

Green Hydrogen-based Economy

A BRAVE NEW WORLD (*also in Namibia*)

Margaret Mutschler

23 February 2022

Chairperson of the Namibia Green Hydrogen Association (NamGHA)

Director Tumoneni Hydrogen Energy and Project Developer for CWP H1 Energy

Partner Mutschler Consulting Services

NAMIBIA AS A SUITABLE COUNTRY FOR DEVELOPMENT

Namibia's political stability, skilled labor resource and availability of land make the country a competitive location for developing large-scale renewable energy projects

Access to Excess RE resources

- World class RE resources
 - Namibia has huge potential to tap in its God-given natural and renewable resources, to not only de-carbonise the Namibian economy, but also contribute to the de-carbonisation globally
 - Wind, Solar and Biomass
 - Access to coastline
- Local demand for RE resources lower than opportunity
 - Local consumption is less than 4.5 TWh of energy (2020) and is expected to grow at 2-4% annually
 - Potential capacities for wind, solar and biomass by far outstrip the potential use in Namibia
 - Mining a new, renewable, non-depletable resource
 - Climate change will result in more sun and wind
- Land availability and of RE resources correlation
 - Even after due consideration of current and future land use and environmental viability, Namibia has vast stretches of land that can be used sustainably and productively

Why are developers flocking to Namibia, for reasons other than for its windy and sunny conditions

- Political stability and safety
 - Peace and stability
 - Functioning Government
 - No threat to war, out-of-control strikes
- A working, well defined, independent and balanced legislative and regulative environment, tested a number of times with solid outcomes
- A robust monetary system
- Good infrastructure – it is easy to get around
- A skilled workforce – Namibians can and are participating in the development of these projects

REALIZE THE BENEFIT: REIMAGINE NAMIBIA'S GROWTH

We need to seek the connections between the dots, to make sure we tap into, explore, and maximise the impact of the development and implementation of this industry on others industries – it is an input, an impetus, and we should give it legs and find many houses for it.



Economic

- How can we maximise the **diversification** of the export basket?
- How do we define the contribution to **government** coffers?
- How do we harness **growth of existing and new Namibian businesses**, on a myriad of direct and indirect industries, for Namibia, but also for the global market?
- How do we **unlock green manufacturing, mining, industrial** development?
- How do we **capitalize on the basket of investment opportunities** ?



Socio-Economic and Environmental

- How do we **upskill, re-skill and expand** our workforce?
- How do we ensure **productive employment**, on various levels, for the existing employable workforce, but also for a larger workforce, for Namibia, as well as globally?
- How do we harness eco and business- **tourism** opportunities?
- How do we strengthen **sustainable environmental** and responsible development?



Energy security

- How do we supplement and **diversify** the **energy basket**?
- How do we deploy this green energy to **support rural electrification** ?
- How do we ensure **security of energy supply**?
- What do we do to **attract more large energy users** through the availability of competitive, affordable green energy solutions?
- How do we **de-carbonise** Namibia energy (electricity and fuel) consumption?



Water security

- How do we supplement and **diversify** the **water resource basket**
- How do we tap into the **effort of desalination** to find solutions that could provide access to **affordable water, nationally**?




Food security

- How do we utilise the access to **water, brine, energy and ammonia** (for fertilizers) that could help us to establish **food security in Namibia** as well as **provide an opportunity to export** high value produce to international markets?
- How do we **de-carbonise** Namibia food production?

MAINTAINING THE INTEREST

There is great momentum in the green hydrogen-based development in Namibia.


In order for it to be translated into reality, to move beyond the dream, as Namibians, we need to roll up the sleeves and get cracking: start to train, to play, to participate, to get ready, to be available, to become innovative.



Land
Long-term, certain, sustainable and bankable access to sufficient land




Investment Friendly Decisions
Support in untangling the difficulties for businesses to establish, get licences and permits in Namibia
Timely, efficient and predictable decision making that




Flexibility
Openness to accommodate various approaches for both large scale mega projects as well as smaller building blocks



Clear Message
Namibia's requirements and ambitions needs to be well formulated and consistently implemented and enforced



Competitiveness
Namibia needs to realise that we are competing globally, and need to make sure that projects in Namibia remains globally competitive

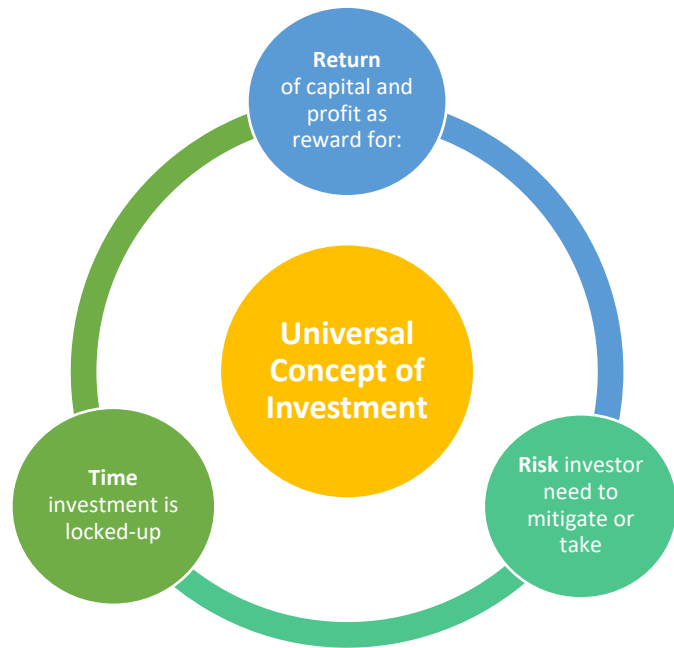


Workforce
Access to a larger skilled workforce
Clear labour rules and practices



Business Fraternity
Available local suppliers for goods and services – including financial services, contractors, consultants, insurance, off-takers, etc

FACTORS FOREIGN INVESTORS TAKE INTO CONSIDERATION



Investors seek Functioning Systems

- **Legal System and Structures**
 - **Contracting** – regulation of enforceable agreements between individuals/companies
 - **Tort** – non-criminal wrongdoing leading to the payment of compensation
 - **Criminal law** – regulation of individual behaviour by the state in order to protect society
 - **Equity and Trusts** – mechanisms of ownership of property and overarching set of fairness requirements
 - **Land Law** – regulation of rights of access and/ownership and transfer of these
 - **Constitutional and Administration** – rules applying to the state, its functions and how it relates with its citizens as well as with foreigners
 - **International law** – the regulation of international matters
- **Regulatory regimes**
 - Efficiency and predictability
 - Clarity and fairness
 - Level of regulation
- **Monetary Policy, Systems and Structures**
 - Interest Rates
 - Forex Rules
 - Payment Systems
 - Repatriation of Returns
 - Banking Infrastructure
- **Fiscal policy**
 - Level of Taxation
 - “Other” hidden taxes (royalties, super taxes, revenue sharing schemes, contributions, levies)
 - Drivers/threat to sudden changes (budget deficits, GRN spending, etc)

WHO IS NAMGHA?

1. Provide a platform for private sector entities to engage with each other as well as with the Government of the Republic of Namibia (GRN)
2. Guide the sustainable development of the industry and associated legislation and regulatory framework
3. Promote local job creation and associated regional economic development



NamGHA
Namibian Green Hydrogen Association



ESTABLISHING NAMGHA

March 2021

- Inaugural Meeting
- Selection of Inaugural Exco, Chair and Deputy Chair
- Presentation of Draft Constitution
- Dissemination of Information commences
- Establishment of communication platforms, email addresses and logo

September 2022

- Reservation of Name with BIPA

December 2022

- Approval of Constitution
- Approval of Legal Structure
- Approval of Auditors

February 2022

- Inclusion of Sasol as Exco Member
- Signature of Constitution
- Approval of Membership Forms

March 2022

- Signature of Constitution
- Opening of Bank Account

WHAT ARE NAMGHA'S OBJECTIVES?

Policy, Legislation & Regulation

- Influence policies, legislation, regulation to support hydrogen-based energy development, demonstration, procurement and export
- Influence the policies of public and private sector organisations to support hydrogen-based energy deployment in Namibia as well as export to regional and international markets

Project Development

- Support the government of Namibia in the development of Namibia's strategy for the development of scalable hydrogen production in phases and different geographic locations in Namibia for domestic, regional and international markets

Certification

- Promote the implementation of certification, best practices, standards and technology to proof the provenance green hydrogen-based energy products

Digital economy

- Promote and support the development of a digital economy in the green hydrogen-based industry
- Promote and support the development of a Green Energy Development Coin or similar tokenisation utilising the opportunities from participating in a digital economy

Funding

- Promote funding opportunities for the deployment of hydrogen and the application of hydrogen and hydro-chemicals

Markets and Channels

- Promote the development of a robust export market, channels, infrastructure
- Promote the development of a local industry for the deployment of green hydrogen-based products
- Advocate strongly for a positive social, political and economic environment for the development of hydrogen-based energy in Namibia, for the Namibian market as well as for regional and international markets

Know-how & Information

- Provide a platform for the discussion and review of all developments within the field of the development of green hydrogen and hydro-chemicals as a key component towards a low carbon economy and the diversification of the Namibian export market
- Provide a common voice to answer concerns about hydrogen energy and related aspects
- Share non-commercially sensitive information and facilitating knowledge transfer

Research and Development

- Promote research and studies for the realization, also in collaboration with third parties, of integrated systems for the production of energy from hydrogen and for the optimal choice between different options that can be adopted for its storage, transport and use

Industry, Associated Industry, Consulting or Financial Institutions

Annual Fee NAD 5 000

- Companies with relevant activities in research and development, demonstration, industrialization, deployment or construction of green hydrogen production technologies (including electrolyzers, fuel cells, chemical synthesis technologies for the production of green hydrogen derivatives, renewable energy generation technologies and other ancillary services directly related to the green hydrogen production value chain) or with concrete plans to do so in the near future Suggestion to widen the Industry Member category to enable all large scale members across the value chain to be potential members, including EPC's, which will help to broaden the funding pool for the Association

National, regional or International Associations

Annual Fee determined on a case-by-case basis

- Associations with relevant advocacy, regulatory, communication capacities supporting the development and deployment of hydrogen production technologies (including electrolyzers, fuel cells, chemical synthesis technologies for the production of green hydrogen derivatives, renewable energy generation technologies and other ancillary services directly related to the green hydrogen production value chain)

Small and Micro Enterprises

Annual Fee NAD 2 500

- Enterprises that meet the definition for Small and Micro Enterprises in the National Policy on Small and Medium Enterprises 2016-2021 and having a gross annual turnover that is less than N\$5 million

Research & Development Organisations and Educational Establishments

Annual Fee determined on a case-by-case basis

- Local, Regional and International R&D Organisations and Educational Establishments with relevant research capacities supporting the development and deployment of hydrogen production technologies (including electrolyzers, fuel cells, chemical synthesis technologies for the production of green hydrogen derivatives, renewable energy generation technologies and other ancillary services directly related to the green hydrogen production value chain)

Executive Membership

Annual Fee NAD 50 000

- Max eight members from Industry, Associated Industry, Consulting or Financial Institutions
- *CWP H1 Energy, Clean Energy Solutions, Fortescue Future Industries, De Beers Group, RMB Namibia, Hyphen Hydrogen Energy, Sasol*

HOW TO BECOME A MEMBER

- Complete a Membership Application Form
- Mail to chairperson@namgha.org or secretary@namgha.org

Thank you