

## Written evidence submitted by Exergy3 (IND0002)

This evidence is focused on the first question that the inquiry is considering: *How can UK plc capture its fair share of the economic potential of emerging or less developed energy technologies?*

### Background

[Exergy3](#) is a University of Edinburgh spin out. We have developed a world leading thermal energy storage technology. This has a broad range of use cases:

- **Industrial decarbonisation** - for high temperature manufacturing processes (e.g. chemicals, pharmaceuticals, food and drink, paper and pulp and cement) in SME's. As a heat battery, it can shift loads. It can also act as an alternative fuel source
- **Flexibility services** – reducing constraints and preventing curtailment. It can provide both short and long duration storage
- **Heat networks** – providing heat to district heat and CHP systems

Compared to the alternatives (hydrogen, CCUS and biomass etc), our emerging technology has the following benefits:

- **Speed of deployment** – our second-generation technology can be used now and has already been installed in Annandale distillery in Scotland. Modular with a small footprint, it can be transported on the back of a lorry using normal infrastructure and be installed within a week. It does not require changes to existing manufacturing plant and can be easily integrated into existing processes and equipment. And it can be used in dispersed sites anywhere, not just in hydrogen / CCUS clusters. These points are vital to meet the challenging Clean Power 2030 timescales
- **Export growth opportunity** – Exergy3 is based in Scotland and is partnered with Cochran UK, one of the UK's last big manufacturers. Whilst there is significant competition in the global hydrogen market, there is very limited international competition in this space at this level of development. Exergy3 can leverage in foreign investment into business and energy projects. It can thus support delivery of clean energy industries, as outlined in the Industrial Strategy, Invest 2035
- **Greater certainty** – As the recent Public Accounts Committee report into CCUS has outlined, there is significant uncertainty and a high degree of VFM risk surrounding the deployment of CCUS technology
- **Broad range of benefits** – Exergy3 can support not only industrial decarbonisation but also wider flexibility services and heat networks

### Actions needed to enable the UK to capture the benefits of Exergy3's technology

For the UK to capture the benefits outlined above, Government needs to address the following barriers:

- **Levies** – Policy costs on the electricity which powers our technology make it more expensive than gas. This makes the opex costs of using our technology prohibitive. Successive governments have long recognised the need to rebalance policy costs from electricity to gas
- **Uneven playing field** – Continuing Government support for hydrogen and CCUS, despite the risks and limitations outlined above, mean that Exergy3's world leading technology faces a significant comparative disadvantage

Changing energy policy in the following ways can enable the UK to capture the full potential of Exergy3's emerging technology:

- **Rebalancing policy costs** - Policy costs need to be rebalanced from electricity to gas as a matter of urgency
- **Bridging mechanism to support thermal storage** – Until this is done, a bridging mechanism is needed, such as per unit support for heat batteries
- **Level the playing field** – Specific support mechanisms and subsidies for thermal energy storage solutions are needed to level the playing field with hydrogen, CCUS and biomass

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