

# THE NETWORK CO.

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Clean H<sub>2</sub> & NH<sub>3</sub> – LatAm Program

Dec. 2020

# Agenda

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- The Opportunity
  - Right timing
  - Right geography
  - Right people
- A Program, not a Project
  - Business Model
- Actions
  - Key potential Partners & Stakeholders contacted
  - Countries explored
  - Next steps

# The Opportunity

## Right timing: energy transition is moving faster than expected

EQUITY RESEARCH | July 8, 2020 | 11:34PM BST

Goldman Sachs

# Carbonomics

## The Rise of Clean Hydrogen

Clean hydrogen has a major role to play in the path towards net zero carbon, providing de-carbonization solutions in the most challenging parts of the **Carbonomics** cost curve - including long-haul transport, steel, chemicals, heating and long-term power storage. Clean hydrogen cost competitiveness is also closely linked to cost deflation and large scale developments in renewable power and carbon capture (two key technologies to produce it), creating three symbiotic pillars of de-carbonization.

Clean hydrogen is gaining strong political and business momentum, emerging as a major component in governments' net zero plans such as the European Green Deal. This is why we believe that the hydrogen value chain deserves serious focus after three false starts in the past 50 years. Hydrogen is very versatile, both in its production and consumption: it is light, storable, has high energy content per unit mass and can be readily produced at an industrial scale. The key challenge comes from the fact that hydrogen (in its ambient form as a gas) is the lightest element and so has a low energy density per unit of volume, making long-distance transportation and storage complex and costly. In this report we analyze the clean hydrogen company ecosystem, the cost competitiveness of green and blue hydrogen in key applications and its key role in **Carbonomics: the green engine of economic recovery**.

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For the full list of authors, see inside.

The Federal Government

NATIONALE WASSERSTOFF-STRATEGIE  
Schwerpunkt  
des Energieplans

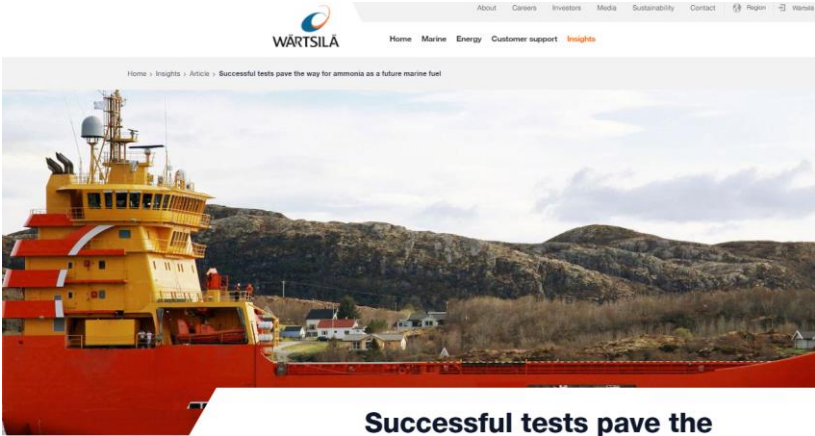
# The National Hydrogen Strategy

bmwi.de

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# The Opportunity

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**Successful tests pave the way for ammonia as a future marine fuel**



**Hydrogen isn't the fuel of the future. It's already here**



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# The Opportunity

Right geography: most developing countries have good renewable resources

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**GREEN HYDROGEN IN DEVELOPING COUNTRIES**



CONFERENCIA INTERNACIONAL  
**HIDRÓGENO VERDE**  
PARA LA TRANSICIÓN  
ENERGÉTICA DE CHILE

giz

Ministerio del Interior, Ministerio de Energía y Minería, Corporación Nacional de Desarrollo Científico y Tecnológico

CORFO

COMERCIALIZADORA DE ENERGÍA

Hydrogen and Renewable Gas Forum

Strategic Report

**Hydrogen production and export economics  
from the Middle East and North Africa to Europe**

April 2020

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# The Opportunity

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## Right people: our team members have success stories to tell in megaprojects

December 2019 - Astris Finance is pleased to announce the closing of the senior debt financing for Energia del Pacifico, majority-owned by Invenergy

The Energia del Pacifico project ("EDP" or "Project") consists of the development, construction, and operation of a 378MW LNG-to-power plant at the Port of Acajutla in El Salvador. The Project is majority-owned by Invenergy ("Invenergy" or "Sponsor"), a leading privately held global developer and operator of sustainable energy solutions, along with its local partner and original developer, Quantum Energy. Lenders to the Project include the Overseas Private Investment Corporation ("OPIC"), the International Finance Corporation ("IFC"), Finnish Export Credit Ltd ("FEC"), and the Inter-American Investment Corporation ("IDBI"). Astris Finance served as exclusive financial advisor to Invenergy over the multi-year financial structuring process.

This Project is expected to have a high developmental impact in El Salvador through the development of the country's first LNG-to-power generation facility. As the largest thermal power plant in El Salvador, the Project will help meet increasing electricity demand, adding 30% to the country's available installed capacity and displacing an equivalent amount of polluting and CO2 intense heavy fuel oil based thermal generation.

The EDP Project and the attendant FSRU (leased by the Project), together, will represent approximately US\$ 1 billion of investment dedicated to a country whose credit rating makes for a challenging credit environment. The Project used multi-point contracting structure managed by Invenergy with a total construction period slated to cover a period of two years from the issuance of notice to proceed.

The Project successfully raised \$657 million of multi-source limited-recourse financing, consisting of three loans provided by development finance institutions (IFC, OPIC and IDBI), as well as an ECA covered loan with KfW IPEX-Bank as the original lender and facility agent, FEC as the funding provider and the Finnish Export Credit Agency Finnvera guaranteeing the ECA loan. The Lenders are pari-passu in seniority and the total debt collectively covers a period of 18 years door-to-door which is a notable tenor for Central America. The transaction closed in December 2019.

## Quantum-GLU gana licitación para explotar 355 MW de energía

noviembre 9, 2013 - Eco-lógica, Nacional - Tagged: abaratar, Quantum. energía - no comments

El Asocio Quantum-GLU fue el ganador de la licitación para generar 355 MW de energía mediante la explotación de gas natural, convirtiéndose así en la primera en incursionar en este campo en Centroamérica.

El Secretario Técnico de la Presidencia, Alexander Segovia; el gerente general de DELSUR, Roberto González; y del director ejecutivo de PROESA, Giovanni Berti, consideraron que esta iniciativa permitirá la inversión de entre \$800 y \$1000 millones.

## Invenergy se convierte socio mayoritario de Energía del Pacífico



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# A Program, not a Project

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## Business Model

- **Indeed, it is a NH3 at scale program, not another H2 pilot project.**
- Discussions with NH3 (ammonia) off-takers in Germany
- Competitive production of green H2 (& then NH3) in LatAm countries
- Long-term green (solar & wind) PPAs are getting harder to find with DistCos in several LatAm countries. Then, “manufacturing” green H2 (& then NH3) becomes an excellent long-term, and much more sustainable, business alternative to PPAs
- NH3 is easier to transport and storage than H2: LPG vessels are fit for the job, and liquefaction happens at just -33 C (versus -253 C for hydrogen)
- National H2 strategies in several countries of Europe include imports from developing world (LatAm, MENA, etc.)

# A Program, not a Project

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## Business Model (cont.)

- Key elements are the following:
  - a) Solar & wind competitive production, preferably on the Atlantic coast
  - b) On-site production of H<sub>2</sub> via electrolysis (electricity + 2 H<sub>2</sub>O → 2 H<sub>2</sub> + O<sub>2</sub> + heat)
  - c) On-site production of NH<sub>3</sub> via Haber-Bosch process (H<sub>2</sub> + Nitrogen from the air)
  - d) Storage and water-borne transportation of NH<sub>3</sub> to Europe
- Economics verified via two methods:
  - a) Net-back calculation from NH<sub>3</sub> delivered ex-Ship in Hamburg to determine maximum OPEX and CAPEX acceptable in NH<sub>3</sub> production
  - b) Forward calculation to determine eventual premium (developing world “Denomination of Origin”) that green NH<sub>3</sub> would require to be paid. It is a fact that the green/blue hydrogen locally produced in Europe will not be enough for their coming hydrogen economy.



# Actions

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## Key potential Partners & Stakeholders contacted

- Off-takers in Germany already addressed and interested in jointly studying the business cases from several LatAm countries
- Discussing with international cooperation (GIZ and USAID). GIZ is already deeply involved in H2Chile.
- Preliminary discussions with multilaterals: IFC, IDB Invest, KfW.
- Consultancy entities already involved: in close contact with Hincio Colombia & Chile, designing the scope of supply of the conceptual pre-feasibility studies for several LatAm countries
- Potential investors in Honduras and Guatemala have shown a high interest
- Potential investors/co-developers from Scotland (specialized in off-shore wind in the North Sea, with supply MOU with other German off-takers) have also been addressed and are interested.

# Actions

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## Countries explored

- **Chile: identified land, discussions with Hinicio, conversations with foreign potential investor. Objective: green ammonia export project.**
- Honduras: key players in the renewables business, acknowledging the limits imposed by both the current situation of the national electricity company, the curtailments already experienced, and the huge potential still far from being monetized of the renewables, are very interested in this potential new venture
- Guatemala: same case, with the potential to have a 24 h-cycle in case “blue” (natural gas reforming + CCU) hydrogen is accepted by off-takers
- Brazil: discussing with a potential investor

# Actions

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## Next steps

- Continue the analysis of CAPEX and OPEX
- As requested by the off-takers in Germany, to focus in one of the projects of the program in order to perform a feasibility study
- Discuss with cooperation and multilaterals the possibility to get funding for these early-stage opportunities: The Network Company is not an equity investor but a boutique investment bank promoting these new ventures to create a business opportunity for potential investors.



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# OUR TEAM

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The Network Company is a team of highly qualified and experienced professionals in finance, aiming to provide advice of the highest quality in corporate finance and investment banking operations in Latin America.

Our partners are committed to address the needs of our clients in an individualized manner and to meet the highest expectations for advising services, designing strategies that add value to our clients' businesses.

# SAMUEL A. QUIRÓS

Prior to becoming a Managing Partner at The Network Company, Samuel served six years as the CEO of a regional automotive group and its financing arm in Central America, Grupo Q Holdings. Previously, Samuel was founder and Executive Director of two of the most successful investment banks in Latin America, Vestcorp Partners and Andino Capital Markets. He has over thirty years of experience in investment banking, mergers and acquisitions, corporate finance, capital markets, financial structuring and commercial banking in the region.

As part of his expertise, he has advised several large companies in raising financial capital. Samuel led and negotiated private equity investments of more than US \$250M with rates of return higher than 45%, and led capital market operations where he raised more than US \$2B for his clients over a period of seven years.

Samuel has B.A. in Finance and Economics and a Masters in Development Banking from American University. He is fluent in Spanish, English and German.



# LUISA MARÍA DE ÁLVAREZ

As a Managing Partner at The Network Company, and during her thirty years of experience in investment banking, corporate finance and commercial banking, Luisa has led some of the most relevant M&A transactions in El Salvador and the region. She is also a pioneer on topics related with the Salvadoran capital markets, leading the first issuance of marketable securities in El Salvador for a private sector company. Prior to moving to El Salvador, Luisa was Vice President of the International Division of InterFirst Bank Dallas, N.A.

Luisa has experience in almost every industry in Central America. She led transactions that resulted in the sale of one of the largest supermarket chain in El Salvador, the successful privatization of the four electricity distribution companies owned by CEL (jointly with Dresdner Kleinwort Benson), the sale of several microfinance companies, as well as advising multilateral and foreign institutions on their sale of companies throughout Central America, among many others.

Luisa currently is or has been a member of the Board of several companies, financial institutions and NGOs, including Banco Capitalizador, Aseguradora La Centro Americana/MAPFRE, Corporación de Crédito y Servicios, Academia Británica Cuscatleca (Chairwoman), Fundación Escolar Británico Salvadoreña (Chair), LAGEO and Asociación Estima.

She has a B.A. in Business Administration from Tulane University. She is fluent in Spanish, English and Italian.

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# RAÚL ERNESTO CARDENAL

Over the last twenty two years and until mid – 2018, Raúl held the position of Country Manager, CEO and President of BAC/Credomatic Group in El Salvador. During that period he was responsible for the operations of a commercial bank, a credit card issuing and acquiring company, a brokerage company, and a leasing company, all under a group holding Company. As of December 2017, the group had combined assets of \$2,400 MM and equity of \$300 MM. Under Raul's leadership the group BAC/Credomatic grew aggressively to become one of the largest and most profitable financial institutions in El Salvador.

During his professional career, Raúl accumulated over thirty five years of experience in the financial sector. He initiated his career with The Citizens and Southern International Bank and later held various positions in other institutions. At Wells Fargo Bank's Miami branch, he was Credit Manager for Latin America, while at Visa International he was CFO for the same region. Raúl also has experience with the franchise industry, as he was an owner operator for a number of McDonald's restaurants in Massachusetts, USA for seven years.

Raúl is currently the President of the Chamber of Financial Associations in El Salvador as well as President of ABANSA, the Salvadorian Banker's Association.

Raúl obtained an undergraduate degree in Economics from Sussex University in England and has an MBA from the University of Miami in USA. He is fluent in English and Spanish.

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# ALEJANDRO ALLE

Prior to becoming Managing Director at The Network Company, Alejandro served six years as Executive Director of Energía del Pacífico (EDP), a US \$ 1 billion LNG-to-Power project, leading the company throughout all the development phase to the completion of Project Financing with IFC, IDB Invest, OPIC and Finnvera/KfW in Dec. 2019. Alejandro had initially co-founded Quantum Energy, an Energy Development and Investment company that was originally awarded with the Power Purchase Agreements (PPAs) and that remains as minority investor in EDP.

Previously, Alejandro had started and managed for nine years as General Manager the operation in El Salvador of Puma Energy, an oil company controlled by the trading house Trafigura.

As part of his expertise of 34 years in the energy industry, he served as Project Development Manager for natural gas projects in Argentina and LatAm during the 90s. His professional career started with a scholarship at the CNEA (National Commission of Atomic Energy) in Buenos Aires, 1986.

Alejandro is a Mechanical Engineer (Universidad Nacional de Mar del Plata, Argentina, 1987) and holds a M.Sc. in Economics (ESEADE, Buenos Aires, Argentina, 1992). He speaks Spanish and English.

# JAVIER CUESTAS

Before joining The Network Company, Javier was an Associate at Vita Capital, an investment bank specializing in renewable energy in Madrid, Spain. Before that he worked as financial analyst in Bayer S.A.. In his entrepreneurial spirit, As entrepreneur, Javier has participated in waste treatment and energy efficiency projects.

Through his experience, Javier has acquired knowledge on financial modeling, corporate valuation, capital markets, operations structuring, mergers and acquisition, private equity and leveraged operations (LBO).

Javier holds as Master's Degree in Corporate Finance & Investment Banking from the Instituto de Estudios Bursátiles (IEB), Madrid. He holds an specialist degree in financing and investment in renewable energy projects awarded by IEB. He studied financial markets at The London School of Economics, United Kingdom, holds a postgraduate degree in international finance from ISEADE and obtained his Bachelor of Business Administration from Franklin University. He is fluent in English, Spanish and French.

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The Network Company is committed to maintaining the highest quality work standards as well as the strictest ethical principles.