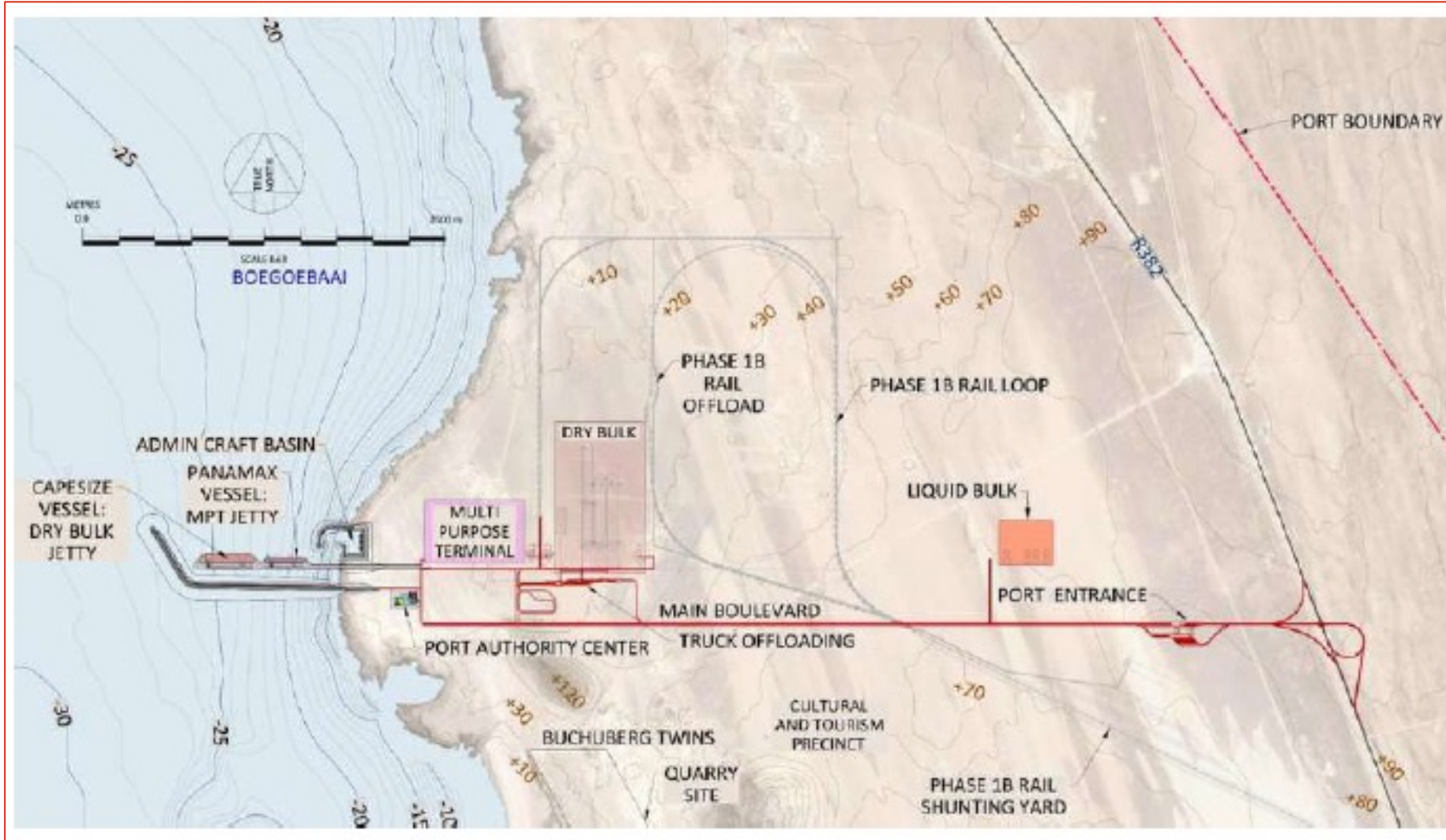


TRANSNET



PORT OF BOEGOEBAAI: Short & Medium -Term Port Layouts

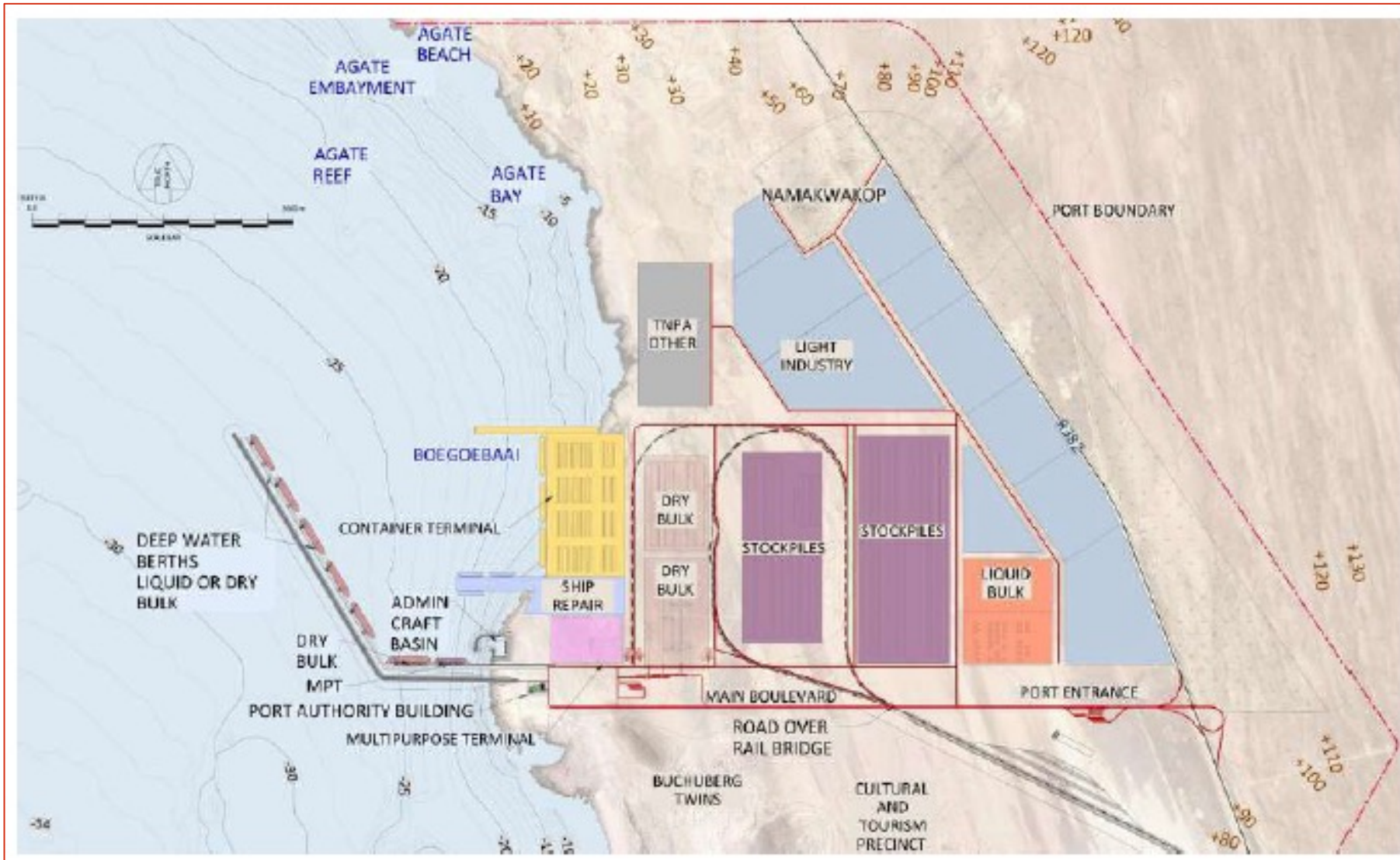




Phase 1A:

1. Breakwater Construction
2. New Multi-Purpose Berth
3. New Liquid Bulk Berth
4. Manganese Terminal
5. Liquid Bulk Terminal
6. Port Administration Building
7. Port Control Building
8. Port Entrance Facility
9. Multi-Purpose Terminal
10. Emergency Services (Fire Station & Clinic)
11. Boegoebaai Port Roads and Internal Rail
12. Admin Craft Harbour
13. Truck Staging Facility
14. Cultural offset land

Medium Term - Conceptual Port Layout



Phase 1B

1. Breakwater Extension
2. Additional Multi-Purpose Berths
3. Additional Liquid Bulk Berths
4. Boegoebaai Container Terminal (BCT)
5. Ship Repair Yard
6. Rail connectivity
7. Tippler
8. Additional stockpiles areas
9. Road over rail bridges
10. Rail marshalling yard

Port of Boegoebaai – End State



Source: Revised Business Case, PRDW, 2022

Projects Overview

1. Breakwater Construction
2. New Multi-Purpose Berth
3. New Liquid Bulk Berth
4. Manganese Terminal
5. Liquid Bulk Terminal
6. Port Administration Building
7. Port Control Building
8. Port Entrance Facility 1 and 2
9. Boegoebaai Container Terminal (BCT)
10. Multi-Purpose Terminal
11. Emergency Services (Fire Station & Clinic)
12. Boegoebaai Port Roads and Internal Rail
13. Admin Craft Harbour
14. Truck Staging Facility
15. Cultural offset land
16. Ship Repair Yard



STATUS UPDATES:
Land Acquisition
Strategic Environmental Assessment
Socio-Economic Impact Assessment

Initiatives Leading to critical programme success factors



LAND ACQUISITION



Port :

- Land acquisition from the Community Property Association – engagements are led by Province and ably supported by Transnet and SASOL for the different components of the holistic programme (Port Development, Strategic Economic Zone (SEZ) and Renewable Energy Farms)

Rail :

- Rail routing & farm ownership to be confirmed during the pre-feasibility stage of the rail project.

CURRENT STATUS



- **Land Valuators (RFQ)** – led by TNPA Property in collaboration with Transnet Property (TP) for the port development estimation of land value
- **Social Facilitation and Community Engagements (RFP)** – led by TNPA for the active engagement of communities to ensure CSI initiatives are of benefit.
- Funding contributions for both activities are in place





STRATEGIC ENVIRONMENTAL ASSESSMENT



Why the need for a Port & SEZ SEA:

- Cumulative impact of the developments on the receiving environment
- Regulatory requirement for port promulgation through the Department of Transport

Rail :

- Rail routing & farm ownership to be confirmed during the pre-feasibility stage of the rail project. SEA will look at the impact of the rail project at a high-level.

CURRENT STATUS

- **Inception Workshop** – led by CSIR completed in January 2024.
- **Work Plan to complete the study** – led by CSIR in collaboration with the investment partners completed in March 2024.
- Funding contributions for both Port and SEZ SEA activities are in place

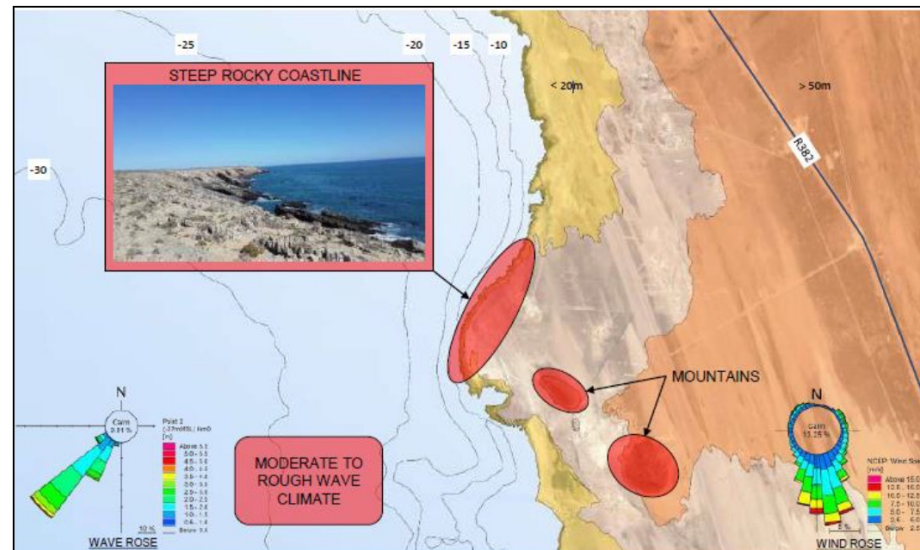


Figure 4: Climate and Geomorphology

Initiatives Leading to critical programme success factors



SOCIO-ECONOMIC IMPACT ASSESSMENT



Port :

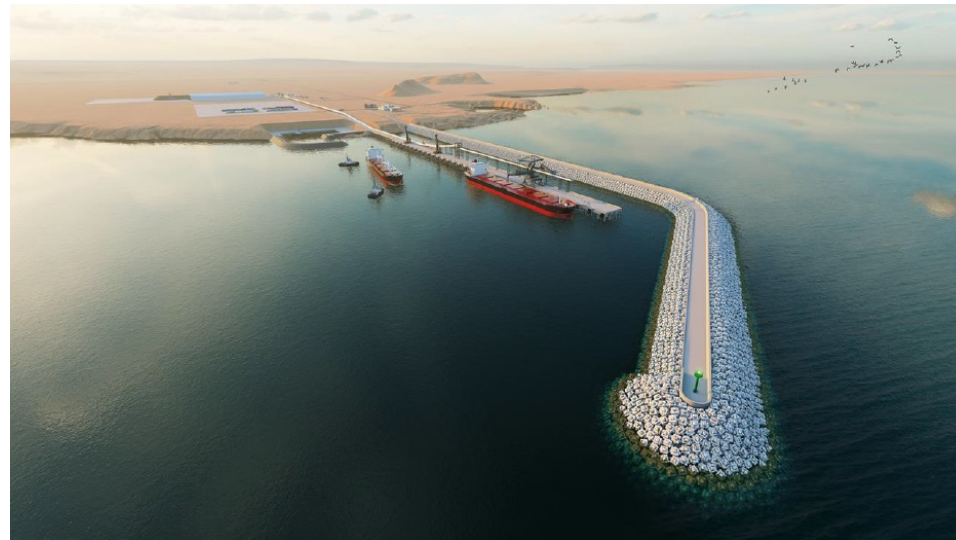
- To understand the current social and economic environment and assess the potential impact of the port development on the local communities and on a high level (the regional and national landscape)

Rail :

- Study to be commissioned at end of pre-feasibility stage.

CURRENT STATUS

- **Appointment of Consultants is completed** – project inception stage complete, currently at the 2nd phase of the study.
- **Linkage with Strategic Environmental Assessment** – social economic impact report will feed the SEA study.
- Target completion date: 30 August 2024





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CONCLUSION





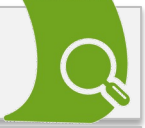
Conclusion and Recommendations

RECOMMENDATIONS



- Transnet must weigh up the **financial and economic factors** at play in arriving at a decision to move forward with the programme
- It may not be a case of all or nothing but rather a **calculated, phased approach based on proven or sponsored demand**
- The programme is **extensive** by any infrastructure programme development comparison and as such it will be in Transnet's best interest to **deploy the necessary resources to work on the programme on a full-time basis as** the work and activities are of a complex nature and requires commitment and experience to deliver against an accelerated timeline

CONCLUSIONS



- Notwithstanding the daunting task linked to the programme development and delivery, **a real opportunity exists to develop South Africa's ninth commercial port in the Northern Cape** and in so doing, provide an **important rail link to the growing mining hinterland that has been crying out for export capacity in recent years**
- **Both Mining Houses and Green Hydrogen Participants** are imploring Transnet to take this leap of faith as the port and rail link are seen as key enablers for the different sectors.

TRANSNET



Thank you





Appendix E: Approach to the SEA & Stakeholder engagement and project schedule presentation

Strategic Environmental Assessment

for the Boegoebaai Port, Special economic Zone and Namakwa Region



Approach to the SEA

Dr Greg Schreiner
CSIR

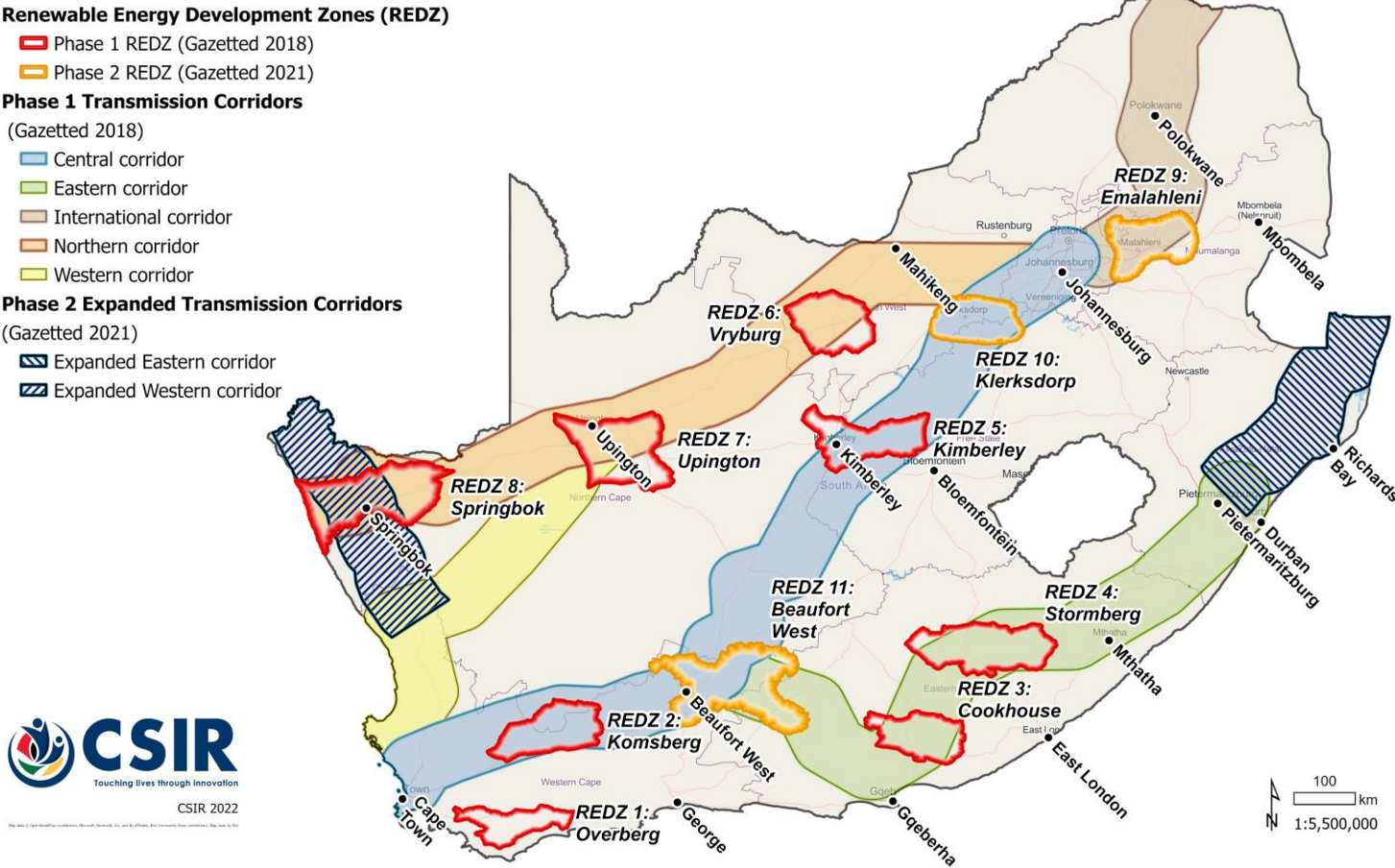
23 May 2024
Microsoft Teams, 14:00 –
16:00



CSIR experience in SEA

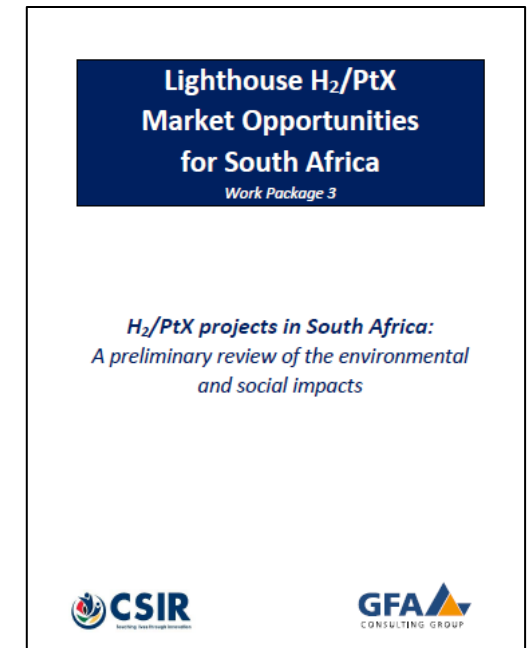
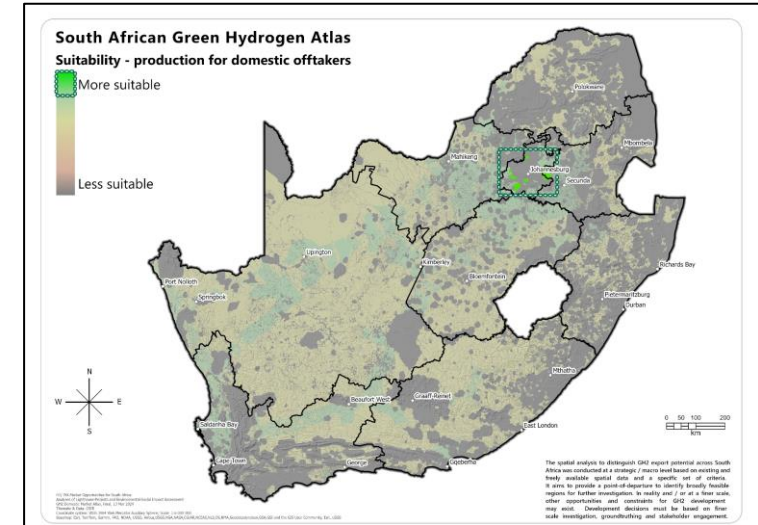
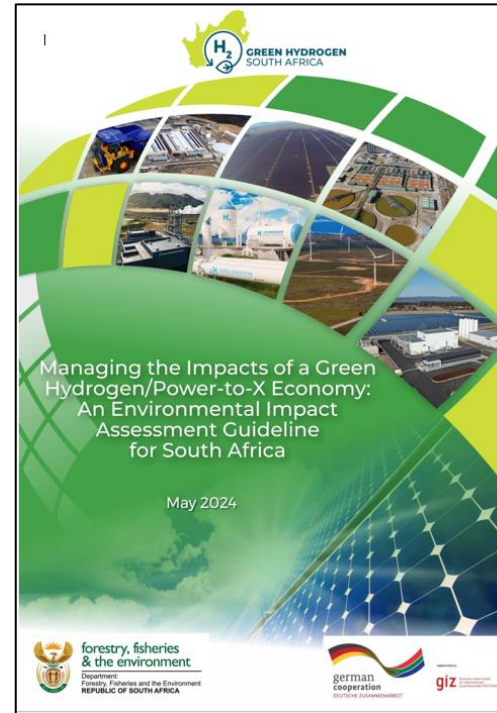
- Been involved >50 SEAs since the mid-1990s
- Forefront of theory and practice of SEA (training, guidelines, papers, national primers etc.) in many countries
- From 2013 → in collaboration with DFFE and others, CSIR has conducted one of the largest programme of SEAs undertaken for wind, solar PV, shale gas, gas pipelines, aquaculture, SKA

National Strategic Environmental Assessments for Renewable Energy Development Zones & Transmission Corridors in South Africa



CSIR experience in GH2 (last 3 years)

- Extensive research into the social and ecological impacts of A South African GH2 economy (Aug 2023)
- Managing the impacts of a GH2 economy: An Environmental Impact Assessment Guideline for South Africa (May 2024)
- South African GH2 Atlas (export and domestic use) (May 2024)
- Currently drafting GH2 masterplans for SEZ, and advising provincial govt on GH2 planning



SEA vs EIA

SEA: Unregulated knowledge-policy tool to guide sustainability planning at local, regional, national or international scale. Designed by the users.

EIA: Regulated knowledge-policy tool to guide specific (project scale) decision-making mandate, giving 'yes-no' answer, and if yes, under what conditions. Designed by regulators.

	EIA	SEA
Who pays?	Private sector	Usually donors & govt
Spatial scale	Project scale	Local, regional, national, inter
Time horizon	Short-medium (1-5 years)	Medium to long (scenarios)
Legislated	Yes, highly	No
Decision-level	Project (yes/no mandate)	Programme (guidance)
Cumulative impacts	No	Yes
Methods	Rote	Innovative, case specific
Participation	Standard PPP, town hall meetings	Coproduction, integrated governance

SEA cont...

- Can be any number of different approaches, methods and processes, it all depends on the specific issues in the specific context
- SEA needs to be:
 - i. Sustainability-focused
 - ii. Interdisciplinary
 - iii. Credible
 - iv. Useful for decision-making
 - v. Coproduced

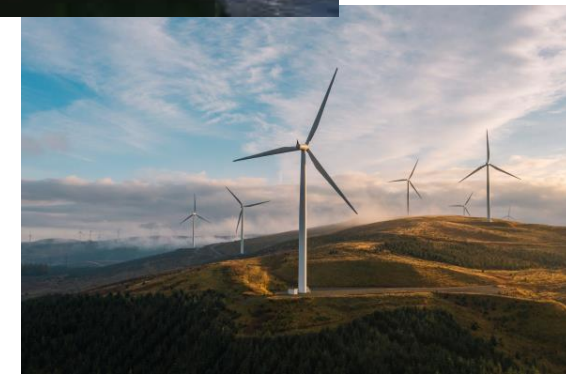
SEA is NOT...

- A mega Environmental Impact Assessment (EIA).
- A public relations exercise.
- A rubber stamp.

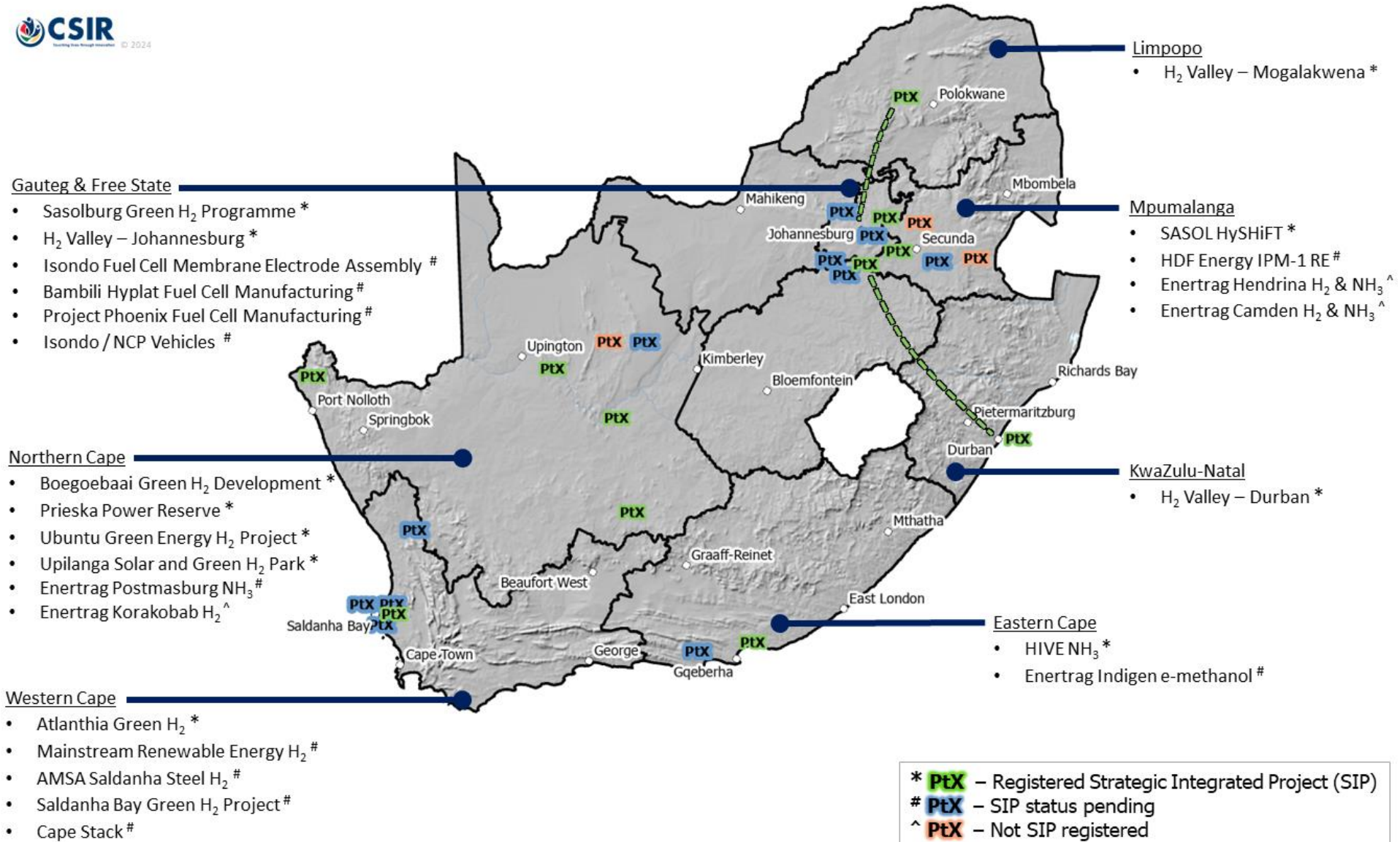


Need for the SEA

1. Political backing for development in the NC, consisting of:
 - i. A new breakwater port at Boegoebaai, dry and liquid bulk berths, and multi-purpose terminals
 - ii. A mixed-use Special Economic Zone (SEZ) located in the region adjacent to the proposed Boegoebaai port.
 - iii. An expansive regional renewable energy (wind and solar PV) generation and transmission infrastructure.
2. Substantial opportunity to decarbonize and diversify the South African energy economy, displace coal, generate new revenue, create jobs and skills
3. These are elegant, 'green', modern technologies but with large infrastructure footprints, occurring in a sparsely populated, but ecologically sensitive region.
4. Need for integrated, strategic planning and decision-making, conscious of cumulative impacts



Need for integrated, strategic planning and decision-making



Survey of South African EAPs working in GH2 sector (Aug 2023)

Impact

Rank

Mean (SD)

Median

Opportunities:

GHG reduction, new jobs, skills, new revenues & supply chains, energy sector modernization, coal displacement

Concerns:

Biodiversity loss on land and at sea, land-use conflicts e.g., tourism, agriculture, conservation, burdens on small towns

SEA mission and objectives

Mission: To develop an integrated decision-making framework to guide the planning of the proposed Boegoebaai port, Special Economic Zone, and wider Namakwa region in a sustainable manner.

Objectives:

1. Assess the social and ecological sensitivity of local and regional receiving environments.
2. Classify spatial regions, based on multiple criteria, as being more, or less, suitable for future development.
3. Identify strategic-level constraints, opportunities, cumulative impacts, and strategic management actions.
4. Provide an integrated decision-making framework and suite of tools, to guide project developers, practitioners, and policymakers.



One SEA process, 2 x Work Packages

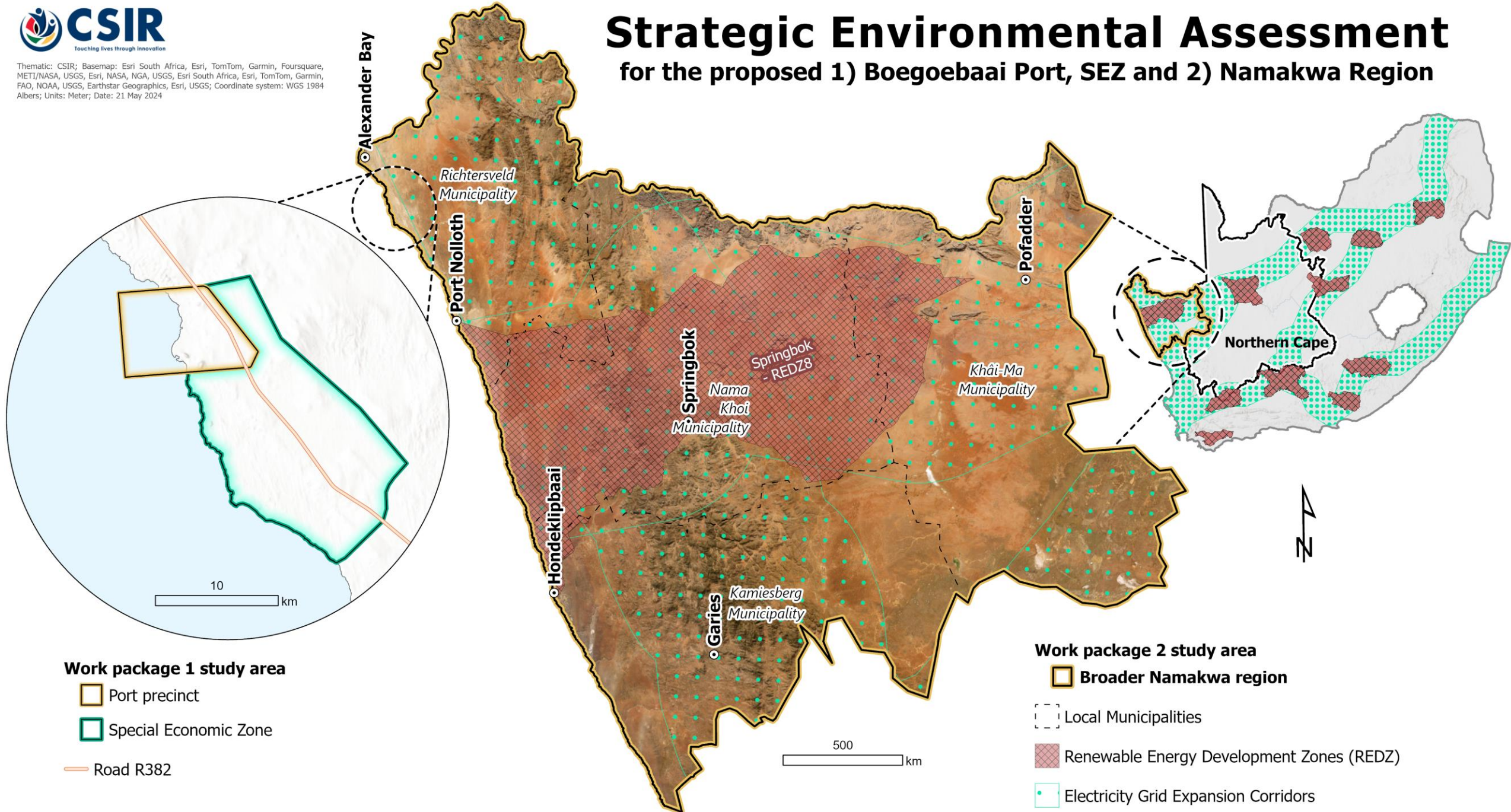
Work Package 1: A local-scale, spatially focused SEA report identifying sensitivities around the proposed port and SEZ development covering ~33 000 ha (“Boegoebaai Port and SEZ SEA”). Experts on-site, ground-truthed = high resolution data.

Focus = Sensitivity of the local receiving environment, informing Port & SEZ layouts

Work Package 2: A regional-scale, desktop SEA report covering the main sustainability issues associated with an expansive Northern Cape green hydrogen economy (“Namakwa Region SEA”). Extent defined by Municipal boundaries and covers an area of ~5.8 million ha. Desktop, scenarios-based.

Focus = Cumulative opportunities and risks across the broader Namakwa region

Strategic Environmental Assessment for the proposed 1) Boegoebaai Port, SEZ and 2) Namakwa Region



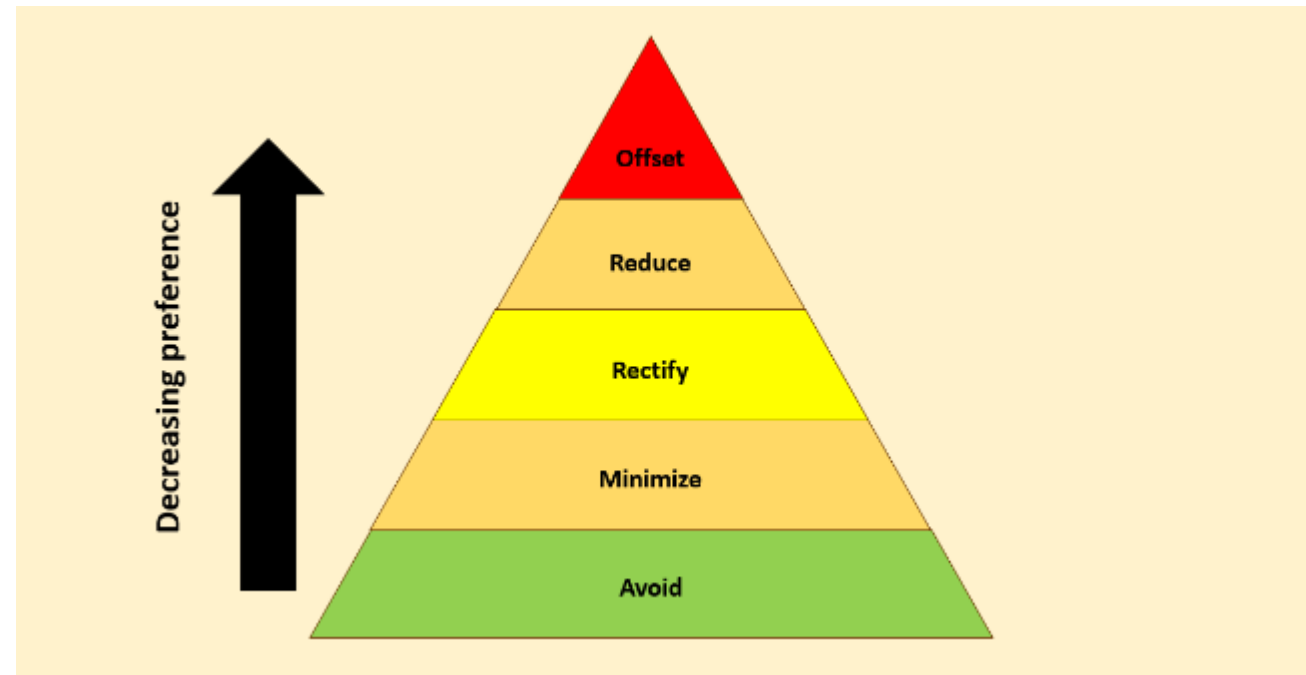
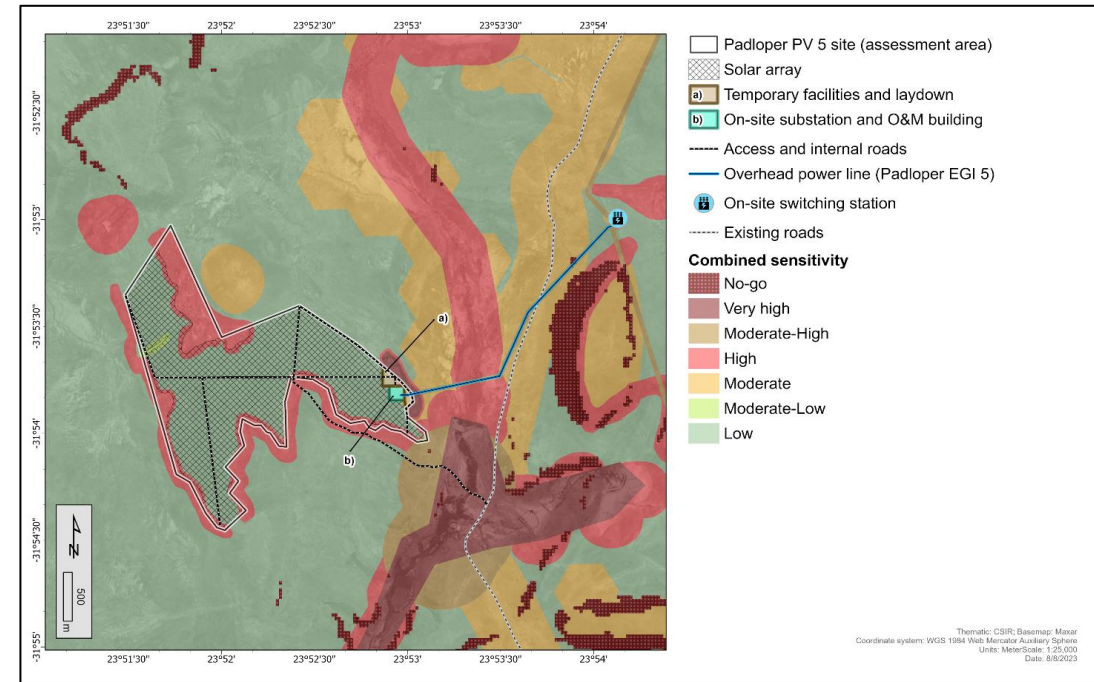
Expert teams (unconfirmed)

Marine Ecology & Biodiversity (including Coastal Birds)	Dr Andrea Pulfrich
	Dr Barry Clark
Terrestrial Ecology & Biodiversity	Dr Noel van Rooyen
Birds (Terrestrial)	Albert Froneman
Bats	Dr Werner Marais
Heritage	Dr Jayson Orton
Surface Water	Dr Liz Day
Groundwater	Julian Conrad
Fisheries & coastal livelihoods	Dr Louise Gammage
	Prof Astrid Jarre
Agricultural and soil potential	Johann Lanz
Biodiversity Offset Planning	Mark Botha
Conservation Planning	Dr Phil Desmet
Social fabric	Prof Doreen Atkinson
Economics	Dr Hugo van Zyl
Sustainable port planning	Dr Susan Taljaard
Regional infrastructure & planning	Dr Elsona van Huyssteen

Work Package 1:

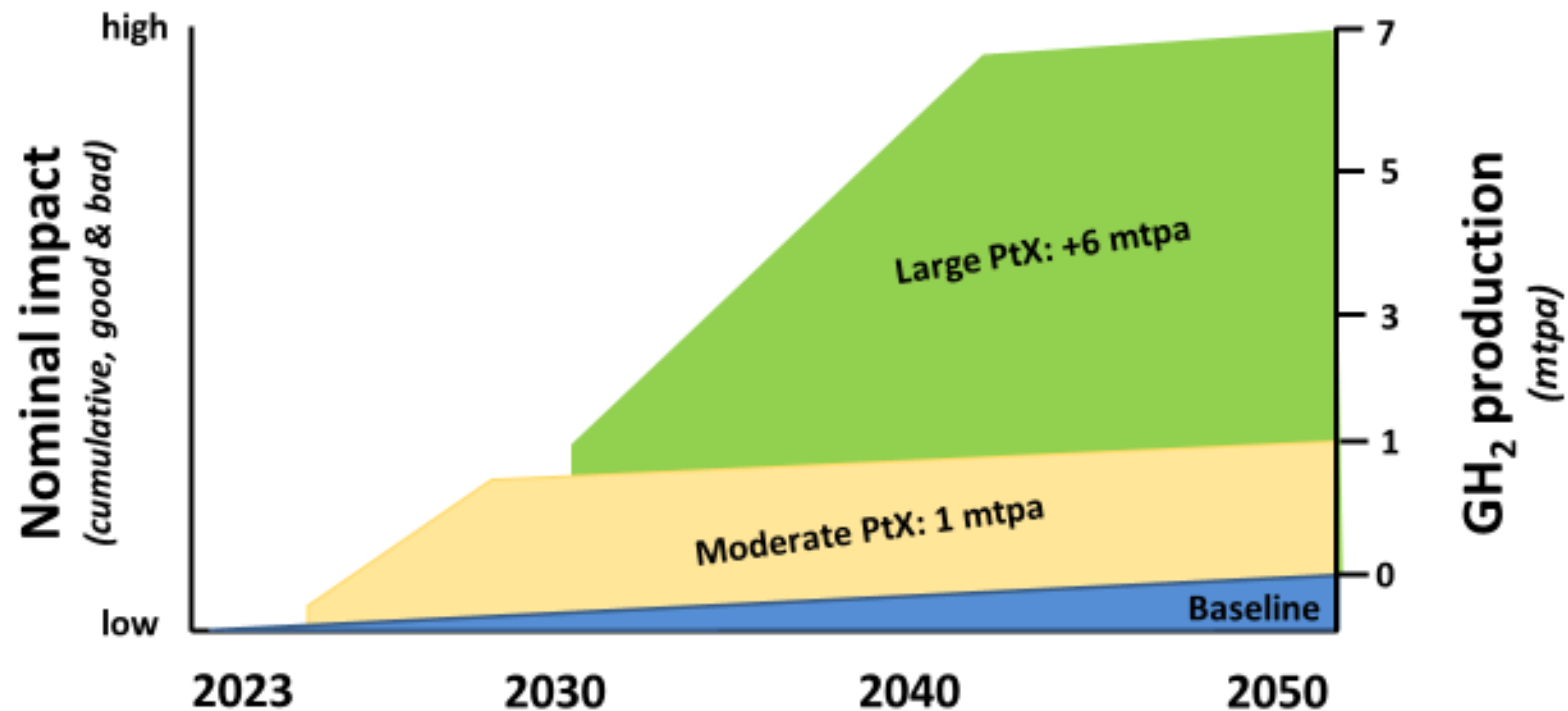
Sensitivity of the receiving environment

1. Desktop screening (DFFE ST)
2. Site Sensitivity Verification (experts do fieldwork)
3. Report on receiving environment
4. Update 4 tier sensitivity profile
 - i. Inform port & SEZ layouts
 - ii. Inform biodiversity offset planning
 - iii. Guidance on sustainable port planning
 - iv. Guidance for Transnet EIA process



Work Package 2: Scenarios/risk-based approach

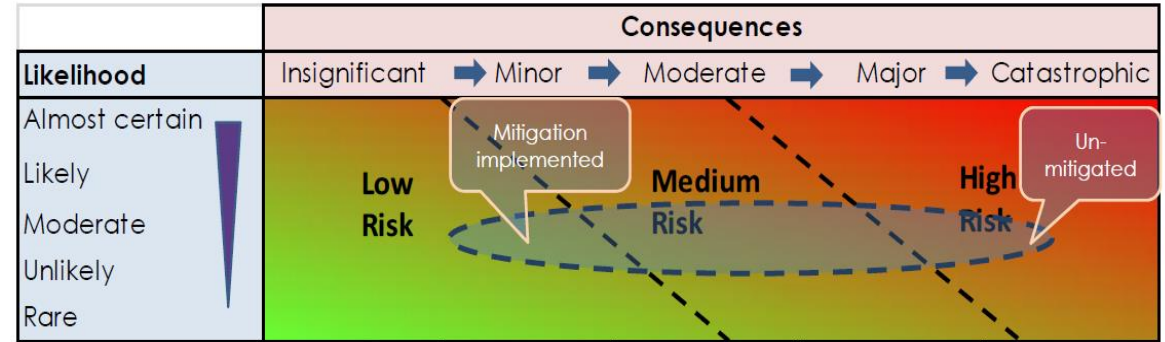
Year	Electrolyser	RE footprint	RE footprint	GH2 product
2030	5 GW	11 GW	22 000 ha	1 mtpa
2050	40 GW	88 W	180 000 ha	7 mpta



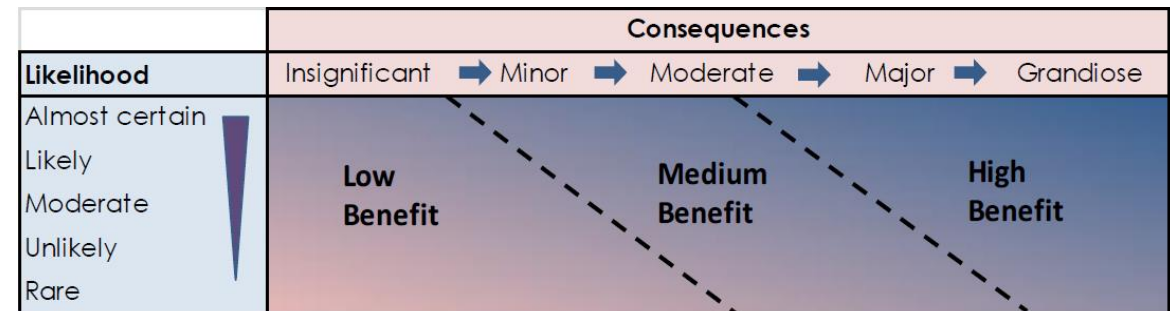
Work Package 2: Scenarios/risk-based approach

1. Multi-layer GH2 suitability mapping – identify regions more/less suitable for development
2. Identify impacts across development scenarios, compare to baseline
3. Assess opportunities and risks, recommend management actions (mitigation & enhancement)
 - Results of SEA feed into national planning (e.g. GH2 policy) and regional planning (e.g. EMF and SDF)

Assess risk



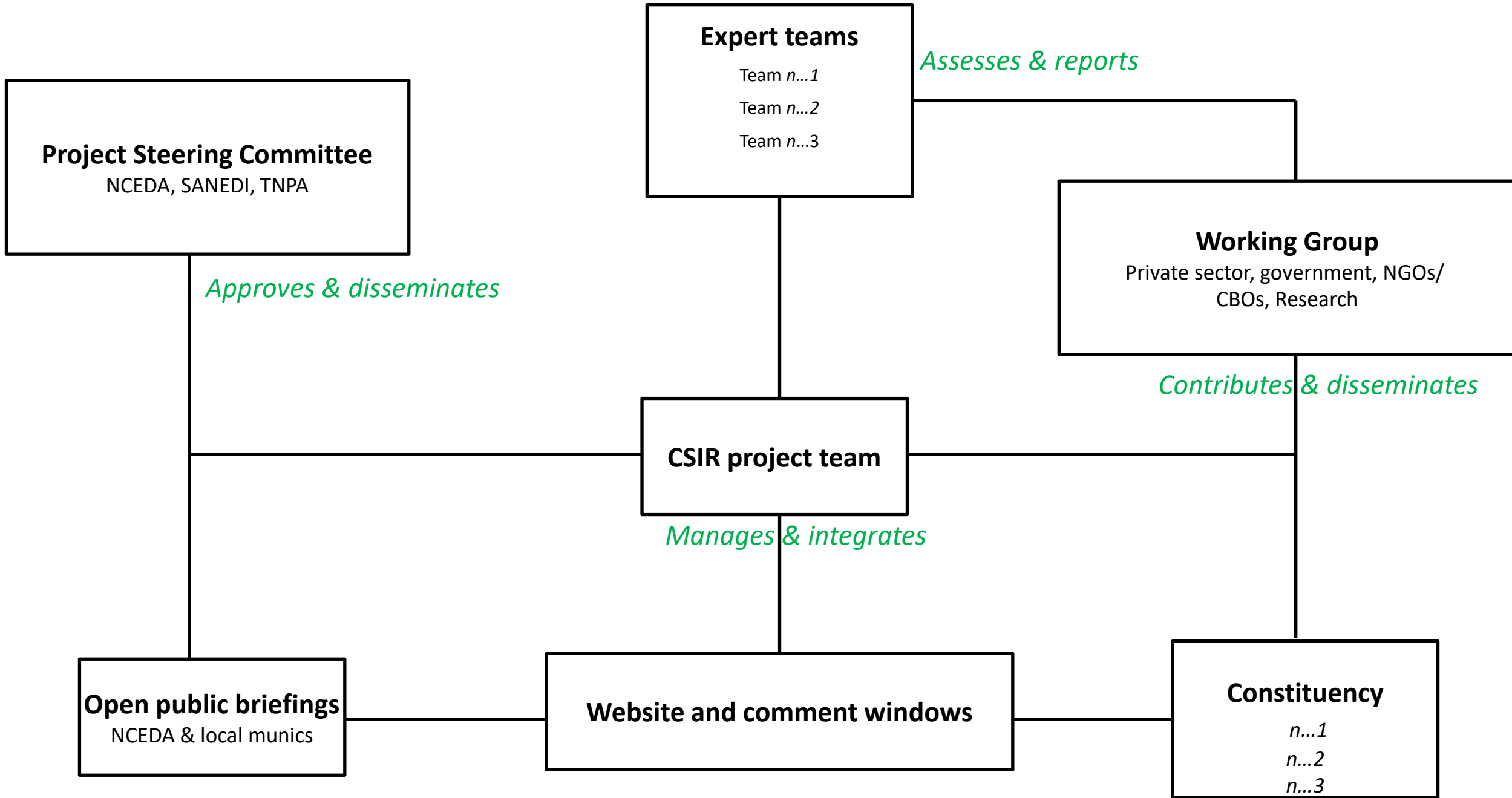
Assess opportunity



Stakeholder engagement

Elaborate governance and stakeholder engagement strategy has been developed:

1. Project Steering Committee (PSC) consisting of the project partners (SANEDI, NCEDA and TNPA) and CSIR concerned with the delivery of the Work Packages, on scope, brief and within budget.
2. Working Group (WG) consisting of various experts and organisations with an interest the Northern Cape, its social-ecological system and future development prospects.
3. Expert teams who are appointed to contribute expertise to the SEA in various capacities.
4. Public briefings where SEA introductions and draft findings will be presented.
5. Website which will host information and project outputs, made accessible to anyone.
6. Comment windows during which the public can engage and provide input to the SEA outputs.



END