

Boegoebaai Port Project

Business case review: Preliminary Results

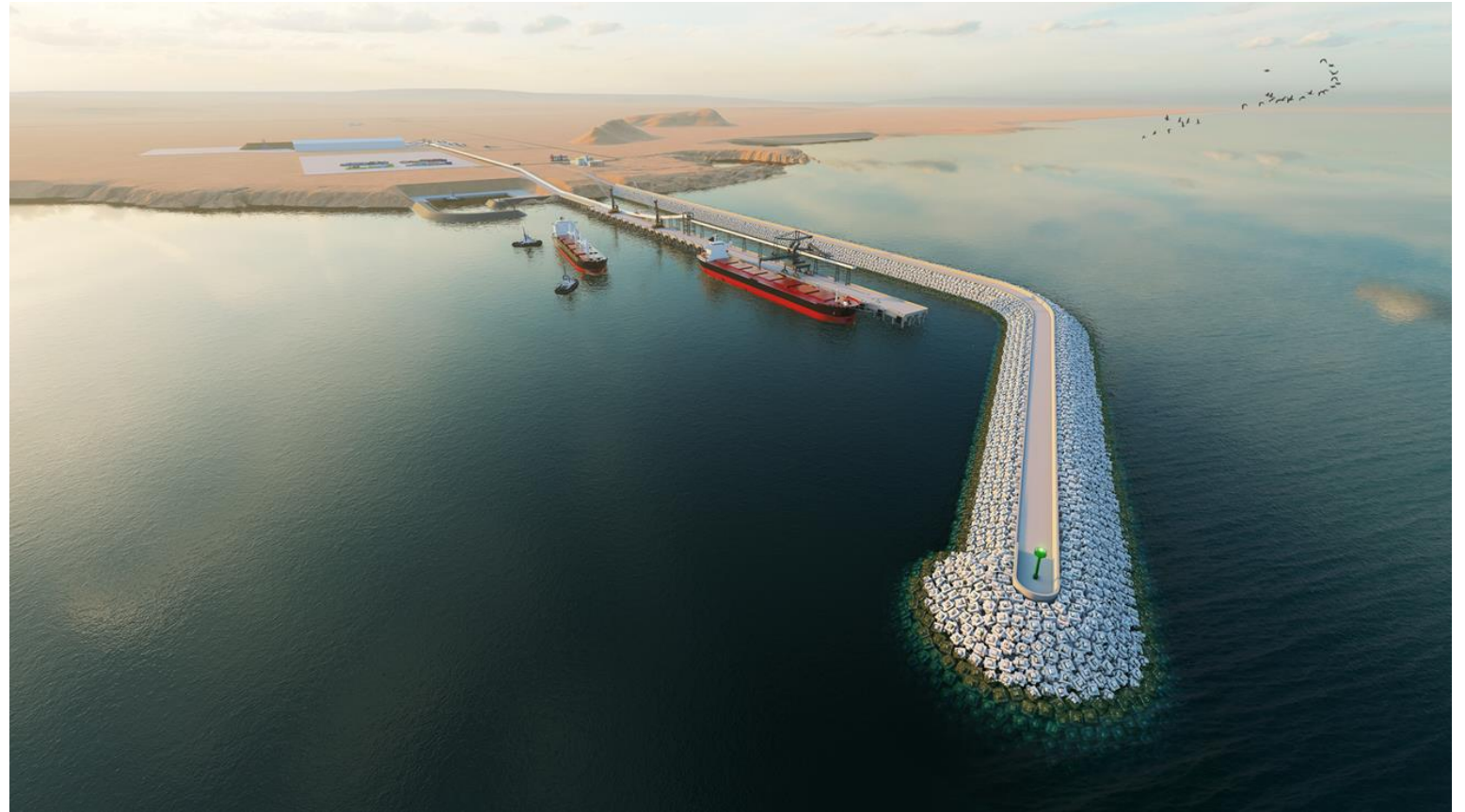
July 2022





Agenda

- Introduction and safety moment
- Project brief
- Previous business case
 - Project focus and drivers
 - Needs analysis and commodity mix
 - Results
- Updated business case
 - Project focus and drivers
 - Execution strategy
 - Commodity mix review
 - Liquid bulk
 - Manganese
 - Base case commodity mix
- Financial model and results
- Questions





- **Project brief**

- Consider the impact of the proposed development of Green Hydrogen production on the port business case.
- Requires an update of the commodity mix for the port
- Run updated high level financial model

- **Market engagement**

- A rapid market sounding was done, in order to review and update the previous commodity mix
- Engagements were held with all major stakeholders

- **Business case review**

- High level financial model created
- Results reviewed in relation to new business case
- Results are provided in the form of a presentation



- **The previous business case, submitted to Treasury and Transnet, aims to export/import bulk liquid, dry bulk commodities and break-bulk cargoes**
- **Project focus and drivers**
 - Meaningful infrastructure investment and a catalyst for economic growth
 - Northern Cape Province is rich in mineral resources
 - Service opportunities for emerging miners
 - The existing export routes (supply chains) are constrained
 - Proposed Project intended as Public Private Partnership in terms of Treasury Regulation 16

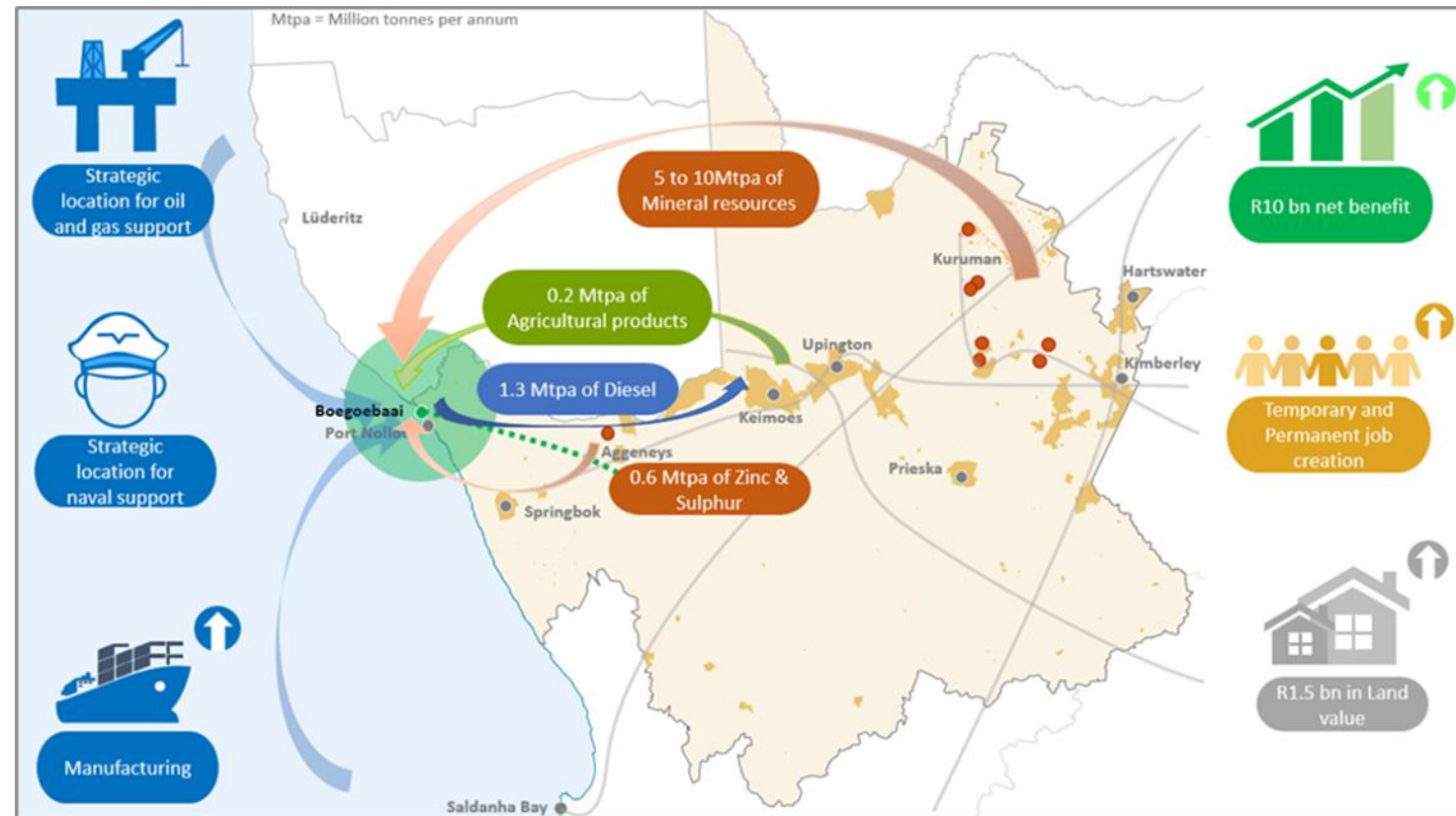
Project drivers:

- Reduce the economic cost of moving cargo within the Northern Cape hinterland
- Unlock greater export logistics capacity for minerals in the Northern Cape
- Optimise the cargo distribution within the South African port system
- Stimulate regional and provincial socio-economic development
- Secure a competitive advantage regionally for South African Ports
- Offer in addition to Saldanha Bay , a means of exporting surplus volumes of minerals



- **Needs analysis and commodity mix**
 - 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
 - Road based supply channel as shortest distance to export port

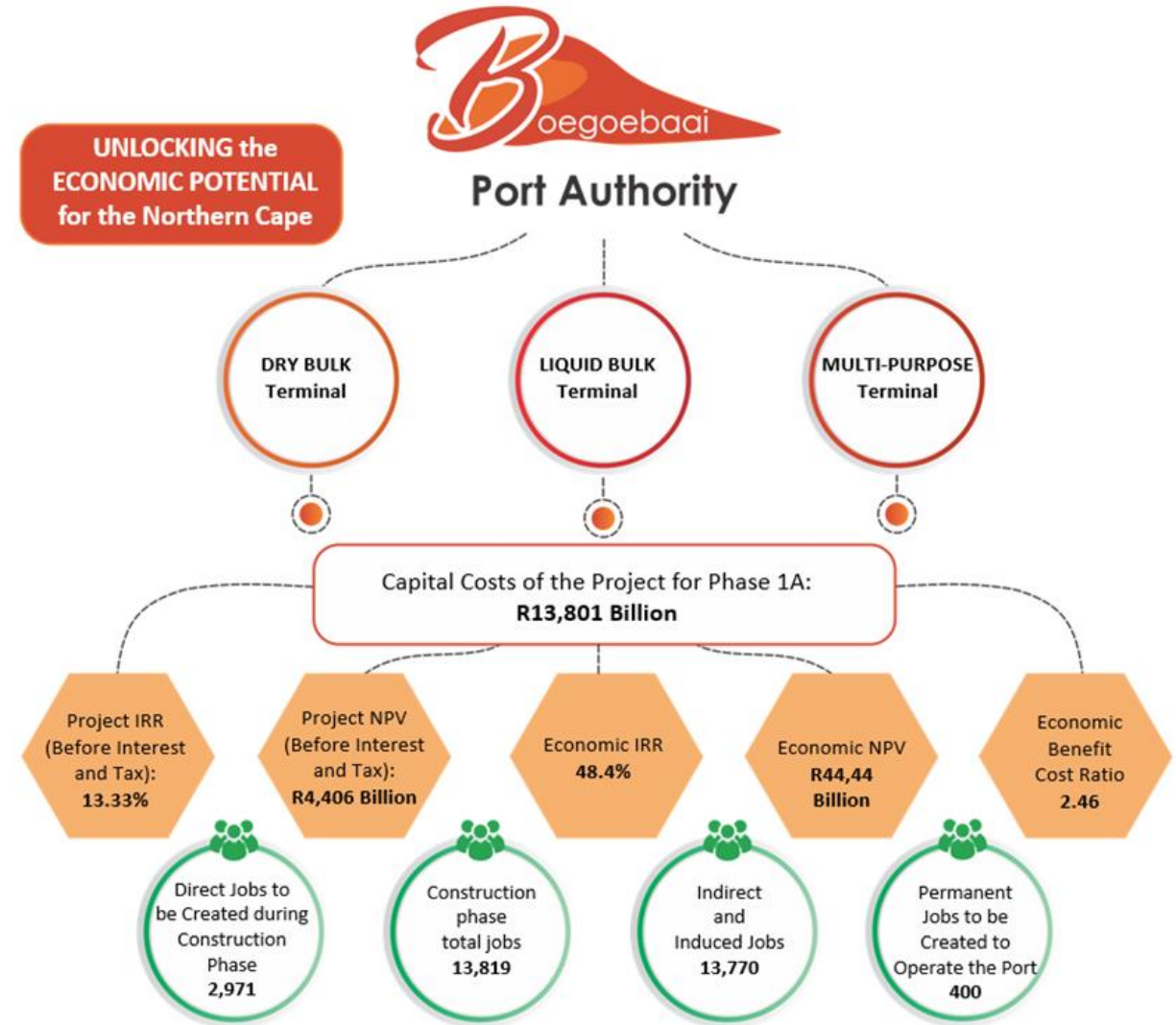
Cargo Type - Commodity	Volume (Mtpa) 2019	Volume (Mtpa) 2025	Volume (Mtpa) 2050
Dry bulk – Iron Ore	0	0	0
Dry bulk – Manganese	4.5	6.0	9.0
Break bulk – Lead/Zinc	0.7	0.7	0.7
Break bulk – Magnetite	0.3	0.3	0.3
Break bulk – Ilmenite	0.1	0.1	0.5
Liquid bulk – Diesel Oil	1.3	1.37	1.7
Containers – Agricultural Products	0.15	0.21	0.42
Containers – Salt	0.03	0.03	0.03
Containers – General Cargo	0.75	0.9	1.28
Total Demand	7.83	9.61	13.93





- **Results**

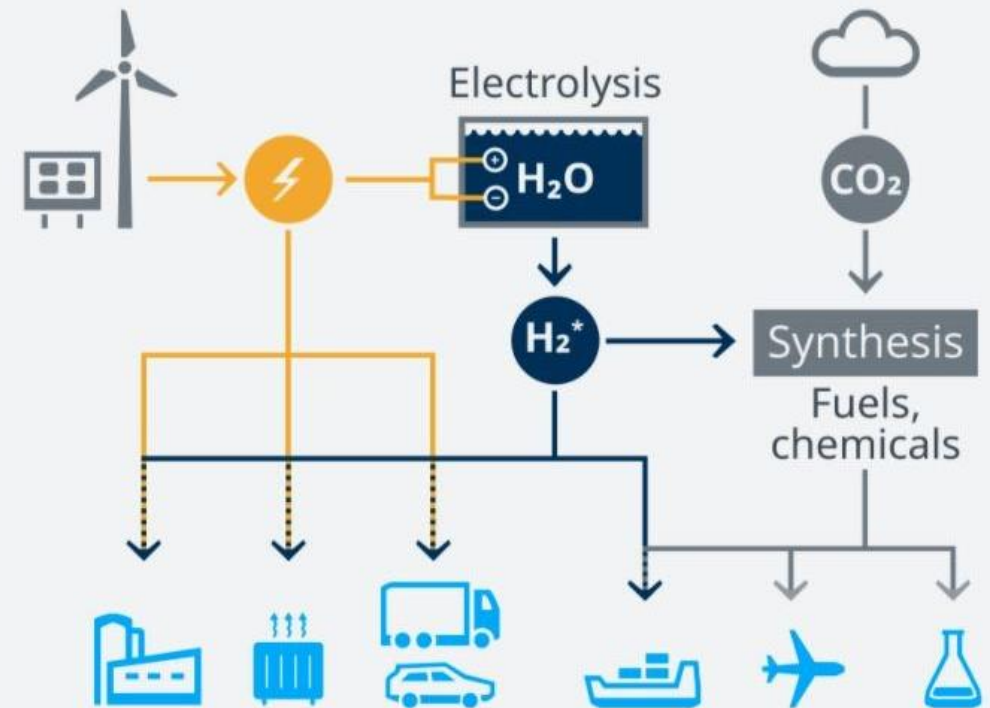
- Project will unlock economic potential by creating jobs:
- Phase 1 A with a capital cost of R 13.801 billion
- During construction (3-4 years) it is estimated that 2971 direct jobs and 13 819 induced jobs will be created
- Approximately 400 permanent jobs will be created after construction to manage the port
- Estimated that over time 13,770 jobs could be created in the region.





- **The revised business case aims to export/import mainly bulk liquids and dry bulk commodities. Some break bulk cargo can be accommodated**
- **Project focus and drivers**
 - The proposed development of Green hydrogen production in the region focusses on the export of Green Ammonia that now becomes a major commodity for the new port
 - The SASOL initial 5GW and provincial ramp up to 40GW in line with the Northern Cape Green Hydrogen Strategy ambition for the enablement and transition of hard to abate sectors and export potential. The aim is to start the export of Green Ammonia by mid 2027
 - The existing export routes (supply chains) are constrained and expensive for the mines, the Proposed Project creates new export capacity to expand the export of specifically Manganese

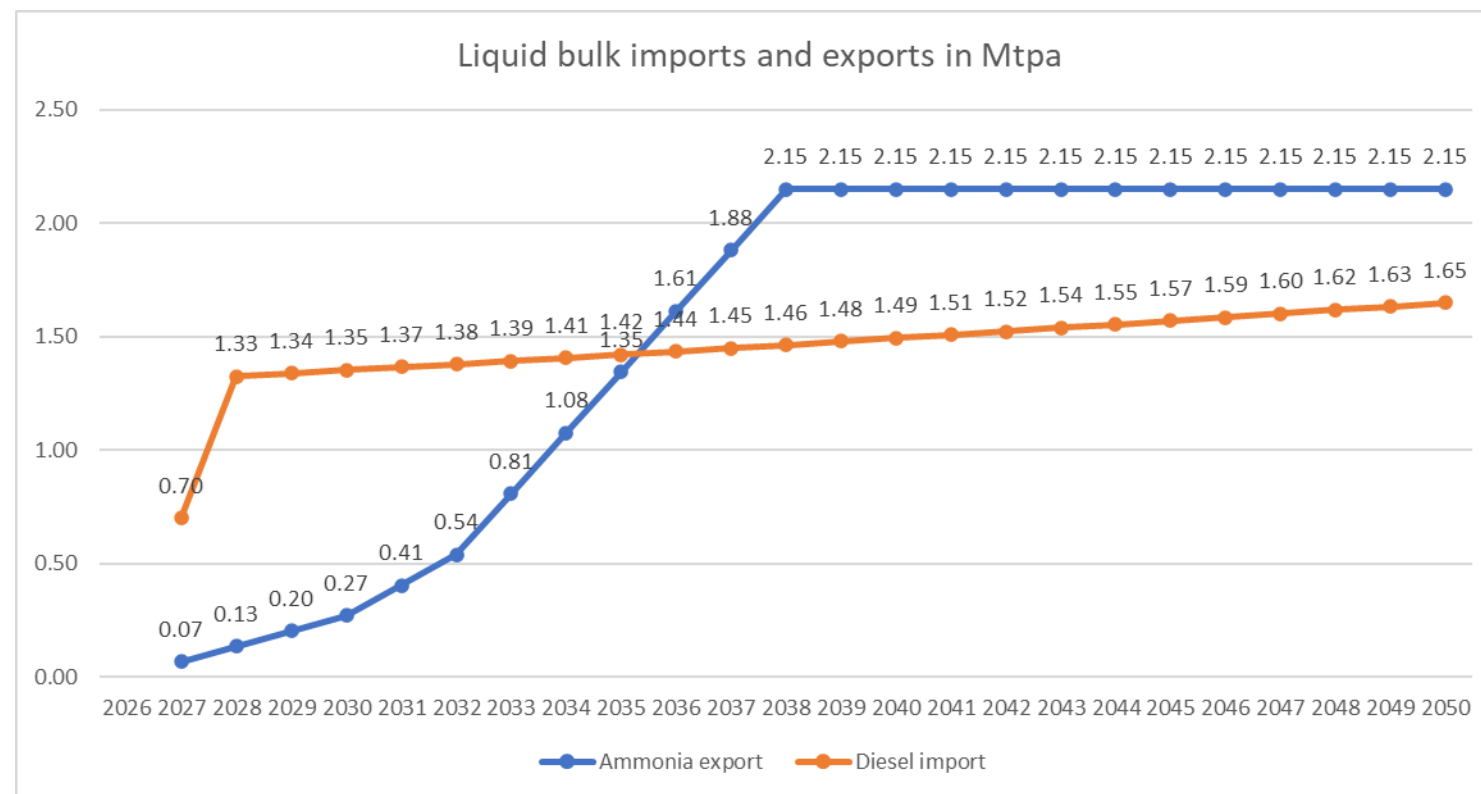
Power-to-x: carbon-neutral fuels





Commodity mix – Liquid bulk

- The initial estimates by SASOL in this regard is to produce and have available for export 0.07 Mtpa of Green Ammonia in the middle of 2027. This is planned to ramp up to 2.15 Mtpa by 2038.
- The reduced travel distances from a dedicated bulk fuel terminal in Boegoebaai would result in a lower logistics cost for the import of diesel to the area. It is therefore assumed that 1.3 Mtpa of diesel is expected to be imported at the port ramping up to 1.65 Mtpa in 2050.





Commodity mix – Manganese

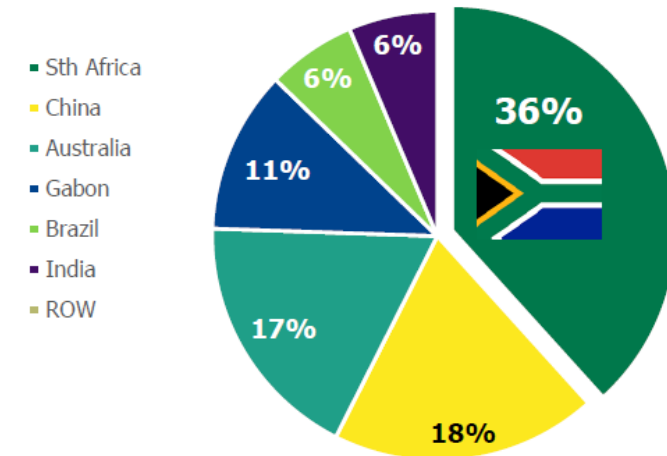
- SA remains the largest producer of seaborne Mn ore with largest in situ reserves (>80%)
- SA exports in 2020: 19.57 Mt. Rail: 12.98 Mt Road: 6.11 Mt SA exports in 2021 estimated at 21.5 Mt
- Currently SA's Mn ore production market share is 36%
- SA's Mn output is expected to increase strongly. Roskill predicts that SA will account for over half of new global Mn ore production over the next decade

Export demand

- Mn export demand from senior and emerging miners is extending beyond the export capacity. Volumes rapidly exceed 22 Mtpa in the short to medium term
- Growth in steel production is predicted at 2% per annum.
- Outside of its steel applications, manganese is slowly becoming a major contributor to the electric vehicle market
- Projections going forward are that the average growth in global demand for manganese is 4% per annum

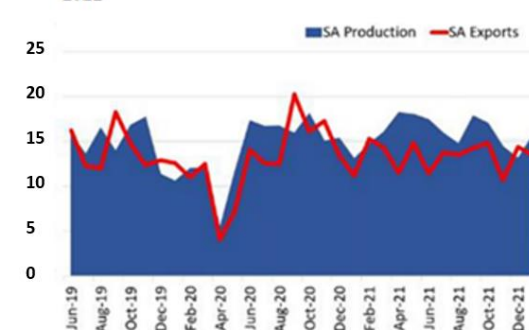
(Mordor intelligence and CRU Group – Manganese Market Outlook – July 2020)

Mn ORE PRODUCTION MARKET SHARE



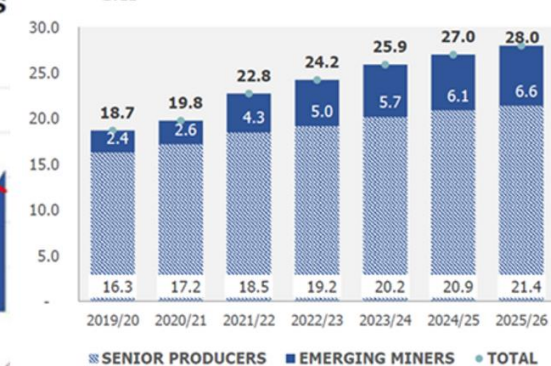
Source: Mining Review, Jan 2021

SA MANGANESE PRODUCTION VS EXPORTS 2022



Source: DMRE

MANGANESE EXPORT DEMAND 2022



Transnet segment strategy



• Mn export channel capacity

- Current Mn export channel capacities are constrained due to the different intermodal export solutions provided
- Transnet will seek support from the private sector to develop a world class 16 Mtpa Manganese export facility at the Port of Ngqura as a primary export channel, augmented by an increase in capacity to 6 Mtpa through the Port of Saldanha (*Transnet*)
- The Port of Lüderitz are planning to expand the export capacity of Mn to 0.8 Mtpa
- The timing of these expansions mentioned are unknown. For **projection** purposes it is assumed that these improvements are made and are **operational by 2027**

PORT	CHANNEL CAPACITY Mtpa
PE/Ngqura	10.01
Saldanha	5.00
Durban	0.30
Richards Bay	0.53
Cape Town	0.36
Lüderitz	0.40
Total Port Capacity	16.60

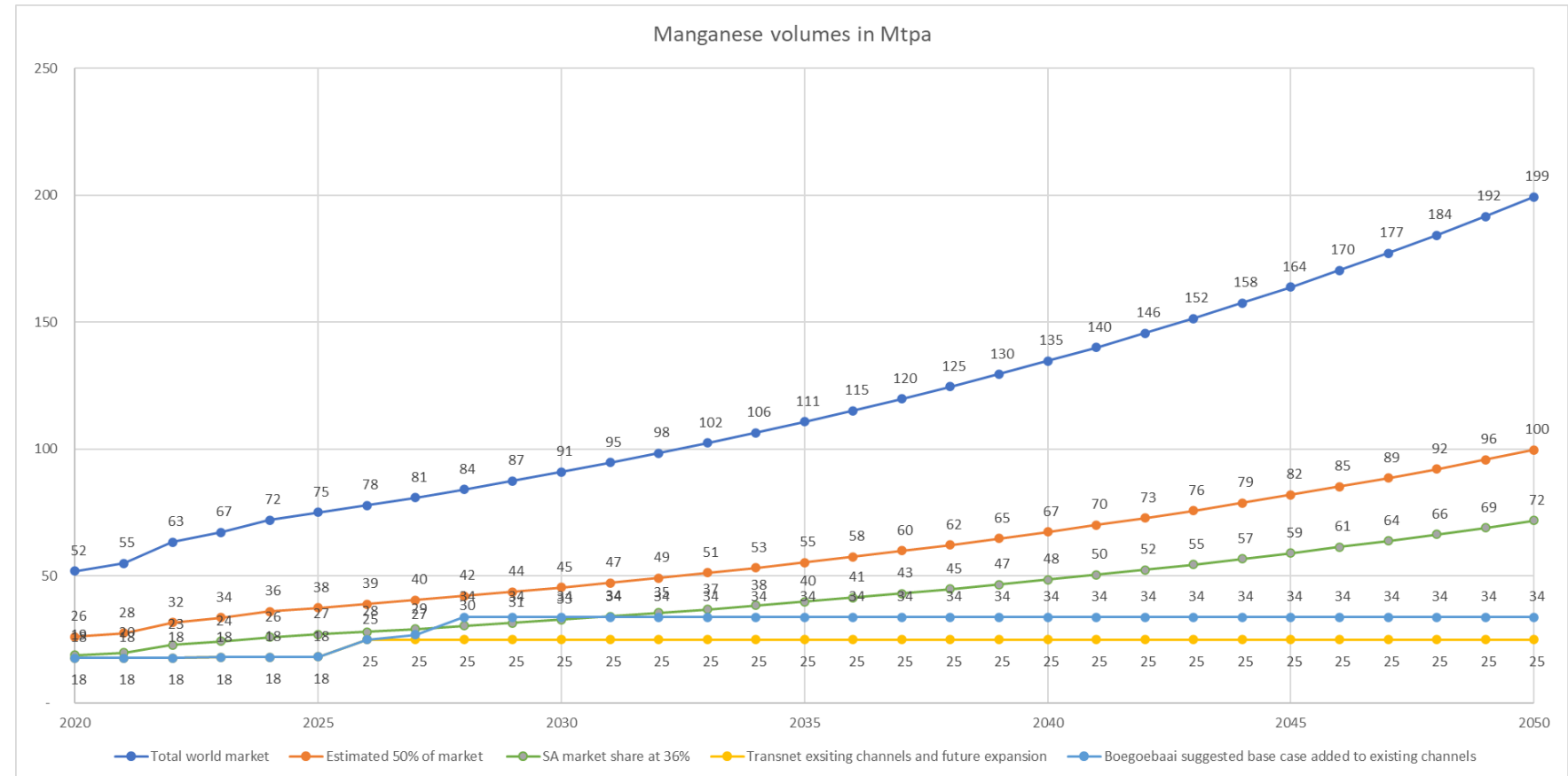
PORT	THEORETICAL PORT CAPACITY Mtpa	FUTURE EXPANSION PLANS (2027) Mtpa
PE/Ngqura	10.20	16.00
Saldanha	5.10	6.00
Durban	0.30	0.30
Richards Bay	0.70	0.70
Cape Town	1.00	1.00
Lüderitz	0.40	0.80
Total Port Capacity	17.70	24.80

(*Transnet segment strategy*)



• Manganese projections

- Assume market growth at 4%
- Assume all current export channels remain operational and port expansions are in place by 2027
- Lüderitz included at expanded 0.8 Mtpa
- Boegoebaai maximum Mn export 9 Mtpa due to road-hall limitations

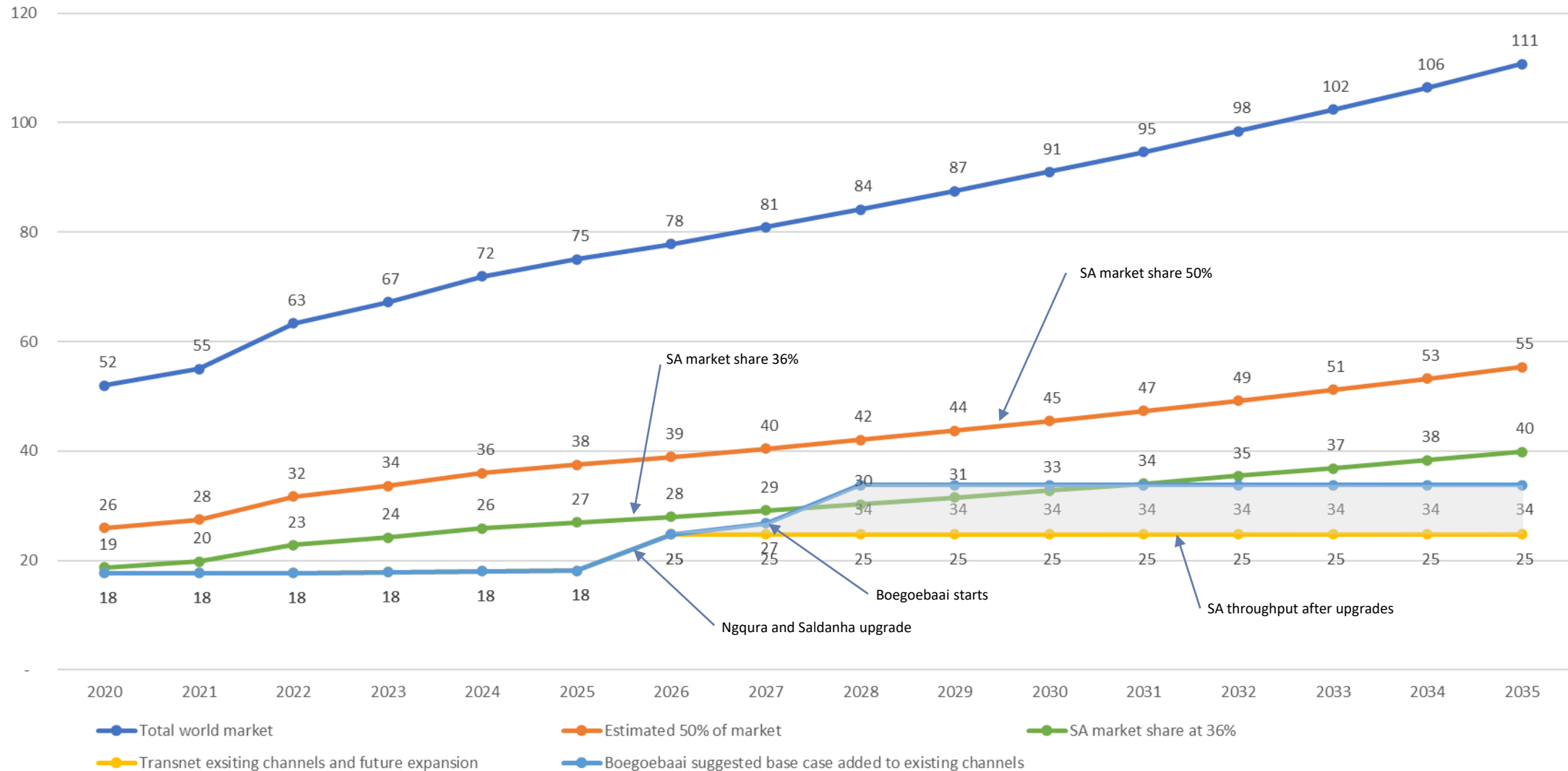


Boegoebaai Port Project

Updated business case



Manganese volumes in Mtpa

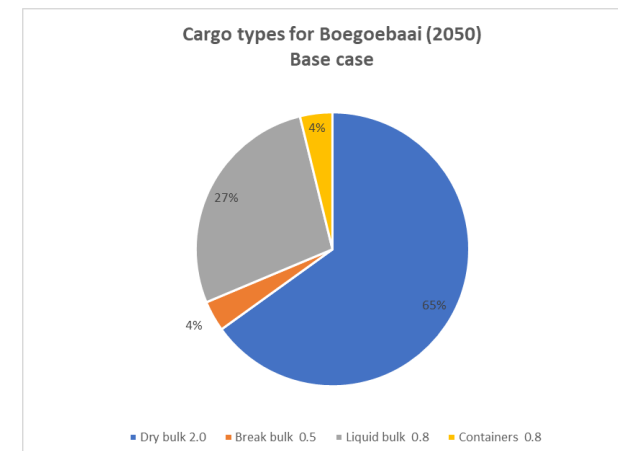
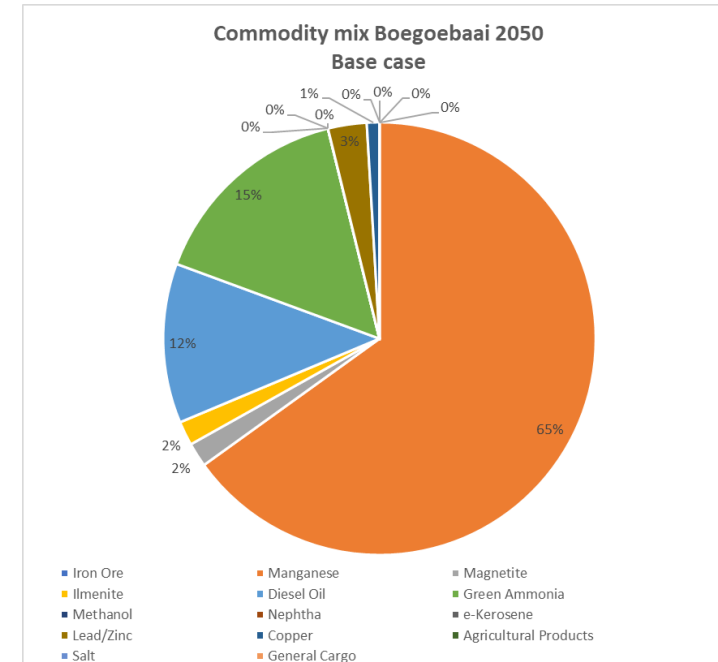




Base case commodity mix

- The products included in the base case are assumed to be routed to the port because it would be the closest port.
- The base case commodity mix includes general cargo during the initial stages, but after 2031 it would mainly be a dry-bulk and liquid bulk port due to capacity constraints

Cargo Type - Commodity	Volume (Mtpa) 2027	Volume (Mtpa) 2030	Volume (Mtpa) 2050
Iron Ore	0.0	0.0	0.0
Manganese	2.0	9.0	9.0
Magnetite	0.3	0.3	0.3
Ilmenite	0.3	0.3	0.3
Diesel Oil	0.7	1.4	1.7
Green Ammonia	0.1	0.3	2.2
Methanol	0.0	0.0	0.0
Naphtha	0.0	0.0	0.0
e-Kerosene	0.0	0.0	0.0
Lead/Zinc	0.2	0.4	0.4
Copper	0.1	0.1	0.1
Agricultural Products	0.2	0.2	0.0
Salt	0.0	0.0	0.0
General Cargo	0.3	0.8	0.0
Total Demand	4.1	12.6	13.8





- Financial mode and results: outline and calibration



INPUTS

- General
- Market Prices
- Throughput
- OPEX
- Vessels



WORKINGS

- Revenue
- Fixed Asset Roll-Forward
- OPEX
- Financials



OUTPUTS

- Cash flows
- IRR
- NPV
- Graphs
- Sensitivity



Financial model and results: Input

- General Input
 - Time periods
 - Funding
 - Interest
 - Tax
 - Inflation
 - Asset Insurance
 - Dividends
 - WACC
- Market Prices
 - Terminal rates
 - Marine services and cargo dues
 - Rental
- Throughput
- CAPEX
- OPEX
- Vessels

Factored throughput

Model Variables		2025	2026
		4	5
Cargo	Units		
Manganese	Tons/year	6 000 000	7 000 000
Iron Ore	Tons/year	-	-
Magnetite	Tons/year	300 000	300 000
Ilmenite	Tons/year	100 000	250 000
Lead and Zinc	Tons/year	700 000	700 000
Cement and Lime	Tons/year	-	-
Salt	Tons/year	28 000	28 000
Sulphuric Acid	Tons/year	-	-
Dry Bulk	Tons/year	-	-
Breakbulk	Tons/year	-	-
Diesel	Tons/year	1 366 313	1 379 976
Agriculture	TEUs/year	17 500	17 700
General Cargo	TEUs/year	75 000	78 000
Totals			
MPT&C	Tons/year	728 000	728 000
MPT&C	TEUs/year	92 500	95 700
Dry bulk	Tons/year	6 400 000	7 550 000
Liquid bulk	Tons/year	1 366 313	1 379 976
Group totals			
Manganese	Tons/year	6 000 000	7 000 000
Other Ores	Tons/year	1 128 000	1 278 000
Liquid	Tons/year	-	-
Containers	TEUs/year	17 500	17 700
Other Ores	Tons/year	-	-
Liquid	Tons/year	1 366 313	1 379 976
Containers	TEUs/year	75 000	78 000



Financial model and results: Workings

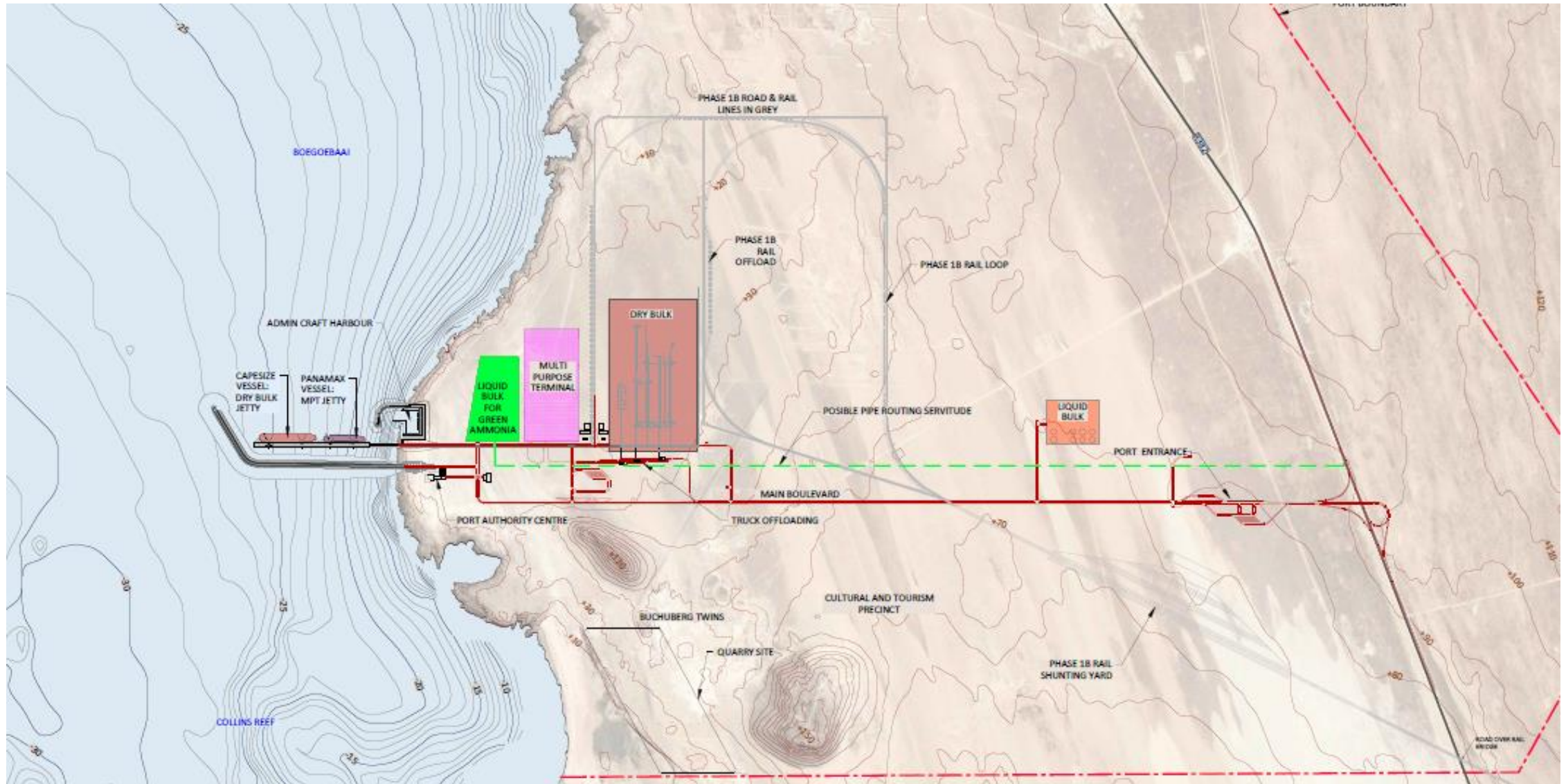
- Revenue
 - Cargo Revenue
 - Port Revenue (Marine Services, Cargo Due, Rental)
- Fixed Asset Roll-Forward
 - Straight line over 25 years, with scrap value
 - Terminals and Ports
- Terminals OPEX
 - Unit costs per Ton and TEU
 - % of terminal revenue
 - Rent due to Port
 - Asset Insurance
- Port OPEX
 - Fuel, crewing, maintenance, insurance etc
- Financials
 - EBITDA
 - Interest
 - Tax
 - Dividends
 - Repayment
 - Net cash on hand
 - etc

Cargo Revenue		units	base price (ZAR/Unit)	revenue (ZAR)
Year				2025
Year Number				4
Inflation index				124.6%
Manganese	Dry bulk	Export	91.88	687
Iron Ore	Dry bulk	Export	91.88	-
Magnetite	Dry bulk	Export	91.88	34
Ilmenite	Dry bulk	Export	154.35	19
Lead and Zinc	MPT&C	Export	154.35	135
Cement and Lime	MPT&C	Export	154.35	-
Salt	MPT&C	Export	154.35	5
Sulphuric Acid	Liquid bulk	Export	200.00	-
Dry Bulk	Dry bulk	Import	-	-
Breakbulk	MPT&C	Import	1 800.00	-
Diesel	Liquid bulk	Import	200.00	341
Agriculture	MPT&C	Export	1 800.00	39
General Cargo	MPT&C	Import	1 800.00	168

Port OPEX		units	base price (ZAR/Unit)	OPEX (ZAR millions)	
Year				2025	2026
Year Number				4	5
Inflation index				124.6%	130.2%
Annual fuel costs	ZAR per Ship		5 818.00	2.3	2.6
Annual crewing costs	ZAR per Ship		236 842.00	95.0	107.0
Annual maintenance, marine services	ZAR per Ship		74 558.00	29.9	33.7
Annual Maintenance for port Infrastructure	% of Capex		0.01%	1.0	1.1
Asset Insurance	% of Asset Value p/a		0.10%	9.5	9.1
Total Port OPEX				(137.8)	(153.5)

Boegoebaai Port Project

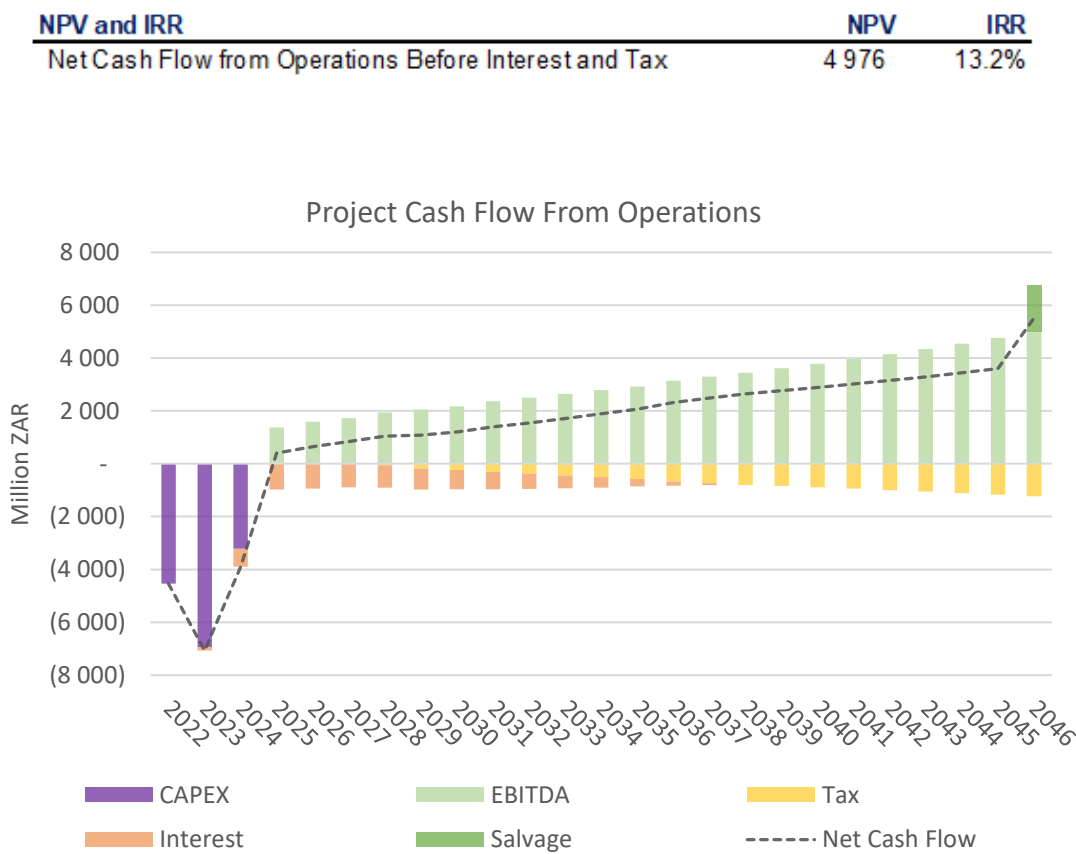
Updated business case – Phase 1 Option



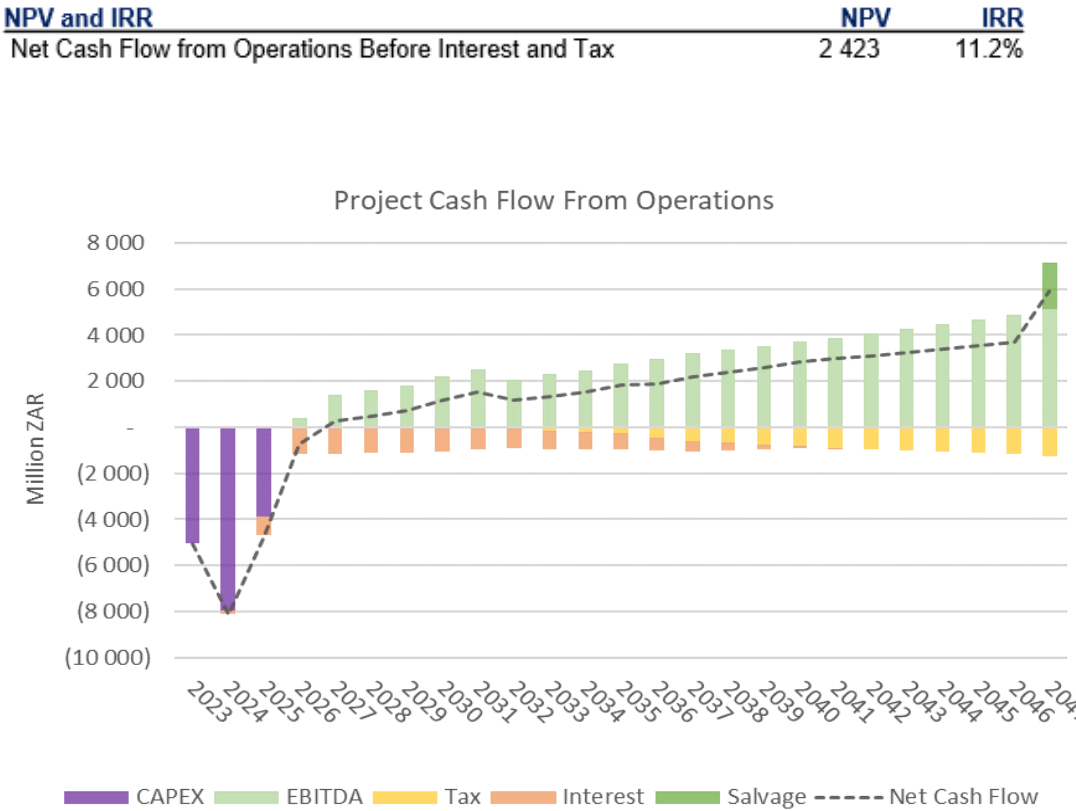


Financial model and results: Output

Previous Model (Project)



Updated Model (Project)

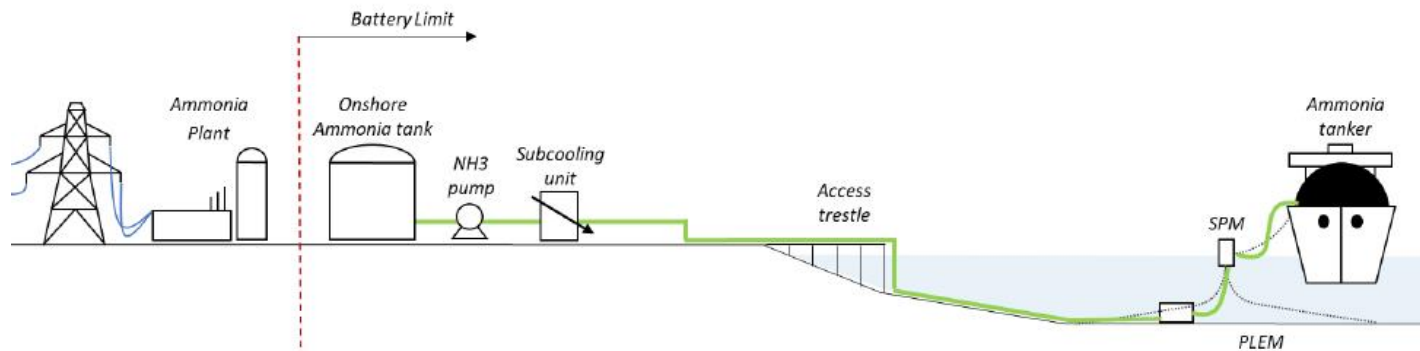


Concept Design

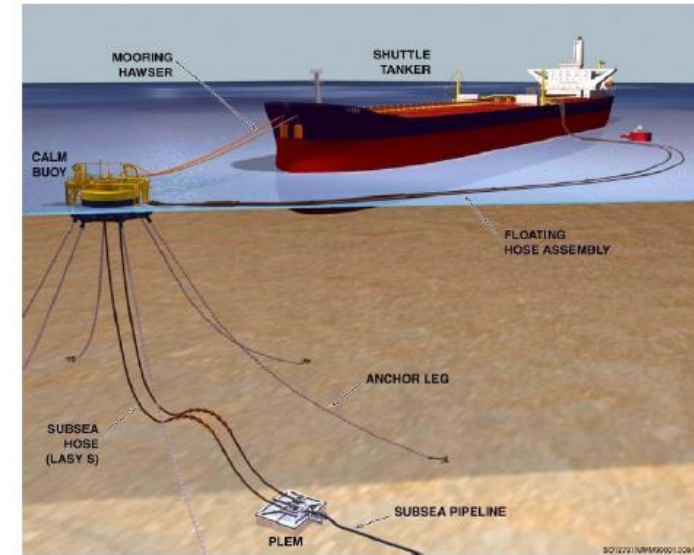
Marine Infrastructure Requirements

The port facilities comprise of the following:

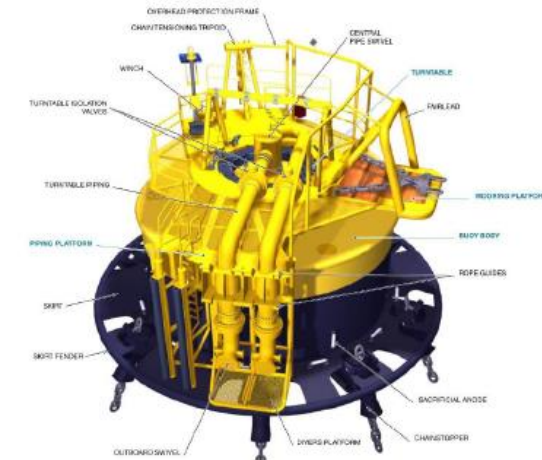
- Single Point Mooring Terminal
- Subsea and onshore pipelines
- Light weight trestle for shore crossing
- Desalination intake and outfall
- Desalination pipelines



Illustrative Section of Major Components



SPM Terminal Illustration (IMODCO)



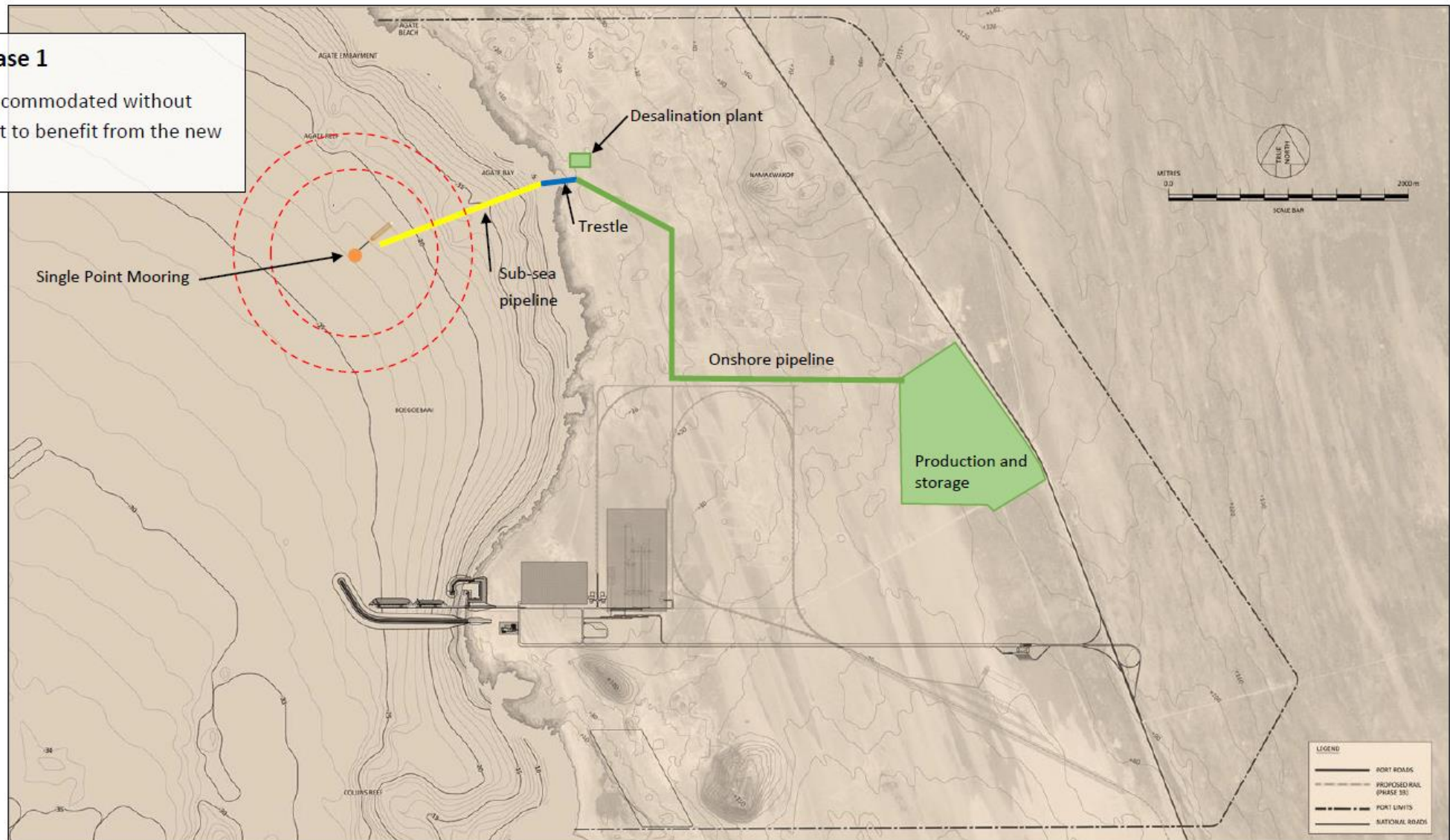
CALM Buoy Illustration (IMODCO)



Concept Design

Incorporation into Phase 1

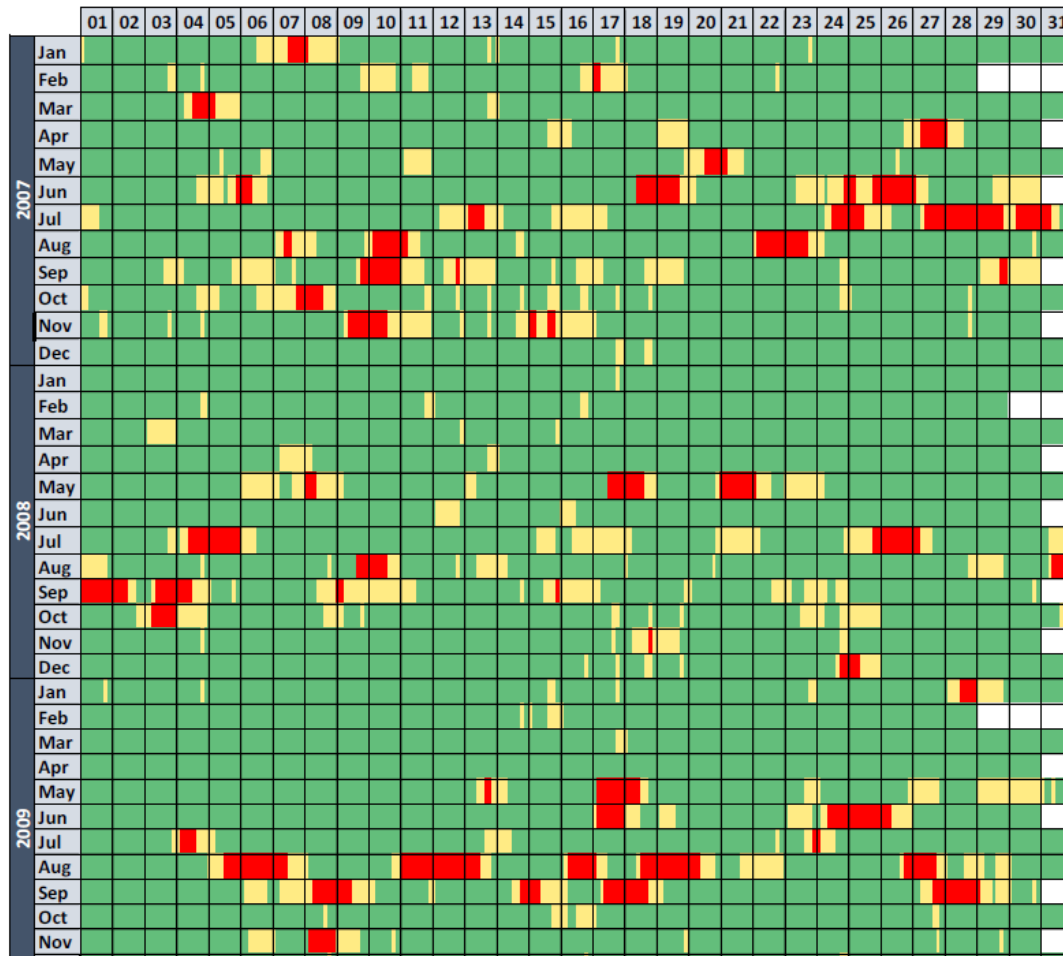
- The facility may be accommodated without impacting phase 1 but to benefit from the new breakwater.





Phase 0 – SPM option

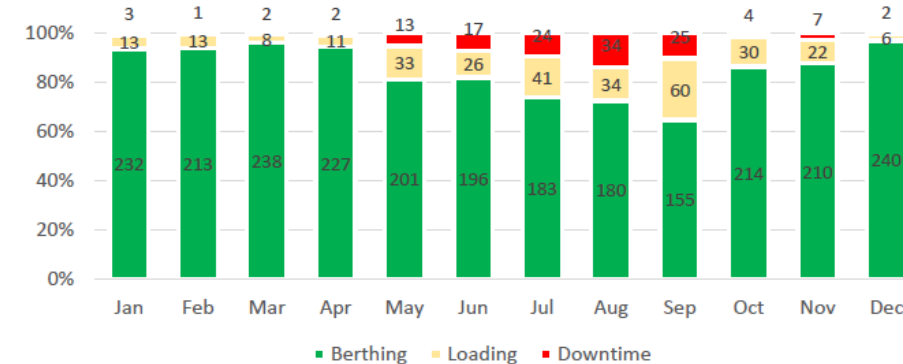
SPM Wave and Wind Combined Uptime Calendar



- Wind and wave combined uptime calendar prepared for three years (2007-2009)
- The overall uptime varies between 65% and 97%
- Downtime dominated by waves
- Longest period of downtime in August 2008 (26.6%)

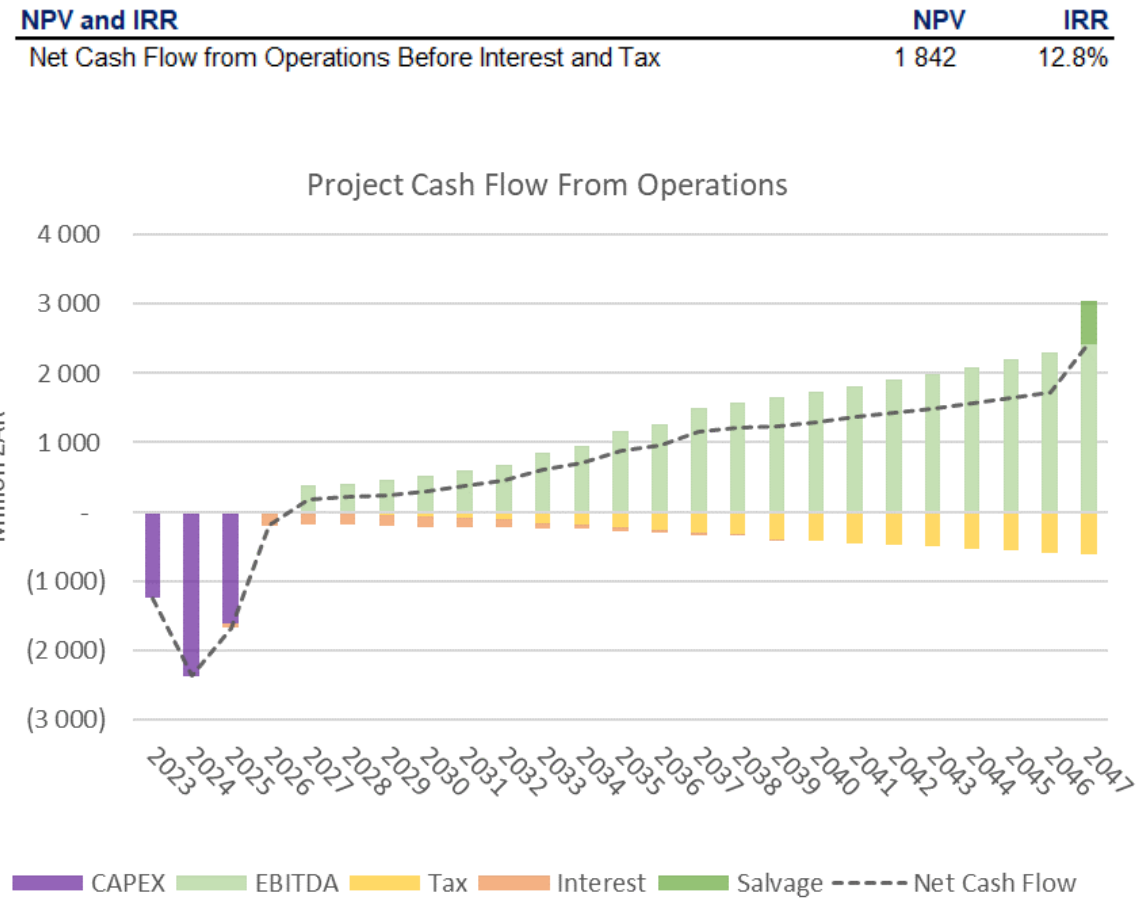
Limits	Wave (m)	Wind (m/s)
Berthing	<2.5	<17
Loading	<3	<30
Downtime	>3	>30

3 Year Monthly Average Hours Available for Berthing, Loading and Downtime





- SPM only





- **Next steps?**
 - Define project extent to meet stakeholder requirements
 - Develop a contracting strategy
 - Develop business model in more detail
 - Develop SPM option to FEED/FEL 2 level as possible first stage for SASOL
 - Address SASOL project cargo requirements – Transportation study
- **Questions and Discussion**