

Introduction

We are a small organisation who has a mission to develop the next generation of energy source. We have been in operation for more than twelve years largely researching and developing batteries and robotics; we formed a limited company called GYSE in 2021.

The scientists have made a major breakthrough and have invented a `forever` solid-state battery which will last for at least ten years without ever being recharged. The invention is unique and hence has the potential to open up a huge global market.

There has been extensive in-house testing of this new forever battery and it has a CE safety marking. There are currently no published research papers.

We sincerely believe that GYSE can make a massive difference in resolving this country's problems of energy shortage, energy cost and meeting the Government's targets in both EV production and reducing the Balance of Payments.

However, we are experiencing difficulties in bringing this product to market and therefore wanted to contribute our experiences to the call for evidence as we don't believe we will be alone in this quest. We would like to see discussions opened up and subsequently changes made by the Government to assist small companies like GYSE to offer their expertise and to enter this highly competitive battery market

Call for Evidence

Batteries for electric vehicle manufacturing

The Committee welcomes submissions relating to the following points by 23.59 on Tuesday 14 February:

- 1. Is there enough UK vehicle manufacturing demand in the UK to support gigafactories?**
 - a) The UK needs industry as both the EV industry and its supply chain are essential to the UK's future economy. We have lost a substantial amount of the European Financial Market and Passport Clearing and may still lose more. The effect on the Balance of Payments could be crippling, so we must preserve what industries we have.
 - b) If there is insufficient demand in the UK for EV batteries, then we should look to diversification of the Gigafactory to manufacture batteries for other uses e.g. Houses
 - c) There is also a huge market for powering trains, planes, and boats.

- 2. Will the UK have sufficient battery production supplies by 2025 and 2030 respectively to meet the government phase-out plans for petrol and diesel vehicles?**
 - d) Due to the collapse of British Volt, there is now some doubt that this will be achieved by 2025 but the 2030 targets should be achievable. However, a total reliance on Gigafactories may not be the best strategy and smaller units which can be developed at a faster pace should also be explored.

- e) For example, an alternative strategy which could operate in parallel with the development of Gigafactories would be to set up smaller production lines in existing factory premises.
- f) There are several benefits to this as follows; -
 - i. Skilled team already in place
 - ii. Suitable environment for battery production
 - iii. Established supply chain
 - iv. Faster output
 - v. Existing administration
- g) Once established existing companies could achieve much higher revenue figures, there would also be global potential for franchising, royalties and sector expansion opening up the market for smaller businesses to engage with the EV market in terms of production and timescales.

3. Is UK-based battery production necessary to support the manufacture of electric vehicles in the UK?

- h) There is a shortage of battery cell manufacturers in the UK.
- i) Without UK based production we could become hostages of the Eastern countries who are attempting to capture the market.
- j) We have an opportunity to become a global leader in battery production, but the Government must assist companies to move forward by offering both leverage and seed funding.

4. What are the risks to the UK automotive industry of not establishing sufficient battery manufacturing capacity in the UK?

- k) The risks are the warnings which the Government has received from the vehicle manufacturers with factories in the UK, that without Government support, they intend to leave the UK and move their production elsewhere.

5. What other domestic end uses for batteries would provide a market for UK battery production?

- l) Housing
- m) Battery charging stations for electric cars
- n) Drones
- o) Boats
- p) Household appliances e.g. Lawn mowers, mobility scooters and vehicles, eBikes, golf buggies
- q) Computers, PC's, iPhone, and communications in general.

- r) The Global market is massive, and the UK has the potential to become a world leader if action is taken quickly

6. Does the UK have a sufficient supply of critical materials to support vehicle battery production?

- s) Lithium a key component of batteries and will become more scarce as the limited supply on land is depleted; the mining of lithium offshore will be more expensive. Alternative materials should be identified and tested including the use of Thorium which is far more abundant and has a longer life in terms of its use in batteries. GYSE have already done extensive work on inventing and testing a solid state battery using Thorium which is now almost ready for production.
- t) Certain critical materials will need to be imported however there are already established supply chains within the UK. Companies like Glencore, who invested in Britishvolt and appear to be focused on increasing their business in the UK. Also EV Metals and Johnson Mathey.

7. How ready are UK vehicle producers for the EU–UK Trade and Cooperation Agreement (TCA) rules of origin (ROO) phasing in from 2024?

- u) No response

8. What can the UK learn from investment in other countries in the establishment of gigafactories?

- v) Gigafactories take a long time to construct and require billions of pounds of investment. There is a danger that by the time they are ready for operation, they could be obsolete as the industry is evolving and changing so quickly.
- w) The lesson is within the old-fashioned proverb of 'Do not put all your eggs in one basket'.
- x) There are different strategies which could achieve a revenue stream somewhat quicker and perhaps both strategies could be run in parallel as faster revenue generation will help to finance the long term, heavy capital requirements of the gigafactories.

9. Do we have the skills in the workforce required for the production of batteries? If not, what needs to be done?

- y) There is a shortage of cell manufacturers in the UK, and even they are struggling to fund their own research and development. Batteries are likely to become the highest growth market for the next decade, as many worldwide companies strive to become the first to mass produce the next generation.

- z) Experience has shown in the quest for GYSE to develop and bring to market our own `forever` battery that we have been hampered by lack of available funding and very long timescales to achieve our aims.
- aa) GYSE have found that the patent office has been slow to process patents due to covid backlog so the advertised timescales of 6- 8 months in the Green Channel of the IPO office has to date been 17+ months and we are still waiting.
- bb) The Faraday institute set up to assist with battery research appears to be limited to offering research grants to companies already working with Universities or certain large organisations,
- cc) The UK Industrialisation Centre UKBic which is a magnificent establishment were very helpful and informative but unfortunately have a waiting list of up to 18 months to run essential testing for potential new battery manufacturers.
- dd) These delays are hampering the UK in becoming a world leader as companies are being held back in bringing new products to market.
- ee) Whether the delays are due to skills within the workforce or availability of personnel is hard to say but either way all these organisations which are supported by the Government appear to need help.
- ff) This help may need to be in the form of resources for recruiting additional workforce or in the establishment of more apprenticeships. In accordance with recent evidence spelt out by Mel Stride MP, the workers are there, but need to be motivated and trained. What better industry could there be to invest in skills development and motivate workers than to help the UK meet the EV industry timescales and the overall climate change agenda.

10. Will the cost of UK batteries be competitive compared with batteries produced elsewhere?

- gg) GSYE have developed a brand new solid state forever battery.
- hh) As it would be a new product to the market there will be a new pricing concept as currently existing batteries are either throw-away batteries and need replacing regularly, or they require recharging on a regular basis.
- ii) We believe that this solid state battery will be price competitive,
- jj) However, in considering cost, one must also consider the benefits of having a battery which lasts for a minimum of 10 – 20 years and will never need to be replaced during the lifetime of the car or appliance which it is powering.

11. What impact will the European Union's proposed Carbon Border Adjustment Mechanism have on UK production?

- kk) No response