Unite the Union Response to the House of Lords Economic Affairs Committee inquiry on UK energy supply and investment.

1 Introduction

1.1 This submission is made by Unite, the UK's largest trade union with over 1.4 million members across all sectors of the economy including manufacturing, financial services, transport, food and agriculture, construction, energy and utilities, information technology, service industries, health, local government and the not for profit sector. Unite also organises in the community, enabling those who are not in employment to be part of our union. This response is sent on behalf of our members in the energy sector who work across the industry for generating, distribution, maintenance and retail management companies for the supply of gas and electricity.

1.2 In this response Unite will make some general observations which we believe will be helpful in guiding the application of a sustainable and stable energy strategy, providing certainty of energy prices and security of supply.

2 Response

Is the Government's energy strategy delivering investment in an energy supply that is resilient, affordable and in line with achieving net zero emissions? If not, what should be done?
In answering this question, we invite authors of written submissions to address some or all the following supplementary questions:

1. *To what extent are the causes of recent rises in energy prices likely to be long-term features of global energy markets? Are the Government's policies for reducing the impact of higher energy prices on consumers sustainable and in line with long-term energy objectives? If not, what alternatives are there?*

2.1 Unite believe that as the world turns its back on fossil fuels the price of any existing supply will increase simply due to the economics of supply and demand. Unite is therefore very concerned about the governments drive to support the locking in of our economies dependence on natural gas. The Government see natural gas as a feedstock for the creation of new Steam Methyl Reformation facilities with carbon capture and storage. (Blue hydrogen) The government believe that this hydrogen could be used as a fuel to heat homes and industry and be a drop in replacement for natural gas. They also see hydrogen as a fuel that can be used to power transport including trains, shipping and even aviation.

2.2 The recent crisis has highlighted that such a reliance on natural gas is a dangerous gamble, given that it would make not just 40% of our electrical generation and 80% of our domestic heating dependant on reliable supplies, as is the case currently but would also expand our dependence by having it provide power to our transport networks. The current crisis in the price of gas, has caused fertilizer plants to stop production due to financial constraints – gas prices became too high for production to be profitable.

2.3 Unite agrees that hydrogen as a way to carry energy is needed to power transport and for some industrial processes but it does not agree that we should place all our eggs in the same basket.

2.4 Unite supports the expansion of renewables including tidal generation, wind, wave and solar as well as the need to reinforce this with a base load supply of nuclear generation. Unite can see that so many sustainability solutions will be dependent on a supply of near carbon free sustainable electricity. What has not been appreciated is the scale of the challenge to provide that amount of power.

2. What are the main challenges as regards energy supply and storage which public policy must address over the next decade?

2.5 In the governments "Energy Trends" statistics from December 2021, it highlighted that the UK had a 113% increase in the volume of electricity the UK had to import and a 49% decline in the volume we could afford to export between July and September 2021[1]. In the third quarter of 2021 total production was 25.1 million tonnes of oil equivalent, 8.8 per cent lower than in the third quarter of 2020. Wind, solar and hydro output fell due to less favourable weather conditions, for all renewable technologies. The Forties Pipeline System (FPS) was shut down for planned maintenance, as were several major gas terminals also due to maintenance.

2.6 Globally, the World Meteorological Organization (WMO) report to the United Natons Framework Convention on Climate Change(UNFCCC) at the 26th Conference of the Parties (COP 26) in Glasgow[2] has been warned that in the next 10 years there is a more than 40% chance that as a planet will see a year which is in excess of the UNFCCC's lower limit, of a mean 1.5°C increase above pre industrial levels, limit. Beyond 1.5°C scientists suggest that the planet could release unimaginable volumes of greenhouse gasses that have been locked away over millions of years, from which there is no chance of recovery. They suggest that if we do not drastically reduce our emissions and start to reduce the volumes already in the atmosphere in the next ten years, we will not stay below the 1.5°C average target. The last UNFCCC agreement at COP26 will reduced the trajectory to a 1.8°C, so more needs to be done.

2.7 And we need to retrofit all housing to accept a higher volume of electrical power to help charge electric vehicles at home, find a way to heat homes that is not dependent on natural gas or any other fossil fuel. Replace lost nuclear power generation capacity.[3]

2.8 The Government policy has supported in principle the creation of 16 Small Modular Reactor (SMR)[4] power stations but these will only be capable of producing between 50 to 300 MW unlike the 3,260 MW planned capacity of Hinkley Point C. These small reactors can be less than 5 meters in diameter and 10 meters in height. The plant that would be built to operate the reactor would be bigger, of course but the entire footprint of an SMR may be less than a tenth of the size of one of the Hinkley C reactor buildings and a fraction of the cost. The problem is that 16 SMR's will in no way create the volume of energy needed to replace that of fossil fuels.

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1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1043234/Energy_Trends_December_2021.pdf

2 https://www.youtube.com/watch?v=rIFjAZbx0PY

3 The aging fleet of nuclear power stations in the UK is reaching their end of generation lifespan, currently leaving just Hinkley Point C as the sole Nuclear power station by 2035

4 https://youtu.be/xxXlD4e-wTE

2.9 There were also plans for around a quarter of Britain's energy to be supplied from nuclear plants by 2025. As the older nuclear plants are retired, new ones would step in to replace them. In June 2011, these eight sites were:

- Bradwell, Essex
- Hartlepool
- Heysham, Lancashire
- Hinkley Point, Somerset
- Oldbury, South Gloucestershire
- Sellafield, Cumbria
- Sizewell, Suffolk
- and Wylfa, Anglesey

2.10 If this list only Hinkley Point is under construction and will start generating by 2025. Sizewell is still facing planning red tape but when built, it has plans to utilise its waste heat to help power a Direct Air Capture (DAC) facility to pull CO_2 from the atmosphere for sequestration or use in sustainable aviation fuel (SAF) generation, together with a water to green hydrogen facility.

3. *What are the main international and geopolitical factors and risks affecting the security and affordability of the UK's energy supply? How should the Government work with international partners on energy policy and respond to greater international competition for energy supply?*

2.11 Geopolitically every nation is facing the same challenge of obtaining more electrical supplies whilst reducing its dependence on fossil fuels. The UK is fortunate in that it has numerous locations both at sea and beneath the land where carbon dioxide can be stored. Other nations are therefore looking at ways to export their waste CO_2 and import energy if possible. But with every nation relying on its neighbours for energy the sums simply will not add up. Fortunately, the UK has an ample reserve of fissionable materials and natural resources to provide renewable power. Unfortunately government policy is to increase our dependence on natural gas as a feed stock for the creation of hydrogen. Recent events in the Ukraine have highlighted just how vulnerable these supplies can be and how the disrupted supply could cause fuel costs to spiral.

4. *What level of investment will be needed in the UK's energy supply to secure an orderly transition, particularly over the next decade? Is sufficient private capital being invested in reliable and affordable energy sources that are in line with climate objectives, including the commitment to net zero (for example, hydrogen and nuclear)?*

2.12 To secure an orderly transition there will need to be a considerable investment into staff retraining to help them move from an energy supply network based on carbon to one based on hydrogen, renewables and nuclear energy. Some skill sets will be transferable others will need additional training so there can be a '*Just Transition*'[5] where no one is left behind. Unite believe that the current level of investment is far too low and more needs to be done to attract the private investor.

2.13 Net Zero relies on there being enough carbon absorbed by nature and industrial processes, like DAC with a Carbon capture and storage (CCS) facility, to offset the emissions from every other area of the economy. Currently there has been a lot of investment into business as usual with only minimal or token investment into the carbon abatement processes and

[5] See the ILO definition of a Just Transition https://www.ilo.org/global/topics/green-jobs/WCMS_824102/lang--en/index.htm

sequestration. Unless this changes soon not only will we miss the 2050 target but also the global effort to keep global warming below 1.5°C.

2.14 Hydrogen make for an excellent way of transferring energy from one energetic process to extract it to its consumption and the provision of power in a vehicle or in an industrial heating process. Sadly the UK does not currently have any access to natural sources of hydrogen although the geology suggests deep enough down there might be some. If there are pockets of natural hydrogen they are probably that far down, that it would be uneconomic to start exploration. Unite strongly supports the creation of hydrogen from whatever source including electrolysis of water, ammonia and extraction from sewage and animal waste[6]

5. *What effect is financial services regulation, and the commitments made by financial services providers to achieve net zero in 2050, having on energy investment? Specifically, is regulation getting the right balance between encouraging investment in renewable energy and supporting the green transition, while also ensuring security of supply?*

2.15 Whilst there have been some not insignificant levels of investment the amounts are merely a drop in the ocean when assessed from a holistic perspective. Far more needs to be done to tap into the potential windfalls that could be realised by proper targeted investment.

6. *What should the Government do to incentivise and enable investment in, and financing of, reliable and affordable energy that is in line with its climate objectives, including net zero by 2050?*

2.16 The UK government needs to send out the right messages to target the investments and provide a consistent level of investment itself and not pull out of a project leaving investors high and dry only to restart a similar project elsewhere. The White Rose Project for example would have enabled all CO_2 from the flue gasses of the Drax Biomass furnaces and surrounding industrial processes to deposit their waste CO_2 into a CCS network. The government then pulled out only to try and create a new CCS pipeline some years later.

2.17 The government needs both a carrot and stick to encourage investment with a higher carbon price, covering all emission sources, including the transport of raw materials components and the finish product, as well as the induced footprints of suppliers and staff commuting. Then tax breaks, and offsets of their carbon footprint if they invest in transitioning the economy. In the long term it is they that could benefit from a stable energy supply whilst the rest of the world struggles to keep their lights on as we approach the Paris UNFCCC COP 11, 1.5°C target.

7. *What role will oil and gas play in the UK's energy mix as it transitions to net zero? How should we ensure that these sectors receive sufficient investment to guarantee supply, while not slowing the move to renewable energy sources? What level of investment will be needed?*

2.18 Unite members in the oil and gas industry believe that there is a place for Blue Hydrogen and therefore a place for Natural gas as a feed stock material, as the economy will require to great a level of investment to meet our Net Zero by 2050 target otherwise there will need to be a massive scaling up investment into more electrical generation. Equally they hope for a '*Just Transition*'[7] from the offshore rigs into things like offshore generation of hydrogen from deep sea, floating wind turbines from the wind industry and from the sequestration end of the CCS pipelines.

[6] https://fuelcellsworks.com/news/new-tech-turns-manure-into-hydrogen/

[7] See the earlier link to the ILO definition.

2.19 It is not physically possible to switch overnight from an economy based on fossil fuels to one based on electricity and hydrogen. Time will be required to plan invest and build the infrastructure. Currently, it would appear that the Government's deliberations focus on the expansion of natural gas use to replace all fossil fuels in every economic sphere, either as the gas, as an interim measure, as Blue hydrogen or electricity. Unite believe this is a dangerous line to follow and believe a transformation to electrical and hydrogen power.

2.20 Sadly there have not been any studies that have properly assessed the level of investment needed in this area that Unite is aware of.

8. What incentives could the Government provide to households and businesses to reduce demand for energy or to improve energy efficiency?

2.21 Higher energy prices are already making households think about ways to economise. Sadly, however, the price rises have forced families into fuel poverty. Schemes to insulate social housing needs to be expanded to cover all hard to heat properties, as should be better feed in -tariffs for return domestic solar or wind generation. These tarrifs should be earmarked for homes not fields of solar panels, so the two are not in competition. Heat Pumps need to be made more affordable and workers currently fitting smart meters should be offered the training to transition and help convert those 80% of homes from gas central heating to something that can be over 200% efficient in converting electricity to heating and cooling.

9. What lessons are there for the UK from comparable countries in terms of securing investment in reliable and affordable energy?

2.22 The UK has the opportunity to showcase what can be done and become a world leader in these areas. Lessons of the past where the UK has invented something only for other nations to benefit should be used as a cautionary tale.

3 Conclusion

3.1 Unite believes far more needs to be done to transform our economy especially in the field of provision for worker training and engagement. Unite believes that lessons learned at work can be taken home and applied to reduce our dependence on fossil fuels. Unite therefore calls for a legally recognised role as an Environment rep with all the facility time available to conduct audits and carbon footprints.

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