



MEETING NOTES

JOB TITLE	Camden Green Hydrogen and Ammonia Facility
PROJECT NUMBER	41103247
DATE	04 November 2021
TIME	10h00 – 11h07
VENUE	Online (MS Teams)
SUBJECT	Pre-Application Meeting with MDARDLEA
CLIENT	ENERTRAG South Africa (Pty) Ltd
PRESENT	Sindisiwe Mbuyane (MDARDLEA) – SM Sean Maphosa (ENERTRAG) – SMa Zwivhuya Mutele (ENERTRAG) – ZM Gideon Raath (ENERTRAG) – GR Ashlea Strong (WSP) – AS Babalwa Mqokeli (WSP) – BM
APOLOGIES	None
DISTRIBUTION	As above (Appendix A)

MATTERS ARISING

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MATTERS ARISING	ACTION
1.0 INTRODUCTIONS AND WELCOME	
<ul style="list-style-type: none">– AS welcomed the attendees. The meeting AS stated the purpose of the meeting; that is a pre application meeting for the proposed Camden Green Hydrogen and Ammonia Electrolyser Plant near Ermelo in Mpumalanga. This was followed by a round of introductions and an outline of the meeting agenda.– A presentation was made to all attendees to provide information on the proposed project. <p><i>*AS received consent from all parties present to record the meeting.</i></p> <p><i>** A copy of the PowerPoint presentation has been attached hereto for reference (Appendix B).</i></p>	
2.0 PRESENTATION AND DISCUSSION	
2.1 Project Background and Description <ul style="list-style-type: none">– AS provided the project background (project is part of the Camden Renewable Energy Complex):<ul style="list-style-type: none">▪ Some of the energy from the Renewable Energy Facilities (Wind and Solar) will be used in the Green Hydrogen and Ammonia Facility	

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- AS highlighted that the Environmental Authorisation (EA) Processes for the Wind and Solar will be run via the DFFE as the Competent Authority (CA) and the Green Hydrogen and Ammonia Hydrogen facility via MDARDLEA as the CA.
- AS outlined that the proposed Project will be applied for under a Special Purpose Vehicle (SPV), and the Applicant will be the Camden Green Energy RF (Pty) Ltd for this facility.
- The location of the Project area is in the Msukaligwa Local Municipality, within the Gert Sibande District Municipality, in the Mpumalanga Province.
- The Project is in Portion 1 and Portion 2 of Welgelen Farm 322.
- The approximate footprint of the facility is approximately 25 hectares, based on the provisional design and therefore likely to change once designs have been finalised.
- The location of the Project area, and alternative sites for the Green Hydrogen & Ammonia Plant, was shown on the map, in relation to the Camden Renewable Energy Complex.
- AS outlined the three types of Hydrogen, namely brown, grey, and green hydrogen; based on the process used to make them and the emissions each process emits. Highlighting that green hydrogen production process relies exclusively on renewable resources (such as the wind and solar facilities that are proposed as part of the Complex). The method has no associated Greenhouse Gas emissions in generating the hydrogen and ammonia.
- AS outlined the use of Hydrogen and Ammonia in the commercial space (refer to **Appendix B** for more detail).
- AS provided technical details of an Integrated Hydrogen and Ammonia Complex.
- GR provided technical detail on the general process of ammonia production.
- The components associated with the facility were outlined (refer to **Appendix B** for more detail), including provisional values for the storage capacity and maximum throughput. Highlighted that these are provisional values which are subject to change, pending further layout revisions.
- AS outlined the four potential water sources for the water required for the facility:
 - Groundwater – pending confirmation on water quality suitability for use
 - Municipal water – discussions underway and still to be confirmed
 - Purified wastewater sourced from surrounding commercial and mining facilities – still under discussion
 - Usuthu pipeline currently feeding some of the mines and power stations in the area (preferred water source)
- AS ran through the Water Treatment component, the Electrolyser component, the Air Separation Unit component, Ammonia Processing Units and Storage component of the facility (refer to **Appendix B** for more detail).
- Key considerations noted included:
 - The Project Area may fall within critical biodiversity areas (CBAs), ecological support areas (ESAs) depending on the final location of the facility.
 - The Langcarel Private Nature reserve is an identified Protected Area within the Project Area (although not currently utilised as nature reserve, but rather agricultural), and
 - The project area falls within the Air Quality Highveld Priority Area

2.2 **Permitting Processes**

- AS ran through the provisional EA Processes that will be required:
 - Scoping and Environmental Impact Assessment (S&EIA) Process:
 - Listing Notice 2 Activities are associated with the Green Hydrogen and Ammonia Electrolyser Facility
 - Atmospheric Emissions Licence (AEL):
 - An AEL may be required and will be discussed for confirmation with the District Air Quality Department
 - Water Use Licence / General Authorisation Process will be undertaken concurrently with the other processes
- AS ran through the applicable Listed Activities of the EIA Regulations (2014, as amended) that have been identified to date, noting that Listing Notice 1, Listing Notice 2

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and Listing Notice 3 are triggered as applicable for each of the activities/infrastructure associated with the project.

- AS highlighted that additional Listing Notice 3 Activities may be identified as the S&EIA Process progresses and will be added to the Application.

2.3 **Specialist Assessments**

- AS ran through the identified sensitivities as per the DFFE Online Screening Tool report, and specialist assessments noted therein.
- AS identified the specialist assessments that are to be undertaken as part of the S&EIA process, as well as the studies that are not being undertaken as part of the assessment and supporting reasons for their exclusion. The specialist studies are outlined as follows:
 - Specialist Studies Commissioned:
 - Soils and Agricultural Potential
 - Archaeology and Cultural Heritage
 - Palaeontology
 - Visul
 - Terrestrial Biodiversity
 - Surface water
 - Avifauna
 - Social
 - Noise
 - Desktop Geotechnical
 - Traffic
 - Specialist Studies excluded:
 - Detailed Geotechnical
 - Radio Frequency Interference
 - Civil Aviation
 - Defence
- AS added that desktop assessments will be undertaken for Geotechnical and Traffic. A detailed geotechnical assessment will only be undertaken during the design phase (following EA issuance).
- AS highlighted that the relevant Stakeholders/Commenting Authorities for the studies that will not be undertaken (such as Defence, Civil Aviation and RFI) will be consulted for comment as part of PPP. No studies are required for these aspects/themes according to the Protocols for these themes. ATNS will also be added to the Stakeholder database, as per the confirmation that they are now the relevant official for Obstacle Authority.

2.4 **Public Participation Process**

- AS provided an overview of the proposed public participation process (PPP) in accordance with the EIA Regulations (2014, as amended).
- AS highlighted that the PPP will be linked to the PPP for the Camden Renewable Energy Complex, that is a consolidated PPP for all applications
- AS outlined that the PP will consist of:
 - Site notices in English, Afrikaans and IsiZulu
 - Compilation and management of I&AP Database
 - Written notification to:
 - Owners and occupiers on or adjacent to the proposed project site
 - Municipality Ward Councillor
 - District Municipality
 - Relevant State Departments
 - Advertisement in English, Afrikaans and IsiZulu in local newspaper
 - Reports will be available for public review for 30 days as required
 - No provision has been made for face-to-face public or focus group meetings, virtual meetings will be held if required. However, if requested then public meetings may be held in line with applicable Covid measures.

2.5 **Timeframes**

- AS noted, that the project will follow the standard Authority timeframe of 107 days decision on the Application.

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<ul style="list-style-type: none"> — AS outlined key milestone dates: <ul style="list-style-type: none"> ▪ Submission of Application Forms – January 2022 ▪ Draft Scoping Report Public Review – January – February 2022 ▪ Submission of Final Scoping Report – March 2022 ▪ Draft EIA Report Public Review – June – July 2022 ▪ Submission of Final EIA Report - August 2022 	
<p>3.0 QUESTIONS AND COMMENTS</p>	
<p>AS opened the floor for any comments or questions. The following items were raised and discussed.</p> <p>3.1 Specific Clarification</p> <ul style="list-style-type: none"> — SM stated that it is noted that a Desktop Geotechnical study will be undertaken but wouldn't there be structures on site. <ul style="list-style-type: none"> ▪ GR confirmed that there would be structures on site, and that a Desktop Geotechnical Assessment would suffice at this stage and a detailed assessment would be required and undertaken post EIA. — SM emphasised the inclusion of the Mpumalanga Tourism Parks Agency (MTPA) as a Commenting Authority. — SM added that the process must bear in mind that the Mpumalanga Province does not have Bioregional Plans but has Systematic Plans (Mpumalanga Biodiversity Plan) and there is therefore the possibility that some of the activities in Listing notice 3 that are applicable to Bioregional Plans may not be triggered. SM stated that she will also confirm on her side once the application is received, in terms of applicable Activities. — AS also added that a Risk Assessment study (Qualitative) will also be undertaken for the project, particularly for the storage of dangerous goods. — SM enquired whether a Socio-economic Assessment will be undertaken. <ul style="list-style-type: none"> ▪ AS confirmed that a Socio-economic Assessment is included as part of the Specialist studies for the Project — SM requested clarity on the Applicant and Developer as separate entities. <ul style="list-style-type: none"> ▪ GR stated that Enertrag as a developer undertakes various developments however these are undertaken under SPVs as separate legal entities. The SPV is the Applicant in terms of the EA Application form and that will be the entity that the EA is registered to once issued. This allows for management and handing over of the EA in a separate financial vehicle and separate legal entity. The process is a corporate strategy approach from a business perspective; where a separate company is established, and any other authorisation and licences associated with the project are linked to this company and are managed separately under this company. ▪ SM asked that given the above, would the DFFE not be the CA on the Application ▪ AS confirmed that it is the EAPs opinion that DFFE is not the CA as the project is not an electricity-based project and is not part of the REIPP process, nor is it part of DMR's IRP process. The Applicant is also not a State-Owned Enterprise. ▪ SM will also confirm from the Department's side whether MDARDLEA is the relevant Authority prior to the Application being received. — SM requested clarity on the use of wastewater from the facility by local farmers. <ul style="list-style-type: none"> ▪ AS confirmed that it can be used by local farmers for irrigation purposes, that is it is one of the options, however the preferred option is to crystallise the brine produced by the RO plant. The different options will be assessed in the EIA. — SM asked whether the use of Municipal water supply is still at discussion phase and has not been confirmed at this stage. <ul style="list-style-type: none"> ▪ GR added that no confirmation has been received yet whether the project can be supplied with Municipal water. ▪ SM enquired on whether the boreholes on site have sufficient water yield to support the project. <ul style="list-style-type: none"> — GR stated that the Usuthu pipeline is currently the preferred option for water supply for the project due to the water quality being suitable for the project, and that ground water use from the boreholes is still being investigated in terms of groundwater surveys forming part of the EIA process. At this stage it considered 	<p>Although agreed during the meeting, SM requested to confirm that MDARDLEA is indeed the Competent Authority for the project.</p>

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<p>a second option and more information and suitability for use would be determined at a later stage. The project is considering a few avenues for water supply, however supply from the Usuthu pipeline is the preferred option currently.</p> <ul style="list-style-type: none">— AS asked whether MDARDLEA requires the submission of a formal Public Participation Plan.<ul style="list-style-type: none">▪ SM confirmed that the plan presented in the presentation is suitable and that submission of the presentation is sufficient, and no formal separate PP Plan is required.▪ It was confirmed that the PP Plan presented was approved by MDARDLEA during the meeting.	
4.0 WAY FORWARD	
<ul style="list-style-type: none">— WSP to formalise meeting minutes and submit via email to MDARDLEA for approval. <p>No further points were raised for discussion.</p> <p>The meeting was closed at 11:07</p>	<ul style="list-style-type: none">— WSP to formalise meeting minutes and distribute for approval

NEXT MEETING

No additional meetings have been scheduled.


MEETING NOTES

APPENDIX A: MEETING ATTENDANCE

Meeting Summary						
Total Number of Participants	7					
Meeting Title	Pre-Application Meeting - MDARDLEA - Camden Green Hydrogen and Ammonia Electrolyser Plant					
Meeting Start Time	11/4/2021, 9:56:09 AM					
Meeting End Time	11/4/2021, 11:14:41 AM					
Meeting Id	35f2bc46-9d4f-41a8-9505-e83aaeb7c34e					
Full Name	Join Time	Leave Time	Duration	Email	Role	Participant ID (UPN)
Strong, Ashlea	11/4/2021, 9:56:09 AM	11/4/2021, 11:14:33 AM	1h 18m	Ashlea.Strong@wsp.com	Organizer	Ashlea.Strong@wsp.com
Mqokeli, Babalwa	11/4/2021, 9:58:57 AM	11/4/2021, 11:14:41 AM	1h 15m	Babalwa.Mqokeli@wsp.com	Presenter	Babalwa.Mqokeli@wsp.com
Gideon Raath	11/4/2021, 9:59:13 AM	11/4/2021, 11:08:14 AM	1h 9m	Gideon.Raath@enertrag.co.za	Presenter	Gideon.Raath@enertrag.co.za
Zwivhuya Mutele	11/4/2021, 9:59:30 AM	11/4/2021, 11:08:15 AM	1h 8m	Zwivhuya.Mutele@enertrag.co.za	Presenter	Zwivhuya.Mutele@enertrag.co.za
Sean Maphosa	11/4/2021, 10:02:52 AM	11/4/2021, 11:08:16 AM	1h 5m	Sean.Maphosa@enertrag.co.za	Presenter	Sean.Maphosa@enertrag.co.za
Sindisiwe Mbuyane	11/4/2021, 10:04:28 AM	11/4/2021, 10:24:20 AM	19m 52s		Presenter	
Sindisiwe Mbuyane	11/4/2021, 10:25:15 AM	11/4/2021, 11:08:15 AM	43m		Presenter	

MEETING NOTES

APPENDIX B: PRESENTATION



MDARDLEA Pre-Application Meeting

Camden – Green Hydrogen & Ammonia Electrolyser Plant

4 November 2021

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Introductions

- **Developer:**
ENERTRAG South Africa (Pty) Ltd:
 - SPV: Camden Green Energy RF (Pty) Ltd
 - Gideon Raath
 - Zwivhuya Mutele
 - Sean Maphosa
- **EAP:**
WSP Group Africa (Pty) Ltd:
 - Babalwa Mqokeli (Environmental Consultant)
 - Ashlea Strong (Project Manager)
- **Authority:**
Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (MDARDLEA):
 - Sindisiwe Mbuyane




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Agenda

1. Overview of the Project
 - Background
 - Location
 - Project Description
2. Overview and Confirmation of Permitting Process
 - Listed Activities
 - Specialist Assessments as identified by DFFE Screening Tool
 - Specialist Studies commissioned
 - Specialist Studies not commissioned
3. Public Participation Process
4. Timeframes
5. Questions and Discussions
6. Way Forward



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Background

1. Overview of the Project

The proposed Camden Renewable Energy Complex is being developed near the Camden Power Station in the Mpumalanga Province.

The Complex will be divided into several standalone projects, namely:

- Camden I Wind Energy Facility (up to 210MW) *
- Camden I Wind Energy Facility up to 400kV Grid Connection, including up to 400kV Collector Substation and Camden Power Station up to 400kV Grid connection. *
- Camden I Solar 100MW *
- Camden I Solar up to up to 400kV Grid Connection *
- Camden II Wind Energy Facility (up to 210MW) *
- Camden II Wind Energy Facility up to 132kV Grid Connection *
- **Camden Green Hydrogen and Ammonia Facility**

* The competent authority for the remainder of the projects is the Department of Forestry, Fisheries and the Environment (DFFE)



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1. Overview of the Project

Applicant

The proposed project will be applied for under a Special Purpose Vehicle (SPV), as detailed below:

- Camden Green Energy RF (Pty) Ltd
 - Camden Green Hydrogen and Ammonia Electrolyser Facility



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1. Overview of the Project

Location

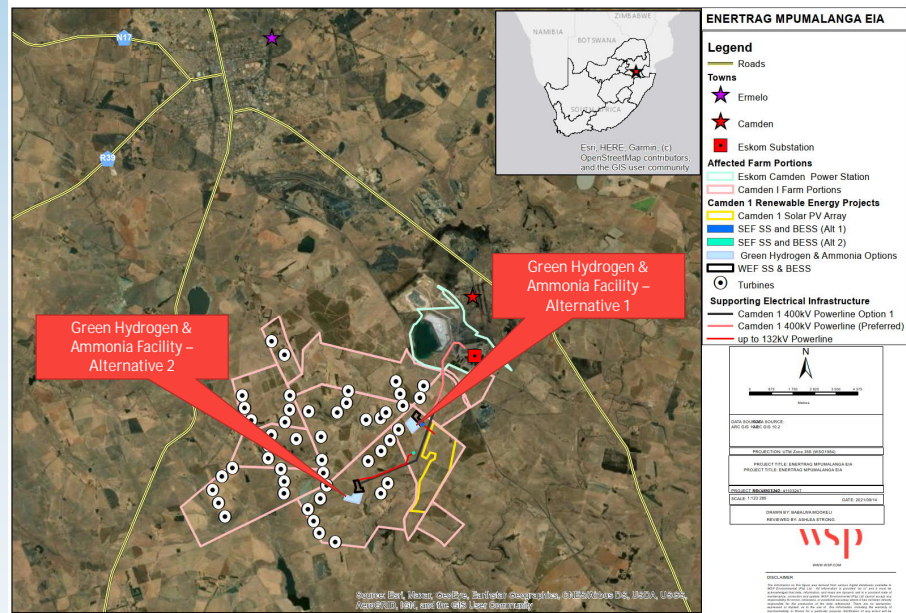
	Camden Green Hydrogen & Ammonia
Province:	Mpumalanga
District Municipality:	Gert Sibande District Municipality
Local Municipality:	Msukaligwa Local Municipality
Farms:	Portion 1 and Portion 2 of Welgelegen Farm No. 322
Size of Facility:	Approximately 25 hectares



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1. Overview of the Project



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1. Overview of the Project

What is Green Hydrogen and Ammonia Production?

They are three types of Hydrogen, namely brown, grey, and green hydrogen. These are named based on the process used to make them, and the emissions each process emits.

- **Brown** hydrogen requires the burning of fossil fuels (coal) in order to complete the gasification process. This process releases vast greenhouse gases (GHG) emissions into the atmosphere.
- **Grey** hydrogen is extracted from natural gases through a process known as steam reforming. This process also releases GHG emissions into the atmosphere.
- **Green** hydrogen and ammonia production differs from traditional production technologies in that the process relies exclusively on renewable resources (renewable energy) and for input air and water (feedstock), to produce commercially usable green hydrogen and ammonia. This method has no associated GHG emissions.

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1. Overview of the Project

What are Hydrogen and Ammonia used for?

- Hydrogen may be utilised in fuel cells to generate electricity and in the transport industry via various derivatives.
- Hydrogen is used for welding and in the production of other chemicals such as methanol and hydrochloric acid and also has other commercial uses like the filling of balloons.
- Hydrogen is also a primary input to the production of ammonia.
- Ammonia is primarily used in the production of ammonium nitrate (fertiliser).
- Ammonia is also used as refrigerant gas and the manufacture of plastics, explosives, textiles, pesticides and other chemicals.
- Ammonia can also be used as a stable 'carrier' of hydrogen, allowing hydrogen to be readily stored and transported.

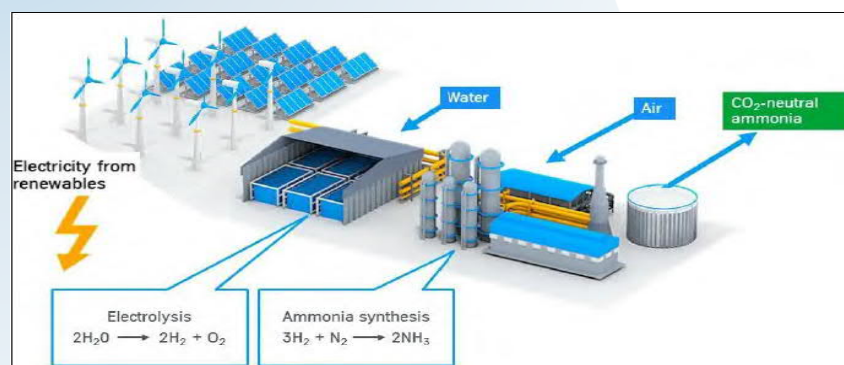
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1. Overview of the Project

Example of Integrated Hydrogen and Ammonia Complex



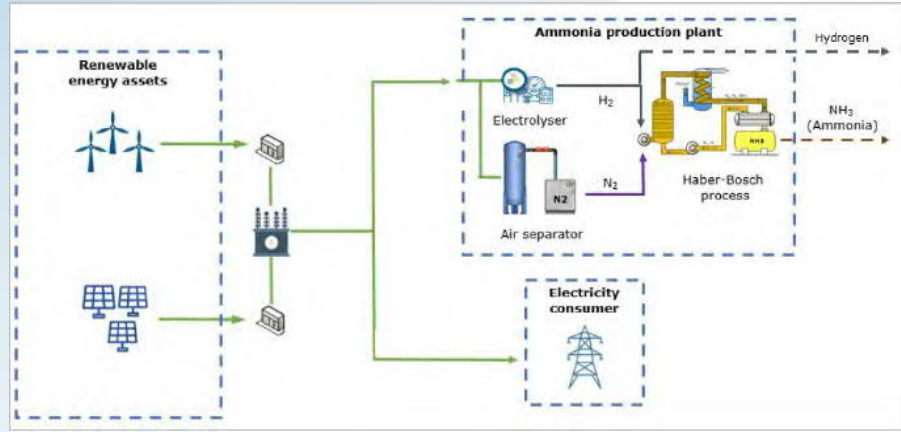
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1. Overview of the Project

High-Level Process Flow



1. Overview of the Project

Facility Components

These are Provisional Values which are subject to change, pending further layout revisions

No.	Component	Footprint (Ha)	Storage Capacity (m ³ / tons)	Maximum Throughput (m ³ / tpa)
1	Water Reservoir	2	6 800 / 6 800	800 / 800
2	Water Treatment Unit	1.5	N/A	192 000 / 192 000
3	Electrolyser Unit	1	N/A	(1 239 157 – 301 932 367) / 20 000
4	Air Separation Unit	0.5	N/A	92 905 405 / 110 000
5	Ammonia Processing Unit	2	N/A	149 253 / 100 000
6	Liquid Air Storage System (LAES)	1	3 983 / 3 505	460 227 / 405 000
7	Liquid Ammonia Storage Tank	2	2 273 / 1 523	261 194 / 175 000
8	Hydrogen and Oxygen Storage Tank Farm	12	59 566 / 800	5 576 208 / 90 000
9	Ancillary infrastructure	3	n/a	n/a
	Total Footprint	25		



1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Water Reservoir

- Water is required for the production of hydrogen and for heating and cooling purposes
- Water will be stored in a water reservoir with a footprint of up to 1.5ha.
- The water reservoir will have a capacity of approximately 800tpa.
- The water reservoirs will consist of a reinforced concrete or steel cylindrical tanks.
- Possible water sources:
 - Groundwater
 - Municipal Water
 - Purified Wastewater
 - Usuthu Pipeline



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1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Water Treatment

- Purified water from the water treatment facility is the main input to the next step in the process, namely the electrolyser
- Water treatment technology:
 - Water treatment facilities usually contain multi-filtration stages and pumps.
 - Water for the facility must first be purified (ASTM Type II quality) through a Reverse Osmosis system (RO).
 - The RO system consumes between 10-16 litres of water per kg -of hydrogen. Water consumption ultimately depend on the quality of the feed water.
 - The facility is estimated to consume up to 192 000tpa of water per annum
- Water treatment is associated with the generation of concentrated wastes removed from the water, such as brine salt.
- The quantity of brine produced is directly related to the quality of the feedwater and efficiency of the RO process.
- Based on standard tap water, it can be assumed that for every 10 litres of purified water there will be 4 litres of bine produced.
- Liquid brine can be made into a solid through several available technologies such as, settlement tanks, cooling water circuits, and forced crystallization.

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1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Water Treatment cont.

- Based on the water samples taken to date and the quality of the Usuthu pipeline feedwater, a total dissolved solids content of around 200mg/l is anticipated.
- Should plant consume up to 192 000 tons of water, this would result in a maximum of 38 tons of sold salt being created per year (~105kg per day) assuming all salts are removed.
- This represents the worst-case scenario.
- Liquid brine will be dewatered to recycle water and reduce the need for new input water. This dewatered, solid brine will then be readily disposed off at the nearest suitably licenced waste disposal facility.
- On-site storage of solid brine blocks will be in containerised waste skips with sufficient capacity for replacement every 1 – 2 weeks, during which time a large truck will remove the filled container to a waste disposal facility .
- Many of the surrounding mines have existing, licensed waste management facilities potentially suitable for the disposal of such wastes, or nearby (Ermelo) waste disposal facilities may be utilised.

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1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Water Treatment cont.

- Alternatively (least preferred option), the wastewater will be used for irrigation water for the local famers by diluting the concentrated liquid brine produced by the hydrogen and ammonia plant by introducing additional fresh water, or where possible re-used process water from the RO plant.
- In addition, should sufficient quantities of feed water be available, brine may be diluted with fresh feedwater and used for Solar PV panel washing, dust suppression or similar use..

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1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Electrolyser

- The up to 150MW electrolyser will have a footprint of up to 1ha.
- The Electrolyser will use direct electric current (obtained from the Renewable Energy Facilities) to drive an otherwise non-spontaneous chemical reaction
 - The separation of $2\text{H}_2\text{O}$ (water molecule from the RO process) through a reduction-oxidation (redox) process into H_2 (Hydrogen on the cathode side) and O_2 (Oxygen on the anode side).
 - Electrolysers are modular and currently range in size from 5MW – 20MW. It is proposed that the Green Hydrogen Facility will consist of 15 sets of 10MW electrolysers.
- Two electrolysis technologies may be considered, namely alkaline- and polymer electrolyte membrane electrolysis.
- An 150MW electrolyser would produce up to 20,000 tons per annum (tpa) of green hydrogen and up to 100,000 tpa of green oxygen.
 - The oxygen may be released in a controlled manner or stored and sold as a by-product.
 - The hydrogen may be directed to the Ammonia production plant (see “ammonia processing” below) or be stored and sold to interested parties directly

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1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Air Separation Units


- Air is obtained from the immediate surroundings and separated into nitrogen (N_2) and oxygen (O_2) with the impurities removed.
- The process involves air compression and temperature manipulation in a pressure-controlled environment to separate gasses from one another and produce gaseous N_2 .
- The air separation unit will have a maximum capacity of up to 110,000 tpa.
- Alternative technologies exist (including Pressure Swing Adsorption (PSA) and Membrane Separation Technologies) and are being evaluated; the most efficient process will be implemented in the final project design

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1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Ammonia Processing Units


- Ammonia is produced through the Haber-Bosch process.
- This is where nitrogen and hydrogen are reacted to produce ammonia.
- Nitrogen (N₂) from the air separator process and Hydrogen (H₂) from the electrolyser are reacted over a bed of catalyst to favour the production of ammonia (NH₃).
- The gas is then rapidly cooled to form anhydrous (free from water) ammonia because it is more stable and less toxic in liquid form. Un-reacted N₂ and H₂ will be recycled back to the reactor.
- If the full 20,000 tpa of green hydrogen generated by the electrolyser is directed to this process, this will produce up to 100,000tpa of green ammonia for market

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1. Overview of the Project

These are Provisional Values which are subject to change, pending further layout revisions



Components – Storage

- Liquid air energy system (LAES) for nitrogen storage:
 - Liquid air energy will be used to liquefy nitrogen for storage, energy and feedstock requirements. LAES consists of three main stages:
 - (1) cooling and separation of the air,
 - (2) storage (usually in insulated vessels at low pressure) and
 - (3) expanded for energy and/or production.
- Feedstock and product storage:
 - Liquid ammonia storage tank farm
 - Green ammonia will be stored as anhydrous ammonia.
 - Hydrogen Storage Tank
 - Hydrogen is stored in vertical or horizontal storage bullets. Compressed hydrogen can be storage as a gas or in liquid form.
- Gantry and loading bay:
 - Three gantries will be included to fill ISO containers which can be trucked and directly shipped.

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1. Overview of the Project

Key Considerations

- Depending on the final location, the Project Area may fall within Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA). The CBA and ESA include both terrestrial and aquatic themes, among other themes.
- The Langcarel Private Nature Reserve is an identified South African Protected Area within the Project Area
- The Project Area falls within the Air Quality Highveld Priority Area.



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2. Permitting Processes

Authorisations Required

- Environmental Authorisation:
 - Listing Notice 2 Activities are associated with the Camden I Green Hydrogen and Ammonia Electrolyser Facility
 - Scoping and Environmental Impact Assessment (S&EIA) Process will be required.
 - MDARDLEA – Competent Authority
- Atmospheric Emissions Licence (AEL):
 - An AEL may be required:
 - Category 7: Inorganic Chemicals Industry, Subcategory 7.1: Production and or use in manufacturing of ammonia, fluorine, fluorine compounds, chlorine and hydrogen cyanide
- Water Use Licence
 - A Water Use Licence / General Authorisation will be required

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2. Permitting Processes

Listed Activities – Listing Notice 1

LISTED ACTIVITY	DESCRIPTION OF PROJECT ACTIVITY
<p>Activity 12 (ii), (a) and (c): The development of—</p> <ul style="list-style-type: none"> (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse 	There is the potential that the access road to the Electrolyser Facility may transverse a watercourse (or drainage line).
<p>Activity 19 The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse</p>	There is the potential that the access road to the Electrolyser Facility may transverse a watercourse (or drainage line).
<p>Activity 27 The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for:</p> <ul style="list-style-type: none"> (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan 	The construction of the Electrolyser Facility will require the clearance of indigenous vegetation of approximately 25 ha.



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2. Permitting Processes

Listed Activities – Listing Notice 2

LISTED ACTIVITY	DESCRIPTION OF PROJECT ACTIVITY
<p>Activity 4: The development and related operation of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.</p>	It is understood that there is potential for the Electrolyser to store more than 500 cubic meters of dangerous goods.
<p>Activity 6: The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding:</p> <ul style="list-style-type: none"> (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day. 	It is understood that the Electrolyser may require an Air Emissions License (AEL) in terms of Sub-category 7.1.
<p>Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—</p> <ul style="list-style-type: none"> (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan. 	In the event that the Electrolyser Facility requires the clearance of approximately 25 hectares or more of indigenous vegetation – this activity will be applicable.



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2. Permitting Processes

* Additional Listing Notice 3 Activities may be identified and included in the application forms

Listed Activities – Listing Notice 3

LISTED ACTIVITY	DESCRIPTION OF PROJECT ACTIVITY
Activity 4: The development of a road wider than 4 metres with a reserve less than 13,5 metres. (i) Mpumalanga- (ii) areas outside urban areas (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority	An access road (of approximately 4m in width) will be required.
Activity 12 (i) (i) and (ii): The clearance of an area of 300 square metres or more of indigenous vegetation. Except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. <u>Mpumalanga</u> ii. Within critical biodiversity areas identified in bioregional plans;	The Electrolyser Facility may traverse Critical Biodiversity Areas – depending on the final location. The construction of the Facility will require the clearance of more than 300m ² of indigenous vegetation.
Activity 14 (ii) (a) and (c) (i) (i) (bb) and (ff): The development of— (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs— (a) within a watercourse; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse. <u>Mpumalanga</u> i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	The Electrolyser Facility may traverse Critical Biodiversity Areas – depending on the final location. There is the potential that the access road will transverse a watercourse (or drainage line).

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2. Permitting Processes

DEA Screening Tool Identified Sensitivities

	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme				X
Defence Theme				X
Palaeontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

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2. Permitting Processes

DEA Screening Tool Specialist Assessments

Specialist Study	Comments
Agricultural	High and Very High Land capability
Landscape / Visual	
Archaeological and Cultural heritage	
Palaeontological	Medium and Very High palaeontology sensitivity
Terrestrial Biodiversity	
Aquatic Biodiversity	Freshwater ecosystem priority area quinary catchments
Avian Impact	
Hydrology	
Geotechnical	
Socio-Economic	
Plant Species	7 possible sensitive species
Animal Species	Sensitive Avifauna and Mammal species



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2. Permitting Processes

Specialist Studies Commissioned

SPECIALIST ASSESSMENT	COMMENT
Soils and Agricultural Potential Assessment	A soils and agricultural survey will be undertaken.
Archaeological and Cultural Heritage Impact Assessment	The projects could potentially negatively impact on heritage and archaeological resources. An Archaeological and Heritage Impact Assessment will be undertaken.
Palaeontology Impact Assessment	The projects could potentially negatively impact on Palaeontological resources. A Palaeontological Impact Assessment will be undertaken.
Visual Impact Assessment	The projects could potentially negatively impact sensitive visual receptors. A Visual Impact Assessment will therefore be undertaken.
Terrestrial Biodiversity Impact Assessment	The projects could negatively affect CBA and NPAES Focus Areas. A Terrestrial Biodiversity Assessment will be undertaken. This assessment will include both fauna and flora aspects.
Freshwater Impact Assessment	The projects could potentially negatively impact water resources. A Freshwater Impact Assessment will therefore be undertaken.
Avifauna Impact Assessment	Due to the potential impacts on birds as a result of the projects, an Avifauna Assessment will be undertaken.
Social Impact Assessment	A detailed social assessment will be prepared. The social statement will be based on a desktop review and telephonic interviews with key stakeholders.
Noise Impact Assessment	Due to potential impacts on sensitive receptors with regards to noise generated from the wind turbines, a Noise Assessment will be undertaken.
Geotechnical Assessment	A desktop geotechnical assessment will be undertaken.
Traffic Assessment	A desktop traffic assessment will be undertaken.



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2. Permitting Processes

Specialist Studies NOT Commissioned

SPECIALIST ASSESSMENT	COMMENT
Geotechnical	A detailed Geotechnical Assessment will not be undertaken as part of the BA Process as this will be undertaken during the design phase.
RFI	A Radio Frequency Interference (RFI) Study will not be undertaken. The South African Weather Service (SAWS) and relevant telecommunications stakeholders will be engaged with as part of the Public Participation Process.
Civil Aviation	The Civil Aviation Authority will be included on the project stakeholder database. They will be informed of the proposed Project, and comment will be sought. An Application for the Approval of Obstacles will also be submitted to SACAA once preferred bidder status is obtained.
Defence	The Department of Defence will be included on the project stakeholder database. They will be informed of the proposed Project, and comment will be sought.



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3. Public Participation Process

Public Participation Plan

- A Consolidated Public Participation Process is proposed for all applications
- Site notices:
 - English, Afrikaans and Zulu
 - Onsite and in the surrounding areas
- Compilation and management of I&AP Database
- Written notification:
 - Owners and occupiers on or adjacent to the proposed project site
 - Municipality Ward Councillor
 - District Municipality
 - Relevant State Departments
- Advertisement (English, Afrikaans and Zulu in local newspaper)
- Draft Report Review for 30 days
 - WSP on request
 - Online on the WSP website
 - WSP will confirm with local Public Libraries as to whether they are open and able to accept documents for public review
- No provision has been made for face-to-face public or focus group meetings, virtual meetings will be held as required.



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4. Timeframes




Timeframes

- Authority Timeframes
 - Authority decision making timeframe is 107 days
- Key Milestones:
 - Submission of Application Forms – January 2022
 - Draft Scoping Report Public Review – January – February 2022
 - Submission of Final Scoping Report – March 2022
 - Draft EIA Report Public Review – June – July 2022
 - Submission of Final EIA Report - August 2022



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5. Questions and Discussion



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6. Way forward

