

# LOW ENERGY CATALYSED FUSION

this changes everything...

A breakthrough in catalysed fusion technology,  
independently verified at a COP / Q Value of circa 5 electrical

## Information Memorandum

Institutional Placing:

Raising £100m at an average valuation of £1bn in 2024

**ENG8**  
THE ENERGICELL COMPANY



# Contents

Our Mission	3
About us and our innovation	4
History of our technology/innovation	7
Independent validation	10
ENG8 In the media	14
Intellectual property	17
Existing and future milestones	19
Our team	21
Group structure	26
Looking to the future	28
Summary	32
Useful references	34

# OUR MISSION

To provide pure, clean energy for the benefit of humanity and this planet through our breakthrough catalysed fusion EnergiCell technology.

## STEP 1

In 2024, we anticipate raising £100m at an average valuation of £1bn, to develop our EnergiCells further, introduce related products and deploy 100MW of power.

## STEP 2

In 2025, we anticipate raising £1bn at an average valuation of £10bn to scale our operations worldwide in concert with strategic partners.



# ABOUT US AND OUR INNOVATION

The EnergiCell and our products

# Introduction

ENG8 has developed a catalysed fusion technology, the EnergiCell™.

EnergiCells are catalysed fusion reactors that release thermal and/or electrical energy directly from the fusion of hydrogen nuclei in water. There are no harmful emissions.

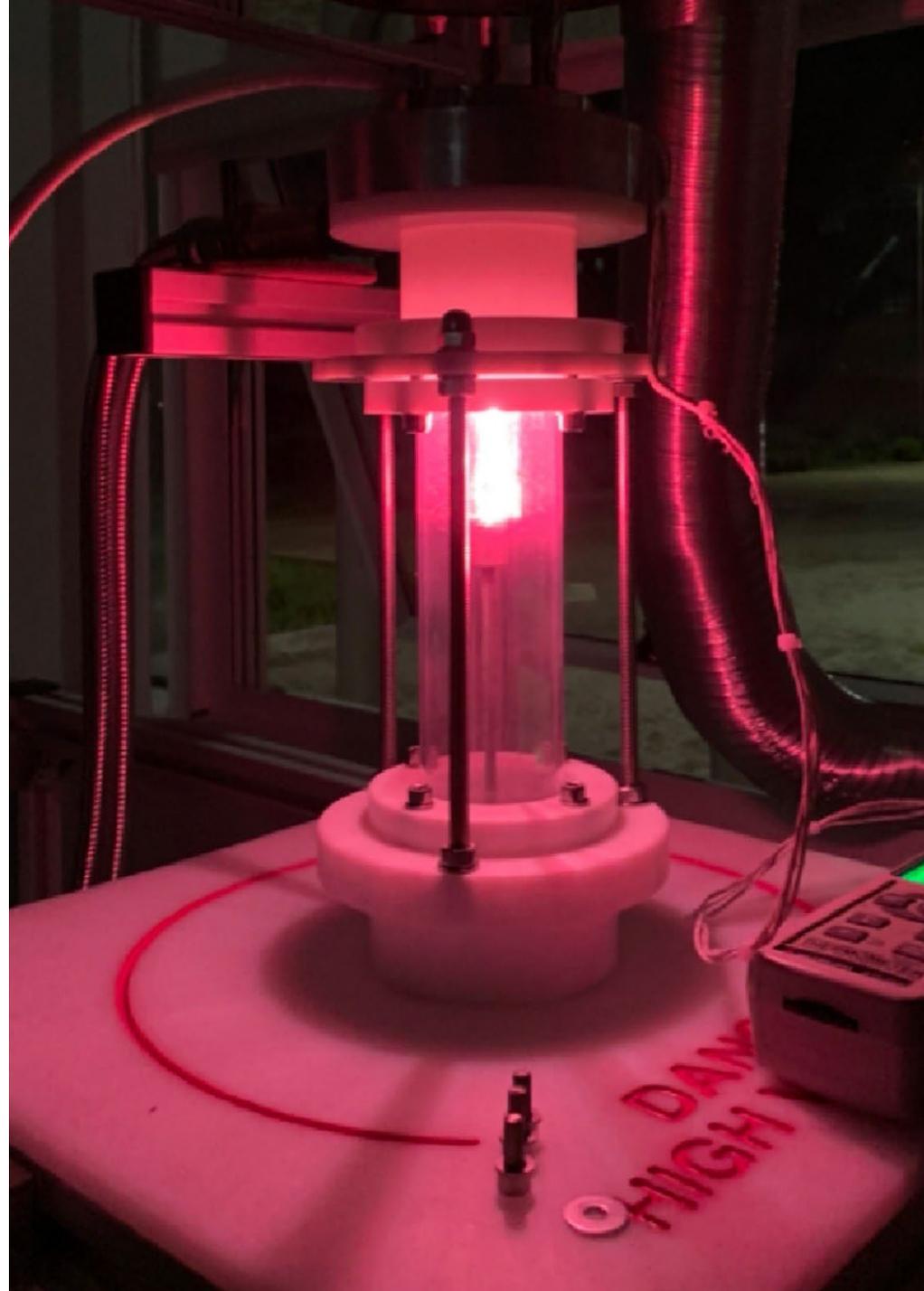
EnergiCells can be produced in a wide range of sizes, from readily available materials and components, in industrial quantities.

EnergiCells have been independently validated by world leading universities, research institutions, independent test centres and laboratories.

Since 2019, two patent families were filed globally, and a third started this year.

ENG8 has 14 scientists and engineers, with eight collective PhDs developing the EnergiCell technology and combined heat and power units.

ENG8 anticipate beginning commercial energy sales in 2024.



# The EnergiCell

EnergiCells comprise of two main components: the reactor and a power supply unit.

The primary fuel source is the H<sub>2</sub>O molecule found in air and in water.

Inside the EnergiCell, plasma is created from the fuel source.

Within the plasma the atoms are ionized (separated into ions). The recombination of the ions under high temperatures and pressures releases electromagnetic energy, in the form of heat, light (photons), electrons and other charged particles.

The primary energy release mechanism is a catalysed fusion process where protons and neutrons are fused into new elements.

The fusion energy gain factor, usually expressed with the symbol Q, is the ratio of fusion power produced in a fusion reactor to the power required to start the process and maintain the plasma in a steady state.

The condition of Q = 1, when the power being released by the fusion reactions is equal to the required heating power, is referred to as breakeven. When above one the Q is referred to as infinite.

ENG8 has reached this point as it has been independently verified to produce a Q factor value of 2.4 thermal or 5 electrical, validated by a leading US laboratory.

With positive Q factors, EnergiCells can become self-powering, exporting net electrical and/or thermal and, if necessary, with development, chemical energy in the form of hydrogen and oxygen.



# HISTORY OF OUR TECHNOLOGY/INNOVATION

# History of the technology

## Origins



In 2010 Russian theoretical nuclear physicist and academic, Professor Vladimir Leonov, published his Theory of

Superunification via Cambridge International Science Publishing, based on quantum energetics / super-strong electromagnetic interaction, and begins working on a precursor of the ENG8 catalysed fusion EnergiCells.

## Development

Professor Leonov's work was taken up by colleague Sergey Altunin at a purpose-built laboratory, funded since 2018 by Valeria Tyutina, CEO of ENG8, and other investors.

## Today

ENG8's teams across Europe have further developed three variations of the EnergiCell, culminating in demonstrations of positive net energy. The company is head-quartered in Gibraltar with its main operating base in Portugal with satellite operations in other countries.



# Genesis of ENG8 and the EnergiCell

2017



V2

3 ATM, 140°C

Q Factor - 1.3

Power out 3kW

2020



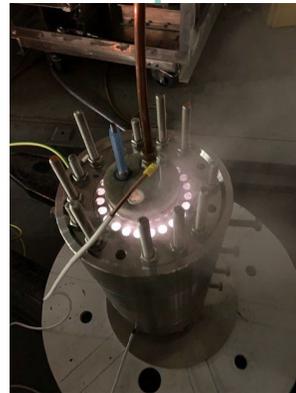
V3

Designed to operate at  
100 ATM, 300°C

Independent validation  
Q Factor 1.8

Power out up to 50kW

2021



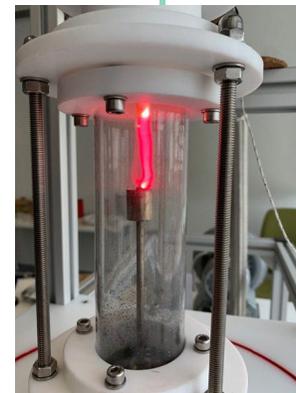
V4

Designed to operate at 500  
ATM, 600°C, 500kW

No independent validation

Power out up to 500kW

2022



V5

1.5 ATM, 600°C

Independent validation  
Q Factor 2

Power out up to 15kW

2023



V6

Direct electricity out  
Independent validation  
Electrical Q Factor 5  
Thermal Q Factor 2.4

# INDEPENDENT VALIDATION OF ENERGICELLS PERFORMANCE

# Independent validation

Our EnergiCells are regularly validated by independent entities to prove fusion and performance.

An EnergiCell was first independently validated in the UK in December 2020 by Dr. Robert Morgan from Brighton University.

The independent validation showed that 1.8x more energy in the form of heat was released than from the electricity used to power the EnergiCell; thus the Q Factor is 1.8.

In H1 2023 transmutation, the proof of fusion was independently validated by CICECO and the University of Cambridge.

In August 2023 IEP validated a thermal Q factor of 2.4. A leading US laboratory independently validate independently validated Q5 electrical in October.

Any Q Factor electrical above 1 is a very significant milestone as this means the EnergiCell can self-power.

VALIDATION BY:



UNIVERSITY OF  
CAMBRIDGE

iep



universidade  
de aveiro

# Independent validation extracts

## THE FUSION Q FACTOR

The thermal and/or electrical energy released compared with the electrical energy supplied to an EnergiCell is expressed in the fusion industry as the Q factor. A Q of more than one indicates positive net energy production.

NOTE: The following independently validated results were obtained not using optimum systems from ENG8's main laboratories but from portable ones sent for testing. **These results are still infinitely more advanced than those achieved by the hot fusion industry.**

**“We witnessed a calculation of a Coefficient of Performance of the device. The EnergiCell almost doubles the electric energy that was injected in the device.”**

*- Dr Modesto de Morais, C, Electrical Technical Institute of Portugal, [www.IEP.pt](http://www.IEP.pt)*

**“From the measurements results we obtained we witnessed a calculation of a Coefficient of Performance (COP) of the device EnergiCell that for CoP DC approximately 2.4 times the electric energy that was injected in the device.”**

*- Dr Modesto de Morais, C, Electrical Technical Institute of Portugal, [www.IEP.pt](http://www.IEP.pt)*

# Independent validation extracts

## TRANSMUTATION OF ELEMENTS IN ENERGICELLS IS INDICATIVE OF FUSION REACTIONS

“In the Al sample, the intensity of the 1370 cm<sup>-1</sup> is four times stronger in the reacted sample compared to the unreacted one.”

- Dr. Giuliana Di Martino, Assistant Professor in Device Materials, Department of Materials Science and Metallurgy, University of Cambridge (UoC), UK.

NOTE: This result indicated a four fold increase in carbon production within the reactor from the transmutation of hydrogen to carbon, via intermediary elements including boron.

“Given the functioning of the EnergyCell, presence of Boron has been suggested as a possible source of Raman signal.”

- Dr. Giuliana Di Martino, University of Cambridge, UK.

NOTE: This result is indicative of the transmutation of hydrogen to boron which is a transition stage to carbon formation. Furthermore, the scanning electron microscope and Xray spectrometer carried out by the University of Aveiro show clear transmutation of elements in EnergiCells.

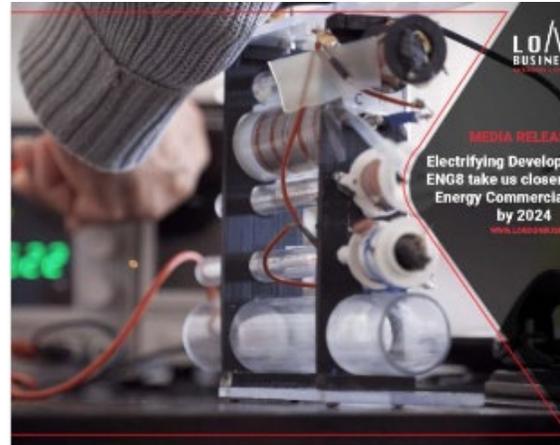
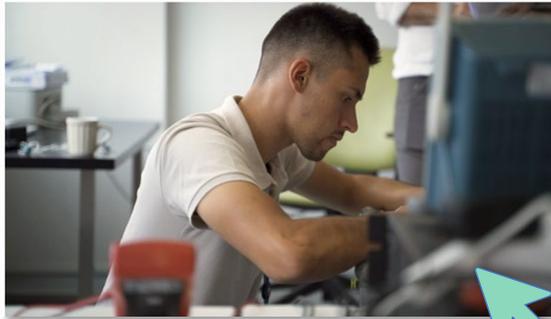
# ENG8 IN THE MEDIA

# Latest press articles



**PES**  
POWER AND ENERGY SOLUTIONS

**A step closer to a fusion-powered future**



**Electrifying Developments at ENG8 take us closer to Clean Energy Commercialisation by 2024**

**BUSINESS INNOVATION NEWS**  
AUGUST 31, 2023



**A step closer to a fusion-powered future**  
Visit <https://eng8.energy/register/> for further information

*Catalysed fusion specialists at ENG8 International have confirmed the successful validations of two EnergiCells by the Instituto Electrotécnico Português (IEPpt) in Portugal and internationally renowned Underwriters Laboratories (UL.com) in the USA.*

08/25/23, 05:28 AM | EVs and Fuel Cells

# Supporting videos



Investigation of the EnergiCell



Catalysed fusion

# INTELLECTUAL PROPERTY

# Intellectual property

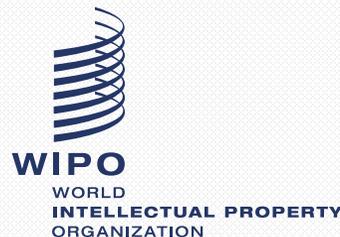
As the owners of the breakthrough technology, ENG8 has a thorough IPR protection and exploitation strategy.

- First key patent has been applied for in December 2019
- (UK and Netherlands) and in January 2020 at the WIPO (PCT/ EP2020/084425 filed 3 December 2021 with priority date 11 December 2019). This has now been filed in multiple countries.
- A second, very comprehensive, patent has been applied for in February 2021 to protect all know-how related to the development of the EnergiCell during 2020. Second patent was filed at WIPO (PCT/GB2022/0504 73 with priority date 19 February 2021), and this has now entered national phase worldwide.
- A patent application was filed in February 2023 to include numerous claims from developments in 2021 and 2022.

ENG8 is registering its IPR rights in all major markets. ENG8 has engaged consultants and advisors with the highest level of industry experience to protect and exploit our IPR, including:

- Dr Joanna Thurston at Withers Rogers (UK) -leading intellectual property attorneys
- Greg Sachs at VPS and Greg Sachs Associates –patent attorneys
- Joel Barry at Brandsmiths – leading IPR law firm
- Donal O’Connell – IPR consultant, former Director of IP at Nokia and VP of R&D at Nokia, Professor of IP at Imperial College Business School, London

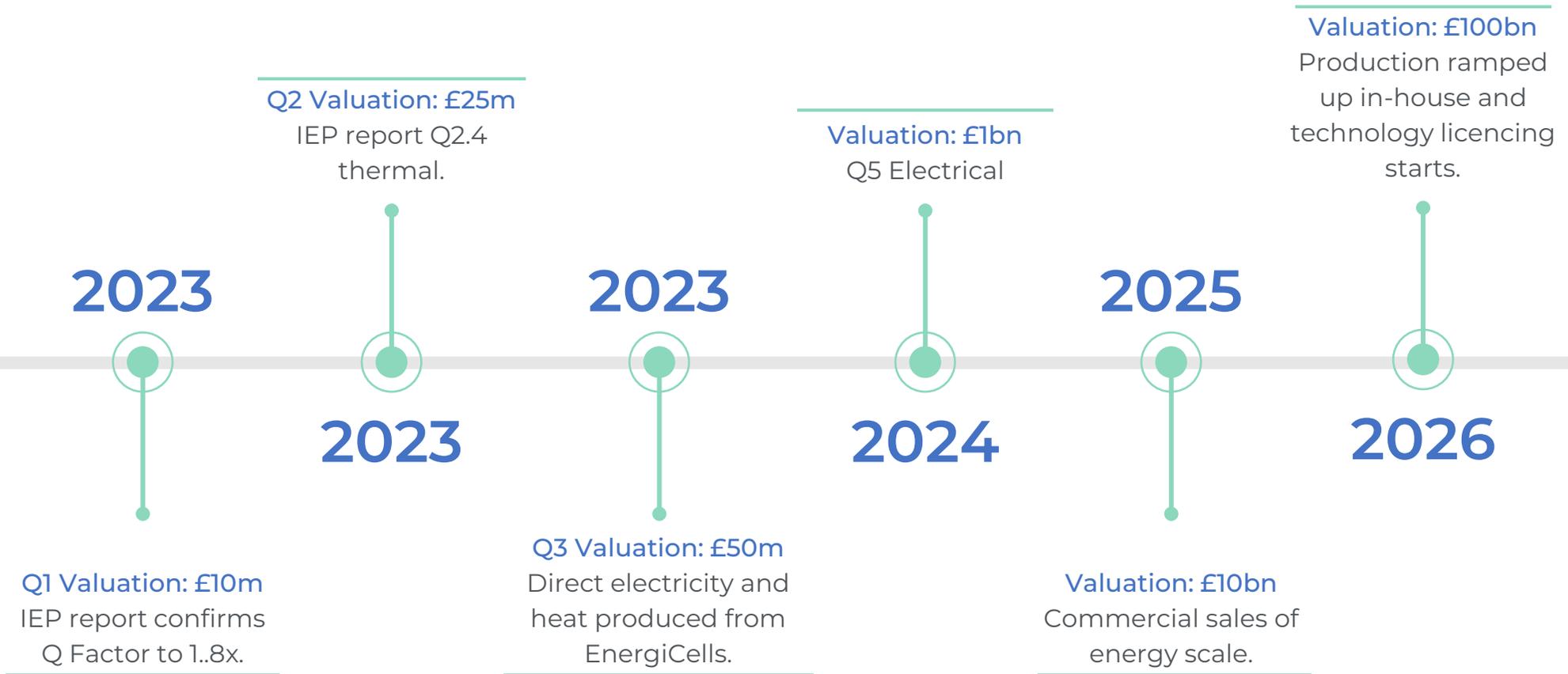
All patent rights, IPR, trade secrets, the confidential information, copyrights and trademarks to the EnergiCell technology have been novated to ENG8 International Limited.



Netherlands Patent Office  
Netherlands Enterprise Agency

# EXISTING AND FUTURE MILESTONES OF DEVELOPMENT

# Development milestones, valuations & forecasts



There are currently more than 10 fusion companies with valuations over £1bn, and none of them plan to have a fusion reactor within 5 or even 10 years.

# OUR TEAM

# Team members include

(We restrict access to our scientists and technical team to protect their identity and our technology)



**VALERIA TYUTINA**  
CEO

BA, International Finance & Business, ENG8 co-founder

**Background**

20 years science and technology innovation.

**Responsibilities**

Valeria oversees the planning and day-to-day operations of the ENG8 business in line with its Mission. Director.



**FRANCISCO LENDINEZ**  
Director & COO Designate

MBA, passionate about team building, circular economies and the environment

**Background**

Former COO at Nordea Bank and VP Business Development at Airbus. Global experience across multiple companies and industrials fields such as banking, automotive, aeronautics, energy.

**Responsibilities**

Director via [PMP Circular Services AB](#) in Sweden



**MICHAEL PETERS**  
CTO

BEng Electronics. Specialisation in program management and system automation

**Background**

Senior engineer at Alstom Power 1998 to 2017 and then GE to 2019 power electronics and power generation.

**Responsibilities**

Chief Technology Officer overseeing R&D and engineering development.



**GYORGY EGELY**  
Chief Physicist

Nuclear engineer with 40 years experience in LENR, Inventor, Ph.D.

**Background**

Thermal engineer specialising on nuclear fusion (Nuclear Research lab, Hungarian Academy of Sciences and International Atomic Energy Agency). Author of 10 books

**Responsibilities**

Overseeing science of the process in on EnergiCells

# Team members include

(We restrict access to our scientists and technical team to protect their identity and our technology)



**TIM FERLAND**

Non-Exec Director Designate

BBA Seasoned international business executive

**Background**

Over the last three years Tim incubated LetKnow, a visionary Fintech and software solutions company that he is now CEO of that has a processing volume of over £1 billion per annum.

**Responsibilities**

Tim was the business development officer for ENG8 from early 2019 until early 2021. Director.



**GREG SACHS**

Patent Attorney

Highly experienced patent attorney

**Background**

Lengthy employment tenures at some of the UK and Germany's leading IP firms and has operated as a contract attorney for a variety of other private practice firms in the US and in Europe, drafting and prosecuting 1000s of patent applications before various patent offices around the world.

**Responsibilities**

Managing the IPR portfolio



**NICHOLAS DIMMOCK**

Head of Investor Relations

**Background**

Involved in the environmental sector since 2007, with over 50 environmental projects from municipal solid waste composting in India, to 1500 MW hydroelectric projects in Ecuador and the pre-construction development of over 260MW of solar sites in Mexico.

**Responsibilities**

Leading ENG8 as the Head of Investor Relations.



**HASLEN BACK**

Co-Founder, BDO

Retd. army officer. Entrepreneur

**Background**

30 years of business experience in deep technology development and commercialisation with corporate and government clients.

**Responsibilities**

Currently business development officer, co-developer of the EnergiCell technology, IPR manager. Representative of the main investor/shareholder.

# Team members include

(We restrict access to our scientists and technical team to protect their identity and our technology)



**HELEN PASSFIELD**  
Head of Finance

**Background**

Renewable energy asset management positions within major developers and fund managers from 2010. A founder member in several energy businesses and instrumental in their expansion and financing. Helen's specialisation is wind, solar and BESS construction and asset management, she has worked on projects globally.

**Responsibilities**  
Finance.



**PAUL VOUSDEN**  
Corporate Communication

**Background**

Experienced and successful senior executive. A seasoned entrepreneur who built his own PR and marketing company from zero to a million-pound fee business; followed by an interim career in large public and private sector organisations. He has worked with many early-stage companies on strategic planning, market positioning and raising investment.

**Responsibilities**  
Corporate Communication.



**DR JACQUI TAYLOR**  
Climate Policy Development

**Background**

#15 Most Influential Woman in UK Technology. She is an Expert Advisor to the UK, EU, G20 and the United Nations on the future of technology and its impact on the sustainability agenda. As a High-level climate leader recognised by the UN for the delivery Net Zero 2030 plan she works with Fortune 500 clients to accelerate and implement their climate commitments.

**Responsibilities**  
Climate policy.



**ALEXANDRA ELLISON**  
Head of Corporate Services

**Background**

Involved in the Financial sector since 1993, bringing a wealth of experience and expertise to the company. She started her career at Deloitte and, more recently, spent 10 years with Morgan Stanley's Research Team.

**Responsibilities**  
Fundraising administration.

# Team members include

(We restrict access to our scientists and technical team to protect their identity and our technology)



**AMANDA JACK**  
Investor Relations

Amanda has recently joined ENG8 as part of the Investor Relations team. She is delighted to be working with such a great team on these exciting, innovative projects. Prior to this she worked at CIBC for 17 years with the Investment Banking team and the Equities desk. She was responsible for their international roadshows and client events. Client relationships has been a main part of her previous roles, and it is something which she enjoys.



**ALEEM AFTAB**  
IT

For the past eight years Aleem has been working with major global brands and manufacturers in the Telecommunication Industry. Aleem brings in his experience of working in an Internet Service Provider. Aleem looks after IT and Infrastructure with added responsibilities such as growth hacking.



**JANE MAHER**  
Public Relations

An experienced, strategic PR and marketing professional with more than 20 years under her belt. Latterly, she has held several key senior roles including PR director, regional director and managing director of a satellite site at a fully integrated marketing agency. She has worked across a variety of sectors including energy and renewables.



**COLM MACQUEEN**  
Grants, Subsidies & Credits

Colm has extensive experience of green and environmental inventions through his work as a multilingual translation professional specialising in intellectual property and marketing since 2015. He is a Qualified Member of the Institute of Translation and Interpreting, providing language services both as a freelancer and agency owner. His background spans various countries and industries including recycling, finance, tourism, education, telecommunications and software.

# GROUP STRUCTURE

# Group structure in formation



# LOOKING TO THE FUTURE

# Products and services

The EnergiCells that ENG8 are currently developing and testing are currently scaled to meet over 50% of humanity's energy requirements. The capital and energy generation cost should be significantly lower than alternative energy sources.



“Solid state” 1 Watt to 1kW range will be able to power electrical appliances from mobile phones, laptops, lighting systems, bicycles. These shown here are battery-sized units ideally coupled with batteries for load balancing.

An aircooled 1kW to 10kW range will power the majority of houses and electric cars worldwide. Here is a pallet mounted unit in development that could be placed outside or inside a house. *Validated by Electrical Technical Institute of Portugal.*



10kW to 100kW range is enough to power most vehicles and buildings, especially when combined into “quantised” or modular power plants that could produce megawatts of energy. *Validated by Prof. Robert Morgan, University of Brighton.*

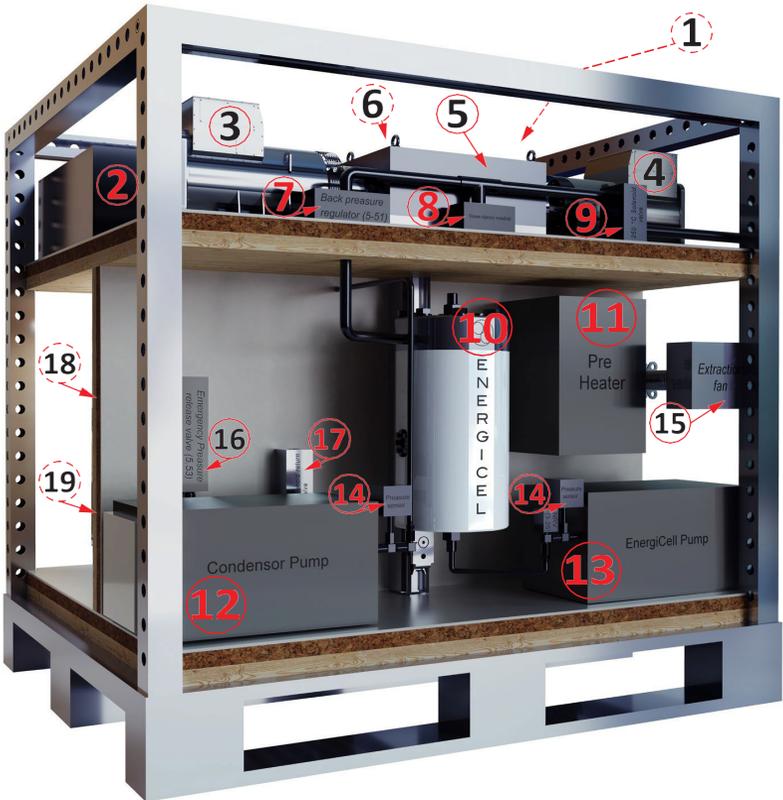


*“We know how to theoretically decarbonise the electrical grid, but we have no capacity or idea how to decarbonise the transport or heating requirements, unless the EnergiCell technology can be deployed fast on a decentralised basis.”*

UK National Grid PLC

# An EnergiCell CHP plant

This schematic shows the main components of the EnergiCell powered combined heat & power (CHP) plant, configured for commercial and industrial use. The CHP plant is scalable and modular. In this engineering model it is shown as a 100kW CHP plant mounted on a europallet 1m wide, 1m tall and 1.2m long.



**Key Components:**

- |   |                                      |
|---|--------------------------------------|
| 1. Power Supply Unit up to 25kV                 | 12. Condenser Pump                   |
| 2. Electronics Box IP76                         | 13. EnergiCell Pump                  |
| 3. Alternator AC 240V                           | 14. Pressure Sensor                  |
| 4. 25kVA Generator up to 50kV                   | 15. Extraction Fan                   |
| 5. Preheater of Reciprocating Engine or Turbine | 16. Emergency Pressure Release Valve |
| 6. Spray Condensor                              | 17. Preheat Solenoid Return Valve    |
| 7. Back Pressure Regulator                      | 18. 250 Litre Hot Water Fuel Tank    |
| 8. Steam Injector Manifold                      | 19. Heat Exchanger                   |
| 9. 250°C Solenoid Valve                         |                                      |
| 10. EnergiCell                                  |                                      |

11. Preheater

Patent application for the system as detailed was submitted in February 2021 and February 2023.

# The TeraWatt factory

Our global civilisation consumes approximately 11 terawatts an hour. A distributed TeraWatt factory could produce 1TW of EnergiCells a year that could produce a combined 1TW per hour.

In one production facility, such as the GE Appliances factory in Kentucky, if converted to produce 100kW EnergiCell CHP Plants, we believe it could produce up to 2000+ units an hour. This would be enough to produce 1TW of power production capacity in a year.



# SUMMARY

# Summary

- This proven game changing technology is now in commercial development providing emissions-free electrical power and/or heat.
- With adaptation, the EnergiCell can also produce different green elements and molecules, for example hydrogen, oxygen and ozone.
- Comprehensive patent applications have been filed to cover the technology.
- Commercial sales will start in 2024.
- Licenses will be sold in 2025.
- Companies that are a decade behind in the fusion space have valuations greater than a billion US\$. [Read the report here.](#)
- ENG8 is following an ambitious road map to further develop our products and services, grow shareholder value and monetise the business.

For further information please email [investment@eng8.org](mailto:investment@eng8.org)



Early renderings of EnergiCells, as they may look after production engineering



# Useful references

- [How private companies are bringing clean, green, nuclear fusion energy closer to reality](#)
- [Introducing LENR](#) from [Sabine Hossenfelder](#)
- [What is Cold Fusion?](#) LENR-CANR.org (a library of papers about cold fusion)
- [DARPA funding LENR research 2022](#)
- [Fusion industry association](#)
- [News site for LENR](#)
- [Condensed Matter Nuclear Science conferences](#) in the USA
- [Solid State Fusion The Formation of a Scientific Field](#) (ICCF-24 MIT 2022)
- [ICCF-25 MIT 2023](#)
- [Cold Fusion Now](#)
- [The LENR forum](#)
- [A Japanese company looking at deploying LENR products in 2026](#)
- [Toyota and Nissan Participating in Japanese LENR Research](#)
- NASA on LENR:
  - [According to NASA, LENR has 8 million times the energy density of chemical processes.](#)
  - [LENR does not require radioactive materials and does not seem to generate radioactive by products or risk dangerous chain reactions.](#)
- A good reference book is Steven B. Krivit's Explorations in Nuclear Research three-book series.

# Disclaimer

## Section 21 Disclaimer and Waiver

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# ENG8 International Ltd

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**ENG8**  
THE ENERGICELL COMPANY