

**Reach - a non-regulatory announcement**

**AIM: FIPP**

**25 February 2025**

**Frontier IP Group Plc  
("Frontier IP" or the "Group")**

**Portfolio news - GraphEnergyTech enters collaboration with Taiwanese partners and Cambridge University in project backed by Innovate UK**

Frontier IP, a specialist in commercialising intellectual property, today announces the following developments at portfolio company GraphEnergyTech (or the "Company"):

- that it has entered into a collaboration with the Taiwan Perovskite Solar Corporation, Taiwan's prestigious Industrial Technology Research Institute, and the University of Cambridge to drive development of the next generation of solar technology; and
- that the project the four organisations have formed, called Graphene Electrode Technology for Perovskite Solar Cells (or "GETPSC"), has secured a £884,129 grant from Innovate UK.

The four partners will work together to advance solar technology by developing commercial perovskite solar modules, based on Taiwan Perovskite Solar Corporation's technology, integrating GraphEnergyTech's graphene electrodes.

The electrodes will be based on the Company's proprietary technology to replace the metal electrodes currently used in nearly all solar cells. Innovate UK's grant funding is split, with £591,250 assigned to GraphEnergyTech, and the remaining £292,879 to the University of Cambridge.

Frontier IP holds a 23.97 per cent equity stake in GraphEnergyTech.

Graphene is more cost-effective and sustainable than metal electrodes and offers better chemical stability. In addition, the University of New South Wales has warned that the growth in solar installations globally threatens to exhaust known resources of silver, the most widely used metal for electrodes, by 2050.

Perovskite-based solar technologies match the efficiency of the silicon-solar cells which dominate the market today and have the potential to surpass them. However, they are more vulnerable to environmental degradation, because of the poor stability of metallic electrodes in relation to the perovskite solar material. GETPSC's main focus is to improve the reliability of the perovskite solar cells to make them more viable commercially by replacing unstable metal electrodes with graphene.

Perovskite solar technology also faces challenges in achieving cost-effective manufacturing at scale, and GETPSC will work with Taiwan's semiconductor manufacturing industry to help address this issue.

The Industrial Technology Research Institute has been credited with driving the growth of several industries and startups, including semiconductor giants UMC and TSMC.

The project's total value amounts to £1,137,522 in the UK and, in addition to the £884,129 grant, includes a GraphEnergyTech contribution of £253,393.

In 2024 GraphEnergyTech raised £1 million through an investment round led by Aramco Ventures, the corporate venturing arm of Aramco, the world's leading integrated energy company.

More broadly, GraphEnergyTech's technology promises to make conventional silicon solar cells cheaper to

manufacture by replacing expensive metal electrodes, particularly those made of silver, with graphene. Silver is the most commonly used material for electrodes today, but the rising demand for solar power means global reserves could be exhausted by 2050, according to research from the University of New South Wales. It is expensive and mining can cause devastating environmental harm.

Other potential applications for GraphEnergyTech's technology include printed electronics, batteries, super capacitors, LED lighting and displays.

The Company was co-founded by Professor Michael Grätzel of the Ecole Polytechnique Federale de Lausanne ("EPFL"), inventor of the dye-sensitised solar cell, Professor Andrea Ferrari, founder and director of the University of Cambridge Graphene Centre, and Frontier IP. Professor Grätzel is ranked among the world's most cited scientists across all fields and is behind more than 120 patents resulting from his research.

**Chen Lai-Ju, Taiwan Perovskite Solar Corp. Chairman, said:** *"We are eagerly anticipating the research and economic value that this project will bring. It will push the entire world one step closer to achieving zero-carbon emissions."*

**Dr. Thomas Baumeler, GraphEnergyTech's CEO, said:** *"We are thrilled to embark on this ambitious project which not only fosters international collaboration in renewable energy, but also aligns seamlessly with GraphEnergyTech's vision. The support from Innovate UK is instrumental in advancing our research and driving innovative solutions to market."*

**Frontier IP Chief Executive Neil Crabb said:** *"We are very excited about GraphEnergyTech's potential and the impact the Company could have on solar technology. The collaboration with leading Taiwanese organisations and the support from Innovate UK, provides strong validation for its technology and we are looking forward to the results of this project."*

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## About GraphEnergyTech

GraphEnergyTech has developed and patented a novel process to integrate graphene electrodes into solar cells replacing silver and other precious metals while retaining or improving power conversion efficiencies and reliability. The company works with partners to scale this technology and bring the cost and performance benefits to all types of solar cells and beyond.

Other potential applications of the technology include printed electronics batteries, super capacitors, LED lighting and displays.

## About Frontier IP

Frontier IP unites science and commerce by identifying strong intellectual property and accelerating its development through a range of commercialisation services. A critical part of the Group's work is involving relevant industry partners at an early stage of development to ensure technology meets real world demands and needs.

The Group looks to build and grow a portfolio of equity stakes and licence income by taking an active involvement in spin-out companies, including support for fund raising and collaboration with relevant industry partners at an early stage of development.

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