



New Nuclear Development at Trawsfynydd: Update to 2023 Business Proposition

May 2024

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Executive summary

Cwmni Eginio was established in 2021 by Welsh Government (WG) to deliver a Site Development Programme for Trawsfynydd, focused on socio-economic growth. Cwmni Eginio identified the development of Small Modular Reactors (SMR) as the most credible near-medium term option to deliver this objective and presented a Business Proposition (Proposition) to WG and Department for Energy Security & Net Zero (DESNZ) in April 2023¹. The Proposition set out the merits of developing SMR at Trawsfynydd as one of the projects for approval in the next Parliament.

Since presenting the Proposition there have been a number of major developments in UK nuclear policy impacting Cwmni Eginio and requiring the company to review and update its strategic plan. In addition, it became apparent that UK Government via Great British Nuclear (GBN), intend to focus initially on sites designated for development of new nuclear within the existing National Policy Statement (EN-6) which does not include Trawsfynydd.

The Company carried out a review of the strategic options with support from EY that highlighted three key themes:

1. Safeguarding the option to develop Trawsfynydd as one of the initial SMR projects in the UK, recognising no formal decision has been taken regarding siting,
2. Maximising the benefits for Wales of nuclear development in the UK and internationally, and
3. Maintaining the option of deploying advanced nuclear technology at Trawsfynydd in the longer term.

Given the UK Government's announcement of the purchase of the Wylfa site from Horizon², the primary focus for Cwmni Eginio will be theme 2 – maximising the benefits of nuclear development for Wales that includes supporting development of new nuclear at Wylfa – and will re-focus its activities to undertake one of two roles in support of nuclear development in Wales:

1. Be absorbed into GBN Devco and focus on delivery of social value (Advocate role); or
2. Remain as an independent partner to GBN to facilitate successful delivery of the project and realise social value to Wales (Development Partner).

Cwmni Eginio is seeking confirmation from the sponsor of the role it wishes Cwmni Eginio to undertake as soon as possible so Cwmni Eginio can put in place the necessary plans to undertake that role.

Introduction

Cwmni Eginio presented its Business Proposition in April 2023 to develop a Small Modular Reactor (SMR) project at the site of the former power station in Trawsfynydd and be one of the projects to achieve a Final Investment Decision (FID) in the next Parliament (i.e. by 2030).³ The Proposition would deliver Cwmni Eginio's core purpose of enabling socio-economic growth locally, regionally and nationally, as well as the urgent need for low carbon electricity to meet growing demand, achieve net zero emissions of carbon, and increase energy security.

Based on work carried out during 2022/3, Cwmni Eginio concluded that SMR deployment at Trawsfynydd offers a realistic opportunity to deliver socio-economic benefits in South Gwynedd and beyond, increase UK energy security and reduce carbon emissions. Furthermore, we developed the programme of work required to reach FID. Cwmni Eginio presented the Proposition to sponsors for consideration to progress to the next phase of development.

The Proposition identified the need for sponsorship by the UK Government for SMR to be developed at Trawsfynydd and to provide access to development funding. In particular, to be ready for approval in the next Parliament, Cwmni Eginio identified the need to achieve the following **by the end of 2023**:

- a) confirmation that DESNZ/GBN wished to proceed with development of Trawsfynydd as one of the projects planned for approval in the next Parliament;
- b) confirmation that DESNZ/GBN would act as the sponsor for the project, either on its own or in partnership with WG;
- c) confirmation of the technology for Trawsfynydd; and
- d) funding to meet the development cost to FID, estimated to be £250m.

Pending resolution of the above, Cwmni Eginio continued during 2023/4 to assess key aspects of site suitability and feasibility, definition of the development programme, potential roles of Cwmni Eginio, and a social value strategy to ensure that Cwmni Eginio was in the best position to start development at the earliest opportunity.

Since presenting the Proposition, there have been a number of important developments at UK level impacting the UK nuclear programme, including the formal launch of Great British Nuclear (GBN)⁴, the commencement of the SMR technology selection

process⁵, publication of the ‘Civil Nuclear: Roadmap to 2050 policy paper’⁶, consultations on siting⁷ and alternative routes to market⁸ and the announcement of an agreement to purchase the Wylfa and Oldbury nuclear sites from Hitachi⁹.

These developments are very positive for nuclear development as a whole but did not fully resolve the four needs a) to d) above in a way to enable Cwmni Egino to progress to the next phase of development. Moreover, GBN stated its intention to focus on sites that offer the greatest scale of development and that are within the existing National Policy Statement (NPS), EN-6, which does not include Trawsfynydd.

Whilst Trawsfynydd is not favoured by GBN for development at this stage, they recognise that “it is an interesting site for future nuclear development”. They have also noted “the good progress made by Cwmni Egino to understand the potential of the Trawsfynydd site for nuclear development and the considerable expertise the team brings to the industry” and have publicly stated that they “will continue to work alongside them [Cwmni Egino]”.¹⁰

Cwmni Egino carried out a strategic review in Q4 2023 and concluded that the prospects for development at Trawsfynydd in the near term (i.e. during the 2020s) are limited. The site will not be developed by GBN as one of the initial projects and, given that the UK Government is consulting on alternative routes to market, it is unlikely that private developers will have the certainty they need at this stage to progress any project. It is, however, important to safeguard the option for deployment in the longer term.

The purpose of this document is to update the Proposition presented in 2023 to reflect the further work that has been undertaken by Cwmni Egino and developments at UK level. It provides a formal record of the status of the work undertaken by Cwmni Egino since 2021 that can be used by developers interested in exploring new nuclear development at the site.

Section 1 provides the background and latest policy context and outlines Cwmni Egino’s vision and the opportunity at Trawsfynydd. Section 2 updates the findings from Cwmni Egino’s first phase of development, as presented in the Proposition. These relate to key areas including social value opportunities, site suitability and feasibility, target operating model, and how the programme can be delivered and funded. We have included at the beginning of each sub-section topic a summary of the relevant conclusion from the original Proposition document. Information contained in the Appendices provide further supporting information. This document is based on information available as at the end of April 2024.

Section 1: The Opportunity

Background

In August 2020, WG approved £2.5m for the Trawsfynydd Site Development Programme (TSDP) in support of the Snowdonia Enterprise Zone (SEZ) strategy, and the creation of Cwmni Eginio. The purpose of the TSDP is to:

Create sustainable job opportunities and promote economic and social regeneration by working collaboratively to drive future development at the former nuclear power station site in Trawsfynydd.

Cwmni Eginio was established as a standalone company by WG in 2021 to deliver the TSDP.

Vision for Cwmni Eginio

The vision established in 2022 is:

Trawsfynydd will be the site of the first SMR under construction in the UK; North Wales will be recognised as a centre of excellence for low carbon energy; and people's quality of life will be improved.

The work we have carried out since has focused on demonstrating how this vision can be realised, recognising that the decision to proceed is not within Cwmni Eginio's control.

Policy Context

The Prime Minister's Ten Point Plan for a Green Industrial Revolution¹¹ policy paper published in November 2020, the Energy White Paper¹² published in December 2020, and the UK Government's Net Zero Strategy: Build Back Greener¹³ published in October 2021 highlight the critical role of new nuclear in the UK's future energy portfolio. This was reinforced in the British Energy Security Strategy¹⁴ published by the UK Government on 7th April 2022 which set a target for new nuclear of 24 Gigawatts (GW) by 2050 to help deliver energy security and net zero. The British Energy Security Strategy was welcomed by WG in a written statement by the Minister for Climate Change on 8th April 2022.¹⁵

The British Energy Security Strategy stated an intention to establish Great British Nuclear (GBN) to support the development of new nuclear and help ensure a pipeline of projects⁶. Its launch was confirmed in the Spring Budget 2023 announcement and Powering Up Britain: Energy Security Plan¹⁶ published on 30th March 2023.

The Energy Act 2023¹⁷ provides the legal foundation to establish GBN as an arms-length body. GBN has now been established and its first activity is to run a selection process to identify the SMR technologies best suited for the UK nuclear programme. Six companies were selected following market engagement with technology suppliers.¹⁸ The formal selection process commenced in summer 2023 with the aim of awarding development contracts to a subset of those companies.

DESNZ published three papers in January 2024 to enable delivery of its target of 24GW of nuclear by 2050:

1. 'Civil Nuclear: Roadmap to 2050'¹⁹ setting out the steps the UK Government is taking to deliver the 24 GW target for new nuclear;
2. A consultation on a new approach to siting (precursor to a new NPS for Nuclear – EN-7)²⁰; and
3. A consultation on alternative routes to market²¹.

Cwmni Eginno has responded to both consultations.

DESNZ has awarded three grants from the Future Nuclear Enabling Fund (FNEF) to Holtec, GE Hitachi and Cavendish Nuclear/X-Energy²².

The Senedd Economy, Trade and Rural Affairs Committee held a one-day hearing on 26th October 2023 as part of an inquiry into 'Nuclear energy and the Welsh Economy'. Cwmni Eginio provided written and oral evidence to the committee. The committee report²³ was published February 2024 and debated at the Senedd on 19th April 2024²⁴. The conclusions and recommendations in the committee report were accepted by WG:

- 1. Given the urgent need for certainty in Wales about future nuclear development, the Committee would welcome the UK Government setting out when it will confirm the designated sites for future nuclear projects, the kinds of technology to be deployed, and the timeframes for implementation.*
- 2. The Welsh Government should set out how it will work with the UK Government and its partners in Wales on local workforce planning for new nuclear projects in north Wales, to support local businesses and the Welsh supply chain.*
- 3. The Welsh Government should set out how it will work with local authority partners and others to specifically address the housing needs and pressures associated with a new nuclear development, and keep the Committee updated once more is known about the UK Government's strategy and plans.*
- 4. The Welsh Government should set out its plans to work with partners in north Wales to manage local expectations and support community support and engagement with future nuclear energy development plans.*
- 5. The Welsh Government should update the Committee on its involvement in the UK Government's Nuclear Skills Taskforce and what actions it is taking to recognise and address potential barriers to scaling up skills for the nuclear sector.*
- 6. When there is an announcement from the UK Government on the future strategic direction and programme for new nuclear, the Welsh Government should set out how it will work with the education and skills sector, Chief Regional Officers, Joint Corporate Committees and partners across the whole of Wales to drive the necessary pace of change to deliver maximum socio-economic benefits.²⁵*

The opportunity at Trawsfynydd

Trawsfynydd is an attractive site for small scale nuclear development.

Trawsfynydd is an existing nuclear site under the ownership of Nuclear Decommissioning Authority (NDA) with access to essential infrastructure, including connection to the National Grid. Cwmni Egin's Proposition in April 2023 confirmed that Trawsfynydd is suitable for the deployment of a range of advanced nuclear technologies.

Developing small scale nuclear at Trawsfynydd would boost economic growth in North Wales and across the UK, supporting high value jobs.

SMR development in Trawsfynydd would unlock significant private sector investment, creating hundreds of high value jobs which would boost economic growth in North Wales and across the UK. It would also create thousands of additional jobs during the construction stage.

As well as provide employment for people locally, the project could have a positive socio-economic impact through retaining and attracting back talent to the region and creating wider business opportunities. In addition, there are wider economic benefits of a Wales and UK-based supply chain in terms of jobs and growth, particularly if SMRs were deployed as a programme and manufactured for export.

The Further and Higher Education (FE/HE) provision and facilities at Grŵp Llandrillo Menai and Bangor University present an excellent opportunity for skills development within the region, and the maximisation of job opportunities for the local and regional workforce.

Section 2: Delivering the Project

Project Development Approach

Cwmni Egino has adopted a 3-phase approach to the development of a project, leading to a Final Investment Decision (FID) at the end of Phase 3:

Phase 1: Confirming the business proposition for Trawsfynydd and work programme to FID.

Phase 2: Further project development, including site characterisation, environmental studies, engineering development, socio-economic development plan, organisational development and preparation of consents and licence applications.

Phase 3: Submit the permit applications, procure key contracts, preliminary site preparation works, secure the financing for construction, final business case.

The following sections describe the outcome of the work carried out during Phase 1 and updated during 2023.

Phase 1 outcomes

1. Social value

Deployment of small scale nuclear at Trawsfynydd could create over 400 long-term jobs in the local area and over £600m GVA for North West Wales and £1.3bn GVA for the whole of Wales during an operational life of 60 years.²⁶ It would create thousands of additional jobs during the construction stage, as well as through the Welsh and UK supply chains.

A nuclear project at Trawsfynydd would be a multi-billion pound investment and one of the single largest infrastructure projects in Wales for decades. It would attract direct and indirect employment as well as major additional socio-economic benefits and social value.

Following previous work around social value specific to the Trawsfynydd site, Cwmni Eginio has extended its focus to the wider geography of North Wales to reflect policy developments and the company's potentially evolving role and strategic direction.

Cwmni Eginio has focussed on understanding the needs and aspirations of communities in North Wales, exploring the scale of the opportunity for the region from new nuclear development, and implementing actions and initiatives that are targeted towards facilitating favourable conditions to capture benefits.

This work has culminated in a Social Value Handbook to guide our approach in the short term. This aims to set out what we can do now – in the context of many uncertainties – to contribute towards the identification and realisation of greater benefits (i.e. social value) to North Wales in the future.

Further data analyses and engagement activities have confirmed that communities within the region are ready to welcome inward investment, but that new nuclear projects should not be delivered at the detriment of the area's social, economic and environmental wellbeing – which includes the language and culture. By understanding, from a regional perspective, the factors and desired outcomes relating to these broad pillars, Cwmni Eginio has formed the basis for future social value activities, in line with established sustainability and wellbeing principles.

Whilst some key decisions that will determine the region's future outlook will not be directly influenced by Cwmni Eginio, we have identified priority actions for the short term that will help to unlock opportunities and benefits for the area, including Meirionnydd, in the longer term.

Cwmni Eginio offers a vehicle – rooted within North Wales – to facilitate partnership working so that we can take advantage of the opportunities presented by new nuclear. There is a clear opportunity for Cwmni Eginio to play a facilitation role by supporting and collaborating with other organisations to create a solid foundation upon which new nuclear projects can be designed and delivered in a way which makes a meaningful, lasting difference for local communities.

Once new nuclear projects have been selected, the social value approach and short-term activities developed by Cwmni Eginio will help to inform more detailed delivery strategies for each project lifecycle stage – from detailed development and construction, through to operations and decommissioning. This will enable future approaches and activities to be context-specific, relevant and valued by people in the region.

2. Site Suitability and Feasibility

2.1. Land

The land considered for development is within ownership of the NDA. The NDA has confirmed there are no secured tenancies on this land. Cwmni Eginio is assuming that land within NDA ownership required for small scale nuclear development can be acquired, either as freehold or on long term lease, and that the cost will be charged to the project at, or after FID.

Cwmni Eginio and NDA signed a Memorandum of Understanding (MoU) in October 2022. The purpose of the MoU is to support the assessment and development of Trawsfynydd as a site suitable for deploying SMR.

Subsequent to presenting the Proposition, Cwmni Eginio undertook further site and desk-based surveys to improve understanding of the suitability of the site and potential for development. These surveys covered the following topic areas:

- Site Utilities,
- Ecology and Habitat Surveys,
- Flood Risk and Drainage,
- Geology and Seismic,
- Ground Contamination (including Unexploded Ordnance - UXO),
- Heritage,
- Air,
- Noise, and
- Public Amenity

2.2 Site Options

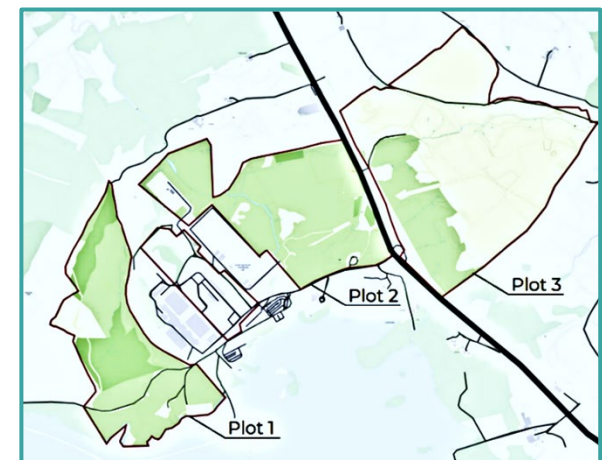
The initial enveloping study based on publicly available information confirmed that a range of small-scale nuclear technologies could be deployed at Trawsfynydd.

Based on an initial topographical assessment and feedback from technology suppliers through Market Engagement, we concluded that there is the potential to deploy up to 1 GW of new capacity within the NDA land, to be confirmed as part of detailed site characterisation, site layout optimisation and construction planning studies.

A more detailed review of the site options including consideration of the requirements for construction was undertaken, exploring a range of SMR and AMR technologies across small, medium, and large electrical generating outputs. The studies confirmed the Proposition's conclusion that the site can host a wide range of potential technologies across the NDA land.

The appraisal mapped site constraints through the creation of a GIS common data environment. Using information obtained through Market Engagement undertaken in 2022, the potential scale of development was assessed. The study explored spatial constraints, considering land availability, topography, existing utility services, construction sequencing and transport, including delivery of Abnormal Indivisible Loads (AILs). The output from the studies was discussed with key local stakeholders in 3 focussed workshops.

The study confirmed the potential to deploy up to 1 GW of new capacity within the NDA land, subject for further assessment, including physical surveys. Deployment of 1 GW would require use of Plot 1 and 2, totalling around 54ha, as shown below.



2.3 Cooling

Llyn Trawsfynydd has the potential to support direct cooling for 500-600 MWe of generation.

Proposals with capacity above this range will require indirect cooling as part of the cooling system design. The cooling solution will be confirmed during the next phase of development in concert with technology selection.

Cwmni Eginio carried out further assessment of the cooling options, including discussions with Natural Resources Wales (NRW) and concluded that the maximum potential for direct cooling using Llyn Trawsfynydd is likely to be lower than identified in the Business Proposition and in the range of 400 to 500 MWe. Proposed developments with a power output above this would require indirect cooling – either wet, evaporative cooling, air cooling or a hybrid solution.

The use of indirect systems has been explored, considering the impact on land requirements and visual impact.

The cooling system design for Trawsfynydd will need to be confirmed in Phase 2 once the technology has been selected and further, more detailed studies have been concluded. The key considerations include:

- Maintaining the level of the lake within regulatory limits;
- Impact on Maentwrog hydro-electric operations;
- Thermal dispersion within the lake to ensure effective thermal mixing;
- Environmental impact and regulatory categorisation of the lake (particularly in respect of its ecological status);
- Impact on net power output; and
- Land requirements, particularly for indirect cooling solutions.

2.4 Grid Connection

Cwmni Eginio procured a study to assess the feasibility of securing a Grid Connection Agreement (GCA) for Trawsfynydd to match the target schedule for development of SMR.

The study confirmed that, based on current data for existing and contracted new capacity, capacity in the North Wales loop including Trawsfynydd (National Grid boundary areas NW1, NW2 and NW3), is heavily constrained, taking into account the plan to upgrade the single 400 kV circuit between Pentir and Trawsfynydd substations to a double circuit.

In response to the study, Cwmni Eginio procured a GCA with National Grid ESO (ESO) in May 2023 which provides a gross connection capacity of 940 MW from the 1st November 2037.

Further details are available on the Transmission Entry Capacity Register published by the ESO.

2.5 Planning and Consents

The capacity of the proposed development is likely to exceed 350 MWe and therefore require a DCO in accordance with the Planning Act 2008.

Trawsfynydd is not one of the sites designated in the extant NPS for nuclear (EN-6). The update/replacement to EN-6 is expected to be designated in 2025, in advance of a DCO application, and would provide the policy context.

The 'National Policy Statement for new nuclear power generation, new approach to siting beyond 2025' document was published for consultation in January 2024.²⁷ It offers an opportunity for sites, such as Trawsfynydd which were not designated in EN-6 to present its merits against a set of proposed siting criteria. Cwmni Egino undertook a high-level screening exercise and concluded the site is likely to fall within the Lower Risk categories of the proposed siting criteria, subject to suitable avoidance, controls and mitigation measures being incorporated in any design proposals. It is understood the proposed EN-7 NPS will be published for consultation at the end of 2024 with a view to be designated in 2025. This will be in advance of any consent application for Trawsfynydd and is expected to provide the policy justification for development of new nuclear at the site.

Snowdonia National Park Authority (SNPA) has published a review of the existing Eryri Local Development Plan (LDP) and identified where focus and change is likely to be proposed in the next update of the LDP. The Review Report²⁸ continues to recognise and cite policy support for development at the Trawsfynydd site, with scope to accommodate low carbon energy businesses and energy generation technologies, provided there are no negative effects on the landscape. Cwmni Egino will continue to engage with the SNPA policy team to seek inclusion of small-scale nuclear development at Trawsfynydd within the revised LDP.

2.6 Potential Technology Solutions

Cwmni Eginio undertook Market Engagement during 2022 to understand the potential solutions available that could deliver its vision and support the proposition for Trawsfynydd. The process identified a number of technologies that could be deployed at Trawsfynydd.

GBN launched a competitive process in summer 2023 to select SMR technologies that could be taken forward to FID by 2029. GBN announced in October 2023 that the following six companies had been selected to receive an Invitation to Tender (ITT):

- Rolls Royce SMR;
- GE Hitachi;
- Holtec;
- Westinghouse;
- Nuscale; and
- Nuward (EdF-owned company)

All these companies are offering light water reactor technologies.

We understand the submission of tender responses is due by end June 2024 and confirmation of the successful bidders by end 2024.

In view of the on-going GBN process, Cwmni Eginio has not engaged formally with technology providers since its own market engagement process in 2022.

3. Target Operating Model (TOM)

Cwmni Egino has identified options for the Target Operating Model (TOM) and has illustrated how it could adapt to meet the needs of the sponsor (DESNZ/GBN) and the market.

Cwmni Egino's role could range from advocate through client to client/operator. This can be determined once the role and operating model of GBN has been clarified, enabling Cwmni Egino to confirm its organisational design.

The TOM defines the roles that need to be performed to deliver the project and who will undertake them. This in turn informs the organisational design of the participants, including Cwmni Egino. The final design of the TOM will be impacted by the role of GBN which is evolving.

In the Proposition, Cwmni Egino assumed that DESNZ/GBN would be the sponsor for the nuclear programme and would establish development companies (Devco) for each project. The role of the Devco is not fully defined but is likely to encompass client responsibilities, including the role of nuclear site licensee during the development phase.

Cwmni Egino's role

The Proposition outlined the spectrum of roles Cwmni Egino could perform:



In light of the proposal that GBN will establish Devcos to undertake the client role for each project, Cwmni Eginio could either:

- a) be absorbed into a GBN Devco with a particular focus on the delivery of social value (Advocate role); or
- b) remain as an independent partner to GBN to facilitate successful delivery of the project and realise social value to Wales (Development Partner).

4. Delivery Strategy for Development to FID (Phases 2 & 3)

Cwmni Eginio has developed the work programme and estimated costs required to deliver the outcomes required for approval to proceed with construction.

The duration is around 5 years and therefore Trawsfynydd could meet the UK Government's aim of approving at least two projects in the next parliament. The funding to meet the development cost to FID is estimated to be £250m.²⁹

The Proposition focused on the minimum scope of work required to meet the conditions for FID. It did not consider activities required to prepare the site for main construction which has a significant impact on the overall schedule for the project.

As part of the update to the Proposition, Cwmni Eginio examined the overall schedule to commercial operation date (COD) in 3 sections:

1. Development to FID
2. Preparation for First Nuclear Construction (FID to FNC), and
3. Main construction and commissioning (FNC to COD)

The base case assessment assumed these sections would be sequential. The additional work undertaken since the Proposition was prepared focused on Sections 1 and 2.

The overall duration of Section 1 is unchanged from the Proposition at 5 years (see Appendix 3).

The scope of Section 2 required to prepare the site for nuclear construction and address the site constraints identified in the site suitability studies described in 2.2 above encompasses:

- a) Haul Roads & Hardstanding;
- b) Vegetation and Wider Site Clearance;
- c) Overhead Diversion of NGET Towers;

- d) Offsite compensatory habitat creation, including mitigation and translocation of protected species, etc.;
- e) Bulk Earthworks;
- f) Excavation;
- g) Foundations;
- h) Drainage and associated ground works; and
- i) Site Preliminaries (Offices, Welfare etc).

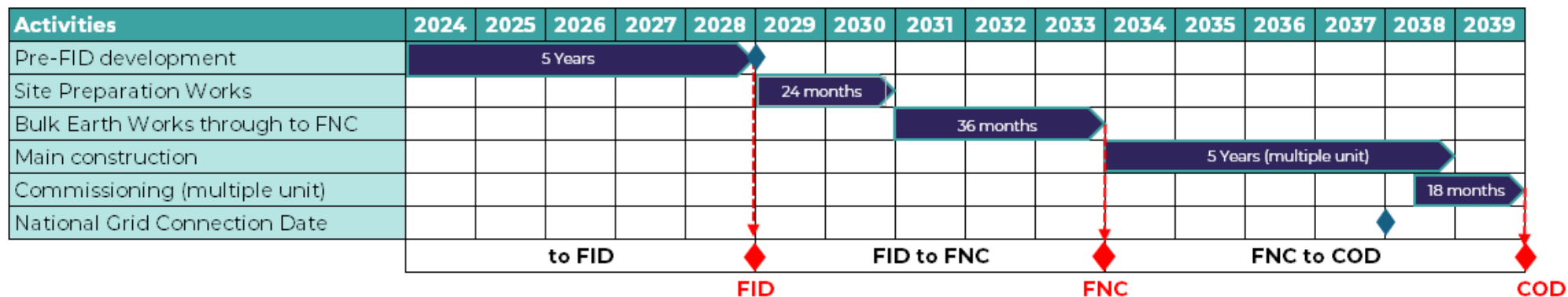
There are constraints on the site that will impact any potential development, including:

- **Existing National Grid infrastructure** – the full development potential of Plot 2 requires relocation of the existing towers and lines prior to commencing main construction activities.
- **Topography** – the design of bulk earthworks will need to be optimised to achieve an acceptable platform height and maximise the reuse of material of site to reduce vehicle movements and import/export of bulk materials.
- **AIL Deliveries** – there are constraints on the size and weight of AILS that can be delivered to site via the port at Porthmadog without significant investment to enhance the capability.
- **Ecology and Habitat** – the development is likely to result in habitat loss and therefore off-site land acquisition may be required as compensation.

The total duration of the Section 2 works is estimated to be 5 years. The cost is estimated to be £660m (+50% / - 30%).

The duration of Section 3 (FNC to COD) will depend on the technology adopted. For the purposes of this update report, a duration of 6 years has been assumed.

Based on the above assessment and assuming Sections 1 – 3 are managed sequentially, the overall schedule to COD is as follows, showing earliest commercial operation in 2039.



There may be an opportunity to accelerate the overall schedule by up to 24 months by starting some site preparation works (a – d above) during the period to FID. This would increase the cost in the period to FID and would impact the overall consenting strategy as consent for site preparation would be required in advance of the grant of DCO. However, it would bring forward commercial operation and take full advantage of the grid connection date.

5. Funding

Cwmni Egino assumes that funding for the construction phase will be underpinned by either a contract for difference or RAB licence, supported by an appropriate Government Support Package.

We have concluded that private sector investment is focused on technology development rather than site-specific project development. Therefore, our central assumption is that the majority of the cost of development Phases 2 and 3 to FID would need to be publicly funded.

DESNZ confirmed in its consultation on Alternative Routes to Market³⁰ that it is considering either a Contract for Difference (CFD) or Regulated Asset Base (RAB) as the means for funding the construction of new nuclear projects. This aligns with our assumption in the 2023 Business Proposition, supported by an appropriate Government Support Package. The target commercial structure for the project at FID will be confirmed during the development phase.

Pending the outcome of the consultation on Alternative Routes to Market³¹, our assumption remains that the majority of the cost of development Phases 2 and 3 to FID will need to be publicly funded. Any private sector investment will require a high degree of certainty that the project will proceed at FID, thereby transferring development risk back to the UK Government.

6. Issues and Risks

The risks identified in the 2023 Business Proposition have been reviewed in light of developments since then.

Issues

Issue	Impact	Mitigation
GBN is not considering Trawsfynydd as one of the projects to be developed for approval in the next Parliament	Development of Trawsfynydd would require a private developer. Until DESNZ publishes its response to the consultation of alternative routes to market, it is unlikely private developers would commit to funding the development. Therefore, the Proposition cannot be delivered.	<ul style="list-style-type: none"> Review the strategic options for Cwmni Eginio to broaden focus from Trawsfynydd specifically to Wales more broadly

Risks

Risk	Impact	Mitigation
Future project sponsorship is unclear	Lack of direction and commitment to Cwmni Eginio, leading to loss of support and ability to influence nuclear development	<ul style="list-style-type: none"> Develop strategic options for WG to consider and decide which to adopt

Target Operating Model not fully defined	Roles and responsibilities of Cwmni Eginio unclear, impacting the scope of activities and capability requirements	<ul style="list-style-type: none"> Clarify the role of Cwmni Eginio and the organisational development plan needed to acquire the required capabilities
Unable to secure sufficient funding for the development phase	Inability to complete the work required to achieve the conditions for a Final Investment Decision	<ul style="list-style-type: none"> Support the sponsor in seeking approval of an Outline Business Case (OBC) for the development phase. Tight control of development scope and costs to minimise development expenditure
Technology selection delayed beyond 2024	Progress of development work is constrained, impacting the schedule to FID and market confidence in the UK nuclear programme	<ul style="list-style-type: none"> Cwmni Eginio has no direct influence in the selection process and can only monitor progress and respond accordingly
Site conditions constrain the scale and/or increase the cost of generation	Project becomes uneconomic compared with alternatives	<ul style="list-style-type: none"> Undertake site characterisation studies (topographical, geotechnical and seismic hazard) to confirm suitability and feasibility of the site
Unable to build and maintain sufficient support locally for development of a new nuclear	Reduced advocacy for the project locally, resulting in delays to key decisions and increased resistance to the development	<ul style="list-style-type: none"> Maintain wide and structured stakeholder engagement with decision makers, influencers and the community to explain the merits and impacts of the development

<p>Insufficient resources available to support the development phase</p>	<p>Unable to maintain programme, leading to a delay and increased cost to FID</p>	<ul style="list-style-type: none"> • Establish a robust development programme with the sponsor, aligned to a procurement plan for service provision and organisational development plan for internal capability • Promote Cwmni Egin to build interest, confidence and commitment in the project
<p>Unable to secure a private developer for Trawsfynydd</p>	<p>New nuclear at Trawsfynydd does not proceed and socio-economic benefits arising from development at Trawsfynydd do not materialise</p>	<ul style="list-style-type: none"> • Seek interest from private developers in Trawsfynydd to confirm the potential for development.

Conclusion

The 2023 Business Proposition cannot be delivered as presented in April 2023 for two reasons:

1. GBN has confirmed it is not considering Trawsfynydd as one of the initial sites for deployment of SMR; and
2. It is unlikely private developers will fund project development before DESNZ has responded to its consultation on alternative routes to market with clear proposals.

Therefore, new nuclear at Trawsfynydd will either be developed later than proposed (i.e. earliest approval in 2030s) or not at all. Our current work focusses on retaining the option for development at a later date. In the meantime, we have ceased further development work at the site until its future within the UK nuclear programme is confirmed.

The update to the Proposition based on work to date confirms the following:

- New nuclear development at Trawsfynydd would result in significant growth by creating direct and indirect employment as well as major additional socio-economic benefits and social value.
- The site has the potential to accommodate up to 1 GW of power generation across the three plots available within the NDA site boundary with the two sites to the west of the A470 (Plot 1 & 2) being most likely.
- Llyn Trawsfynydd has the potential to support direct cooling in the range 400-500 MWe. Proposals with capacity above this range will require indirect cooling as part of the cooling system design.
- Cwmni Egino has secured a Grid Connection Agreement with ESO for a capacity of 940 MW that will be available from November 2037. This is in line with the potential dates for commercial operation.
- Cwmni Egino's role could be either as part of the development company being established by GBN or remains as a stand-alone entity focused on advocacy and facilitating delivery of social value in North Wales.

Glossary

AILs	Abnormal Indivisible Loads	SEZ	Snowdonia Enterprise Zone
CFD	Contract for Difference	SMR	Small Modular Reactors
COD	Commercial Operational Date	SNPA	Snowdonia National Park Authority
DCO	Development Consent Order	TOM	Target Operating Model
DESNZ	Department for Energy Security and Net Zero	TSDP	Trawsfynydd Site Development Programme
DEVCO	Development Company	WBS	Work Breakdown Structure
ESO	National Grid Electricity System Operator (ESO)	WG	Welsh Government
FID	Final Investment Decision		
FNC	First Nuclear Construction		
FNEF	Future Nuclear Enabling Fund		
GBN	Great British Nuclear		
GCA	Grid Connection Agreement		
GDA	Generic Design Assessment		
HRA	Habitats Regulation Assessment		
LDP	Local Development Plan		
NDA	Nuclear Decommissioning Authority		
NIA	Nuclear Industry Association		
NPS	National Policy Statement		
NRW	Natural Resources Wales		
NWGD	North Wales Growth Deal		
OBC	Outline Business Case		
ONR	Office for Nuclear Regulation		
RAB	Regulated Asset Base		
RAB	Regulated Asset Base		

Appendix 1: Key requirements for FID & FNC

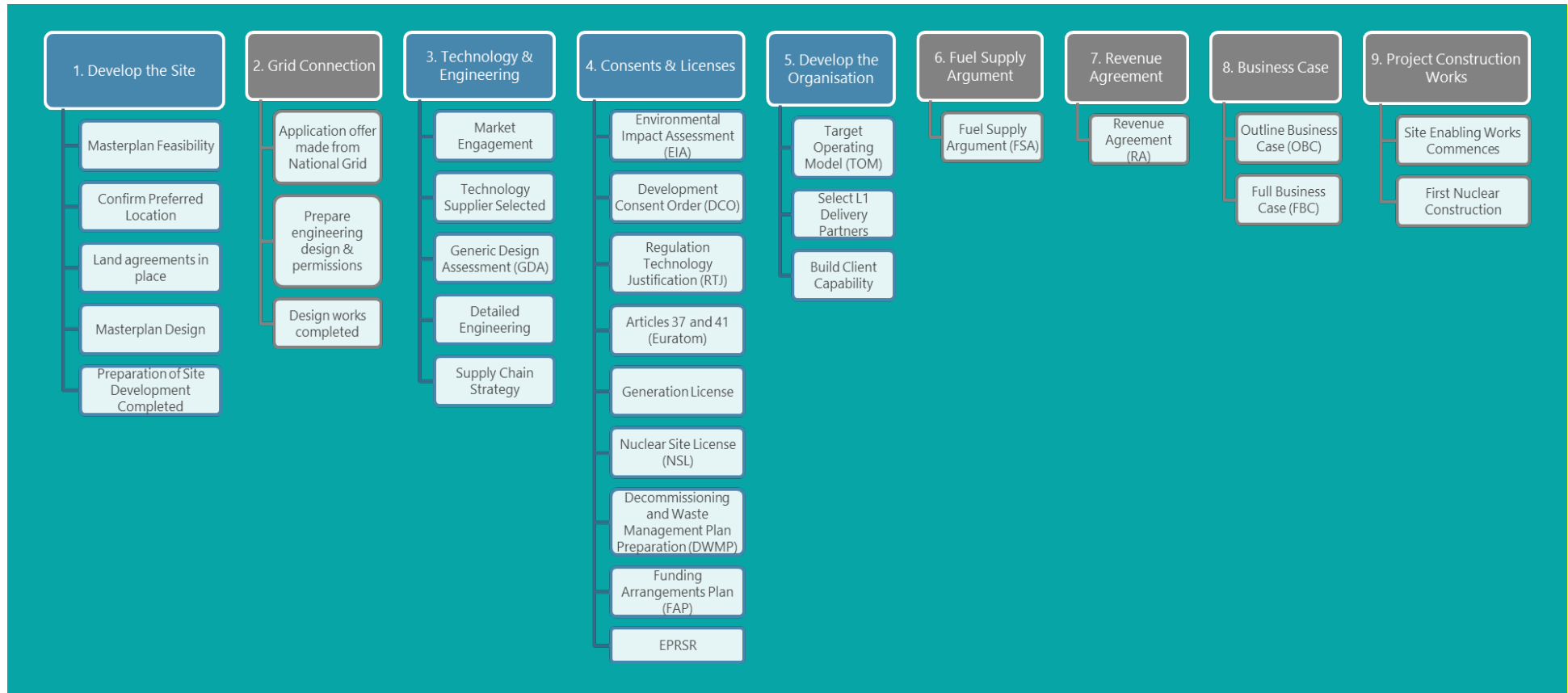
Key Requirement	Status at FID
Viable Site	<ul style="list-style-type: none"> • Sufficient land for the permanent facility and temporary construction requirements • Secure tenure over the above land • Site conditions suitable and feasible for construction and operation of a nuclear facility, including: <ul style="list-style-type: none"> - topography - geotechnical suitability - seismic hazard assessment - environmental conditions and constraints - cooling capacity • Adequate site access, including suitable transport routes • Access to utilities
Grid Connection	<ul style="list-style-type: none"> • Connection agreement with National Grid for the required export capacity and connection date • Compliance (or agreed derogation) with Grid Code
Technology & Engineering	<ul style="list-style-type: none"> • Technology partner selected • GDA (or equivalent safety assessment) completed • Strategy and plan to complete the specific preconstruction safety case agreed • Key manufacturing suppliers confirmed and equipment qualified • Plant performance characteristics validated • Basic design of power plant completed to underpin cost and schedule
Consents & Licences	<ul style="list-style-type: none"> • Development Consent Order • Nuclear Site Licence • Environmental Permit (EPRSR) • Regulatory Justification approved for selected technology • Generation licence • Abstraction and discharge licences

Funded Decommissioning Plan	<ul style="list-style-type: none"> • FDP approved by DESNZ, including Decommissioning Waste Management Plan (DWMP) and Funding Arrangements Plan (FAP)
Organisational development	<ul style="list-style-type: none"> • Overall project structure defined, including the roles and responsibilities of primary project participants • Organisational development plans for Tier 1 and 2 participants, describing: <ul style="list-style-type: none"> • the capabilities required aligned to the schedule; • acquisition plans; and • acquisition plans on or ahead of target • Management arrangements to demonstrate compliance with nuclear site licence conditions in place and approved by ONR (NB part of nuclear site licence)
Commercial agreements	<ul style="list-style-type: none"> • Commercial structure of project defined, including roles and risk allocation between principal participants • RAB licence granted • Fuel supply agreement negotiated • Offtake agreement negotiated • Government Support Package agreed • Key plant supply and construction contracts negotiated
Finance	<ul style="list-style-type: none"> • Financing agreements for construction phase in place
Delivery	<ul style="list-style-type: none"> • Scope of work/ WBS & schedule to commercial operation defined • Delivery team established and ready to mobilise

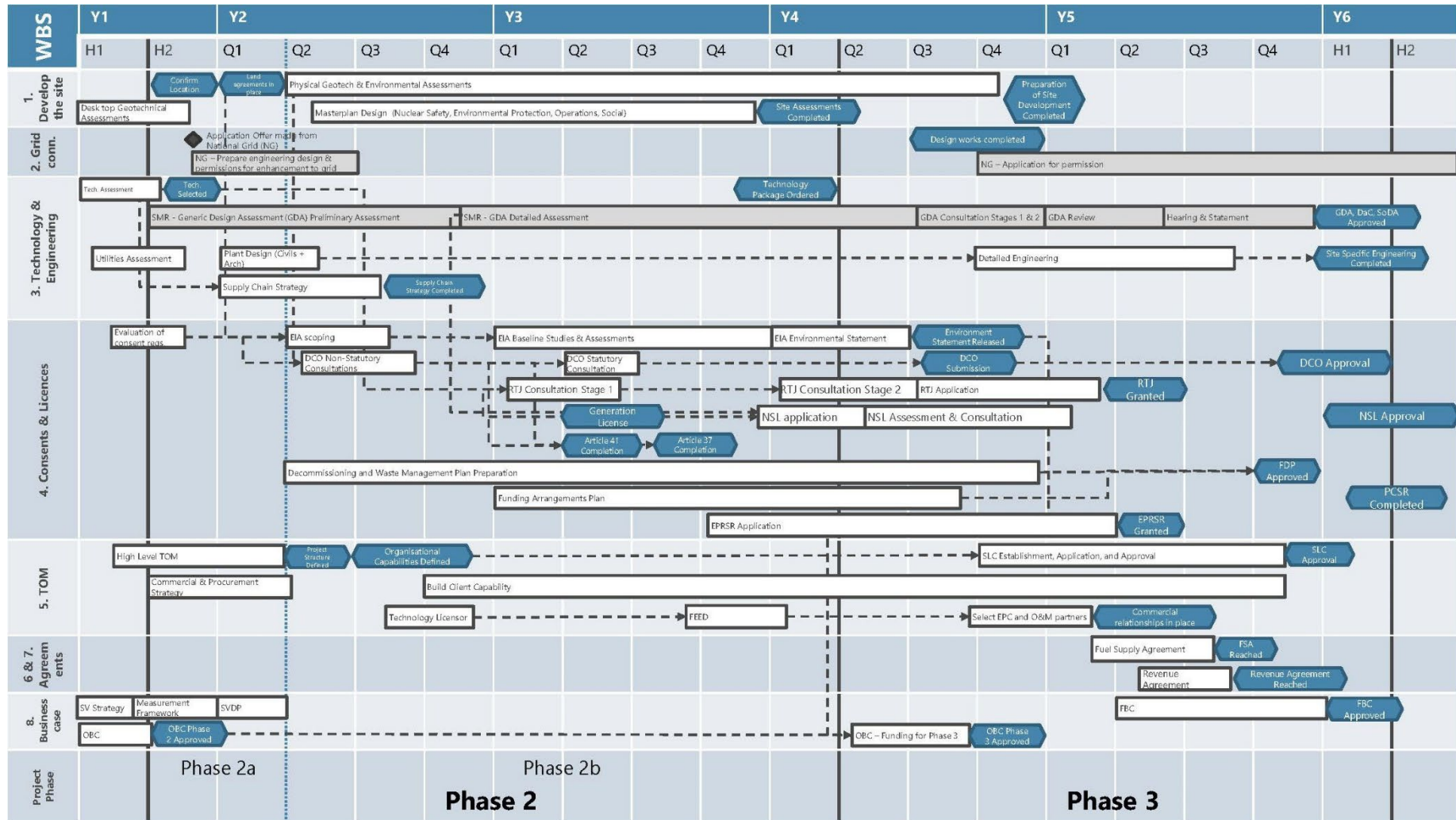
These requirements are underpinned by supporting workstreams, including:

- engineering development to provide the required input to consents and permits, cost model, schedule development and revenue agreement;
- development of the commercial agreements to underpin the suite of contracts required; and
- stakeholder engagement to build broad support for the project and optimise the capture of socio-economic opportunities locally.

Appendix 2: Work Breakdown Structure (WBS) for Development to FID



Appendix 3: Milestones to FID



References

- ¹ Cwmni Eginio (April 2023), 'Building Small Modular Reactors at Trawsfynydd: Our Business Proposition'
- ² [Great British Nuclear to buy two Hitachi sites for new nuclear development - GOV.UK \(www.gov.uk\)](#)
- ³ Cwmni Eginio (April 2023), 'Building Small Modular Reactors at Trawsfynydd: Our Business Proposition'
- ⁴ [British nuclear revival to move towards energy independence - GOV.UK \(www.gov.uk\)](#)
- ⁵ [Small Modular Reactors: competitive technology selection process - GOV.UK \(www.gov.uk\)](#)
- ⁶ [Civil nuclear: roadmap to 2050 - GOV.UK \(www.gov.uk\)](#)
- ⁷ [Approach to siting new nuclear power stations beyond 2025 - GOV.UK \(www.gov.uk\)](#)
- ⁸ [Alternative routes to market for new nuclear projects - GOV.UK \(www.gov.uk\)](#)
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- ¹⁰ [Trawsfynydd ruled out of new nuclear power plan - BBC News](#)
- ¹¹ [The ten point plan for a green industrial revolution - GOV.UK \(www.gov.uk\)](#)
- ¹² [Energy white paper: Powering our net zero future - GOV.UK \(www.gov.uk\)](#)
- ¹³ [net-zero-strategy-beis.pdf \(publishing.service.gov.uk\)](#)
- ¹⁴ <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>
- ¹⁵ <https://gov.wales/written-statement-uk-energy-security-strategy>
- ¹⁶ [Powering Up Britain: Energy Security Plan \(publishing.service.gov.uk\)](#)
- ¹⁷ [Energy Act 2023 \(legislation.gov.uk\)](#)
- ¹⁸ [Companies selected for next stage of nuclear energy competition – Great British Nuclear blog](#)
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- ²³ [Nuclear energy and the Welsh economy \(senedd.wales\)](#)
- ²⁴ [Debate on the Economy, Trade and Rural Affairs Committee Report, 'Nuclear energy and the Welsh economy': 17 Apr 2024: Senedd debates - TheyWorkForYou](#)
- ²⁵ [Debate on the Economy, Trade and Rural Affairs Committee Report, 'Nuclear energy and the Welsh economy': 17 Apr 2024: Senedd debates - TheyWorkForYou](#)
- ²⁶ Trawsfynydd Economic Assessment (and supporting assessment workbooks) Arup, Nov 2020 (unpublished)
- ²⁷ [National Policy Statement for new nuclear power generation: new approach to siting beyond 2025 \(publishing.service.gov.uk\)](#)
- ²⁸ [Eryri-Local-Development-Plan-Review-Report.pdf \(gov.wales\)](#) & [Approach to siting new nuclear power stations beyond 2025 - GOV.UK \(www.gov.uk\)](#)
- ²⁹ This estimate includes the minimum activities required to achieve FID set out in the WBS. It excludes historic costs; Generic Design Assessment/technology licensing (assumed to be met by the technology provider); engineering development costs (assumed to be met by the technology provider); cost of acquiring the land (permanent and temporary); Procurement of long lead items; any site preparation or construction costs (N.B. in Option 4, Site Preparation Works would commence before FID but the cost of these works is not included in the above estimate; and allowance for inflation.
- ³⁰ [Alternative routes to market for new nuclear projects - GOV.UK \(www.gov.uk\)](#) [Alternative routes to market for new nuclear projects - GOV.UK \(www.gov.uk\)](#)
- ³¹ [Alternative routes to market for new nuclear projects - GOV.UK \(www.gov.uk\)](#)