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I&AP PUBLIC CONSULTATION DOCUMENT: I&AP COMMENTS AND RESPONSES FOR THE GREEN AMMONIA TERMINAL, AMMONIA PIPELINE AND HYDROGEN PIPELINE PROJECT, ERONGO REGION, NAMIBIA

PROJECT NUMBER: ECC-145-453-REP-11-C

REPORT VERSION: REV 01

DATE: 10 JUNE 2024



TITLE AND APPROVAL PAGE

Project Name: I&AP Comments and Responses for the Green ammonia Terminal, ammonia pipeline and hydrogen pipeline project, Erongo Region, Namibia

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Ministry Reference: APP-002566/002567/002568

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Status of Report: Draft for Public Review

Project Number: ECC-145-453-REP-11-C

Date of issue: 10 June 2024

Review Period 10 June 2023 – 24 June 2024

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ABBREVIATIONS

Abbreviation	Description
°C	degrees celcius
ATC	Arandis Town Council
CEO	Chief Executive Officer
EAP	environmental assessment practitioner
ECB	electricity control board
ECC	Environmental Compliance Consultancy (Pty) Ltd
e.g.	example
EIA	Environmental impact assessment
EMA	Environmental Management Act No.7 of 2007
EMP	environmental management plan
Environam	Environam Consultants Trading CC
EPL	exclusive prospecting license
ESIA	environmental and social impact assessment
I&APs	interested and affected parties
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IFC	International Finance Corporation
i.e.	that is
ISO	International Organization for Standardization
JWBRA	Joint Walvis Bay Resident Association
km	kilometre
km/h	kilometre per hour
Ltd.	limited
m	metre
m ³	cubic metre
MAWLR	Ministry of Agriculture, Water, Land and Reform
MEFT	Ministry of Environment, Forestry and Tourism
MME	Ministry of Mines and Energy
NAMCOR	National Petroleum Corporation of Namibia
NamWater	Namibia Water Corporation Ltd.
NamPort	Namibian Ports Authority
NGHP	Namibia Green Hydrogen Programme
No.	number
NOSF	National Oil Storage Facility
NUST	Namibia University of Science and Technology
O&L	Ohlthaver & List

Abbreviation	Description
PHD	Doctor of Philosophy
SWAPO	South West Africa People's Organisation
Pty	proprietary
Q4	quarter four
RoD	record of decision
UNAM	University of Namibia
USA	United States of America
WWEM	Water, Waste & Environmental Management

1 SUMMARY OF PUBLIC MEETINGS AND COMMENTS FROM I&APS

1.1 INTRODUCTION

Environmental Compliance Consultancy (Pty) Ltd (ECC) has been appointed by Cleanergy Solutions Namibia (Pty) Ltd (herein referred to as Cleanergy Solutions), the Proponent, to conduct an environmental and social impact assessment (ESIA) in accordance with the Environmental Management Act, No. 7 of 2007 and its 2012 regulations, for which environmental clearance certificate applications will be submitted for the construction of a green ammonia terminal, ammonia pipeline and hydrogen pipeline, Erongo Region, Namibia.

The proposed project (referred to as “the project” herein) involves the transportation of green hydrogen from the hydrogen production plant in Arandis to the ammonia production plant at Farm 58 and the transportation of green ammonia from Farm 58 to the ammonia terminal at the Walvis Bay Port area for storage. Cleanergy Solutions Namibia intent on becoming a driving force in the growth of the Namibia’s hydrogen economy, while contributing to the global shift for industrial decarbonisation.

The community directly affected and/or interested, and key stakeholders were identified and invited to attend scheduled public meetings and focus group meetings held in Walvis Bay, Swakopmund and Arandis from 12 - 14 March 2024. Additionally, notices advertising the public meetings were also published in national newspapers and the media.

Two focus group meetings were held - the first focus group meeting was held with National Petroleum Corporation of Namibia (NAMCOR) on the 12th of March 2024 and the second focus group meeting was held with the Water, Waste & Environmental Management department of the Walvis Bay Municipality on the 13th of March 2024. All attendees at the public and focus meetings were recorded on an ECC register as interested and affected parties (I&APs).

A summary of the feedback received from the public will be issued to registered I&APs and competent authorities being the Ministry of Mine and Energy (MME), and the Ministry of Environment, Forestry and Tourism (MEFT) to accompany the application for an environmental clearance certificate, for a record of decision (RoD).

1.2 PUBLIC MEETINGS SUMMARY

The stakeholder meetings were facilitated by Stephan Bezuidenhout, Managing Director & Principal Environmental Practitioner – Environmental Compliance Consultancy (Pty) Ltd (ECC) with technical support from Roy Campe, Liesbeth Verhaert, Gloudi De Beer, Eike Krafft, Anna Kankondi and Victoria Moller – Cleanergy Solutions Namibia (Pty) Ltd.

The welcoming and agenda of the meeting included an introduction of ECC as an independent environmental consulting company commissioned by Cleanergy Solutions Namibia (Pty) Ltd as the environmental assessment practitioner (EAP) to conduct the ESIA's for the three projects: the ammonia terminal, the ammonia pipeline and the hydrogen pipeline.

Stephan Bezuidenhout provided the audience with the Project's location, baseline, the public participation and ESIA process as part of the project's introduction. A summary of previous environmental assessment processes completed, and the current status of the project were shared with the public.

Mr Roy Campe gave the technical presentation on behalf of Cleanergy Solutions Namibia (Pty) Ltd and provided an overview of the approach and plan for the proposed project which includes the following:

- Cleanergy company structure and background
- Why Namibia is ideal for the proposed project
- Overview of the 5-year plan and the socio-economic development
- Ammonia terminal general information
- Ammonia terminal design and safety measures
- Ammonia and hydrogen pipeline general information
- Pipeline transport design, safety and public input
- Similar infrastructures in other parts of the world
- Proposed project timeline

ECC's presentation further explained the role of environmental practitioners and the ESIA process following the current stage. It was emphasized to the public that the project is in the early stages and there are aspects in the design of the infrastructure that require the input from the public and therefore public consultation is ongoing throughout the ESIA process. At this stage, I&APs were encouraged and informed of the importance of raising any concerns and comments related to the proposed project, which are to be considered in the ESIA and submitted along with the application for an environmental clearance certificate to the competent authorities and MEFT for a record of decision (RoD).

Minutes of the public meetings held in Walvis Bay, Swakopmund and Arandis are provided in Table 2,

Table 4 and Table 5 respectively.

1.3 KEY FEEDBACK ON ISSUES OF CONCERN

The summary of comments received from the public meetings and focus group meetings held presented useful and valuable input in setting out the scope for the environmental and social impact assessment through questions asked and points raised. From an overall review of the

recorded statements, the key common themes of concern that were raised can be summarised in the following categories:

1.3.1 Water usage

Questions were raised on where water would be obtained during the project. There were concerns of how much water would be required and how it will impact the Walvis Bay residents. The Proponent stated that the 25 m³ water required for the ammonia terminal per day will be supplied by the Walvis Bay Municipality, however this will not negatively impact local residents. If the water requirements increase in the future, further groundwater assessments will be conducted, and potential desalination infrastructure will be considered.

1.3.2 Project within conservation areas and impacts on tourism

The inclusion of Dorob Park in developments and plans as well as providing support were mentioned. The visual impact on tourism activities in these areas were also a point of discussion. The EAP explained that Dorob Park has been identified as a key stakeholder and communication with them will be established in terms of the project details and their input. Various specialist studies will be undertaken and will advise the project to ensure that the conservation areas are affected as little as possible.

1.3.3 Considerations for the pipeline placement (above or below ground) and proximity to other pipeline and infrastructure

Various I&APs provided their input on the proposed pipeline routes, revealing that the hydrogen pipeline is preferred above ground as the underground in the proposed areas are characterised as hard and rocky which may cause challenges during the project construction phase. Some I&APs preferred part of the hydrogen pipeline near Farm 58 and the ammonia pipeline to be underground for safety reasons and concerns about the airport nearby as well as the visual impact for the tourism industry and nearby residents. The Proponent and EAP took note of all the suggestions from the public and will take it into consideration when finalising the design plan. During the focus group meetings there were concerns about the proximity of pipelines with oil and gas pipelines. The Proponent assured that pipelines running in proximity of each other is quite common and will not pose hazards to other pipelines, people or the environment.

1.3.4 Lack of local regulatory bodies and policies

The lack of Namibian regulations and policies relating to green energy was discussed. Concerns were raised about how the Proponent will be held responsible and regulated during the project if the necessary regulatory bodies aren't in place. The Proponent explained that best international standards and practices will be applied. Currently there is a hydrogen steering committee which involves the relevant government stakeholders to facilitate those standards. Should the project be delayed due to waiting for regulatory bodies to catch up, Namibia runs the risk of losing the project opportunity and the benefits associated with it.

1.3.5 Socioeconomic benefits

Questions were raised regarding the potential socioeconomic benefits that may be derived from the project, e.g., employment, scholarships and housing. The Proponent explained that they are in the process of developing a hydrogen academy to educate young Namibians and provide career paths opportunities within the green hydrogen scope of study. Additionally, scholarships will be provided to Namibians to study at local and international institutions. The project will primarily employ Namibian citizens, provide on-job training and other benefits. The project is being endorsed by the Arandis Town Council (ATC). The CEO of ATC added that final products produced from the proposed project will increase the GDP of the country and in turn benefit local schools, hospitals and housing.

1.3.6 Potential leakages, safety measures and emergency preparedness

The I&APs expressed concerns about the impacts of accidental events and the effects of potential leakages from pipelines. The Proponent highlighted that there are strict safety and security standards applied in terms of the design and material of infrastructure. There will be a 24/7 control service and safety trained staff that will monitor sensors on the pipeline. Additionally, there would be constant surveillance and an emergency response plan in place. Should a leakage occur, ammonia leakages in small amounts will not pose a threat to the environment and people, as it would rather be beneficial to surrounding soils. Hydrogen is a light gas and would evaporate quickly.

1.3.7 Potential dangers of ammonia towards people and the environment

Questions were raised regarding the dangers associated with ammonia and its impact on people and the environment. The Proponent addressed the misconception of the green ammonia project by ensuring that the amounts of ammonia transported will be safe, as ammonia in small amounts is not toxic and is present in many products used daily. All safety measures will be considered during the construction of the various infrastructure to ensure that people and the environment will be safe.

2 SUMMARY OF FOCUS GROUP MEETINGS

2.1 INTRODUCTION

Prior to the public meetings, key stakeholders including government agencies, relevant associations, and companies were identified and provided with key stakeholder engagement letters from the EAP, inviting them to public meetings and requesting for direct focus group engagements.

2.2 MEETING WITH NAMCOR

On NAMCOR's request, the Proponent and ECC held a meeting with the NAMCOR National Oil Storage Facility (NOSF) team to present technical details of the proposed green ammonia terminal, ammonia pipeline and hydrogen pipeline projects and ESIA process. The meeting was held at the NAMCOR NOSF in Walvis Bay on the 12th of March 2024.

The meeting minutes are provided in Table 1. Key points raised during the meeting will be taken into consideration throughout the impacts assessment process.

2.3 MEETING WITH WALVIS BAY MUNICIPALITY

The EAP and the Proponent held a meeting with the Walvis Bay Municipality (Department of Water, Waste & Environmental Management) on the 13th of March 2024. The meeting was held at the Department of Water, Waste & Environmental Management offices in Walvis Bay.

The meeting minutes are provided in



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ammonia pipeline and hydrogen pipeline project,
Erongo Region, Namibia**
Cleanergy Solutions Namibia (Pty) Ltd

Table 3 and provide details of the key points raised by the Walvis Bay Municipality – WWEM department for consideration in the ESIA process.

3 ACKNOWLEDGEMENTS

In closing of the meeting, ECC thanked all I&APs for their attendance and for providing valuable feedback during the stakeholder meeting. Through the stakeholder meeting process, the Proponent and ECC have endeavoured to provide a platform to hear and address all relevant comments put forward by I&APs.

ECC further endorsed the fact that constructive feedback from I&APs results in a more robust and improved ESIA. This process results in a project that is understood by the community and I&APs. The I&APs feedback will contribute to identifying the potential impacts to be assessed and concerns to be considered and addressed as the project progresses.

3.1 DETAILED COMMENTS AND RESPONSES FROM THE PUBLIC MEETINGS

The public consultation period began on the 12th of March 2024 and remained open until the 29th of March 2024 for initial comments. Additional comments/questions were received via email and telephone which are included in the draft scoping report.

Further comments were welcome after the initial registration period and public review period and the public consultation period will remain open for I&APs until the final assessment report for the project is compiled and submitted to the competent authorities.

Table 1 – Comments and responses from the key stakeholder focus group engagement with NAMCOR.

Tuesday, 12 March 2024 at 14:30 NAMCOR NOSF Terminal			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
Rufina Nuwuses	NAMCOR Safety, Health, Environment and Quality Officer	<p>1. Since this project is small-scale, what is the lifespan of this pilot plant?</p> <p>2. Who is the market if it is small-scale? Considering Namibia’s equipment, machineries and the current modes of transport, it is unlikely that we will be using hydrogen in the next 15 years. From an environmental perspective we all want to go green and decarbonise but the concern is on the expense of having this plant in the desert, and we have no local market for it, and it runs a risk of being a white elephant.</p>	<p>1. For the pilot, Cleanergy foresee a lifespan of ~10 years and a lifespan of ~40 years for the tank terminal.</p> <p>2. When looking at what is currently happening in the European union, there is a big drive to decarbonise from their transport industries. Ultimately most of the green hydrogen and green ammonia that will be produced in Namibia, Chile or Saudi Arabia will eventually feed back into the decarbonisation of these highly industrialised nations, either through shipping, steel production etc. There will be a major global market that is not necessarily going to compete with oil and gas but will be an alternative to oil and gas in terms of decarbonisation. Initially this is a pilot project because with any new industry and environment you need to see what works and what you need in terms of development, skills, competence, standards, laws and regulations. The market will be an export market eventually but the focus for Cleanergy Solutions Namibia is for Namibia to also develop a local market because there is opportunity for it</p>

Tuesday, 12 March 2024 at 14:30

NAMCOR NOSF Terminal

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			<p>in a local market, not necessarily to replace oil and gas. Some of the facilities in Europe have been there for a minimum of 70 years. Once such developments have executed with the capital involved in attaining the final product, we are looking at a project duration of ~50-100 years, provided challenges are manageable at all levels.</p> <p>Approximately 200 million euros have been invested in this project, in the long term we believe there is a need for the project and no way back from a sustainability point of view. In the end the need will be high.</p>
		Is there a rehabilitation plan? This will occur in a National Park, with abundant small mines. From an environmental perspective, a rehabilitation plan should be in place.	The EIA process will include a rehabilitation process. With this type of large-scale process, EIA process and international best practices should you reach a point where you no longer use a facility of this nature you will perform a decommissioning impact assessment to follow that process.
		What option do you favour in terms of having the pipeline underground or above ground?	Cleanergy prefer the hydrogen pipeline and the ammonia pipeline between Farm 58 and the terminal to be underground. The cold ammonia pipeline (-33 °C) to the jetty would preferably be above ground. Inputs from the

Tuesday, 12 March 2024 at 14:30

NAMCOR NOSF Terminal

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			public during the public consultation phase will also be taken into account to ensure the best options are considered, weighed and thoroughly investigated.
		When pipelines are underground there is the risk of not seeing it and you don't have much control compared to when it above ground. The population between Arandis and Farm 58 is relatively low.	Noted. There are also scenarios that when pipelines are above ground, people may purposefully or accidentally damage the pipeline.
		How can the Namibians benefit from the project in relation to scholarships and employment for unskilled workers?	Cleanergy plan to boost capacity for locals and empower them with the necessary skills. A hydrogen academy will be established to train local Namibians to get equipped with necessary advanced knowledge on hydrogen and ammonia. Additionally, a small-scale facility will be established for on- job training. There will be collaborations with local and international institutions (i.e. NUST, UNAM and institutions in Berlin) for Namibians to enroll in honours, masters and PHD green hydrogen study programmes.
Gerhard Myburgh	NAMCOR Maintenance Service Manager	The solar panels have a lifecycle of about 25 years. It will have to be replaced at some point, what are the plans in place regarding the old solar panels?	Cleanergy is already engaging other local companies on how to properly to dispose of the solar panels at the end of their lifespan. Cleanergy is continuously following up

Tuesday, 12 March 2024 at 14:30

NAMCOR NOSF Terminal

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			with the local companies, however, please share any possible solutions or recommendations.
		Are you collaborating with other hydrogen companies regarding any challenges, i.e. Hyphen	There is an international collaboration. Cleanergy doesn't view other green hydrogen/ammonia ventures as competitors but would rather take the opportunity to share information and knowledge.
		What pipeline sizes are you looking into?	There are three (3) different types of pipelines. At the jetty there is a 16-inch pipeline, from the tank terminal to the factory is a 6-inch pipeline and the hydrogen pipeline is 24 inches. However pipeline sizes are subject to change.
		Are there currently projects in other parts of the world where ammonia and oil/gas are in proximity to each other? Has it been done before?	There are other sites that have been visited where they perfectly match. Cleanergy has seen pipeline corridors (of different molecules) in parallel to each other. Pipelines are the safest way to store or transport molecules. It has been done before; it is not something new.
		1. Will the pipeline from Arandis be under pressure? The difference between Europe and Namibia is the density in population. If it's under pressure, how will you monitor continuously? Namibia is a low populated country. Arandis is ~80 km from Walvis	1. There will be a 24/7 control service center that will monitor sensors on the pipeline. Inspections will also be conducted along the line to monitor corrosion. 2. There are sections between pipelines, should a failure occur, the section will shut down. There is always a risk of

Tuesday, 12 March 2024 at 14:30

NAMCOR NOSF Terminal

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		<p>Bay. Will there be a quick response, should there be a rupture?</p> <p>2. If there is a failure occurs ~30 km from Walvis Bay, will it be shut down?</p>	<p>kids potentially vandalising and damaging the pipelines. Community engagement, awareness and outreach efforts warning communities not to tamper with the pipelines would also be considered.</p> <p>We also rely on the input and advice from stakeholders in this regard.</p>
		<p>Hydrogen is highly flammable and if it is under pressure, e.g., 20 km from here it will take 30 minutes for the first person on the scene and normally a pipeline will only burst if a car potentially crashes into it. There will be sparks and potentially a release of hydrogen.</p>	<p>There are solutions, there are pressure controls, sectioning, and other options. Cleanergy understand that those fears will likely occur. There have been encounters and evidence where pipelines run next to houses that are occupied, it is very common.</p>
		<p>With hydrogen, it is dangerous, but it is not like oil underground, it is a gas so if it leaks it is not a big issue. In fact, it is good for the ground. Concern is if someone is tampering with the pipeline, it is something to consider when weighing the options of the pipeline being either above or underground.</p>	<p>Comment noted. We will also have constant surveillance from helicopters regularly.</p>
		<p>In my opinion it is better that the pipeline is underground due to the visual impacts.</p>	<p>That is important for ECC, as per the Environmental Management Act and the international standards that we</p>

Tuesday, 12 March 2024 at 14:30

NAMCOR NOSF Terminal

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			<p>must comply with, all alternatives need to be considered in the assessment process. All recommendations will be assessed – above ground or below ground and what will be the most environmentally and socially acceptable route as well as design in terms of installation and provide recommendations to the competent authorities. Any new mining and energy project will have a decommissioning component that is to be included in the ESIA process.</p>
		<p>How will the pipeline to the jetty be refrigerated? Will the refrigeration be driven by the plant?</p>	<p>Fully refrigerated pipelines from the terminal to ship is a recycled process. First, it is cooled down during operations. One of the three pipelines is liquid, it evaporates to gas and is taken back to liquid until it is cooled down and only then operations towards the ship starts. The pipeline onshore is fully refrigerated. Yes, the refrigeration is driven by the plant.</p>
		<p>Tanks that you will build with feet. Factor in sand, wind and corrosion.</p>	<p>The feet are concrete, but comment is noted, thank you.</p>
<p>Elia Tapalo</p>	<p>NAMCOR Safety, Security, Health, Environment & Quality Manager</p>	<p>What are the risks with those pipes that run parallel with our hydrocarbons should the pipe potentially rupture? What are the consequences that may arise from a case such as that? When we are with you on</p>	<p>That has to follow the risk analysis, to see if it can be done simultaneously because the ammonia will not be running in the pipeline continuously and it will only be</p>

Tuesday, 12 March 2024 at 14:30

NAMCOR NOSF Terminal

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		the jetty we will have to do a detailed assessment at the jetty.	filled with a light gas. Only during operations, there will be a high flow of ammonia.
Imelda Tjjenda	NAMCOR Environmental coordinator	I think it is important in terms of emergency preparedness and response for us to know what the added risk or cumulative risks of that additional pipeline will have along with our pipeline.	Cleanergy Solutions Namibia agrees fully and noted the comment.
Ellis Egumbo	NAMCOR Terminal Manager	With petroleum we use API standards, what standards are applicable to green ammonia?	API standards, SA standards as well as EN standards which are European standards. A list of all the standards to be followed will be provided. Recently much more stricter standards and design measures are followed compared to existing pipelines and terminals that have been in operation for decades.
		Where are you intending to place flares?	There will be a flare at the terminal tank for emergency purposes. Multiple refrigeration set ups will be included. If there is no power, Cleanergy have power generators, and onsite diesel generators and even that has redundancy. The purpose of the flare is when all safeties fail.
		Ammonia leakages? How will it be controlled? In an open environment and considering volumes? What is the process that will be followed?	Modern designs have a water curtain to contain ammonia. This will be included in the emergency response plan, and it will be factored in the design,

Tuesday, 12 March 2024 at 14:30 NAMCOR NOSF Terminal			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			location etc. This is also part of the quantitative risk assessment.

Table 2 - Comments and responses from the public meeting held in Walvis Bay.

Tuesday, 12 March 2024 at 18:00 Walvis Bay Town Hall			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
Theopolina Kapani	Namibia Green Hydrogen Programme (NGHP)	The presentation mentioned that the project involves a hydrogen and an ammonia pipeline. What is the essence of having two of them since the ammonia pipeline goes directly to the port and is generally a carrier of hydrogen? What is the essence of having them run parallel to each other?	The process of converting hydrogen into ammonia happens at high temperature and under high pressure, it is not something that can kick start up and down, it has to be working continuously. The distance between Farm 58 and Arandis will be used to our advantage. The pipeline will be filled during the day and at night the factory producing ammonia can keep running. If it was at the same spot, when the sun is setting, we would have to stop the machine which will continuously depressurise and heat up, it doesn't work. Lastly, there are plans to potentially expand in the future.

Tuesday, 12 March 2024 at 18:00

Walvis Bay Town Hall

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		The initial hydrogen pipelines, have you considered the worst case. What protected/sensitive areas will be crossed by the hydrogen pipeline?	This is part of the assessment that will be conducted. There are different potential/alternative routes, and ideally would prefer to use the route that has no effect on the local community and safety and that is why Cleanergy is committed to engage all stakeholders to gain inputs and comments that will guide and formulate the environmental impact assessment approach, along with the assessment of the alternative routes. ECC is aware of the sensitive areas in the region and will be discussed in detail in the baseline chapter. Through the ESIA process worst- and best-case scenarios will be identified to determine the best practical route.
George Rautenbach	Joint Walvis Bay Resident Association (JWBRA)	How are you going to cross the Swakop River? This area is a tourist attraction. Is it not better to dig a tunnel, though it will be costly it may have less visual and damaging impacts?	ECC agrees fully in terms of the two parks that may have to be crossed. That is exactly the point of this process, to look at all these options above ground and below ground. Cleanergy is considering some portions to be above ground and some to be below ground. This will however go through the impact assessment phase. Technical inputs from the stakeholders are also regarded best solutions.

Tuesday, 12 March 2024 at 18:00

Walvis Bay Town Hall

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		<p>1. Job creation – and assistance with nature conservation at Dorob Park? It is going to be a very nice gesture from the company if you volunteer to take care of the roads and support the park so that the tourists can benefit from that.</p> <p>2. Housing is a problem at the moment, is it possible for the government and the company to join hands in assisting locals here at the coast?</p>	<p>1. Recommendations are noted by ECC.</p> <p>2. Cleanergy appreciate your input and in terms of our policy at O&L we like to take care of our social responsibilities and would appreciate it if you put your recommendation in writing.</p>
		<p>1. Is there a possibility of an explosion should collision occur in a worst-case scenario? I ask because it is close to the airport.</p> <p>2. With the moisture and mist in the area, won't the pipeline be more corrosive?</p>	<p>1. Ammonia is a combustible fuel; diesel is also a combustible fuel. Incidences with ammonia were never a source of explosion because they are more difficult to burn compared to diesel or methane. It is very difficult to combust an ammonia molecule as you would need a lot of energy. In marine engines, diesel is injected first which generates flames and ammonia is added to kickstart the machine. From a risk point of view ammonia is not an issue. Hydrogen can cause an explosion however it is light, if there is a potential leakage, it will evaporate quickly. It escapes quicker than it can burn. Technical and design standards are in place to prevent such a scenario.</p>

Tuesday, 12 March 2024 at 18:00

Walvis Bay Town Hall

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			<p>To my (the Proponent's) knowledge there have not been explosions involving pipelines. If something happens it may have to do with the connection points which will be taken into account. These points will be fenced, with access limited to only trained people. There will also be sensors and protective measures to prevent this and make it manageable.</p> <p>With aircraft, there are areas where terminals are within 1 km of an airport runway. The ammonia storage has extremely thick walls, these walls are designed to withstand a truck crash at 90 km/h. The aircraft cannot create momentum.</p> <p>2. Molecules contained in pipes have no smell. Fog is taken into account. With the design of our tank, a steel wall with insulation and brick wall with good coating is included with expertise for corrosion prevention.</p>
		Will you be having a laboratory?	Cleanergy has a research corporation as part of the small-scale plant. The equipment, facilities and samples will be brought and tested on Farm 58. Laboratory capacity will be built to do analysis in the country.

Tuesday, 12 March 2024 at 18:00

Walvis Bay Town Hall

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		Are you not going to affect nature and wildlife?	The EIA process which is underway will be able to assess that more accurately.
		Are there going to be any by-products from the projects mentioned?	If there is a market, a supportive team and policy, much more can be done.
		Would you consider ISO standards?	From the O&L side, the health and environmental safety has been developed to comply with ISO standards including ISO 45000, ISO 18000 and ISO 9000. Once the projects become operational, there is always an opportunity to consider. Infrastructure is being developed with the use of international practices and in the future. There may be ISO standards specifically for green hydrogen.
Nikol Hearn	Namibia Green Hydrogen Programme (NGHP)	Have you considered a spatial economic study in and around the port area that will form part of the consideration?	In terms of spatial economics, that will form part of the socioeconomic component of the ESIA process, a specialist will be appointed to assess the port area, parks as well as Arandis and will be incorporated in the study.
Elron Awase	Tesla Energy	Where is the water coming from?	The 25m ³ of water for the terminal will be obtained from the Walvis Bay Municipality. At this stage of the project, there are no intentions to build a desalination plant.
		How does the EIA look at the indirect impact because it is supplied from NamWater outside this Region?	That is part of a larger water demand study that is ongoing. What would happen is if you were identified in an industrialised area such as Farm 58, you would have a

Tuesday, 12 March 2024 at 18:00

Walvis Bay Town Hall

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			<p>minimum requirement of water such as 15 m³ and that is then a provision from the municipality, they need to plan for that. They would have had a strategic assessment done to identify what capacity they can provide to certain areas and enter into an agreement with the client for that portion of land. For future developments you would have to look to groundwater studies. For this ESIA study, a hydrologist will investigate this, and a feasible study will be conducted.</p> <p>The amount of water allowed for the current project is sufficient. The water supplied does not take away from the water of Walvis Bay. The water usage and requirement were included into the feasibility study prior to the ESIA.</p>
		<p>1. What standards are you using as a referee within the region in terms of construction and operations?</p> <p>2. Who will hold you accountable, if you do not hold to the best practices?</p>	<p>1. There is a hydrogen steering committee which involves the relevant government stakeholders to facilitate those standards. The IFC standards are followed by the ECC practitioners and there is a list of international standards that need to be complied with. The best practices and standards will be followed where policy lacks.</p>

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Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			<p>2. The environmental clearance certificate is a permit issued by the government and the condition of the approved ECC is that compliance should be reported on a bi-annual basis. It is a legal requirement to follow what is stated as conditions of the certificate. Should there be non-compliance with the conditions of the environmental clearance certificate and environmental management plans, there will be consequences as stated in the EMA Act such as fines and imprisonment.</p> <p>Namibia Green Hydrogen Programme (NGHP) has the role of collaborating with the government and private sector projects and ensuring compliance. If Namibia waits for regulatory bodies to catch up, there is the risk of missing an opportunity and being left behind by countries with similar optimal environments.</p>
Claudia Gossow	KAS	From the focus meetings, are the key stakeholders ready for the infrastructure, roads and sewage?	A feasibility study has been produced that include these components. With the re-zoning of Farm 58, provisions were made for future infrastructure and services to be developed.

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Walvis Bay Town Hall

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		A general comment: I am very glad to see we are doing a step-by-step process and that we are progressing. We have to start somewhere.	Thank you for the comment.
Joseph Amushila	Public member	Should the project be decommissioned in the future, can these pipelines be used for something else?	From an environmental perspective, a rehabilitation plan will be in place where stakeholders will be consulted to find out potential safe methodologies of using the infrastructure such as the pipeline and finding the best way forward. This will be incorporated into the ESIA process. The pipeline is compatible with many molecules and may be used further in the future.
		Do local emergencies also deal with potential pipeline leakages?	As the project develops, it is part of the foreseen practices to have/provide the appropriate protective gear and adequate training with local fire departments and emergency responses. Emergency protocols may be used that are being practiced with similar projects internationally.
		Are there any specialist studies that have been identified thus far?	ECC have identified specialist studies to be commissioned during the study which was shared in the presentation and will be shared with the public.

Tuesday, 12 March 2024 at 18:00

Walvis Bay Town Hall

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		Are you have meetings with the relevant authorities, such as the municipalities?	Focus meetings with key stakeholders such as NAMCOR and the Walvis Municipality are underway.
Lewis	Resident	This is a high impact project, there is concern about the lack of resident participation.	There are two more public meetings scheduled in Swakopmund and Arandis. There is a discussion of a second round of public meetings. ECC will also continue to share information through various communication networks throughout the ESIA process.

Table 3 - Comments and responses from the key stakeholder focus group engagement with the Walvis Bay Municipality.

Wednesday, 13 March 2024 10:00			
Walvis Bay Municipality – Department of Water, Waste & Environmental Management			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
Henok Shilongo		<p>1. What typical pipelines will be used? HDP or Steel?</p> <p>2. I tend to agree with underground pipelines because of corrosion that can occur aboveground.</p>	<p>1. Steel pipelines will be used as it is the highest grade of material for hydrogen storage and transport. For ammonia, it will be carbon steel with the proper coating.</p> <p>2. Cleanergy preference is to have most of the pipelines underground but that is still open for discussion. The design plans can be shared with the technical team for inputs.</p>
		<p>We were doing some upgrades on the wastewater treatment plants and carried out a material study on the performance of the different types of stainless steel. We will share with you the outcomes of that study. We took different stainless-steel plates and exposed them to the coastal weather and those affected most by rust and corrosion.</p>	<p>Please do. Cleanergy is open to suggestions, as we have limited knowledge on aspects such as ground acidity. It is understood corrosion is an issue in Walvis Bay, therefore there may be a lot of maintenance and inspections required and protective coating measures required to be in place.</p> <p>Our team does not have all the answers yet. There are so many things to consider. As per the EMA, alternatives will be assessed. The consultants have been brought in at an early stage so that ECC can work in collaboration with the designing team and engineering team to find best</p>

Wednesday, 13 March 2024 10:00			
Walvis Bay Municipality – Department of Water, Waste & Environmental Management			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			solutions that suit our country. Hopefully through the process over the next months we will communicate and share our findings and what the most effective conclusions will be.
		Is the 20 m ³ of water per day for the ammonia terminal only?	Yes, it is for the ammonia terminal. When we start to look at the more industrial size production that will be a process similar, the water demand will be assessed. No groundwater will be used at any stage. If there are any concerns in terms of security of water supply that you may be aware of, please inform us.
		Are there any guidelines in terms of the warm ammonia pipeline going over to the terminals? We have got freshwater pipelines crossing over to Langstrand. Are there any guidelines on the proximity of the pipelines to others?	Warm may be misleading, it is ambient temperature. In countries overseas where some of the Cleanergy staff is from and densely populated, unlike Namibia, pipelines run right next to each other with different substances. Guidelines can be shared in terms of our risk analysis. Cleanergy preference is to have the pipeline underground near Langstrand. This has to do with fencing and there should be a safe distance from the residents nearby, although there are safety measures in place.
Nangula Amutenya		1. Have Dorob Park been engaged with?	1. The Dorob Park were identified as key stakeholders as well.

Wednesday, 13 March 2024 10:00			
Walvis Bay Municipality – Department of Water, Waste & Environmental Management			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		2. There are a lot of rocks in the Arandis area. Will the pipeline follow the existing water pipelines? What type of infrastructure are along those areas? There are no aesthetics.	2. There would probably be more scientific information that would be provided in specialist studies. In terms of the ESIA process, the visual impacts will also be assessed. We will then allow the process to influence the design. Normally the design would already be finalised before the ESIA is conducted. In this case the ESIA will inform design, locations and other components to ensure that when the final product is on the ground that is done in such a way to benefit all parties.
		Dorob National Park management plan will be shared with you for your information – it will guide you on the infrastructure guideline. For future infrastructural plans.	This will be highly appreciated.
		What is the size of the pipeline?	Based on the current design, 24-inch for the hydrogen pipeline, ammonia is much smaller (from the factory to the tanks), approximately 16 inches. Cleanergy is also considering two small pipelines due to the cost because the bigger you go the more steel you use. It may be above ground like the water pipes which may be due to the rocky areas of Arandis. Some parts of the pipeline may be above the ground and other parts below.

Wednesday, 13 March 2024 10:00			
Walvis Bay Municipality – Department of Water, Waste & Environmental Management			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		EPL's that may be crossed and future mining?	We have a list of the EPL's. There is a surveyor that is being communicated with. The Ministry of Mines and Energy are also aware of the project. Should you have any potential stakeholders in mind, kindly let us know and we can double check the list currently in use.
Allistaire Marquard		Is the ammonia pipeline definite? You also have to discuss it with the town planning department to confirm route in terms of future planning.	This location is based on the input from NamPort. There were discussions between NamPort and the Municipality regarding that location. Communication will be initiated with the town planning council.
Lovisa Hailaula		Last year there was a similar project but a different Proponent, with plans of an ammonia pipeline from Farm 58 to the north port so I am not sure whether you are aware. EnviroNam were the consultants working on the EIA.	It is probably Zhero. This will be investigated. All the neighbours at Farm 58 were informed about the project. Cleanergy is probably not the only ones looking into Namibia for similar projects. We don't view this as competition, there is a need for many molecules. We have the unique advantage because we have that shipping aspect as the driver to construct the terminal. We are fortunate to have partners from Namibia to guide us on all the topics we should cover and for that we are very grateful.

Table 4 - Comments and responses from the public meeting held in Swakopmund.

Wednesday, 13 March 2024 18:00 Tamariskia Town Hall, Swakopmund			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
Dr. Detlof von Oertzen	VO Consultancy	Who will be assessing the security for the EIA?	From a safety security side, ECC will have an inhouse team – Jessica Bezuidenhout and Stephan Bezuidenhout, who has experience and has done similar work in the industry of oil and gas. ECC will have a third-party reviewer to ensure risks are mitigated.
		1. In Namibia we have the gas bill which is only being developed now. Which type of regulations are you intending to operate pipelines and production facilities.	1. For the pipelines itself, ASME codes used in USA will be used. From the amount of research ECC has done, there is a committee that has been established for these hydrogen projects incorporating potential investors, technical teams of various projects, Ministry of Mine and Energy and some of the other ministries as well. In the absence of this bill there will be guidance that comes from the ministries and the committee will establish which type of standards will be accepted within the country until the bill is established.
		2. It is going to be a regulated industry with a local regulator, I am curious how you would suggest that you would be embarking on activities that are not regulated now in Namibia. It does not help to bring Belgium or US regulations to the floor when it does not apply to Namibia. Who is going to regulate you.	2. The alternative is we wait for regulations in Namibia and the project is delayed for 10 to 15 years and passing on the opportunity in Namibia. Belgium is also a small
		3. There is no regulation, as simple as that. We will not know when the regulator will be here and what	

Wednesday, 13 March 2024 18:00
Tamariskia Town Hall, Swakopmund

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		standards will apply and what the regulations will look like.	country, to regulate all systems we need to have standards. What we've seen on the other hand is that the worldwide industry cannot work with other countries in terms of supply and that have standards that are not internationally accepted. We support European and USA standards and a mixture of standards. 3. Pointed noted. With the steering committee there is a need to collaborate. This will be included into our reports.
		The BID does not include the pressure used in the hydrogen and ammonia pipes and the diameter of the pipes considered.	Cleanergy is looking at 70 Bar for the hydrogen pressure, because that is common practice but it's still to be investigated. The diameter for the hydrogen pipeline will be 24 inches. This is still subject to change. The ammonia pipeline is smaller. The refrigerated pipeline is at -33 °C and is 16 inches, the other one is at ambient temperature and is approximately 6 inches.
Lucas Nghituange	Swakopmund resident	Should the pipelines be above ground, how safe are these pipelines? Should there be a leak of the ammonia pipeline? What are the risks to the environment (flora and fauna) and people long-term? I would like to know about the safety.	Should something occur, potentially at the connections of between the different pipelines. All people who have access to the site are trained for any occurrence and have protective measures themselves including protective wear and mitigations. Connections are at safe distances away from the public.

Wednesday, 13 March 2024 18:00
Tamariskia Town Hall, Swakopmund

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			<p>In terms of flora and fauna and where the pipeline will be located, that is also something the specialist study will look into as well as the dune morphology. Heritage studies will also identify potential archaeological sites as well. This will identify what will be feasible and inform the project. The specialists will provide guidance and input used in the environmental assessment system. We are not at that stage yet. ECC will take serious consideration based on the findings by the specialists.</p> <p>The ammonia used in the pipelines do not differ much from the ammonia that is part of the fertiliser you buy from the nursery. It is very much a simple product that is being transported.</p>
Stanley Norris	CEO of Arandis Town Council	We need to understand that the electricity control board (ECB) was established in 1998, we had energy before that. In other words, the regulatory bodies only came in afterwards. We need to understand that the regulating bodies can come afterwards and sometimes it catches up to the technology that exists at that point. I believe the	Thank you very much. Comment noted.

Wednesday, 13 March 2024 18:00
Tamariskia Town Hall, Swakopmund

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		potential is there and we should consider that. The responsibility you have taken to have this public presentation is appreciated and we should consume the information at this point and not be resistant.	
Dennis Muesee	Namibian citizen	I am very thankful for the platform. Is there a timeframe you would want this project to roll out before knowing about potential dangers without a regulatory body?	<p>In the ESIA process, ECC is identifying where there are potential shortcomings from an environmental, economic and safety perspective. Throughout this process a final document may be provided in Q4 of this year. The public would be able to go through the document and find potential gaps, risks and there is an opportunity to engage further and request for further studies and a request for submission of various components.</p> <p>Cleanergy will answer your question in three steps:</p> <ol style="list-style-type: none"> 1. The proposed ammonia terminal is anticipated to be running in two years (i.e., by 2026) 2. The upscale of the ammonia factory and Arandis production by 2028. Pipelines are the safest way to transport ammonia.

Wednesday, 13 March 2024 18:00
Tamariskia Town Hall, Swakopmund

Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			3. The pilot plant and building experience is small scale is therefore foreseen as a small risk, which are manageable.
Gabes Nghipandwa	GIZ Namibia	In terms of land-use and landcover, do you have permission to use the land?	An agreement is in place with NamPort regarding the ammonia terminal.
Petrina Mpahleni	Ministry of Agriculture, Water, Land and Reform (MAWLR)	Will the EIA be split? Will this be done in terms of routes?	There are three different projects. They are split into the ammonia terminal, the ammonia pipeline and the hydrogen pipeline.
Thelma Kirchne	Swakopmund resident	Where is Farm 58?	It is an industrial property east of the highway on your way to Walvis Bay Airport.

Table 5 - Comments and responses from the public meeting held in Arandis.

Thursday, 14 March 2024, 18:00 Arandis Town Hall			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
S. Tjikuna	Arandis resident	Please specify where the solar panels will be placed.	The solar system will be installed at a later stage. However, we are discussing various options with Mr. Norris, the CEO of the Arandis Town Council. The pipeline design and placement will be assessed first.
		In terms of employment, how can we benefit from this project?	The project is bringing a lot of capital and interest. Cleanergy is investing in the hydrogen academy and plan to employ Namibian citizens as well as source local businesses for the project's needs. The engineering team, apart from one employee, are all Namibian. Within the ESIA a process, an EMP will be drafted and include that workers should be recruited locally, and the Proponent is expected to comply with the components of the EMP.
		Due to the rocky underground in the Arandis vicinity, it may be a better option to place the hydrogen pipeline above ground.	The input is appreciated and will be taken into consideration.
		We want the project and need the project.	Comment is well noted.
Martinus (Heimie)	Arandis resident	There is an existing solar park in Arandis. Is it possible for you to potentially reach an agreement and use the existing plant?	The existing solar plant is providing electricity to Arandis, we don't have any intention to take energy from it. The power required for the project is much more than the

Thursday, 14 March 2024, 18:00			
Arandis Town Hall			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			capacity to be provided by the existing plant. Therefore, Cleanergy intends to install its own solar plant.
		Will the blasting from nearby mining activities have an impact on the pipelines?	Thank you for your input, we will include a blasting study on our list of specialist studies required. Feedback from this report will be key in selecting the appropriate route as well as the safest method for placement, i.e., underground or above ground.
Neka Mato	Arandis resident	When will this event/project start?	ECC and the Proponent hope to submit the ESIA for the projects in Q4, before the end of the year. The presentation will be shared to provide a closer look into the timeline.
Hendrik	Arandis resident	Where would the hydrogen pipeline be located?	There are three route options for the hydrogen pipeline, and this is shared in the presentation that will be made available to the public. The pipeline will be located near Arandis to Farm 58 (close to Dune 7). The route has not been identified yet, as specialists and public input have to be considered in selecting the best possible route.
		It is good that an EIA is being carried out and that you are following the right protocols and I hope you share the consequences and dangers of ammonia. This must be taken into consideration.	The goal is to be completely transparent. Several public and focus meetings have been held. It should be noted that ammonia will not be anywhere close to Arandis. It is

Thursday, 14 March 2024, 18:00 Arandis Town Hall			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
			foreseen that the proposed green hydrogen plant and hydrogen pipeline would be located near Arandis.
Helena Tsibs	SWAPO	What are the dangers of ammonia and how high is the risk?	<p>Ammonia is a small and safe molecule present in a lot of the products we use on a daily basis. The plan is to transport and store a small and safe amount of ammonia. All safety measures will be considered during the construction of the various infrastructure to ensure that people and the environment will be safe.</p> <p>This is not a new project. There are similar projects around the world and in much more densely populated areas. By following the correct standards, processes and assessments, it can be done safely.</p>
Stanley Norris	CEO of Arandis Town Council (ATC)	<p>I am pleased to inform you that the Arandis Town Council has already approved the project.</p> <p>Shared infrastructure can expedite the project. The council is currently looking at what infrastructure may help the project and allocate the area. The area that will be used for the solar plant will be just outside Trekkopje. The solar plant will provide high</p>	Thank you for your positive message.



Thursday, 14 March 2024, 18:00 Arandis Town Hall			
Name	Stakeholder Details	Comment/Question Received	Response/Clarification
		<p>energy and produce high power which will be used as shared infrastructure.</p> <p>Jobs are always a concern but the decision we make now will affect the future. Cleanergy is a Namibian company, that means final products produced from green hydrogen and ammonia, it will be produced in Namibia. These final products will increase the GDP of the country. At the end of the day, there is a benefit for the entire country due to the increase in tax revenue. This will go into the schools, hospitals and housing. This is why we have to support and expedite this project. ATC support this team – Cleanergy and ECC.</p>	

APPENDIX A – ADVERTS

2 **Focus** Sun **Market Watch** THURSDAY 28 FEBRUARY 2014

Canal must make takeover offer for MultiChoice

Regulator rules

South Africa's takeover regulator has ruled that French media giant Canal+ must make an immediate takeover offer for DStv and Showmax owner MultiChoice.

KAREN DEWETZKY

The Takeover Regulation Panel (TRP) has ruled that French media giant Canal+ must make a mandatory takeover offer for DStv owner MultiChoice. The ruling comes after the TRP found that Canal+ had acquired a 20% stake in DStv through its subsidiary Canal+ Africa, which is not subject to the same rules as other foreign investors.

In a ruling issued on Thursday, the TRP said that Canal+ had breached the provisions of the Companies Act of 2008, which requires a mandatory takeover offer if an investor acquires more than 10% of a company's shares.

The TRP also ruled that Canal+ must make an offer to acquire the remaining 80% of DStv shares. The offer must be made within 10 business days of the ruling.

MultiChoice, which owns DStv, had 1.6 million subscribers last year, reports Reuters.

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ECC
Environmental Compliance Consultancy

FOR THE PROPOSED GREEN AMMONIA TERMINAL, PIPELINE, STORAGE AND GREEN HYDROGEN PIPELINE, ERONGO REGION, NAMIBIA.

Environmental Compliance Consultancy (ECC) provides the services to members of the public. This is an application for environmental clearance certificate in accordance with environmental Management Act, No. 107 of 2002. The project is located in the Erongo Region, Namibia.

Applications: Erongo Region, Namibia
ECC
Environmental Compliance Consultancy (Pty) Ltd
List of all Applicants to be invited
The project location: Erongo Region, Namibia

Public Meeting
Where: Bay, Tuesday, 27 March 2014 at 10:00
Where and Date: Erongo Region, Namibia
Where: Bay, Tuesday, 27 March 2014 at 10:00
Where and Date: Erongo Region, Namibia

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HIGH SCHOOL OPEN MORNING

Wednesday 6 March 2024, 07:15 - 08:30

APPLY ONLINE: www.spcnam.org

Applications close on 5 July 2024

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Cambridge International Examinations

ST PAUL'S COLLEGE NAMIBIA

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NB: Please note that all relevant qualifications (Namibian qualifications included) must be recently certified and verified by the institution where it was obtained or the NQA. For more information regarding evaluation of qualifications, please visit www.domesa.org.

SCAN ME

DHPS
Deutsche Höhere Privatschule Windhoek

Please note: This vacancy is published in German only, as proficient knowledge of the German language is essential for this position. Thank you for your understanding.

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P.O. Box 78, Churchstrasse 11 – 15 Fax: 061-321 306
Windhoek Email: hr@dhps-windhoek.com

NOTICE OF AN ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF AN AMMONIA TERMINAL, GREEN AMMONIA PIPELINE AND GREEN HYDROGEN PIPELINE, ERONGO REGION, NAMIBIA

Environmental Compliance Consultancy (Pty) Ltd provides this notice to members of the public that an application for an environmental clearance certificate in accordance with the Environmental Management Act, No. 7 of 2007 has been made for the proposed project as stated below. Members of the public are invited to register as an interested and affected party (I&AP) and provide input into the environmental clearance certificate application process.

Applicant: Cleanergy Solutions Namibia (Pty) Ltd
Environmental Assessment Practitioner (I&AP): Environmental Compliance Consultancy (Pty) Ltd
Location: Arandis to Walvis Bay, Namibia
Proposed Activity: Cleanergy Solutions

Namibia (Pty) Ltd proposes to construct an ammonia terminal at the Walvis Bay port area comprising of an ammonia storage tank and associated facilities; a 12.7 km carbon steel ammonia pipeline to transport green ammonia from the ammonia production plant on farm 58 to the ammonia terminal at the port of Walvis Bay; an 80 km carbon steel green hydrogen pipeline between Arandis and farm 58 which will store 15 000m³ hydrogen gas daily.

Public Meeting Walvis Bay: Tuesday, 12 March 2024 at 18:00 Venue and Address: Walvis Bay Town Hall John Mualangejo Street	Swakopmund: Wednesday, 13 March 2024 at 18:00 Venue and Address: Tamariskia Town Hall 599 Ploaht Street.	Arandis: Thursday, 14 March 2024 at 18:00 Venue and Address: Arandis Town Hall, Erf No. 1147, Arandis
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Register & Attend
1. Please register as an I&AP
2. Register for the Project at: <https://environmental.com/download-the-proposed-construction-of-an-ammonia-terminal-at-the-walvis-bay-port-area-in-erongo-region-namibia/>, or call ECC to register.

The team at ECC will maintain contact with registered I&APs to engage and to keep them informed as the ESIA process develops. ECC will also provide registered I&APs input opportunities and review periods throughout the assessment process.

Contact: Environmental Compliance Consultancy | PO Box 91193, Klein Windhoek.
Tel: +264 61 669 7650 | E-mail: info@eccenvironmental.com
Website: www.eccenvironmental.com/projects

8 Republikain Sun Allgeseine Zeitung Market Watch THURSDAY 7 MARCH 2024

Secondary School Coordinator
Fulltime - Lüderitz, Namibia

VACANCY ANNOUNCEMENT

JOIN OUR TEAM
The Lüderitz Blue School is a new international primary school offering the British National Curriculum to boys and girls with a special focus on Ocean Education. We are looking for a skilled and passionate teacher to help set up our secondary department, teach its first learners and lead its development and expansion over the coming years. We are looking for someone who has the initiative and drive to set up a new department and put in place structures that will last as the school grows.

- We are a close and small team – our ideal candidate will be a happy collaborator as well as comfortable working independently.
- **Top-level organisation skills** – the secondary offering will be a hybrid between online and in-person lessons. Setting up and running a system that allows children to work at the best pace for their learning style will require someone with excellent organisational skills and a fine eye for the individual needs of each student.
- **Pioneering spirit** – as with any start-up or new organisation, all team members need to get involved with everything. We are looking for someone who is happy to go the extra mile when required, to take on whatever work needs to be done and sees opportunities and areas to do things better.
- **Working with what we have** – the ideal candidate will be happy making do with what there is, a creative problem-solver and a nature-lover.

REQUIREMENTS:

- Relevant teaching qualification (PGCE or equivalent).
- Specialism in a core subject (Mathematics, English or Science).
- Extensive experience teaching the British National Curriculum or similar equivalent e.g. Cambridge International
- Strong knowledge of online and in-person teaching methodologies and best practices.
- Familiarity with curriculum development, instructional design, and assessment strategies.
- Excellent leadership, organizational, and communication skills.
- Strong teamwork skills.
- Ability to work effectively with a diverse range of stakeholders, including teachers, learners, parents/guardians, and administrators.
- Strong problem-solving and decision-making abilities.
- Flexibility to adapt to changing environments and technologies.
- Previous experience in secondary education coordination or a similar role.

STARTING DATE: July 2024 – flexible

TO APPLY:
For more information or if you have questions about the role, please get in touch at info@luederitzblueschool.com. When you are ready to apply, download an application form at www.luederitzblueschool.com/apply and submit your application, including certified copies of qualifications, to info@luederitzblueschool.com before 31 March 2024.

REQUEST FOR PROPOSALS

First date of publication: 31 January 2024

REQUEST FOR PROPOSALS

DBMNE0495 – CONSULTANCY SERVICES FOR CONCEPT DEVELOPMENT OF SUB-SEA DIAMOND RECOVERY SYSTEMS

SCOPE OF WORK:
Debmarmine Namibia is looking for consultant(s) / research institutions to contribute to the development of new concepts for extracting marine diamonds from both soft sediment and coarse gravels. Qualified and interested partners will receive detailed geological information.

DOCUMENTS TO SUBMIT:

1. Business profile,
2. A demonstration of competencies (via appropriate CV's) for the overall provision of services,
3. Track record: comprehensive details of concept development capability to find solutions for technical challenges, with timescales of contract period(s); reference people and contact numbers (where applicable).

CLOSING DATE: 22 March 2024.
Registered businesses interested in providing such services are requested to submit the documents
Email: Tenders@debmarine.com
Subject line: **DBMNE0495 – CONSULTANCY SERVICES FOR CONCEPT DEVELOPMENT OF SUB-SEA DIAMOND RECOVERY SYSTEMS**

REQUIRE:
The Procurement Officer
Tel: +264 61 297 8460
Email: Tenders@debmarine.com
Subject line: **DBMNE0495 – CONSULTANCY SERVICES FOR CONCEPT DEVELOPMENT OF SUB-SEA DIAMOND RECOVERY SYSTEMS**

DISCLAIMER:
Debmarmine Namibia shall not be responsible for any costs incurred in the preparation and submission of a response to this tender and furthermore reserves the right not to extend this tender into any future tenders, negotiations and or engagements.
Debmarmine Namibia shall not accept submissions rendered after the closing date and time.

APPENDIX B - STAKEHOLDER LETTERS

Environmental Compliance Consultancy (Pty) Ltd
PO Box 91193 Klein Windhoek Namibia
info@eccenvironmental.com
www.eccenvironmental.com
+264 81 669 7608



ECC-145-453-LET-08-D

04 March 2024

RECEIVED BY OFFICIAL STAMP

Signature: _____

Date: / /

IDENTIFIED STAKEHOLDER AND POTENTIALLY INTERESTED PARTY:

NOTIFICATION OF AN ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF AN AMMONIA TERMINAL, AMMONIA PIPELINE AND HYDROGEN PIPELINE, ERONGO REGION, NAMIBIA.

Dear Sir/Madam,

Environmental Compliance Consultancy Pty Ltd (ECC) has been appointed by Cleanergy Solutions Namibia (Pty) Ltd as the environmental assessment practitioner for the proposed construction of an ammonia terminal at Walvis Bay port area, an ammonia pipeline from the ammonia terminal to Farm 58 and a hydrogen pipeline between Farm 58 and Arandis in Erongo Region, Namibia.

This letter intends to engage potentially Interested and Affected Parties (I&APs) for the Project and provide a platform and means of communication with ECC. You have been identified as a potential interested or affected party and therefore ECC wishes to engage with you throughout the ongoing environmental impact assessment (EIA) process.

The projects entail the following:

- **The Ammonia Terminal Project:** The construction of an ammonia terminal at the Walvis Bay port area comprising of the following main sections: An ammonia storage tank of 40 000 metric tons capacity and the export facilities associated; a Nitrogen Generation Unit to produce the nitrogen required for the utilities; air unit to produce air required for the Nitrogen Generation Unit; fire/service water tanks and pumps; an emergency diesel generator and a wastewater unit.
- **The Ammonia pipeline Project:** The construction of a 12.7 km ammonia pipeline from the ammonia terminal to Farm 58. The purpose of the pipeline is to connect the green ammonia production plant to the ammonia terminal in Walvis Bay. A carbon steel pipeline will transport daily 800 metric tons of green ammonia from the ammonia production plant on Farm 58 to the storage unit at the port of Walvis Bay.
- **The Hydrogen Pipeline Project:** The construction of an 80 km hydrogen pipeline from the new green hydrogen plant in Arandis to the new green ammonia production plant on Farm 58 (near Dune 7). The

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purpose of the pipeline is to connect the new green hydrogen plant to the green ammonia production plant. A carbon steel pipeline will store 15 000 m³ hydrogen gas daily.

Detailed and descriptive summaries of the above-mentioned Projects are narrated in the background information documents. The BIDs can be accessed online at (<https://eccenvironmental.com/projects/>).

As part of the assessment, Environmental Compliance Consultancy (ECC) herewith cordially invite you as an identified stakeholder, interested or affected party to the public engagement meetings scheduled as follows:

1st public meeting:

- Date: 12 March 2023
- Venue: Walvis Bay Town Hall, John Muafangejo Street, Walvis Bay
- Time: 18:00 PM

2nd public meeting:

- Date: 13 March 2023
- Venue: Tamariskia Town Hall, 599 Plaath, Swakopmund
- Time: 18:00 PM

3rd public meeting:

- Date: 14 March 2023
- Venue: Arandis Town Hall, Main Road, Erf No. 1147, Arandis
- Time: 18:00 PM

Registered I&APs will receive notifications about the availability of the draft scoping report for review. During this review period, I&APs have the opportunity to raise any concerns or issues they may have. If you wish to register as an I&AP, please complete the registration form on the ECC website using the following link: <https://eccenvironmental.com/download/the-proposed-construction-of-an-ammonia-terminal-at-the-walvis-bay-port-area-erongo-region-namibia/>

If you encounter any difficulties with the online registration form, kindly reach out to us via email at info@eccenvironmental.com for assistance.

Please feel free to contact us if you have any questions or require further information.

Yours sincerely,



Stephan Bezuidenhout
stephan@eccenvironmental.com



Jessica Bezuidenhout
jessica@eccenvironmental.com

APPENDIX C - SITE NOTICES



Ammonia terminal GPS coordinates:

Lat: -22.907673

Long: 14.544504



**Ammonia pipeline GPS
coordinates:**

Site 1

Lat: -22.921867

Long: 14.544534



**Ammonia pipeline GPS
coordinates:**
Site 2
Lat: -22.921867
Long: 14.544534



**Hydrogen pipeline GPS
coordinates:**
Site 1
Lat: -22.673396
Long: 14.580379



**Hydrogen pipeline GPS
coordinates:
Site 2
Lat: -22.432597
Long: 14.994183**

APPENDIX D- ATTENDANCE REGISTER



+254 81 669 7608

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Meeting Attendance Register

Date: 12 March 2024


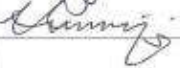
Meeting Subject: Green ammonia and hydrogen projects

Proponent: Cleanergy Solutions Namibia (Pty) Ltd

Venue: NAMCOR NOGE Terminal

	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
1	Imelda Tijenda	NAMCOR	itijenda@namcor.com.na	081323267	
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3	Rufina Nemesel	NAMCOR	rufina.nemesel@namcor.com.na	0811200493	
4	Ellis Gumbo	NAMCOR	egumbo@namcor.com.na	081444425	
5	Garland Maybigh	"	gmaybigh@namcor.com.na	0811226802	
6	Roy Comp	CRIB TECH	roy.comp@cribtech		
7	Glenn de Roo	DFL	glenn.de.roo@dfn	08112225563	
8	Lizbeth Voland	CRIB TECH	Lizbeth.Voland@cribtech		



	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
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Meeting Attendance Register

Date: 10 March 2024

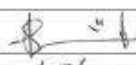
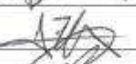







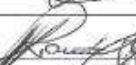


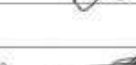



Meeting Subject: Green ammonia and hydrogen projects

Proponent: Cleanergy Solutions Namibia (Pty) Ltd

Venue: Walvis Bay Town Hall

	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
1	G Muller	zhero	g.muller@zhero.net	081 141 2727	<i>[Signature]</i>
2	T. Hoken	we can youth empowermit	wecanweat@theolusro@gmail.com	0814 757123	<i>[Signature]</i>
3	H. Scheepers	Namibia Marine Phosphate	hanselie.scheepers@nanphos.com	0855800013	<i>[Signature]</i>
4	Joseph Amoluh	Public	janet@jkanofe@gmail.com jkanofe@gmail.com	081338014	<i>[Signature]</i>
5	U. Schumann		schumann.uerner@gmail.com	081 4314228	<i>[Signature]</i>
6	L. Movers	Media Namibia Times	leandreamovers@gmail.com	081 6217 207	<i>[Signature]</i>
7	GF MERTENS		merlensgf@gmail.com	0812360828	<i>[Signature]</i>
8	Jessica	Cleanergy Solutions	jessica.fipe@cl.vci	081 4704134	<i>[Signature]</i>



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10	Nicoles Liebenburg	Woolf Partners	Nicoles@w-p.co.za	081450 0814	
11	Johan v Zyk	Crossroads		081841 0746	
12	Elron Awasse	Tesla Energy	elawasse@tesla.com	0811242569	
13	Kapari Theophilus	NCuHP	tkapari@greenhydrogen.org	0817026744	
14	Nikol HEAEM	ii	n.kheem@proenhydrogen.org	081465412	
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16	L SHIDUTE	PORTSIDE MS	operations@portside.com.na	0811462310	
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22	A. Lombardi	PRIVATE	egmail.com		
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24	Claudia Gossau	KAS	claudia.gossau@kas.de	0811240835	
25	Sedney Nuuses	fishery	Sedneyn@gmail.com	081282929	



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Meeting Attendance Register

Date: 13 March 2024.

Meeting Subject: Green ammonia and hydrogen projects

Proponent: Cleanergy Solutions Namibia (Pty) Ltd

Venue: WHEM

	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
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6	Jessica Ndlovu	MWB	jandlovu@gmail.com	0814791396	
7	Lindeth Vechwal	Cleanergy			
8	Roy Camp	"			



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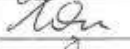
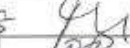


Meeting Attendance Register

Date: 13 March 2024

Meeting Subject: Green ammonia and hydrogen projects

Proponent: Cleanergy Solutions Namibia (Pty) Ltd

Venue: Tamariskia Town Hall

	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
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2	S. NORRIS		ceo@atc.com.na	0811118443	
3	L. Grobler	Kryo Investment	Sarkomund@kryonamibia.com	0811633206	
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13	Jennis Muesee	Citizen	zembec@yahoo.com	0812923088	[Signature]
14	Petrina Mpahleni	MAWR	Petrina.Mpahleni@mtr.govna	0811433724	[Signature]
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Meeting Attendance Register









Date: 14 March 2024

Meeting Subject: Green ammonia and hydrogen projects

Proponent: Cleanergy Solutions Namibia (Pty) Ltd

Venue: Arandis Town Hall

	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
1	Stanley Nkomo	ATC	ce@bak.com.na	0814013682	
2	Ana Amakali	ATC	@anaamakali@gmail.com	0814013682	
3	Helena Tsibes	Swapo		0812027647	
4	Christoni Heibes			0812624898	
5	Sharon Hoor			0814287097	
6	Wilson Shipo			081267173	
7	Josie Karzer	Swapo		0813389306	
8	Blanché			0812462646997	

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14	Heimie	-	-	0812832396	
15	Josefine Dreyer	Swapo	-	0814639590	
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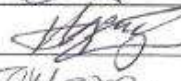


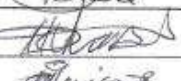
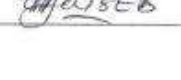


Meeting Attendance Register

Date: 16 March 2024

Meeting Subject: Green ammonia and hydrogen projects

Proponent: Cleanergy Solutions Namibia (Pty) Ltd

Venue: Anandis town Hall

	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
1	ZAKASHA HARTZ	—	—	—	
2	Fritz Shupungu	TESLA	FritzShupungu@gmail.com	0812167194	
3	Ingrid Haase	—	—	0818454928	
4	Rasha Haase	—	—	0813860623	
5	Liseth	—	—	0812151586	
6	Cenovefa	ATC	gsechele78@gmail.com cenovefa78@gmail.com	0813389306	
7	Ronald	—	hatax.peecee@yahoo.com	0812231214	
8	CHRIS JENSEN	—	MERCELA@gmail.com	0819046018	



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Meeting Attendance Register

Date: 14 March 2024

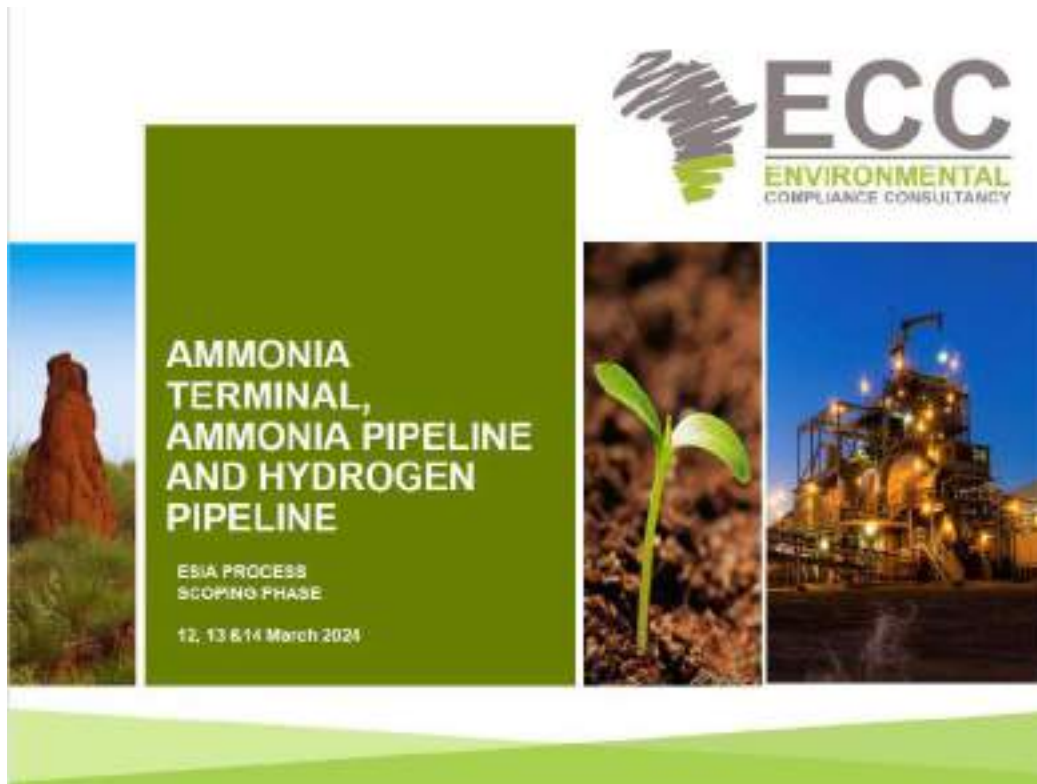
Meeting Subject: Green ammonia and hydrogen projects

Proponent: Cleanergy Solutions Namibia (Pty) Ltd

Venue: Arandis Town Hall

	NAME	ORGANISATION	EMAIL ADDRESS	CONTACT NUMBER	SIGNATURE
1	Selma Kafosi	A.T.C.	/	0814547318	[Signature]
2	Erica Horases	A.T.C.	/	0814466748	[Signature]
3	Ingrit Grawones	ATC (DAC)	isgawones@gmail.com	0816306322	[Signature]
4	Shanken	ATC	shankenn@gmail.com	0818955953	[Signature]
5	Lucia Fractus	A.T.C.	/	0813473174	[Signature]
6	S. Tjiluru	Arandis	africanrain@gmail.com	0813535528	[Signature]
7	Liz HAZARD	ARANDIS		081724331	[Signature]
8	Vicky Hooses	A.T.C.	reception@atc.com.na	0817139821	[Signature]

APPENDIX E – PUBLIC AND FOCUS MEETINGS PRESENTATION



Welcome



Agenda

- Public meeting objectives
- Project Presentation – *Presented by Cleanergy Solutions Namibia*
- Environmental & Social Impact Assessment (ESIA) –
Presented by ECC
- Baseline Studies
- Potential biophysical & Socio-economic impacts –
Presented by ECC

3

Public meeting objectives

- Inform the public and provide information detailing the proposed ammonia terminal, ammonia pipeline and hydrogen pipeline projects
- Provide an overview of the environmental and social impact assessment process
- **Take into consideration public concerns, questions and/or comments and incorporate this into the assessment process**



Presentation topics

- Cleanergy partners
- Background of PV2Fuel
- Step-by-step approach
- Project setup
- Ammonia terminal
- Pipelines
- Timeline
- Q&A

Cleanergy believes in the opportunities of the hydrogen economy and has a strong commitment towards Namibia

Cleanergy is a joint venture of a Namibian company (Ohlthaver & Lütj) and a Belgian company (CMB.TECH).



- ✓ O&L Group is rooted in, and committed to, Africa and her people.
- ✓ Namibia's largest privately held group of companies with revenues contributing roughly 4% to GDP.
- ✓ 18 major subsidiaries representing 12 sectors of the economy.
- ✓ Employing more than 5600 people.



- ✓ CMB.TECH builds, owns, operates and designs large marine and industrial applications that run on hydrogen and ammonia.
- ✓ Stock listed in Brussels and New York and a market leader in sustainable shipping.
- ✓ Creating value through a diversified fleet and a strong focus on decarbonization.
- ✓ Produce, use and distribute low carbon fuels.



Namibia has unique qualities to develop a renewable energy industry

Green hydrogen can drive industrialisation and promote economic prosperity in Namibia.

Namibia's unique strengths:

- 1 **Stable Country**
Namibia is one of the most peaceful countries in Africa. Given its political stability, Namibia has created a strong economic environment which is attractive for investors.
- 2 **Supportive Policies**
The Namibian government considers green hydrogen as an emerging market opportunity with the potential to spur national and regional economic growth.
- 3 **Solar Potential**
Locations with abundant availability of sun are key to allow low cost clean fuel production. Namibia has high solar irradiation values which rank among the highest in the world.
- 4 **Availability of infrastructure**
Walvis Bay is an infrastructural hub in Namibia and Western Africa. Walvis Bay hosts not only Namibia's largest commercial port but also an intercontinental airport.



Port of Walvis Bay is strategically located

Shipping lanes

The Port of Walvis Bay handles container imports, exports and transshipments as well as bulk and breakbulk of various commodities. Namport serves a wide range of industries such as petroleum, salt mining and fishing industries. Walvis Bay is a strategically located port on the international trade route from the cape of Africa to Europe. Furthermore, it has been identified as a promising bunker hub for the (iron ore) trade between Brazil and China.



Bunker hub for ships



CMB.TECH believes that green hydrogen for small ships and green ammonia for large ocean-going ships can play an important role to decarbonize the shipping industry.



CMB.TECH is already building a future proof fleet with ammonia class approval including bulk carriers, chemical tankers and container vessels on order, allowing the future retrofit for using ammonia as a fuel without losing cargo capacity.



The integration of the drivetrain, the storage and the bunkering of hydrogen and ammonia, are implemented by a diverse and experienced in-house engineering team in partnership with manufacturers and shipyards.

How does Cleanergy translate its vision "Creating a sustainable future" on a day-to-day basis

Focus on local employment and upskilling.



Step-by-step approach: gives the opportunity to Namibia to get acquainted with hydrogen & ammonia

Respect for local community and environment. Seeking / discovering the best approach forward via open communication.



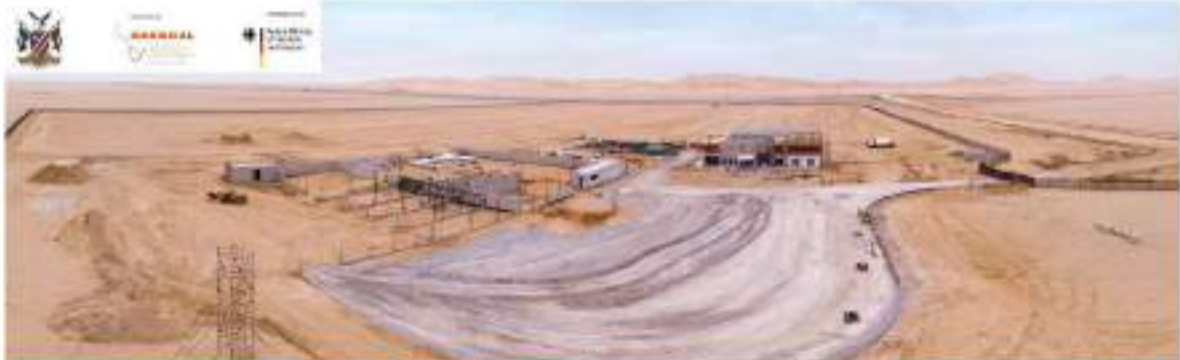
Added value for Namibian economy: hydrogen and ammonia production for local usage as a starting point

Public Information - Information of Public Interest - Environmental Information

02/20/2024 09:56:00 AM



Step-by-step approach: small-scale hydrogen and ammonia production as an enabler for sustainable growth



Public Information - Information of Public Interest - Environmental Information

02/20/2024 09:56:00 AM





Scope of current Public Participation - EIA



Experience with hydrogen & ammonia



Bunkering with (blue/green) ammonia



Hydrogen at industrial scale



Industrial scale ammonia production



Connect Arandis with Farm 56



Connecting facilities

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Port site for bunkering with blue/green ammonia



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General info terminal

Project requirements:

- Import / export of ammonia via a Mid-Size Ammonia/LPG Carrier (25,000ton)
- Vessel needs to be loaded within 16 hours
- Storage of 40,000tons (height: +/-30m; diameter: +/- 55m)

Location:

- Length of loading line (needs to be limited to avoid evaporation; 5km is considered as a limit)
- A safety distance of 1.5km from the nearest inhabitants is based on best practices from Europe. An indepth Quantitative Risk Analysis will be conducted during the next months of design.
- For building the tank terminal, a minimal area of 10ha is required.

Utility requirements:

- Water consumption: ~20m³/day
- Power consumption: 750kW (holding) / 4000kW (peak)



Photo courtesy: Green Hydrogen Infrastructure Development in Europe

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Worldwide, more than 100 ports are equipped with ammonia storage tanks: a lot of experience and proven technology

Ammonia infrastructure today

- Ammonia requires special purpose infrastructure, including pipelines, tanks and facilities for maritime bunkering.
- At present, nearly 8,000 kilometres of ammonia pipeline run worldwide, along with 38 export and 88 receiving terminals.
- Worldwide, there are ammonia terminals in 122 ports with the capability to import or export ammonia equipped with specialized storage tanks and bunkering infrastructure.



Ammonia factory with terminal located in Europe

Photo courtesy: Green Hydrogen Infrastructure Development in Europe



Ammonia shipping infrastructure, including a heat map of liquid ammonia carriers and existing ammonia port facilities (2017)

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Ammonia tank: all available safety measures included

Design features

1. Concrete outer wall to protect the tank from outside (e.g. blast, collision).
2. Piled foundations with an air gap to prevent freezing of the ground.
3. Pumps are installed inside the tank to avoid side wall penetrations.
- ◆ Design for redundancy (refrigeration system, power supply, ...)

Process control systems

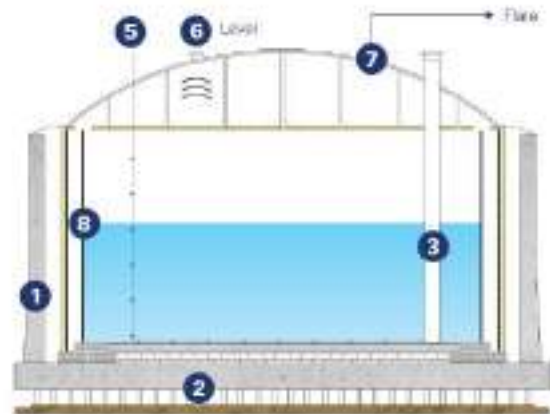
- E. Temperature and pressure sensors control the plant automatically during normal operations.
- E. Automatic overfill and overpressure protection.

Emergency safety system

7. Pressure release valves will open and dispose product to a flare jet to safe location in case of emergency situations.

Mitigating measures

- E. Double walled (outer steel tank) containing the liquid in case of a failure of the inner steel tank.
- ◆ Safety distance to nearest inhabitants (cf. European standards)



General info on ammonia pipeline

Project requirements

- Connect 2 sites: Farm 58 where ammonia is produced and the North Port where storage, import and export can be done. An ammonia pipeline is a prerequisite of our choice to place as much as possible industrial activities at Farm 58.
- Evaporation of liquid ammonia in the pipeline needs to be avoided. As the liquid ammonia will be heated-up in the pipeline, transporting "cold" ammonia over a distance of 12.7km is not the preferred option given the ambient conditions.

Location:

- Around "Dune 7" and maximize trajectory within Port Area.
- Under ground is preferred to minimize impact on area.
- The trajectory aligns with the Nampart corridor.



Pipeline transports molecules safely and efficiently

Design features
<ul style="list-style-type: none"> • Taking pipe flexibility into account by proper supporting and stress engineering analyses.
<ol style="list-style-type: none"> 1. Pipeline hybrid between under ground / above ground: <ul style="list-style-type: none"> • Under ground: coated and wrapped against soil corrosion • Above ground: insulation additional to under ground setup
Process control systems
<ol style="list-style-type: none"> 2. Fibre optic sensors to monitor the pipe process conditions (e.g. temperature, pressure, strain, vibrations...) 3. Fencing and camera control (CCTV) 4. frequent (drones) inspection: <ul style="list-style-type: none"> • Noticing easements works • Monitoring with thermography (infrared)
Shutdown systems
<ul style="list-style-type: none"> • Valve actuating to isolate a certain section in case of leakage, maintenance
Mitigating measures
<ol style="list-style-type: none"> 5. Pipeline marking posts indicate the presence of an under ground pipeline (each 500m and at each road / rail crossing) 6. Indication tape: positioned 300 mm above the under ground pipe to indicate the construction workers that they are approaching a pipeline 7. Cathodic protection: mitigating the failure of pipe wrapping, to prevent the pipe from soil corrosion.



Photo: Wikimedia - Photo: Wikimedia - Photo: Wikimedia - Photo: Wikimedia - Photo: Wikimedia

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Europe's Hydrogen pipelines infrastructure

In Belgium, already 670km of H₂ pipelines in use connecting all major industrial clusters. The first pipes were constructed in 1939 and were mainly expanded in the '60s and '70s. Germany has a comprehensive infrastructure plan summing up to 9,700 kilometre "hydrogen highway", to be fully operational by 2032.



Wilhelmshaven / 28 km / 18"



Werdau / 290 km / 40"



Lippa / 236 km / 32"



Intermediate lifting stations are installed at regular intervals.



Odenkauer / 314 km / 31"

Photo: Wikimedia - Photo: Wikimedia - Photo: Wikimedia - Photo: Wikimedia - Photo: Wikimedia

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Ammonia pipelines and terminals in USA



Ammonia storage facilities in Los Angeles

>4500km of ammonia pipelines are installed in USA. The storage is in refrigerated (liquid) above-ground steel tanks of 10 - 60,000tons each.

10,000 farmers are using ammonia directly as fertilizer in the agricultural sector specifically for growing corn and almonds.

A refinery with 30,000tons storage capacity is situated less than a kilometer from the runways at Los Angeles International Airport indicating the long-term safety record of these facilities.



Map generated by environmental compliance consultant from Google

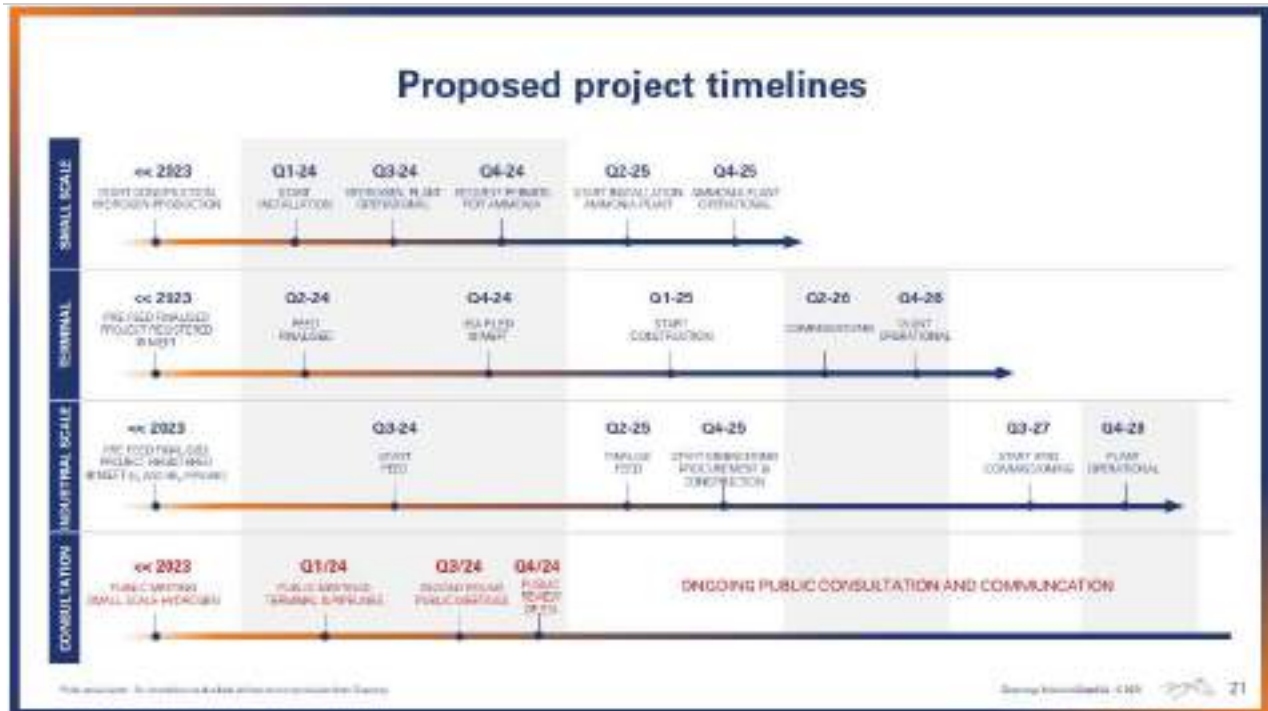
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Ammonia pipelines and terminals in USA



Map generated by environmental compliance consultant from Google

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Environmental Practitioners and Their Role

- ECC (Environmental Compliance Consultancy Pty Ltd)
- Independent and unbiased perspective
- Evidence and risk-based approach
- Leverage Namibian public local knowledge and experience
- Active participation throughout ESIA process



ESIA Process

- **Screening (DEA PORTAL):**
 - Utilize DEA PORTAL for initial screening process.
- **Scoping (Current Phase):**
 - Define the scope of the project during the current phase.
- **Assessment Phase:**
 - Conduct a comprehensive assessment of the project.
- **Impact Prediction and Evaluation of Alternatives:**
 - Predict and evaluate potential impacts.
 - Explore and assess alternative approaches.
- **Assigning Mitigation Measures:**
 - Identify and assign appropriate mitigation measures.
- **Developing Monitoring and Conceptual Rehabilitation Plans:**
 - Devise plans for ongoing monitoring.
 - Outline conceptual rehabilitation strategies.
- **ESIA Report and Draft Environmental Management Plan (EMP):**
 - Culminate the phase by drafting the ESIA report.
 - Develop a draft Environmental Management Plan (EMP).
- **Submission to Competent Authorities:**
 - Submit the ESIA report and EMP to relevant competent authorities.

ESIA Process – Project Registration DEA:MEFT

- Screening (DEA PORTAL):
 - Ammonia terminal: APP – 002566
 - Ammonia pipeline: APP – 002567
 - Hydrogen pipeline: APP - 002568

ESIA Screening Process

ACTIVITIES THAT TRIGGERED A CLEARANCE CERTIFICATE APPLICATION	EIA SCREENING FINDING
ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES	<ul style="list-style-type: none"> An emergency diesel generator may be included in the project.
WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES	<ul style="list-style-type: none"> All household or non-hazardous waste will be disposed of at the local landfill site and the hazardous waste will be disposed at the disposal site in Walvis Bay.
WATER RESOURCE DEVELOPMENT	<ul style="list-style-type: none"> All the effluents generated by the ammonia terminal facilities are handled by the wastewater treatment. Wastewater permit will be obtained.
HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE	<ul style="list-style-type: none"> Liquid ammonia will be stored in an ammonia storage tank with a size of 40 000 tons of capacity. The ammonia pipeline will transport approximately 900 metric tons of green ammonia per day to the ammonia terminal. The hydrogen pipeline will store up to 18 000 tons of hydrogen which will be transported to the ammonia production plant itself.
INFRASTRUCTURE	<ul style="list-style-type: none"> The 31,7 km ammonia pipeline will be constructed between Farm 08 and Walvis Bay port area. The 81 km hydrogen pipeline will be constructed between Farm 08 and Farm 08.

Public Participation

- Notification of the project – newspapers, site notice boards & stakeholder letters in alignment with the EMA No. 7 of 2007
- The Background Information Document (BID) provided I&APs with the opportunity to take part in the public participation process.
- Direct consultation and focus group meetings with required stakeholders
- This presentation extracts information from the BID to describe the project to those attending the meeting.

Baseline Studies to be commissioned

BASILINE STUDIES	SPECIALIST
A baseline fauna and flora	Peter Cunningham
A dune morphology study	Peter Cunningham
Detailed groundwater and surface water	ECC (Luke Towers)
A noise baseline study	AirShed
An air quality baseline study	AirShed
A heritage baseline study	Alma Nankala
An updated high level socio-economic baseline study will be concluded	ECC (Stephan Bezuidenhout)
Traffic study	Innovative Transport Solutions
Visual baseline study	ECC (Johan Le Roux)
Technical feasibility and safety	CMB, TECH

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Potential Impacts to be assessed

- Potential impacts that can arise from the proposed project include but are not limited to:
 - Noise impacts
 - Visual impacts
 - Landscape impacts
 - Dune morphology impacts
 - Linear infrastructure
 - Water resource impacts
 - Impact on archaeological and cultural features
 - Biodiversity impacts
 - Increased traffic volumes off-site
 - Job creation (permanent / temporary)
 - Economic growth & emission reduction
 - Safety considerations for existing infrastructure and residents
 - Innovation & technology transfer



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ESIA & ESMP



Integration of Stakeholder and Specialist Input:

- Incorporate input from all stakeholders and specialists.
- Ensure comprehensive integration for effective outcomes.

Inclusion of Recommended Mitigations:

- Ensure that all recommended mitigations are included.
- Guarantee thorough incorporation for holistic management.

PLEASE REMEMBER TO REGISTER AS AN INTERESTED OR AFFECTED PARTY

- HOW?
- Via the ECC website, under projects
- Via telephone or WhatsApp +264 81 669 7608
- Speak to me after the meeting



Questions / Discussion ?



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www.eccenvironmental.com

Thank You For Your Time!



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