GREEN HYDROGEN, AMMONIA AND FERTILISER FOR THE WORLD

SEPTEMBER 2023

www.atomeplc.com

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Our Team

Expert, experienced management

Peter Levine
Chairman

- Chairman and largest shareholder of ATOME
- Formerly executive Chairman, founder and largest shareholder of FTSE 250 Imperial Energy, growing price from 25p to 1250p until its eventual $2.4 billion sale in 2009
- Chairman of the then FTSE 250 listed steel construction company, Severfield-Rowen
- Chairman of Keltbray group
- Chair and largest shareholder of Molecular Energies PLC

Olivier Mussat
Director and CEO

- Joined ATOME from being the Chief Investment Officer of Global Energy at the IFC, part of the World Bank Group
- Started his career as a field engineer in the power sector
- Vastly experienced in funding and managing energy infrastructure assets for Oil & Gas, Power & Renewables companies
- Has led over $500m of equity investments in early-stage companies and over $30bn of corporate and structured debt finance transactions

James Spalding
Director and President of ATOME Paraguay

- Former Paraguayan General Director of the jointly owned Paraguay Brazil hydroelectric dam Itaipu Binacional between 2013-2018, the second largest Hydroelectric dam in the world
- Prior for six years the Ambassador of Paraguay in the US
- Formerly Dean of the Latin American Ambassadors Group (GRULA)
- Served as Paraguay Finance Minister Formerly Governor of Paraguay to the IDB and World Bank group

Mary-Rose de Valladares
Independent Non-Executive Director

- Former longstanding General Manager of IEA Hydrogen. Expertise in renewables and hydrogen
- Formerly at the U.S. DOE National Renewable Energy Laboratory (NREL) serving as the renewable and energy efficiency developer at the Centennial Olympics in Atlanta, GA, USA
- Served on the National Hydrogen Association Board of Directors
- Founded the New Mexico Solar Energy Industry Association

Terje Bakken
Head of Ammonia and Fertiliser Markets

- 35+ years' senior experience at world leading fertiliser and chemicals companies
- Started his fertiliser career with Norsk Hydro in Oslo
- Senior Vice President, head of Supply and Trade at Yara Part of the Executive Management Team for 8 years
- With EuroChem from 2013 as a member of EuroChem´s management board, responsible for global marketing and sales operations

At a glance

The largest UK-based producer of green hydrogen & ammonia listed on the London Stock Exchange, delivering the world's first premium value green fertiliser in 2025

Building the **largest** green ammonia and fertiliser facility in Latin America by **2025**

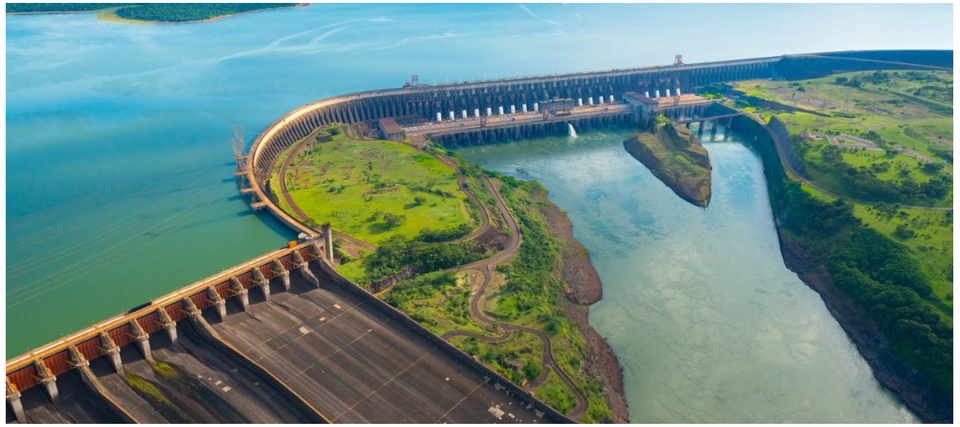
Proximity to existing, low-cost renewable energy, producing the **most competitively priced green fertiliser**, worldwide*

Plant locations allow access to both **local and international fertiliser markets**

High return – flagship 145MW Phase 1 Villeta project potential **~29% project IRR & annual revenue of US$141MM**+**

Displacing approximately 480,000+ tpa of CO2eq emissions from Phase I Villeta. **13.1 million over project lifetime**

600MW+ pipeline of green projects globally. Access to international markets



14GW Itaipu Dam provides secure access to **low-cost baseload** power supply

* announced projects as at 17 July 2023
** assumed green CAN price $570/ton
+ excludes potential revenue derived from the sale of carbon credits

Green Hydrogen (H2)

The cornerstone of the energy transition

Raw Materials
- Renewable Energy
- Water
- Air

Electrolysis

Green Hydrogen
- For Ammonia Production
- For Low-Carbon Transport (**ATOME Mobility**)

Ammonia Synthesis

Ammonia
- Fertiliser Production (**Latin America**)
- Marine fuel (**Iceland**)

Nitric Acid Limestone

CAN+
- Premium value green fertiliser (**Villeta project**)

Displacing grey hydrogen: **95%** of today's hydrogen is made from fossil fuels

Moving to green energy: Low carbon hydrogen could supply up to 25% of the world's energy by 2050 with global usage of **450 million tonnes of green hydrogen**[1]

Economies of scale: Low-carbon or clean hydrogen sector expected to generate **$2.5 trillion in revenues by 2030, creating 30 million jobs**[2]

Government support: US IRA - $370 billion in climate and clean energy investments. EU's €800m Green Deal. UK's Net Zero Hydrogen Fund

Investment needed: **$5 trillion of investment is needed** in the clean hydrogen supply chain to achieve **net zero**[3]

1. Reuters - Ten clean hydrogen policies and initiatives from across the globe, 2. Goldman Sachs – estimates of possible future scenarios 3. Goldman Sachs - Global Investment Research

Green Ammonia (H2 to NH3)

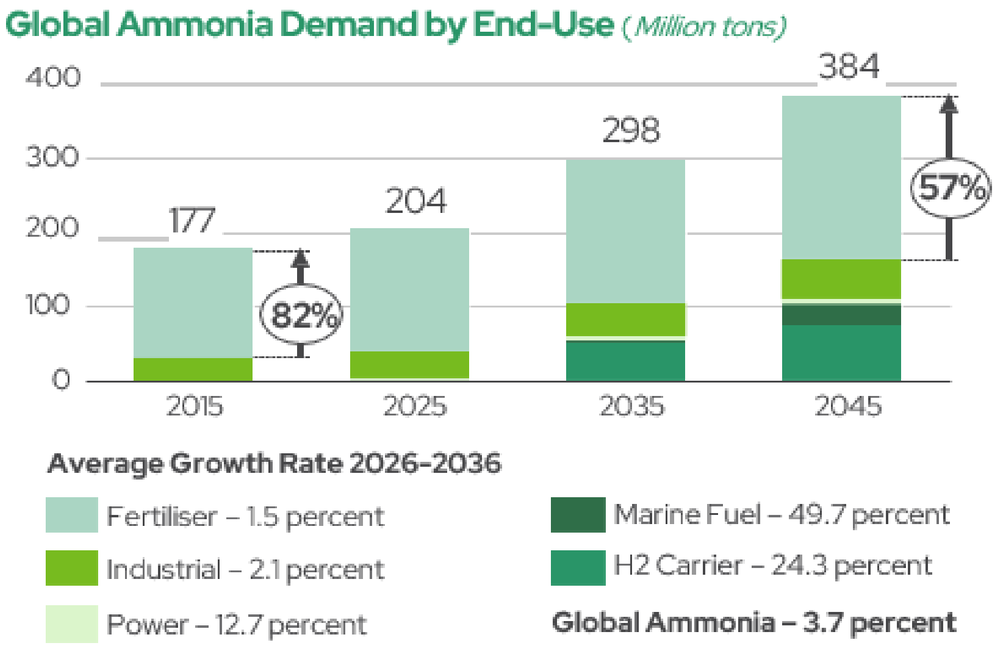
The urgency for green

Why green ammonia?

- Ammonia is a **180 million tonnes** per year, globally traded commodity
- **95%** of all NH3 production is fossil fuel based. **450 million tonnes of CO2** per year
- Primarily used for fertiliser production (**70%**) via the well-known **Haber Bosch** process, as well as refining and industry
- **New market growth** for ammonia including as a marine fuel and energy vector for hydrogen

Macro events have accelerated the urgency for green ammonia

- **Record prices**: ammonia nitrogen fertiliser hit highs of over **US$1600/MT in 2022**, an all-time record. Prices have since settled, but uncertainty continues
- **Food insecurity**: Europe lost half of its ammonia capacity and 33% of its nitrogen fertiliser operations in 2022. Russian, Ukraine and Belarus globally **export 28% of all nitrogen and phosphorous fertilisers**



ATOME will be able to produce the world's lowest cost green ammonia - competitive with fossil fuel-based ammonia
Fast-tracking up to 270,000 tonnes of green fertiliser per year starting in 2025

Green Fertiliser (NH3 + limestone)

Calcium Ammonium Nitrate (CAN)

ATOME moving downstream from green ammonia production to CAN products, delivering the world's first premium green fertiliser

A nitrogen-based fertiliser widely used in the **global food and agriculture.** Safely distributed in granulated form with **no explosion hazard**

CAN (80% ammonium nitrate/20% ground limestone) is an **all-rounder for all fertiliser applications**, suited to European acidic soil and cooler climate

CAN already has **80% lower emissions** than urea and ammonium sulphate due to higher nitrogen efficiency. **Driving uptake** in CAN fertiliser in mature agricultural sectors for growth of high value crops

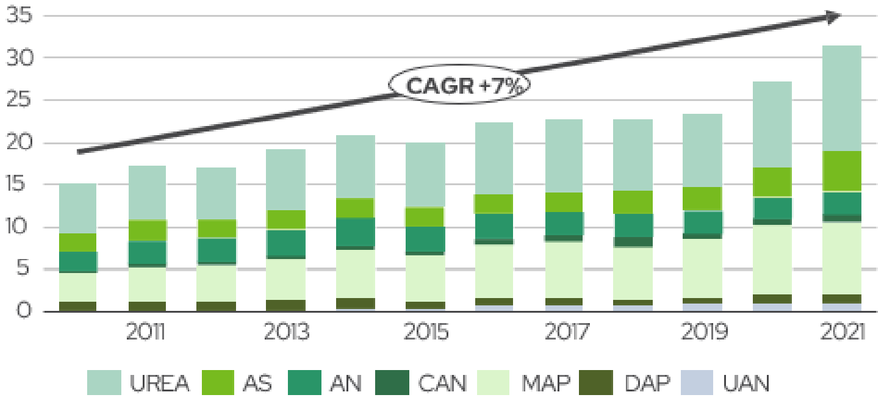
ATOME's CAN expected to have the **lowest carbon footprint of any fertiliser product today** (~90% carbon reduction), enabling trade at a premium per ton of nitrogen

CAN consumption grew with a CAGR of 14% from 2010 to 2021, twice the rate of total nitrogen fertiliser

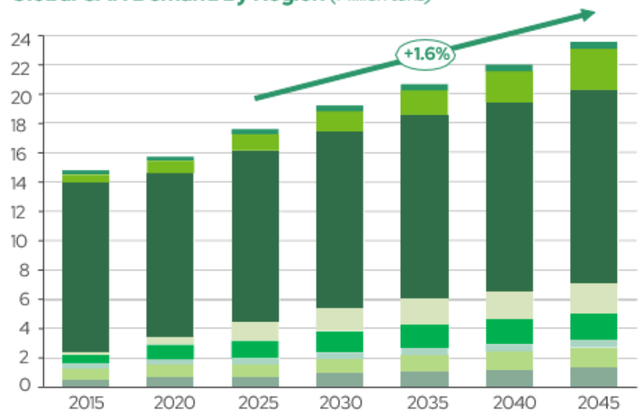
South America is the **fastest growing region** for CAN demand at **5.5% annual rate** (2026-2036)

Mercosur, Chile & Bolivia Historic Nitrogen Fertiliser Consumption

Million tons



Global CAN Demand by Region *(Million tons)*



Average Growth Rate 2026-2036

- North America – 2.0%
- South America – 5.5%
- Western & Central Europe – 0.7%
- Middle East – 3.1%
- Eastern Europe – 3.1%
- China – 1.8%
- Other Asia Pacific – 2.8%
- Africa – 5.1%

Global Calcium Ammonium Nitrate – 1.6 %

Fertiliser Market

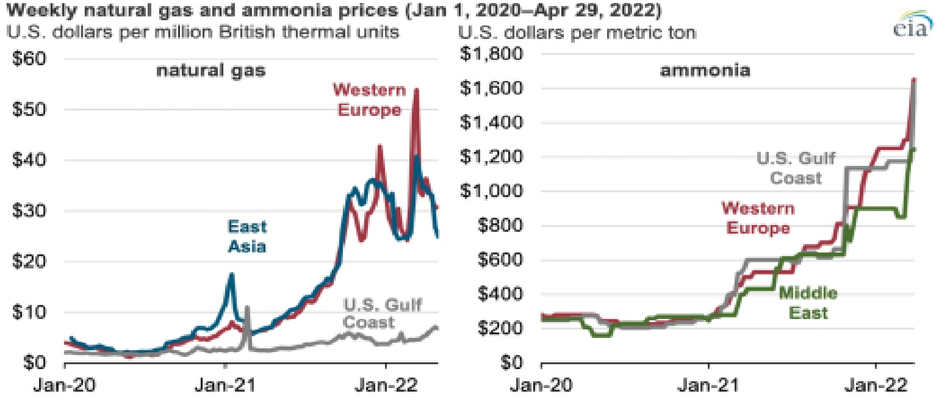
Price = Cost (driven by gas) + Margin (driven by supply/demand)

Fertiliser Production Cost

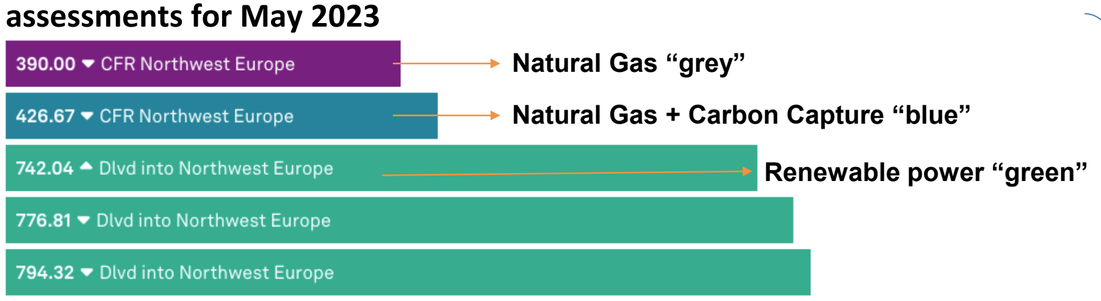
- The price of synthetic fertilisers is driven by the cost of its their base chemical – ammonia
- Ammonia price is highly dependent on the price of natural gas – the key raw material in ammonia production today
- As volatility in the natural gas markets causes ammonia production costs to fluctuate, fertiliser prices are affected (Sep22' anhydrous fertiliser $1,380/t vs. Sep20' price of $480/t)
- Global CAN prices in particular are heavily influenced by the cost of production in Western & Central Europe

Green Premium

- Ammonia/fertilisers are set to be incorporated into CBAM (carbon border adjustment mechanism) from 2026. EU emitters currently are taxed on direct emissions and receive free allocations set by EU-ETS
- ATOME's green product is expected to drive a higher premium once CBAM tax kicks in and free allocations are phased out by 2035
- ATOME's low-carbon green CAN product estimated to command green premium of $130/t by 2035, reaching a peak of $230/t in 2027



Prices of grey, blue and green ammonia – monthly averages of daily assessments for May 2023



S&P Global Commodity Insights

Source: S&P Global Commodity Insights
Concept by Henry Edwardes-Evans, James Burgess and Mario Perez

ATOME will be able to produce clean ammonia competitive with grey and blue production, at cost well below the current market prices of green ammonia

Sustainability Impact

Decarbonising the food sector

PROBLEM

Emissions from fertiliser production and use = **2.6 gigatonnes of carbon** per year. **More than global aviation and shipping combined**

SOLUTION

Paraguay's completely renewable grid, powered by the Itaipú Dam, allows ATOME's unique project to make **the world's lowest-carbon green fertiliser at the lowest cost.** Displacing urea fertiliser, reducing nitrogen leaching in water systems, and improving yield

Sustainable impact

ATOME production will **displace approx. 500,000 tons of CO2eq emissions per year** from Villeta Phase 1 alone. Lifetime displacement (c. 25 years) of **13.1 million tons of CO2eq emissions. Equivalent to:**

Taking **2.9 million** passenger cars off the road for one year

Displacing **5.5 billion litres** of petrol consumed

Displacing consumption of **30.2 million barrels of oil**

Displacing **7 million** tons of coal burned

ATOME HAS A PIPELINE OF CARBON DISPLACEMENT OF UP TO 1.2 MILLION TONS OF CO2-eq PER YEAR

Global demand for sustainable products

More than a third of global consumers are willing to pay a premium for sustainability

AGRICULTURE

ADM

25% reduction of Scope 3 GHG footprint **by 2035**

Cargill

Reduce emissions from extended supply chain **by 30% per ton of product sold by 2030**

BRANDS

Unilever

Net zero emissions by **2039**

Nestlé

Net zero GHG emissions by **2050**

Delivering against the UN's SDG goals:

2 ZERO HUNGER

7 AFFORDABLE AND CLEAN ENERGY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

Paraguay

The opportunity

Green Energy

- Paraguay gets approximately 99% of its power from renewable sources, primarily the Itaipu Dam
- Paraguay only uses 30% of its 50% share of power from Itaipu, meaning the country has an abundance of renewable electricity providing the potential for some of the cheapest production of green hydrogen in the world

Agriculture Sector

- Agriculture provides approximately 20% of the country's total employment, and it is the world's 4th largest exporter of soybeans – significant domestic fertiliser demand
- In close proximity to the agricultural centres of Brazil and Argentina – Brazil is the world's largest importer of fertilisers

Transport

- Transport goods via HGVs and the world's third largest fleet of barges - both of which need to be decarbonised
- MOUs in place with Paraguay's aviation authority and barge association

Economy

- BB+ Fitch rating, a stable open economy. Low tax and trade barriers
- Founding member of Mercosur bloc enjoying free trade and travel with Brazil, Argentina and Uruguay

Parana River – the country's main import/export route, over 4,800km in length, navigating 2,500 barges per day

Aerial view of 14GW Itaipu Hydroelectric Dam

Paraguay | Villeta Project

Latin America's largest green ammonia-to-fertiliser facility by 2025

Project Overview

- ATOME is building a **145MW** world-scale green hydrogen and ammonia project to supply Paraguay and the region's agricultural and fertiliser markets with sustainable alternatives
- Phase 1 of the project will be at Villeta, **35km from the capital city of Asuncion**, on the River Paraguay which is the country's main import/export facility to the Atlantic
- Production will be powered by **100% renewable baseload electricity**
- Targeting sector leading returns:

$371MM	$141MM	29%
CAPEX	ANNUAL REVENUE**	IRR**

- Targeting domestic, regional and international fertiliser markets

☑ Power Provider:	ANDE	☑ FEED Contractors:	CASALE, urbas	☑ DFI Adviser:	IDB Invest
☑ Owner's Engineer:	AECOM	☑ Market Adviser:	NexantECA	☑ ESIA Consultant:	JGP
☑ Financial Adviser:	NATIXIS				

** assumed green CAN price $570/ton

Paraguay | Phase 1 | Villeta Development

Latin America's largest green ammonia-to-fertiliser facility by 2025

- **145MW** PPA signed with ANDE
- **75-acres** of land purchased. Access to nearby water and export routes and adjacent to the Villeta substation
- Up to **270,000 MTPA** output of green CAN commencing in 2025
- Urbas Energy and Casale, developing FEED for the 120MW Villeta Project and fertiliser expansion
- Natixis acting as International Financial Adviser. Mandate Letter signed with the Inter-American Development Bank (IDB)
- Firm interest from leading LatAm and European fertiliser offtakers in all of ATOME's prospective Paraguay production
- Tax-free zone status approved conditional on completion of ESIA

Preliminary plant design for 145MW Villeta green ammonia and calcium ammonium nitrate production facility

NEXT STEPS

- **FEED completion** and **Environmental Social Impact Assessment** (ESIA) in Q4 2023
- **Final Investment Decision** by Q4 2023
- **EPC contractor packages** identified and tendered, construction to commence by the end of 2023

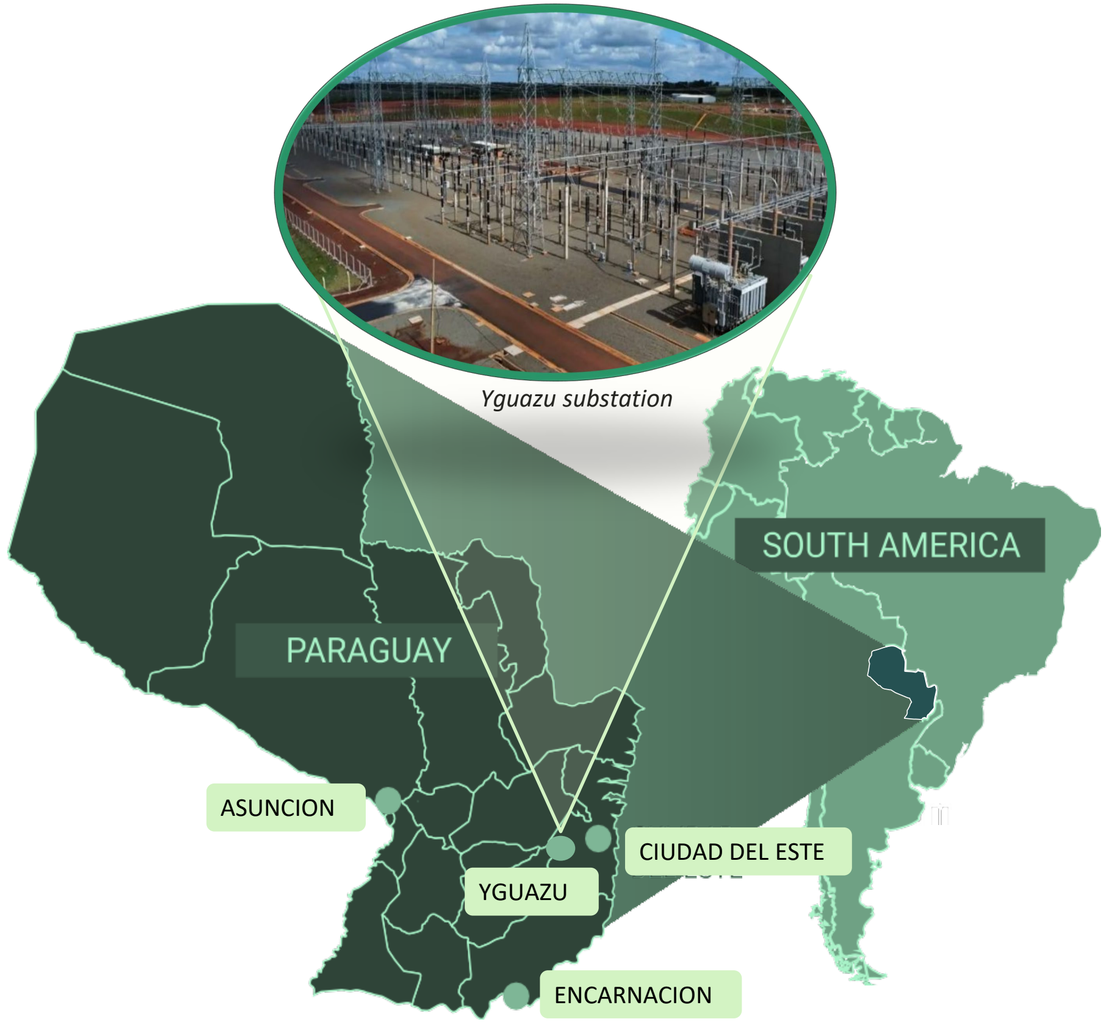
Paraguay | Phase 2 | Yguazu Project

Villeta Development upscaled via **300MW Phase 2**, with **445MW total** for both phases, pre-PPA signed with ANDE

Targeting Phase 2 production in 2027, assuming PPA agreed by end 2023

NEXT STEPS

- **300MW** additional PPA in Paraguay with ANDE expected to be signed in 2023
- Select site location in close proximity to the newly Yguazu substation **1GW** capacity with a 500 kV line coming in from Itaipu
- Appoint FEED and EPC contractor, identify and tender sub-packages
- Leverage achievements from 145MW project to accelerate the delivery of the 300MW project



Costa Rica| Joint Venture

Green ammonia production for Central America

NATIONAL AMMONIA CORPORATION

ATOME entered JV with Cavendish, the renewable energy arm of one of the largest corporations in Costa Rica to create the National Ammonia Corporation S.A (NAC)

The National Ammonia Corporation has a mandate to develop green projects across Central America and the Caribbean with its initial focus in Costa Rica

Cavendish S.A. is the renewable energy division of Grupo Purdy S.A. which is a regional leader in the automotive industry. It has established a presence in the U.S., and has activities beyond automotive such as insurance and financing.

NAC objectives follow ATOME's strategy to focus on countries with renewable power resources and a significant agricultural domestic and regional market for fertilisers where we can develop projects to supply significant local and international markets

Costa Rica agriculture: pineapple harvesting

COSTA RICA PROFILE	
Green Energy	Power grid – 99% renewable electricity
Agriculture Sector	100% dependent on the imports of fertilisers (US$180m in 2021) 4.5 times consumption of the world average
Transport	Favourable position with ports on both the Atlantic and Pacific Logistically excellent location
Economy	Democratic and open economy One of the greenest countries in the world Strong agriculture sector

Iceland

Supplying the global maritime market

OPPORTUNITY

99.99% renewable grid, with 73% hydropower and approx. 27% geothermal generation

Strong climate commitments and hydrogen roadmap aims to reduce fossil fuel use in transport and shipping

Significant shipping and fishing industry under pressure to decarbonise

Maritime sector also has a large presence relating to land transport (trucks, HGVs) in the country

CHALLENGE

Global maritime transport emits 940 million MT of CO2 annually, 2.5% of global GHG emissions

- The investment needed to meet the IMO climate target (50% reduction in emissions by 2050) is $US1.4-1.9 trillion, average of $40-$60 billion per year in next 20 years
- Estimated US$1 trillion market opportunity from the decarbonisation of shipping

SOLUTION

By 2050, ammonia could make up 25% of all maritime fuel, with all new ships from 2044 running on ammonia

Sources: Oxford Energy Forum, Ammonia Energy Association, World Bank

- ATOME through its 75% owned Icelandic subsidiary, Green Fuel ehf, managed by an experienced local team, will be developing a green ammonia facility of up 60MW+ capacity
- Iceland electricity grid: 75% from hydropower and 25% from geothermal, demonstrating access to affordable electricity to power electrolysers for green hydrogen production
- Available baseload power from geothermal sources in locations in close proximity to cargo ports appropriate for export and large ship fuelling
- The first phase of large-scale green ammonia production is intended to be operational in 2026 for export and the begin fuelling the domestic marine sector

Term Sheet signed with HS Orka in for up to 40MW of power

Letter of Intent signed with ON Power for up to a further 20MW

MOU signed with Samherji, one of Iceland's largest fishing companies, for the decarbonisation of their marine fleet

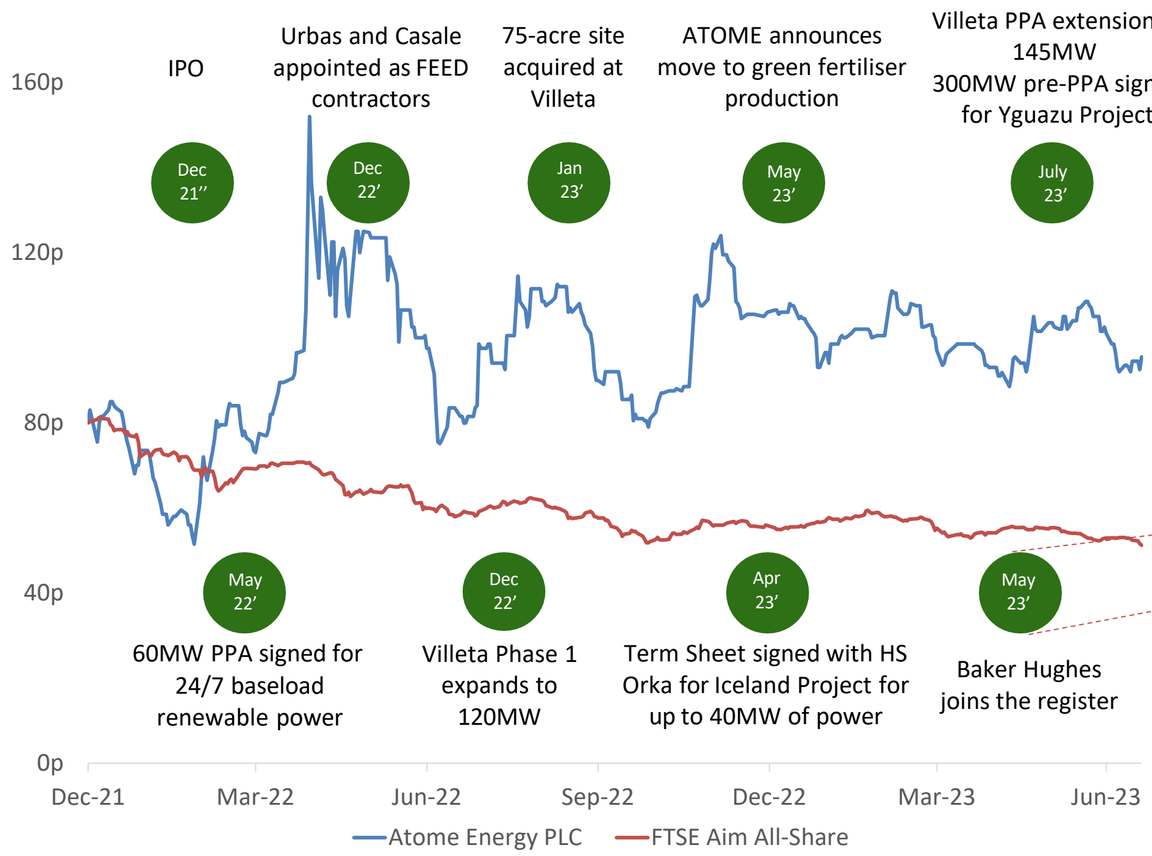
Upcoming Newsflow

ATOME is focused on delivering value to shareholders by maintaining fast-track progress on green commodity production

- ATOME Mobility demonstration project to commence operations in late 2023
- Villeta FEED completion in Q4 2023
- Offtake agreement for Villeta project – leading international offtakers have expressed interest in purchasing the entire green fertiliser production
- Final Investment Decision for Villeta project expected in Q4 2023
- Project outline to be determined and agreed for National Ammonia Corporation (Costa Rica)
- Yguazu project phase 2 300MW renewable baseload power in Paraguay PPA expected to be signed later this year following signature of pre-PPA

Corporate Overview

Share Price Since IPO



Key Facts	
Listing	AIM, London
Ticker Symbol	ATOM
Issued Shares (as at 10 August)	40,323,186
Share Price (as at 10 August)	87.5 pence
Market Capitalisation (as at 10 August)	£34.88 million

SHAREHOLDERS	%
Molecular Energies PLC	20.5
Peter Levine (Chairman)	20.4*
Baker Hughes	6.3
Urion Holdings (Malta) Limited (Trafigura)	4.9
Schroders IM	4.2
Olivier Mussat (CEO)	3.5
Clean Power Hydrogen PLC	3.5

*The Ordinary Shares shown against Peter Levine's name includes his direct holding of 2,143,066 Ordinary Shares, 2,530,000 Ordinary Shares held by Alpha Oil Invest GmbH and 3,558,896 Ordinary Shares held by PLLG Investments Limited

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ATOME

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