Written evidence submitted by the Nuclear Futures Institute, Bangor University

Executive Summary

A summary of the Bangor University's Nuclear Futures Institute answers to the questions are as follows.

Question 1 The Nuclear Futures Institute supports the development of nuclear power in the UK in general and in Wales in particular. Nuclear power can play a vitally important role in helping the UK achieve its goal of net zero by 2050 and in ensuring the UK's energy security.

Question 2 The main challenges to delivering the UK Government's commitment to bring at least one large-scale nuclear project to final investment decision by the end of this Parliament are: financing; the availability of an organisation to buy a nuclear power station; and become a RAB "nuclear company"; a guarantee that there is a market for the electricity produced by the nuclear power station; the availability of an organisation to be the nuclear site licensee for the project, and the availability of suitable sites.

Question 3 The financing model is very important to the future of nuclear energy in the UK. The RAB model, as set out in the Nuclear Energy Finance Act 2022, provides a robust system to enable organisations that are planning to build and operate nuclear power stations to receive regulated income during all phases of a power stations lifetime. This financing model is eminently sensible but there will need to be effective coordination between BEIS, the economic regulator GEMA and the nuclear safety, security, safeguards and environmental regulators.

Question 4 The Government should continue to support the R&D programmes that will be needed to support Small Modular Reactor (SMR) and Advanced Modular Reactor (AMR) designs including new facilities to provide the engineering substantiation of reactor designs such as the proposed National Thermal Hydraulics Facility, and the construction of a prototype High Temperature Gas cooled Reactor (HTGR).

Question 5 In principle there should be no cost to the taxpayer for the development of the Wylfa Newydd site for nuclear power generation as the nuclear industry will be required to fund the project. The UK Government could support "pump-priming" of the training and development of the people that will be needed to deliver the project. This could include supporting technical colleges to develop and deliver the craft apprenticeships that will be needed in a range of technical disciplines. The funding for this could usefully come from the Government's £120m Future Nuclear Enabling Fund.

Question 6 From the analysis of the economic benefits that was carried out for the Hitachi-GE Advanced Boiling Water Reactor (ABWR) proposal for Wylfa and analysis that was done for the Hinkley Point C and Sizewell C projects, the economic benefits to North Wales for any new large nuclear power station at Wylfa will be considerable.

Overview of the Nuclear Futures Institute at Bangor University and reasons for responding to the call for Evidence

The Nuclear Futures Institute (NFI) at Bangor University is the largest cluster of nuclear academics and researchers in Wales. We are submitting evidence because of our interests in supporting nuclear developments in the UK and especially in North Wales.

NFI has a growing reputation as a world-leading group for research in nuclear and nuclear related technologies to support the UK nuclear industry and in particular developments relevant to the local nuclear licensed sites at Trawfynydd and Wylfa. It is demonstrating capability in support of:

1. The National Thermal Hydraulics Facility slated for North Wales in the Nuclear Sector Deal via its new research facilities - the Thermal Hydraulics Open-access Research (THOR) and the Bangor University Lead Loop for Erosion Testing (BULLET).
2. Medical isotope production in North Wales via its Nuclear Isotopes for Medicine at Bangor University (NIMBUS) laboratory and via the analysis for the Welsh Government on the issues surrounding the regulation of a medical isotope production reactor ARTHUR (Advanced Radioisotope Technology Health Utility Reactor) near the Trawsfynydd site and the analysis of the global supply of and demand for medical radionuclides.
3. New build reactors including large GW reactors, SMRs and AMRs via two new research facilities – the Materials Energy Research Laboratory In Nuclear (MERLIN) and the Bangor University Fuel Fabrication Facility (BUFFF) (funded as part of the National Nuclear Users Facility programme), and projects looking into doing more with nuclear via e.g. co-generation of hydrogen, jet fuel, use of waste heat in agriculture and aquaculture and use of waste Welsh slate for heat stores and as geopolymer hosts for radioactive waste or repository backfill.
4. Nuclear Power in Space supporting National Nuclear Laboratory (NNL), Rolls Royce (RR) and the UK Space Agency via its Nuclear Policy and Regulation and nuclear fuels research groups.
5. Low carbon energy centre of excellence facilities planned for the Menai-Science Park and Bangor city campus funded partly via the North Wales Growth Deal via its work in all of bullets 1-3 above.

Response to the Welsh Affairs Committee Questions

Question 1: What role can, or should, nuclear power play in achieving net zero and UK energy security?

Nuclear Power can and should pay an important part in the UK's stated aim of energy security and delivering net zero by 2050 and beyond. Nuclear power based on fission will be a necessity for most of this century because it is a proven low carbon technology. Nuclear power based on fusion may make a modest contribution in the run up to 2050, but it is likely to play an increasing role in the provision of low carbon energy in the latter part of this century as the technology matures and possibly will be the main source of low carbon energy supply in the following centuries.

For the UK to achieve its goal of a net zero economy there will clearly need to be a concerted effort to decarbonise domestic, transport and industrial energy use. It will not be easy to replace all fossil fuels on the 2050 timescale and every effort should be made to minimise the need for such fuels. The delivery of “net zero” should not rely on the assumption that technologies such as carbon capture and storage will be available and hence the continued use of fossil fuels. Carbon Capture and Storage (CCS) has not been proven as a viable technology on the industrial scale that would be needed. Low carbon energies such as wind and solar can play a significant role but without large scale energy storage they alone will not be able to meet the UK’s energy needs. It is unlikely that large scale energy storage can be developed on time to overcome the intermittent nature of wind and solar energy. For example, a lithium-ion battery will store about 0.2kWhrs of energy per kg of lithium**.** To store sufficient energy to replace the energy provided by fossil fuels in an average day (12.9GW) in the UK would require about 1.6 billion kg of lithium-ion batteries. This compares with 42Kg of ^{235}U that would be used in generating the same amount of electricity in LWR type nuclear power stations. Given the uncertainty of CCS and energy storage it would be unwise to gamble with our future by hoping that these unproven technologies will come good on the required timescale. Therefore, the strategy to deliver net zero by 2050 must be based on the assumption that these technologies will not be available.

Given the limitations of wind and solar energies, the use of nuclear energy is the only proven low carbon technology that is available to replace the use of fossil fuels**.** Nuclear power is a proven, safe and reliable technology. Its advantages stem from its energy density where nuclear power is in a league of its own when compared to other energy forms. For example, a 1000MW nuclear power station would typically occupy about 0.5 sq. miles whereas to generate 1000MW of electricity from a modern offshore wind farm would need around 80 sq. miles**,** an onshore wind would need around 100 sq. miles and solar would require around 55 sq. miles**.** Therefore, in terms of land utilisation nuclear power is over 100 times better than solar and nearly 200 times better than wind.

Another factor that needs to be considered is the load factor i.e. the percentage of time a facility is generating compared to its installed capacity. In the case of nuclear power stations, the load factor is around 90-95%, whereas for onshore wind the load factor is around 26%, for offshore wind the load factor is higher at around 40% and for solar the load factor is poor around 10%. These low load factors for wind and solar reflect the intermittency of the wind and sunshine in the UK. This intermittency means that other forms of energy are needed to plug the gap. For example, over the past year combined cycle gas turbines CCGT provided 37.4% of the UK’s electricity needs, nuclear provided 16%, wind 24.9% and solar 4%. Currently the CCTG installed capacity is around 32 GW, nuclear 6.6GW, wind is 27GW and solar is 13 GW making nuclear by far the most efficient source of electricity production. Given that over a third of the UK’s electricity needs were provided by fossil fuels, if the UK is to achieve a low carbon economy, there will need to be a substantial increase in the use of low-carbon nuclear power, not only to support electricity generation, but also to replace process heat in a variety of applications that is currently being delivered by fossil fuels.

From the above it can be seen that investing in nuclear power to provide the safe and reliable electricity that the UK needs for its energy security is a "no brainer". Not only will nuclear power provide a realistic and reliable means of meeting the electricity requirements of the UK, it also has the potential to provide electricity and high temperature heat for hydrogen production to replace fossil fuels in industrial applications such as cement manufacture, steel making, glass making, ceramics, and synthetic fuels for marine propulsion and aviation. The advanced modular reactors such as the High Temperature Gas Cooled reactors (HTGR) also have the potential to provide direct heat to replace high temperature heat that is currently provided by fossil fuels in a number of industries**.** Using an HTGR to enable a Heat Park where energy intensive industries are located proximal to the reactor is an obvious way forward. A strong contender for the first site for such a heat park could be Port Talbot in South Wales. However, such a development would need a nuclear site licence and a nuclear site licensee. Also, because of its high energy density nuclear power has the potential to be used for civil marine propulsion to replace fossil fuels that power virtually all civil marine transport including container ships and cruise liners.

From a longer-term security of supply perspective advanced fast neutron nuclear reactors that can breed plutonium such as the sodium cooled or lead cooled fast reactors, could utilise the UK's existing stockpile of plutonium and uranium to provide somewhere between 350 and 600 years of electricity for the UK. This would however require the UK to reverse its recent decision to close down the Thermal Oxide Reprocessing Plant (THORP) at Sellafield and with it the option of the UK adopting a closed fuel cycle. The UK stockpile of plutonium and uranium is an asset and to not use it would deny our children, grandchildren and their grandchildren valuable energy source.

Given the limitations of the low carbon wind and solar technologies and the potential of nuclear power to support hydrogen production and other industrial applications, the current stated goal of having 24GW of nuclear power by 2050 (25% of the predicted UK power needs) could be on the low side. The 24 GW of nuclear power is almost double the nuclear installed capacity the UK has achieved in the past and it will present a considerable challenge to deliver it on time to make an impact on the 2050 net zero target. One of the challenges is the availability of sites for the nuclear power stations. The use of land adjacent to the existing nuclear power stations is an obvious and useful start as these have grid connections and communities that are used to nuclear power stations. However, these are unlikely to be enough for 24 GW given that the site at Dungeness will no longer be available, and the sites at Hinkley Point and Sizewell are already committed to providing 3.2GW and 3.2GW+1GW respectively. This means that additional nuclear licensed sites will be needed for an additional 16.7GW of nuclear capacity i.e. 11 EPRs or 17 Westinghouse AP 1000s or 38 Rolls-Royce (RR) SMRs or a combination of each. It is unlikely the land adjacent to suitable existing nuclear licensed sites would be sufficient to house this number of reactors and more new sites will be needed. The large reactors would suit coastal locations whilst the SMRs could be located on suitable inland lakes and rivers. The latter could make use of grid connections previously used by large coal fired power stations.

In the context of Wales, the Wylfa Newydd site will be very important given that it has the potential for hosting up to 4GW of nuclear power. It would be possible to use the land adjacent to the site at Trawsfynydd to house a RR 450MW SMR, or a couple of GE 300MW reactors given the heat sink capacity of the Trawsfynydd lake. Neither of these developments would prejudice the construction of a nuclear medical isotope production reactor near the Trawsfynydd lake. Also, given the steel making interests in South Wales, there could be benefit from siting a number of nuclear reactors on the South Wales coast to produce electricity and process heat for hydrogen production and steel making as discussed above. This of course would require new nuclear site licences and licensees.

The delivery of 24 GW of nuclear power clearly a huge opportunity for the UK engineering supply chain and for high quality jobs in manufacturing and construction in the UK, unlike solar or wind energies where most of the manufacturing is carried out in the supplier counties. It would also play an important part of the Government's levelling up agenda by distributing high quality jobs throughout England and Wales.

Question 2 What are the main challenges to delivering the UK Government's commitment to bring at least one large-scale nuclear project to final investment decision by the end of this Parliament?

The main challenge is clearly financing, i.e. getting someone to put up the money to fund the construction and associated regulatory processes. However, there are other associated challenges. The first of which is the availability of someone to buy a nuclear power plant with a proven design and a site for its construction and installation. The second is a guarantee that someone will buy the electricity at a price to make the project viable. The third challenge is the availability of an organisation to operate the nuclear power plant i.e. a nuclear site licensee. The fourth challenge is the availability of a site.

The first challenge is discussed in the response to Question 3 on the Regulated Asset Base (RAB) funding model.

The second challenge is really important. There are clearly a number of nuclear power plant designs that are suitable for deployment from recognised nuclear power reactor vendors. However, who will be the customer for such designs is not clear. The relationship between the owner (investors) and the operator also needs to be clarified as the utility that will be producing and selling the electricity may not have the capital to fund a nuclear project and hence will have to rely on external investors to fund the project. The proposed nuclear RAB model should help here.

The third challenge is also vitally important because under UK law no one can construct or operate a nuclear power plant without a nuclear site licence. A nuclear site licence can only be granted to a corporate body that is capable of being the "controlling mind" and an "intelligent customer". These are exacting requirements, and they provide the UK with one of the three main "locks" that enable the safe use of nuclear energy. Unfortunately, at present the number of nuclear licensees with experience of building and operating nuclear powerplants in the UK is limited to the two EDF related companies EDF Energy Nuclear Generation Ltd that operate the AGR stations and Sizewell B, and NNB Generation (HPC) Limited that is responsible for the construction of Hinkley Point C. A third EDF related company NNB Generation Company (SZC) Ltd is currently applying for a nuclear site licence for the Sizewell C project. Magnox Limited (formerly Magnox Electric that operated the fleet of Magnox nuclear power plants) no longer has the expertise to undertake a major new nuclear power plant project and would need extensive organisational change and recruitment to be able to qualify as a nuclear power plant licensee. It would also take time to make these changes somewhere between 2 and 4 years. In the case of the Hitachi GE ABWR nuclear power plants proposed for the Wylfa Newydd project in Anglesey a new nuclear licence applicant (Horizon Nuclear Power) was created but this has now been disbanded following the withdrawal of Hitachi from the project.

There are currently no new organisations in the UK that would be capable of applying for a nuclear site licence and, as it takes several years to develop a nuclear site licensee organisation, only EDF based companies would be capable of providing a nuclear licensee to support the Government's aim of bringing at least one large-scale nuclear project to final investment decision by the end of this Parliament. There are discussions taking place surrounding the development of a nuclear site licensee for the RR SMRs.

The fourth challenge is the availability of sites. In the case of the Wylfa Newydd site ownership currently resides with Horizon Nuclear Power. Although Horizon does not exist as a practical going concern, the rights to the site still have value. There may be the potential for a bidding war for the remains of Horizon which could drive up the cost of the site and any new development.

The creation of Great British Nuclear should help in better understanding these challenges and developing appropriate solutions.

Question 3 How important is the finance model to ensuring a successful nuclear project, and is the regulated asset base (RAB) model the best one to deliver this?

The financing model is key to the successful delivery of nuclear power. It is clear that since the demise of the Central Electricity Generating Board (CEGB), the financing of new nuclear power plants has been left to the electricity generation utilities who have had to find funding on the open market. This has inhibited the construction of new nuclear power plants for decades because of the high up front construction costs and the length of time before income can be generated. The up-front financing costs coupled with borrowing interest rates that reflect project risk has resulted in financing becoming the largest proportion of the overall cost of nuclear power plants. The high cost of financing and hence the high cost of nuclear power stations has made nuclear generated electricity unattractive to the electricity generation utilities. The importance of nuclear generation to the delivery of net zero by 2050 and UK energy security reinforces the need to confront this issue.

The contract for difference (CfD) model that was used for the Hinkley Point C project was an attempt to address the financing issue in order to enable the restart of the much-needed nuclear power programme in the UK. The CfD financing model for the Hinkley Point C project is now regarded as not being very successful. This is not surprising given that the quoted construction cost for the two reactors at Hinkley Point C is around £26bn and yet the CfD model has resulted in a 35-year deal with EDF which guarantees a price of £92.5 per MWhr adjusted with inflation, which by 2021 had risen to £106/MWhr (it is suggested that the strike price could be reduced to £89.5/MWhr if the Sizewell C project goes ahead). Assuming that the reactors operate at a 95% load factor over the 35 years, the CfD deal will result in EDF receiving in the region of £100bn during the first 35 years of operation. Of the

£92/MWhr, 38% is to cover construction risk premium, 26% is to cover other financing costs, 19.5 % is to cover operation and maintenance cost and 11% is to cover capital cost. Under this model, it is clear that around 67% of the price of Hinkley Point C is associated with financing.

Concerns raised by industry stakeholders suggested that the CfD model used for Hinkley Point C was not fit for purpose**.** Concerns about the CfD model were reinforced by the National Audit Office (NAO) in its report on Hinkley Point C**.** Annex 4 of the NAO Report gives information on a number of alternative financing options which indicated that a 50/50 PPP financing approach would give an equivalent strike price of between £48 - £59 at 2016 prices, a turnkey approach would give a strike price of between £12 - £45 and a Hybrid RAB approach gave a strike price of around £51 - £58.

For new nuclear projects the Government proposes to use the RAB approach. The application of the RAB for new nuclear power stations is attractive and is expected to provide electricity at nearly half the price of that for Hinkley Point C at around £51/MWhr i.e. a saving of about £45bn in the cost of electricity over the same 35 year period. It is worth noting that at the end of 2020, prior to the Russian invasion of Ukraine, gas generated electricity in the UK was about £55/MWhr which is comparable to the "RAB" cost of electricity generated from nuclear power. However, by the end of 2021 the cost of CCGT generated electricity had risen to £245/MWhr, which suggests that not only would nuclear energy be competitive to CCGT generation, it would also protect the UK from gas price volatility in the period leading up to 2050, and provide protection from geopolitical pressures in the future.

A major attraction of the RAB model is the ability of the utility to raise revenue during the construction of the plant by charging consumers a small amount on their electricity bill. This is similar to the way the CEGB used to cover the costs of replacement power stations. Allowing nuclear site licensees to recover costs during the construction and commissioning phases of a nuclear power station makes a lot of sense. Structuring payments should lower the cost of financing by eliminating compound interest on the capital investment costs and de-risking the investment which should make the project more appealing to a wider range of investors.

The RAB approach as set out in the Nuclear Energy Finance Act 2022 provides a comprehensive, if complicated, approach to financing new nuclear power projects. The adaption of the electricity generation licence and the designation of nuclear companies provides the necessary control over financing and the ability to charge electricity consumers during all stages of the nuclear power plant project lifetime. However, the system puts considerable responsibility of the Government (BEIS) to administer the "economic" licensing process, including the designation of "nuclear companies". Under the Nuclear Energy Financing Act, the BEIS SoS is responsible for designating an organisation that is proposing a nuclear energy generation project as a "nuclear company". Designating an organisation as a nuclear company requires the SoS to have considerable confidence in the viability of the proposed nuclear project and the ability of the company to become a nuclear site licensee and to deliver the project. This will require BEIS not only to liaise closely with the Office for Nuclear Regulation (ONR) and the environmental regulators but also be an "intelligent customer" to be able to assess the economic and technical viability of proposed nuclear project.

Once designated the nuclear company can receive regulated revenue relating to the design, construction, commissioning and operation of a nuclear project. However, there is a "chicken and egg" situation to be managed at the design end of the designation process. This is because the SoS needs to be assured that the proposed design is viable and likely to gain regulatory approval which indicates that the design must be sufficiently complete to give the regulators confidence in the safety case. But this means a good deal of the design, engineering substantiation and safety case work will need to be done before the designation of the "nuclear company" and hence before it can receive any regulated revenue.

Whilst the nuclear RAB approach is welcome there are potential issues with the overlap between "economic" licensing carried out by the BEIS SoS and nuclear safety licensing and environmental permitting regulated by ONR and the appropriate environmental regulator. These will need to be managed carefully as there is a strong relationship between nuclear safety and security and the financial strength of the nuclear site licensee. Also, there will need to be close cooperation between BEIS and ONR in the event of a "nuclear company" going into administration given that under UK law (Nuclear Installations Act 1965 as amended) a nuclear site licence cannot be transferred. Hence arrangements will need to be put in place to ensure a safe transition from the nuclear site licensee under administration to a new nuclear site licensee that can continue the operation of the plant.

There will also need to be close cooperation between the economic regulator, the Gas and Electricity Market Authority (GEMA) and ONR to ensure that nuclear safety, nuclear security and non-proliferation safeguards responsibilities of the "nuclear company" are maintained at all times. This is especially the case during the operation phase where GEMA is expected to carry out periodic reviews (every 5 years) of the nuclear company's allowed revenue. Periodic safety reviews of nuclear safety are carried out every 10 years and given the potential for cost implications of any required actions under the nuclear site licensing regime, ONR and GEMA should establish a Memorandum of Understanding to ensure effective coordination of regulatory decision making.

For the effective and efficient application of the RAB model to nuclear power stations we suggest that an "economic regulatory schedule" should be set up at the beginning of the nuclear project. The economic regulatory schedule should set out the required project timeline showing the dates for main decision points and the required applicant information submission dates, taking account of assessment time to allow each of the decisions to be taken on time. It is important that this economic regulatory schedule is aligned with the project regulatory schedule that is usually established for nuclear safety, nuclear security, safeguards and environmental protection decision making.

Question 4 What practical steps can the UK Government take to support the nuclear industry in developing a range of nuclear technologies, including small modular reactors?

The development of the nuclear technologies that will be needed to support the delivery of net zero by 2050 will depend upon a number of factors. Clearly, the market for nuclear generated electricity (i.e. base load generation and load-following requirements) will have an influence of the types of reactors that will be needed. The projected electricity market in the UK with a large installed capacity of wind and solar energy would suggest that a mixture of large and small NPPs will be required. Hence the Government can continue to support the R&D programmes that will be needed to support SMR and AMR reactor designs including new facilities to provide the engineering substantiation of reactor designs such as the proposed National Thermal Hydraulics Facility.

The hydrogen market is likely to increase as new technologies will be developed to replace fossil fuels and the Government should continue to support R&D programmes for the development of high temperature hydrogen production from advanced HTGR nuclear reactors. This support should range from university research projects to full scale testing facilities in conjunction with industry. The Government could also usefully support R&D into the use of high temperature heat (>900^{o}C) from nuclear reactors to provide heat for process industries such as steel and glass making, and cement production. These R&D programmes could usefully include the safety and security issues associated with the proximity of nuclear reactors to industrial processes, together with the regulatory challenges.

A common theme in the application of nuclear energy to support process industries and hydrogen production is the availability of high temperature heat. The Government is currently supporting feasibility studies into HTGRs but to make a real impact the Government could usefully fund the design, construction and operation of a prototype HTGR that could be used to demonstrate the feasibility of using such reactors for both electricity production and industrial heat applications. This would be challenging as it would need a site, a licensee and a reactor vendor but the rewards would be worth the effort. The prospect of developing a nuclear licensed site for an HTGR in South Wales close to the steel industry has its attractions and would create a new high-tech industry for this part of the country.

Question 5 What would the likely cost be to the taxpayer of the UK Government supporting the development of a new nuclear power station at Wylfa?

In principle there should be no cost to the taxpayer for the development of the Wylfa Newydd site for nuclear power generation as the nuclear industry will be required to fund the project. In the long term the Government will benefit from tax generated by the construction, commissioning and operation of the power station. In the short term the UK Government could support “pump-priming” of the training and development of the people that will be needed to deliver the project. This could include supporting technical colleges to develop and deliver the craft apprenticeships that will be needed in a range of technical disciplines. The Government has set up a £120m Future Nuclear Enabling Fund to enable the development of potential nuclear projects ahead of any formal process to select and deliver new nuclear power stations.

Question 6 What is the potential economic impact for Wales of a new nuclear power station at Wylfa?

Clearly the economic impact of a new nuclear power station comprising 3 to 4 large nuclear reactors would be significant both in terms of business rates generated and the provision of high-quality jobs during all phases of the project. This view is supported by the Welsh

Secretary Simon Hart who is quoted as saying that a new development at Wylfa could help in "fulfilling our net zero ambitions and having well-paid jobs in Wales" he went on to say that "This could be one of the most transformative things on the North Wales economy that any of us will have ever seen". It is difficult to put precise figures on the economic impact for North Wales, but it will be significant. Owen Hughes in his daily post article in 2015 suggested that at its peak the Wylfa Newydd project (based on the Hitachi 2 ABWR proposal) would employ 6,800 people and have an operational workforce of around 875. He also suggested that some £5bn would be spent on businesses in Wales with the gross value added (GVA) contribution to the Welsh economy put at £2.4bn at 2013 prices. He reported that two thirds of this would be in the construction and commissioning phase and when the plant was operational it would contribute nearly £87m in GVA each year. It was reported that between 2013 and 2033, planning, building new reactors at Wylfa, operation and decommissioning of the Wylfa and Trawsfynydd could provide a total GVA to the Welsh economy of £5.7bn or 0.5% of the total GVA in Wales over the 20-year period. Clearly, with a new, larger project suggested for Wylfa Newydd the economic impact could be expected to exceed the projections for the Hitachi-GE Wylfa Newydd project.

More recent figures published for the Hinkley Point C and Sizewell C Projects which are comparable with the potential nuclear power plants on the Wylfa Newydd site show the contribution to the regional economy as being between £3.2-£4bn, jobs created on site during construction is about 25,000 of which 36% are local to the site. Some 900 permanent jobs will be created during the operation phase and the estimated annual contribution to the local area is £40m. These figures are consistent with the figures quoted above for the Hitachi-GE Wylfa Newydd project which suggests that the economic impact on a new nuclear power station at Wylfa would be, in the words of Minister Hart be "transformative".

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