

## **ERP Post-Plenary Debate – Industrial Strategy**

On the evening of the 12 January 2017, ERP hosted an event with members and colleagues from the wider energy community to discuss the topic: ***“How can the UK energy sector help deliver the government’s industrial strategy to create new growth in home and international markets?”***

To inform and initiate discussion, the event showcased three guest speakers who put forward their views on industrial strategy. ERP would like extend its thanks to these speakers for their contribution.

- [Julia King, Baroness Brown of Cambridge](#) - Chair of the Committee on Climate Change’s Adaptation Sub-Committee;
- [Nick Gardiner](#) - Managing Director - Head of Offshore Wind, The Green Investment Bank
- [Tom Greatrex](#) - Chief Executive of the Nuclear Industry Association and previous Shadow Energy Minister (2011 – 2015);

### **Highlights & key points discussed:**

#### **Background context to the Industrial Strategy includes:**

- The Paris Agreements, global politics, IPCC targets, Brexit negotiations, The UK Government’s Emissions Reduction Plan.
- The Emissions Reduction Plan and Industrial Strategy should be closely aligned to achieve parallel benefits.
- Nuclear (SMRs), Offshore Wind, CCS, Energy Storage, Decarbonisation of Heat, Hydrogen, Energy Efficiency and low-carbon skills all present exciting opportunities for UK growth.
- A long-term energy policy is needed.

#### **Offshore Wind & Industrial Strategy:**

- The UK is a world leader in Offshore Wind and has the largest global market with 5.1GW currently operational. But the UK must continue to build its supply chain in offshore wind.
- There is expected to be a further 1.5-2GW of new offshore wind in the next CfD auction and a 10GW+ market is expected by 2020 with a £20bn value.
- Developments in floating turbines could open up more global markets for wind.
- It is important to export UK expertise and to champion SMEs / medium-sized companies.

#### **Nuclear & Industrial Strategy:**

- The UK has the most skilled nuclear decommissioning workforce in the world but is not the only country aiming to be the world leader.
- Whilst developing the technology, opportunities and supply chains must be developed too.
- It is important to link a development programme with a countries’ skills.
- SMRs have not yet been deployed anywhere and are therefore a key opportunity for the UK.

#### **A UK Industrial Strategy should:**

- Be about regions, sectors, (cross-sector) skills & R&D, with a greater focus on low-carbon; and provide opportunities for the UK as a whole.
- Provide solid guidance that the energy sector can build on and work towards.
- Identify clear winners and provide clarity without excluding other/newer options.
- Be supported by appropriate legislation.
- Identify risks but be brave and ‘think outside the box’.
- Highlight a sense of responsibility from all parties involved in the energy system.
- Provide accountability and help in terms of uncertainty.
- Support a mix of technologies
- Realise that it can’t solve all but should help to ‘join the dots’.

ERP Co-chair and Chief Scientific Advisor of BEIS, Professor John Loughhead OBE opened the debate and reiterated the importance of industrial strategy for the creation of both UK and international opportunities. Guest speakers were introduced, each giving their opening remarks.

**Baroness Brown of Cambridge** began by setting the context for the debate which included:



- **The Paris agreement** was ratified by the UK (111<sup>th</sup> country to ratify) and had strong support from China, where 50% of all new electricity generation will be from renewables by 2020 resulting in \$360bn investment. This creates a good market opportunity for the UK.
- **Even negative decisions made by the new US President** could potentially have a positive effect on the UK's market share for supplying low carbon technologies. However it is not clear that US investment will decrease given that the investment community has influence on low-carbon funding and the new Secretary of State indicated that the US should maintain its seat at table when talking about Paris. It was noted that the US may decide to focus on CO<sub>2</sub> removal which could leave gaps in other areas of R&D.
- **IPCC data suggests that GHG emissions plateaued in 2016** – this is just one data point and is not yet a trend but could be an exciting possibility for meeting 2100 temperature targets;
- **Brexit negotiations** may make little difference from the point of view of emissions, given that the UK has legislative targets out to 2032 - but with an 80% reduction from 1990 levels required by 2050, we still have long way to go. Decarbonising all non-aviation parts of the economy was noted as an important factor for allowing the 'headroom' required by aviation to increase international trade.
- UK industrialists that have been interviewed would like the **UK to maintain EU GHG legislation** so that UK products continue to be accepted in the EU. Indeed the UK could have even higher standards to be even more attractive in a low-carbon technology market.
- **The Green Investment Bank** is important for investment in low-carbon technologies and for low-carbon infrastructure.
- **The Government's Emissions Reduction Plan and Industrial Strategy are both due soon** and need to be closely aligned to achieve parallel benefits.
- **Investment in low-carbon goods and services continues to grow** and even grew throughout the most recent recession with an average 5% growth per annum.
- **The UK is a world leader in offshore wind** generating significant interest from China and USA. The UK has many under-used ports which could create significant export opportunities and also has some strong medium-sized companies, e.g. are world-leaders in sub-sea cables. Additionally one-third of low carbon projects worldwide get their legal and financial consultancy advice from the UK.
- However, there are some disconnects. For example the Research Councils currently give very little funding for offshore wind. There is **£2bn/year on offer in the Industrial Strategy Innovation Fund** but there has been no mention of allocations for low-carbon energy yet. **The Industrial Strategy Fund should offer opportunities for low-carbon energy.**
- The UK needs funds for *riskier research*. The GIB was not set up for this type of investment and therefore the Government should partner up in early high-risk projects.
- There is **currently a £250M funding competition for Small Modular Reactors** (Nuclear SMR) research.
- **The UK has experimented with CCS but so far all projects around the world are struggling with business models** for this. There has been talk that CCS could be in the Industrial Strategy released in March but something is needed to incentivise new business models for CCS and other low carbon technologies.
- And finally Energy Storage needed and **UK Academics and SMEs need to think more broadly about storage opportunities.**

**Nick Gardiner** then provided an overview of the GIB and his thoughts on industrial strategy in relation to offshore wind:



#### **The Green Investment Bank (GIB):**

- GIB was set up four years ago to accelerate the low-carbon transition and to help areas that needed additional funds.
- It currently has **85 green infrastructure projects, committing £2.7bn to the UK's green economy.**
- The organisation works to a 'double bottom line' in that it has to prove it is both profitable *and* green.
- **GIB helps to mobilise additional capital into the green economy worth £10bn.**
- To date it has leveraged up to a **total investment of £5bn with 3GW of capacity.**
- Early investments tended to be more debt-finance, now GIB is doing more equity-finance.
- The bank is **launching a £1bn fund for offshore wind** which is the first of its kind in the world and is injecting equity investment into five wind farms that have no debt funding.

#### **Offshore finance wind more widely:**

- There are **lots of investors** of all types interested in the offshore wind sector. GIB has an ethos of partnering with others.
- Initially GIB would invest in a fund but are now investing directly in projects; and are investing earlier when risk is higher.
- **No UK banks are leading in offshore wind transactions.** This tends to be dominated by continental Europe and Japan.
- **Finance (both debt and equity) needs to be viewed as part of the supply chain.**

#### **Offshore wind in the UK:**

- The UK has the largest offshore wind market in world with **5.1GW currently operational**
- There is expected to be a **further 1.5-2GW of new offshore wind** in the next CfD auction and a **10GW+ market is expected by 2020** with a £20bn value.

#### **Offshore wind internationally:**

- Offshore wind is becoming a global market with new markets growing rapidly.
- Continental Europe has a **£40bn market**
- In China, Japan and Taiwan, offshore wind is significantly on the rise and there are also keen developments on the US eastern seaboard.
- There is lots of interest in **floating turbines** and developments in this area **would open up even more markets** e.g. in Western USA, Japan, Hawaii.
- The offshore wind sector has evolved from being based on marinised onshore wind turbines to being at the heart of a marine energy sector.
- Zoning has become more logical and economies of scale are kicking in.
- Regulations are helping for example auctions are increasingly being used around world

#### **The future of offshore wind:**

- **UK Government support for offshore wind is premised on ongoing cost reduction** - the technology has been good at this thus far.
- **The UK must continue to build its supply chain in offshore wind;** e.g. the recent Siemens factory in Hull;
- We often hear about and focus on the major OEMs but it is also **important to champion SMEs and medium-sized companies**, such as the cabling experts mentioned by Baroness Brown.
- **We need to export UK expertise.** RUK has produced a good booklet about exporting offshore wind and the UK is gaining world-class knowledge on: construction and operations, foundations and finance.

Finally, **Tom Greatrex** (NIA) provided his thoughts on industrial strategy and nuclear:



- Tom was struck by the **similarities between offshore wind and nuclear in terms of industrialisation opportunities** but noted how hard it is to compare ‘like for like’, as it depends on how performance and costs, etc are defined.
- The Swansea Bay Tidal Lagoon report was quoted as (among other sources) raising the **need for long-term energy**.
- It was noted that **Industrial Strategy has not been a key factor for many years now**. Decisions have for a while been purely based on cost and carbon. We are now thinking about the wider benefits too e.g. jobs and opportunities for the supply chains.
- Tom stated that: **“A document is not an industrial strategy and an industrial strategy is not a document – industrial strategy is a process;”**
- It was noted that **an industrial strategy can help to rebalance and diversify the UK economy and allow the UK to export to global markets**. There is huge scope and scale for this and the UK has made a lot of progress but there is still more to do.

#### Regarding Nuclear:

- **The UK has the most skilled nuclear decommissioning workforce in the world** and we can export this to places like Japan.
- **Small modular reactors (SMRs)** are different because they have not yet been deployed anywhere, so these **are a key opportunity for the UK**.
- The reality of technology development will have more influence on US decisions than the rhetoric around an election does.
- **The UK is not the only country aiming to be the world leader** - many other countries have government-led programmes in nuclear energy.
- **It is not only about developing the technology but also about developing opportunities and supply chains**. It is possible (and important) to link up between a development programme and a countries’ skills. The NIA has a long list of what is needed for a nuclear project to succeed.

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#### Q&A session

Industry-side Co-chair Martin Grant, Atkins opened the debate to all attendees for a Q&A session:

***Q: The definition of ‘energy sector’ is often skewed to mean electricity, which is actually only ~¼ of the sector. Would the answers regarding an industrial strategy be different if we were to consider non-electricity sectors also?***

In response, heating buildings was raised as a key sector where the UK is performing poorly and therefore greater efforts with energy efficiency are required. Heat pumps do well in some other European countries, but the UK hasn’t managed this.

If the UK could achieve CCS, then Hydrogen could become more realistic, presenting an exciting opportunity for UK industrial strategy. The UK is exploiting its offshore expertise by developing and deploying offshore wind. Similarly, the UK could apply its offshore expertise to CCS.

It was noted that electricity currently fits into the project finance model but energy efficiency doesn’t. Discussions regarding providing energy as a service have begun e.g. providing insulation and ‘the total package’ but business models rely on upfront finance, from customers or elsewhere.

There was a thought that Governments strive to make energy as cheap as possible but what if energy (not just electricity) was made more *expensive*, then perhaps it would be valued more and used less?

**Q: When EU regulations for car emissions came into force, there was a doubling in investment and an increased rate of improvement, yet industry had said it was impossible. Therefore should there be more regulation to support the industrial strategy? Additionally, 99% of the emission cuts in cars have been improvements to existing types of cars - and UK is a leader in that.**

One view was put forward that regulation is the cheapest way to make improvements. Governments tend to be nervous of regulation and some activities in the car industry has damaged the reputation of regulations as a tool. In relation to the second point, it was felt that there would be a limit to emissions cuts in cars, with perhaps 10 years' worth of further scope.

**Q: Do you see a fleet of 6-8 tidal lagoons as a welcome addition to low carbon, or as a threat to your industries?**

In general, all agreed that it is important to move away from an attitude of rivalry within the low carbon sectors. All/a mix of technologies are needed and therefore collaboration is key. It was noted that (for example) wind as a technology cannot achieve everything. It is hard to comment on particular (tidal) projects at present, but the more low-carbon a project is, the better. Additionally, it is good to have a geographical spread, for example in places where wind is perhaps less suited. This spread of various technologies can also assist with regional development.

Finally it was highlighted that 'high-end skills' (such as lead engineers specialising in technology fatigue), are often transferrable between sectors e.g. between wind and nuclear. The UK needs to capitalise on transferable strengths more.

**Q: Is industrial strategy about sectors, skills & (cross-sector) R&D, both/all, or something else? What should the energy sector want, and what can be expected?**

Guest speakers and attendees agreed that all of the above should be included, especially cross-cutting and low-carbon skills. However the UK "needs to join the dots". There are heartening plans for combining renewable electricity and storage (for example) but a greater focus is needed on low-carbon skills.

Regional aspects once again need to be considered with projects to reinvigorate areas with new industries e.g. how the Siemens investments has helped Hull.

However there was caution that it's too easy to say that an industrial strategy will achieve everything – it won't! The strategy is just the start. More is needed with a clear programme of efforts supporting it. But what the strategy should definitely do is join the dots.

**Q: Should an industrial strategy be sector-based?**

"Place" is important for Security of Supply and regional benefits are only possible if you focus on specific sectors within different areas.

**Q: What balance should the strategy have between big and small, demand side and supply side, flexible technologies, etc?**

BEIS will be assessing the UK's strengths, with knowledge of long-lasting liberalised energy markets and is likely to pick some clear winners. This will provide clarity but doesn't mean that other technologies should be at risk of under-development.

**Q: On the road to 2050 we have: 1 shot at infrastructure; 2 energy supply assets; 3 appliances; 4 price controls; 5 parliaments and (so far); 34 energy ministers. The toppling of a previous Government by the RHI illustrates the risks faced by ministers who must be brave in setting industrial and low-carbon strategies.**

It was acknowledged that the UK would be further behind if it wasn't for the CCC constantly reminding Government of the tasks yet to be achieved. However new bodies like the National Infrastructure Commission need time to get established and achieve long-term goals, without short-term political interference.

It was also pointed out that the UK is not a totalitarian state in that the Government doesn't do/achieve everything. There is a sense of responsibility needed in that everybody is and needs to be part of the change. Having said that, ERP and its colleagues were noted as being a room full of influential people who can and should try to reach policy makers.

**Final questions/considerations included:**

***Q: Norway is somewhat promoting itself as 'Europe's battery' - to what degree does interconnection impact upon industrial strategy, given that it's not UK-generated electricity?***

It was noted that interconnection is a useful part of the solution but isn't perfect. The Green Investment Bank are currently looking at some interconnection projects. This would be good particularly where low carbon sources can assist both ends e.g. Geothermal energy from Iceland.

***Q: What does industrial strategy mean for people in different parts of UK, and for education, and young people? Would young people be inspired to join the tidal lagoon sector, with just one project in the pipeline?***

Younger people today are generally open to messages about the environment and low carbon opportunities and can be therefore perhaps be more and more attracted to low-carbon industries.

***Q: With subsidies and increasing intolerance of affordability, will we see change such that only the cheapest technologies will get through?***

Price shocks occur anyway and are lessened by the UK's diversified portfolio of generation, so subsidies are actually in a way giving us insurance / protection. It's also important to remember that every energy technology has subsidies but some get more bad press!

***Q: On the theme of uncertainty - how can we have an industrial strategy when we (the energy community) are uncertain about so many things? Energy has many uncertainties, e.g. cost reductions, artificial intelligence, social trends, etc.?***

An industrial strategy can (and should!) provide some accountability and can help in times of uncertainty e.g. as a tool to be drawn on for guidance. It's at times of uncertainty that it is most important to take action.

***Q: And finally, is the Capacity Market working?***

This depends on what it was meant to do. Only one CCGT has been built in recent years, even though many have been planned.

And with little time, following a productive jam-packed post-plenary session; ERP Co-chair Martin Grant concluded by stating that although there is much work to be done, he feels positive about what the UK has and can continue to achieve. This has been shown in various examples, even in the midst of a recession. With a correct and comprehensive strategy in place, providing guidance, the UK's industry will continue to thrive.