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**ITM Power plc**  
("ITM Power" or the "Company")

### **100MW Power-to-Gas (P2G) energy storage feasibility study**

ITM Power (AIM: ITM), the energy storage and clean fuel company, is pleased to announce funding from Innovate UK for a feasibility study to deploy a 100MW Power-to-Gas (P2G) energy storage project, "Project Centurion" at Runcorn, Cheshire, UK.

This world class project explores the electrolytic production, pipeline transmission, salt cavern storage and gas grid injection of green hydrogen at an industrial scale. The feasibility study will explore the system design and costs and will assess the business case for deployment.

The vision for Project Centurion is to demonstrate a 100MW P2G energy storage system which can produce low carbon hydrogen for heat, decarbonisation of industry, and transport fuel. Once successfully demonstrated, such systems can make a significant contribution to the decarbonisation of the electricity and gas networks, and by coupling these two networks together provide energy storage, allowing the UK energy system to accommodate increasing amounts of renewable energy, reducing curtailment and constraints. As well as contributing to decarbonisation, P2G systems can improve security of energy supply and improve the UK balance of payments by producing indigenous fuel offsetting the need to import fuel.

Project partners ITM Power, INOVYN, Storengy, Cadent and Element Energy wish to explore the feasibility of siting a 100MW Proton Exchange Membrane (PEM) electrolyser at the INOVYN Runcorn Site, which already produces hydrogen (used mainly on-site) as a co-product of the chlor-alkali process. This site has an existing 420MW supergrid connection, power electronics and planning consent for industrial scale hydrogen production. The transport of hydrogen by pipeline to salt caverns near Lostock, where it can be stored pure or blended with natural gas, will be explored, along with the feasibility of injection into the local gas network. Other potential demands for the hydrogen will be assessed, including industrial and transport use which will support existing studies in the area, particularly Cadent's HyNet NW.

The feasibility study is being supported by Innovate UK and the partners. It's objectives are: to produce a 100MW system design with costs significantly below current targets; to build the consensus on P2G systems as an important part of a decarbonised energy system; and to produce the evidence base for raising financing for the project. The feasibility study outputs will be a 100MW system design, a business case and delivery plan for Project Centurion with a clear description of the next steps, and a dissemination campaign to increase understanding of, and interest in, P2G systems at a large scale.

Once built, Project Centurion will be a world class innovation project: it will be the first-time a P2G system injects hydrogen into the public gas network in the UK at scale. It will be the first time the electricity and gas system would be coupled in the UK to provide energy storage for excess electricity; and it will be the largest water to hydrogen electrolyser system in the world (based on current deployments). Existing

projects such as HyDeploy make use of a private, isolated gas network, which is not possible at this scale. Project Centurion will build upon the work done in HyDeploy and the proposed HyDeploy 2 which if funded by Ofgem will develop the evidence base for transporting blended hydrogen through trials on two public gas networks on the North West and North East of England. The project will also develop a full deployment plan for hydrogen blending on the gas network.

**Dr Graham Cooley, CEO, ITM Power said:** “Project Centurion is an ambitious project with an important consortium of industrial partners that share a world class vision of power-to-gas energy storage. The project explores green hydrogen production, pipeline transmission, salt cavern storage and gas grid injection at an industrial scale and will assess the business case for deployment.”

**Catherine Gras, Managing Director Storengy UK, said:** “Power to gas energy storage is key to decarbonise European energy systems. We firmly believe hydrogen is a promising solution and a project like Centurion will allow us to identify the conditions under which such a project could be developed in the future.

**Richard Stevenson, Project Manager, INOVYN said** “This is an exciting project building on our extensive experience of large scale electrolysis, generating and handling hydrogen, together with expansion of our gas storage operations into new areas. ”

**Simon Fairman, Director Network Strategy, Cadent, said:** Project Centurion is an exciting project and we are delighted to be a part of it. We strongly believe that the North West is in pole position to the first region in the UK to realise the potential of hydrogen at scale and to demonstrate to the rest of the UK what can be done. This project should provide further evidence that hydrogen is deployable at scale and in the very near future.

**Eleanor Standen, Senior Consultant at Element Energy said:** “Hydrogen energy systems have the potential for almost complete decarbonization of transport and heating sectors, as well as integrating the whole energy system. To realize this vision, larger deployments like Project Centurion, able to access economies of scale, are needed to reduce costs and improve the business case. This feasibility study will assess this case in detail and will be an important part of the evidence base for commercially viable hydrogen energy systems.”

For further information please visit [www.itm-power.com](http://www.itm-power.com) or contact:

<b>ITM Power plc</b>	+44 (0)114 244 5111
Graham Cooley, CEO	
<b>Investec Bank plc (Nominated Adviser and Broker)</b>	+44 (0)20 7597 5970
Jeremy Ellis / Chris Sim / Alexander Ruffman	
<b>Tavistock (Financial PR and IR)</b>	+44 (0)20 7920 3150
Simon Hudson / Nick Elwes / Barney Hayward	

### **About ITM Power plc**

ITM Power manufactures integrated hydrogen energy solutions for grid balancing, energy storage and the production of green hydrogen for transport, renewable heat and chemicals. ITM Power was admitted to the AIM market of the London Stock Exchange in 2004. In September 2017 the Company announced the completion of a GBP29.4m working capital fundraise. The Company signed a forecourt siting agreement with Shell for hydrogen refuelling stations in September 2015 and subsequently a deal to deploy a 10MW electrolyser at Shell's Rhineland refinery. The company entered into a Strategic Partnership Agreement with Sumitomo Corporation in July 2018 for the development of multi-megawatt projects in Japan. Additional customers and partners include National Grid, Cadent, Northern Gas Networks, RWE, Engie, BOC Linde, Toyota, Honda, Hyundai, Anglo American among others. [www.itm-power.com](http://www.itm-power.com)

### **About INOVYN**

Wholly owned by INEOS, one of the world's largest chemicals companies, INOVYN is the supplier of choice for manufacturers around the world. INOVYN's strengths across its extensive vinyls and chlor alkali activities creates a world scale business that continues to serve its customers and rapidly respond to changing European markets. [www.inovyn.com](http://www.inovyn.com)

### **About Storengy**

Storengy, an ENGIE subsidiary, is Europe's leading provider of natural gas storage services. It designs, builds and operates storage facilities and offers its customers innovative products based on the extensive know-how it has acquired through 60 years' experience with different markets and regulatory environments. Storengy operates in France, Germany and United Kingdom and is constantly expanding its operations and activities around the world. Storengy is already involved in a number of R&D projects and in prefeasibility studies to store 100% hydrogen in salt caverns. The company offers also a technical expertise to numerous partners around the world with a view to developing geothermal projects (heat and power production) and innovative energy storage solutions. [www.storengy.com](http://www.storengy.com)

### **About Cadent**

Cadent is the UK's largest gas distribution network with a 200-year legacy. We are in a unique position to build on strong foundations whilst encouraging the curiosity to think differently and the courage to embrace change. Day to day we continue to operate, maintain and innovate the UK's largest gas network, transporting gas safely and protecting people in an emergency. Our skilled engineers and specialists remain committed to the communities we serve, working day and night to ensure gas reaches 11 million homes from Cumbria to North London and the Welsh borders to East Anglia, to keep your energy flowing [www.cadentgas.com](http://www.cadentgas.com)

### **About Element Energy**

Element Energy is a dynamic and growing strategic energy consultancy. We specialise in the intelligent analysis of low-carbon energy, and help our clients (in the sectors of transport, power generation and buildings) to understand low-carbon energy. Over the past decade we have gathered a team of experts based in Cambridge, London, York and Lille who provide robust technical insights into low-carbon energy markets. [www.element-energy.co.uk](http://www.element-energy.co.uk)