



# THE TRAWSFYNYDD OPPORTUNITY





## » INTRODUCTION

Trawsfynydd has a nuclear heritage extending back over 60 years to the building and opening of the existing power station in 1965. The Trawsfynydd station generated 69 terawatt-hours (TWh) of low carbon electricity over 26 years of operation and employed many hundreds of people on site at peak. It stopped generating electricity in 1991 and decommissioning has been ongoing since 1993.

There is now an exciting opportunity to bring new nuclear technology to the site to create jobs, boost economic activity and promote social benefits for the local community, the wider North Wales region and further afield in the UK.

As the project development company for the site, Cwmni Egino is putting together detailed proposals for the deployment of Small Modular Reactor technology at Trawsfynydd, with the aim of getting approval to build by the latter part of the decade. As well as create growth locally, regionally and nationally, this will generate clean, reliable electricity to help meet increasing energy demands, reduce dependency on fossil fuels, and contribute towards decarbonisation in the fight against climate change.



## » CWMNI EGINO

Cwmni Eginio was set up by the Welsh Government in 2021 to deliver the Trawsfynydd Site Development Programme and build on the work of the Snowdonia Enterprise Zone. In line with the Site Development Programme, the company's core purpose is to create sustainable job opportunities and promote economic and social regeneration by driving development at the former nuclear power station site in Trawsfynydd.

**Our vision is that Trawsfynydd will be confirmed as the site of the first Small Modular Reactor (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.**

This vision connects a socio-economic opportunity presented by SMR deployment at Trawsfynydd with the increasing demand for secure low carbon energy to decarbonise the UK's electricity system and decrease our reliance on imported fuels.



Small Modular Reactors (SMRs) are smaller versions of traditional nuclear reactor technologies that can operate flexibly on smaller sites – like Trawsfynydd. The UK aims to develop SMRs to be deployed quickly to supply heat and power.

SMRs could potentially be cheaper and have a far lower delivery time than conventional large reactors. Manufactured in a factory, complete components (modules) are transported to the site for final assembly. SMRs will provide clean, flexible,

secure electricity, as well as create high quality jobs, regional and national growth and regeneration, export opportunities and a new skills and research and development base.

There are many different designs of SMRs currently being developed, producing between 20 and 470 MW of electricity. Some of these designs can be adapted to supply heat as well. In terms of output they are comparable to the two former reactors at the original Trawsfynydd power station, but are generally smaller in size.

# Eginio



A Welsh word meaning 'to germinate'. This represents Cwmni Eginio's role in growing the concept of a new nuclear development at Trawsfynydd and turning it into a deliverable project. A lot of work has to be done before any visible development can happen on the site; just as a seed planted in the ground needs to be nurtured and the right conditions created before green shoots appear.

# » THE OPPORTUNITY

## Growing the economy

SMR deployment at Trawsfynydd has the potential to create over 400 high quality jobs locally during 60+ years of operation, as well as thousands of jobs during construction. This will promote local and regional economic growth and help to ensure a sustainable future for communities. It will also create business opportunities and grow the low carbon skills base regionally, across Wales and the rest of the UK. We envision North Wales as a globally recognised centre of excellence for low carbon energy manufacturing and innovation, pivotal to the UK's nuclear sector.

## Delivering energy security

Nuclear power at Trawsfynydd and a wider SMR programme can play a critical role in producing homegrown low carbon energy to make sure there is enough electricity available to power homes and businesses. Cwmni Eginio aims to achieve approval to start construction before the end of the decade. This can accelerate delivery of the UK nuclear programme to enhance energy security and help achieve the UK Government's target of 24GW of nuclear power by 2050. By being the first SMR nuclear site in the UK, Trawsfynydd can provide a model for other sites.

## Achieving net zero

The UK needs 4 times as much clean power as we have now to hit Net Zero by 2050\*, and nuclear energy has one of the lowest carbon footprints of all commercially available sources. New nuclear at Trawsfynydd will provide a reliable source of power, available 24/7, to complement the growing proportion of variable wind and solar generation needed to reach a fully decarbonised energy system. \* Source: Climate Change Committee



The UK Government's British Energy Security Strategy, published in April 2022, set a target for 24GW of new nuclear by 2050 - representing up to 25% of the UK's projected electricity demand. It has also stated its intention to approve at least 2 additional projects in the next Parliament, including SMRs.

These ambitions were reinforced in Powering up Britain published in April 2023. Great British Nuclear (GBN) has been launched to support the development of new nuclear and help ensure a pipeline of projects. Cwmni Eginio will work with GBN as it continues to develop the proposals for Trawsfynydd.

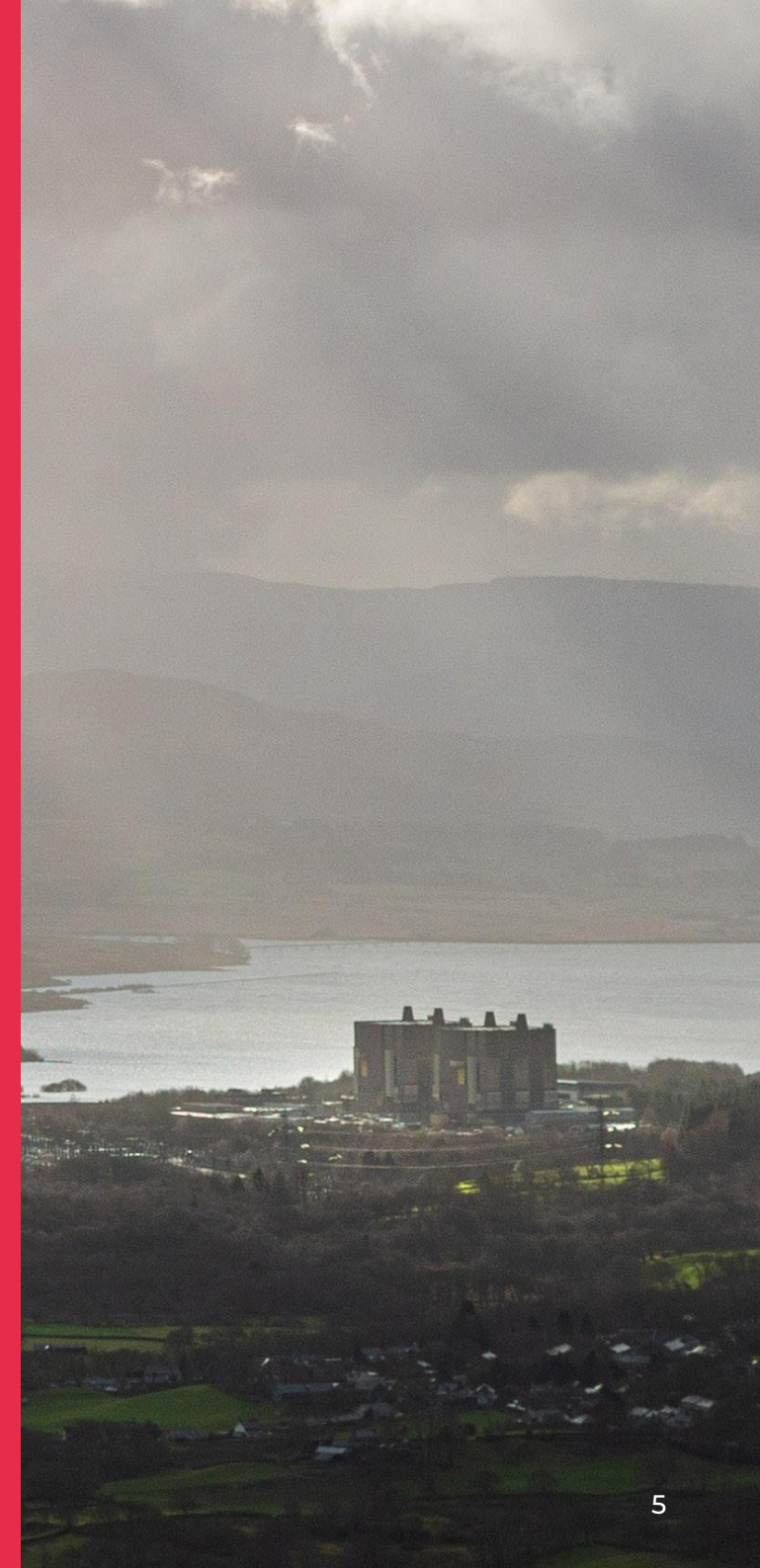


## WHY NEW NUCLEAR AT TRAWS?

Extensive research was done by Snowdonia Enterprise Zone to identify potential future uses for the Trawsfynydd site to ensure long-term, well-paid employment for local people in south Gwynedd alongside, and beyond, decommissioning of the existing power station.

Given the site's heritage, studies have concluded that it is most suited for nuclear development. Following detailed assessments of a number of different options, two projects were confirmed as having the greatest potential to deliver socio-economic benefits, namely small scale nuclear reactors to generate low carbon energy, and a medical research reactor to produce radioisotopes for cancer diagnostics, treatment and research.

Cwmni Eginio believes that SMR offers the greatest potential to deliver socio-economic benefits in the near term.



# » ADDRESSING LOCAL NEEDS

Cwmni Egino wants to maximise the benefits of SMR deployment for local communities. To help us design the project in a way which brings the greatest value and improvement to people's quality of life, we've looked at key socio-economic indicators to better understand local needs and help us identify challenges and opportunities in addressing those needs.



**61,836**

people live in Dwyfor Meirionnydd (~48% of Gwynedd and 2% of Wales)



**6%**

forecast population growth by 2040 in Gwynedd



Dwyfor Meirionnydd has an ageing population (27.8% compared to 20.8% in Wales)



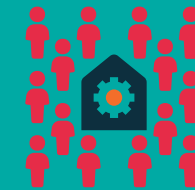
**580p.a.**

shortfall for affordable houses (social and intermediate) against demand across Gwynedd



**< 20.2%**

of businesses in Dwyfor Meirionnydd employ more than 50 staff



The existing power station is one of only 20 local employers in the area with more than 100 staff



**64.4%**

of people in Gwynedd speak Welsh compared to 17.8% nationally, based on 2021 Census figures



**£1.9M**

invested in STEM lab facilities at Coleg Meirion-Dwyfor campuses in Dolgellau and Pwllheli, and Coleg Menai in Llangefni



**13.9%**

of 16-64 year olds have obtained NVQ3 (compared to 17.7% nationally)



**20.2%**

of 16-64 year olds in Dwyfor Meirionnydd are unemployed compared to 12.3% nationally



average salaries in Gwynedd are among the lowest in the UK (£500 p/w, compared to £538 in Wales and £585 in the UK)

**£18,600 GVA per head**

for Gwynedd in 2020, compared with £21,000 for Wales as a whole



The UK's civil nuclear industry contributed **£700 million to the Welsh economy in 2021 - directly employing 800 people, and supporting a total of 10,700 jobs across the country.**

Delivering Value report, Nuclear Industry Association



## SMR at Trawsfynydd will:

- Create more than 400 jobs providing well-paid, year-round employment for over 60 years
- Create business opportunities for local and regional companies through the supply chain
- Promote skills development, training and apprenticeship programmes locally and throughout North Wales
- Boost the regional economy and productivity, with over £600m GVA for North West Wales and £1.3bn for the whole of Wales
- Supply up to 1 GW of low carbon, reliable energy to the grid - enough to power around 2 million homes
- Support the Welsh language and culture by retaining and attracting talent back to the area and contributing to sustainable and thriving communities
- Improve the wellbeing of local communities through a programme of socio-economic initiatives



## » THE SITE

Trawsfynydd is specifically referenced by the Welsh Government's 'Future Wales – The National Plan 2040' as a potential site for small scale nuclear – with necessary infrastructure and local skills already in place. The plan notes the potential for new nuclear developments to act as a catalyst for regional regeneration and high value job creation.

Trawsfynydd is ideally suited to be the first site for small scale nuclear technology in the UK – a former nuclear site, with land in public ownership, and a range of recognised assets including cooling water, an adjacent National Grid sub-station, a skilled local workforce, and independent surveys confirming its suitability.

### Our relationship with the NDA

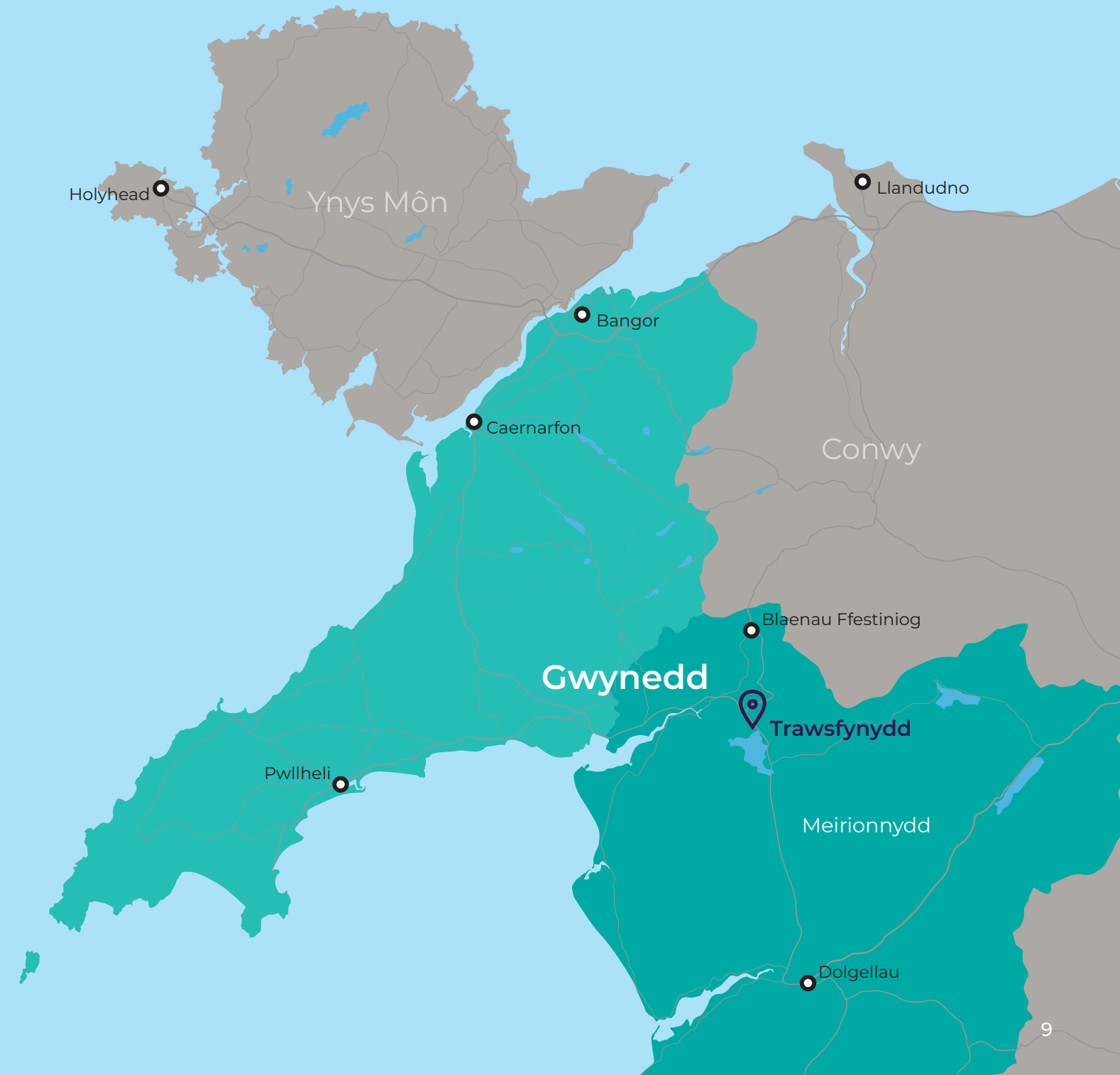
The site, which includes the current nuclear site license area where the existing Magnox power station is located, is owned by the Nuclear Decommissioning Authority (NDA). Our relationship with the NDA is critical to the successful delivery of our vision for the development of new nuclear at Trawsfynydd.

In October 2022, a Memorandum of Understanding (MoU) between the NDA and Cwmni Egino was signed. The MoU enables the NDA to share information and expertise around the characteristics of its land at Trawsfynydd, to align the decommissioning plans and site activities with the new nuclear project, and to support Cwmni Egino with stakeholder engagement and developing socio-economic plans.



**The Trawsfynydd site is situated in the heart of Snowdonia National Park with the nearest settlement of Trawsfynydd village just to the south.**

Access is via the A470 to the east which provides a strategic link between North and South Wales. Other significant settlements include Blaenau Ffestiniog some 15km to the north as well as Dolgellau some 21km distant. Llandudno is approximately 63km away and Cardiff some 220km to the south.





## Regional and cross-border collaboration

The relationship between the nuclear sector in North Wales and Northern England is evidenced by the North West Nuclear Arc (NWWNA) cluster – a partnership of private, public and academic bodies working across the nuclear sector in the North West of England and Wales.

Trawsfynydd sits in a key area within the NWWNA nuclear technology eco-system – which covers a geographic area extending from Cumbria in North West England to North West Wales. Capabilities within this geography cover the lifetime activities of the nuclear fuel supply chain. This includes manufacturing just over the Welsh Border at Capenhurst near Chester, fabrication at Springfields near Preston and used fuel and waste management in Cumbria.

North Wales and the wider NWWNA area have a strong foundation of research and development expertise. Trawsfynydd is well located to collaborate with Bangor University's Nuclear Futures Institute, M-SParc, and AMRC Cymru in Broughton, as well as the Dalton Institute in Manchester University and the National Nuclear Laboratory. Development at Trawsfynydd would encourage growth and inward investment in the manufacturing sector in North East Wales and in the wider nuclear supply chain in the Warrington area and North West England.

As well as building on the experience of past and current activities in electricity generation in the region, the SMR project at Trawsfynydd will benefit from working within NWWNA to draw on nuclear capabilities on both sides of the border to support wider economic growth.



## » DEVELOPING THE TRAWSFYNYDD PROJECT

Trawsfynydd presents the first, most credible site-focussed opportunity to kick start a long-term programme of SMR projects in the UK, and Cwmni Eginio provides a development vehicle to take the project forward. Our plans are more advanced than other sites suited to small scale nuclear, so a project can be ready for approval by the latter part of the decade, in line with the UK Government's energy security priorities.

We are developing the project in 3 phases, leading to a Final Investment Decision (FID) and approval to build at the end of Phase 3:

- 1. Building and promoting the case for Trawsfynydd:** defining and explaining the opportunity of a new nuclear project at the site and the potential to drive economic growth locally, regionally, Wales- and UK-wide, as well as demonstrate that the project is viable.
- 2. Project design:** further project development, including technology selection, site characterisation, environmental studies, engineering development, socio-economic plan, extensive stakeholder and community engagement, organisational development and preparation of consents and licence applications.
- 3. Prepare for construction:** submit consent and permit applications; procure key contracts; enable preliminary site works; and secure finance for construction.

The first phase of work has confirmed that the project is viable, and Cwmni Eginio is now ready to enter the second phase, involving more detailed project development.



## PROJECT DELIVERY

Development of new nuclear projects is complex and takes time. There are many components that need to be in place before a nuclear power station can be built and start generating electricity. Cwmni Egino is working to bring all the pieces together to enable the successful delivery of an SMR project at Trawsfynydd.

We will continue to engage the Welsh and UK Governments, regional stakeholders, industry partners and local communities to make sure that the project is designed and delivered in a way that secures the maximum social, economic and environmental benefits for decades to come.



### Transport

Taking goods and people to and from the site during construction and operation.



### Site

Securing suitable land that can be developed for nuclear deployment.



### Technology

The choice of technology has a strong bearing on the generating capacity, site layout and socio-economic scope of a project.



### Trained workforce

Nuclear projects generate hundreds of jobs in a vast range of areas, from construction and operations, to professional services, catering and maintenance.



### Education, skills and training

Specialist providers and suitable facilities are key to preparing the existing and future workforce for employment opportunities.



### Grid Connection

This provides the means to take electricity from a nuclear site to power homes and businesses.



### Cooling solution

Nuclear reactors generate a lot of heat – excess heat can be absorbed by sea, river or lake water or purpose-built cooling arrays.



### Consents and permits

Nuclear projects are subject to vigorous consenting and permitting processes by planning authorities and regulators, and requires extensive stakeholder and community consultation.



### Construction partner

Preparing the site, assembling the power station and constructing associated developments (e.g. road and access improvements).



### Operator

Making sure that the power station operates safely and efficiently throughout its operating life.



### Stakeholder and community support

Meaningful, ongoing engagement with a range of stakeholders – from Governments and public bodies to local residents – is key to a successful project.



### Decommissioning and waste plan

Unlike other energy projects, every new nuclear project must now submit a fully funded plan for decommissioning and managing waste as part of the planning process before any nuclear related building work can start on site.



### Environmental Permits

Natural Resources Wales is responsible for regulating the environmental aspects of a nuclear site in Wales and for monitoring compliance with environmental legislation.



### Nuclear licence

The Office for Nuclear Regulation is responsible for independently regulating the full life cycle of a nuclear facility. Any nuclear electricity development has to have a site licence before nuclear related work can start on the site. Arrangements to comply with the licence at all stages have to be approved by the regulator who then monitors the site compliance with the Licence. The operator is usually the licensee.



### Investment

Investment to develop the project to FID and investment to construct the project.





## » WHAT NEXT?

### **Making the case with Government**

Further development of the SMR project will need strong Government sponsorship and we will continue to make the case for Trawsfynydd to become the first site for small scale nuclear deployment. Government support and investment will help attract and unlock significant private investment into the economy. We stand ready to work with the Welsh and UK Governments and Great British Nuclear on kick starting the UK's SMR programme and deliver on net zero and energy security policies.

### **Maximising local benefits**

Key in Cwmni Egin's establishment was a strong focus on creating social and economic opportunities. We are developing a 'Social Value Plan', setting out how the proposed development can improve quality of life for people in local communities and throughout the wider region. We will be working with stakeholders and communities as our proposals evolve, promoting their involvement in prioritising and planning key initiatives to bring lasting benefits to area.

### **Choosing a technology**

Work to date has shown that Trawsfynydd is suitable for a range of small scale nuclear technologies, and there is much interest in the site. We are in discussions with a number of technology providers to consider options. Working with Great British Nuclear, we will be choosing a technology that best fits the site, that can be located as close as possible to services, has minimal visual impact, offers the greatest socio-economic opportunity in terms of the local and regional workforce and suppliers, and provides the most potential for additional social value.

### **Undertaking detailed studies**

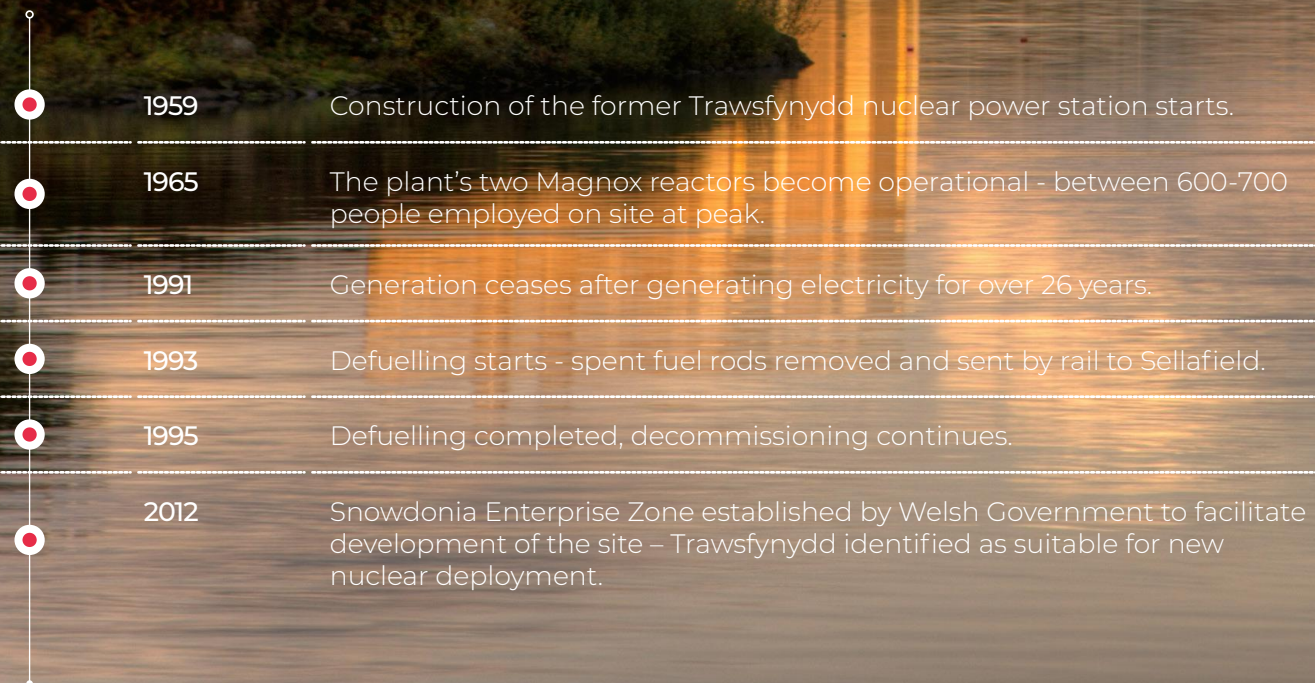
A number of studies will be needed to inform the detailed design of the SMR project and the impact of the locality, including geological studies and environmental surveys. These are critical prerequisites for a successful project and are instrumental in minimising negative impact. Specialist studies will help us identify any constraints, possible enhancements and required mitigations as well as assist with key decisions such as the exact reactor siting.

### **Developing skills and capabilities**

To realise the project's full socio-economic potential, we need to make sure that the local workforce and businesses have the required skills, expertise and capability to capitalise on the opportunities. We will work with local and regional education, skills and training providers as well as supply chain organisations to develop robust plans and secure investment.



## » The Trawsfynydd Nuclear Journey





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