
DIGITAL
TRADE
MISSION
OCNI
ORGANIZATION OF CANADIAN
NUCLEAR INDUSTRIES
Clean Energy for a Low Carbon Economy
WNF
WALES
NUCLEAR
FORUM
JANUARY 26 - 29, 2021
Natural Resources Canada
Ressources naturelles Canada
Canada
cna
canadian
nuclear
association

Foreword

Trade between Canada and the UK has intensified in the past few years, as can be seen in the Canada-UK Trade Continuity Agreement (Canada-UK TCA) signed early this year. Opportunities for collaboration and partnership are being opened in many sectors, including nuclear.

The Welsh government and Wales Nuclear Forum have been working towards an impactful and long-term nuclear relationship with both the Canadian nuclear supply chain and power producers.

In 2019, the Welsh government retained the services of Kinetic Cubed to explore the feasibility of partnerships in Canada. Their first major engagement came with their attendance at the CNA Conference in early 2020. Through their participation, and encouraged by conversations with representatives from OCNI, Martyn Staveley of Kinetic Cubed reached out to OCNI to explore a digital trade mission. The result of these conversations can be found in the upcoming four-day digital trade mission, January 26 - 29, 2021.

This objective of this mission is to create mutually beneficial business opportunities for both Canadian and Welsh companies, by

- Providing an overview of the opportunities both in Canada and in Wales
- Exchanging ideas regarding future exploration of mutually beneficial partnerships
- Giving companies a chance to network with potential partners/customers for future engagement.

This mission would not be possible without the support of the planning team on both sides.

For Wales:

Welsh Government

- Richard James, Nuclear Business Manager, Department for Economy and Transport

Kinetic Cubed

- Martyn Staveley, Senior Consultant

For Canada:

Organization of Nuclear Industries (OCNI)

- Ron Oberth, President/CEO
- Navneet Dhaliwal, Director, Operations and Member Support

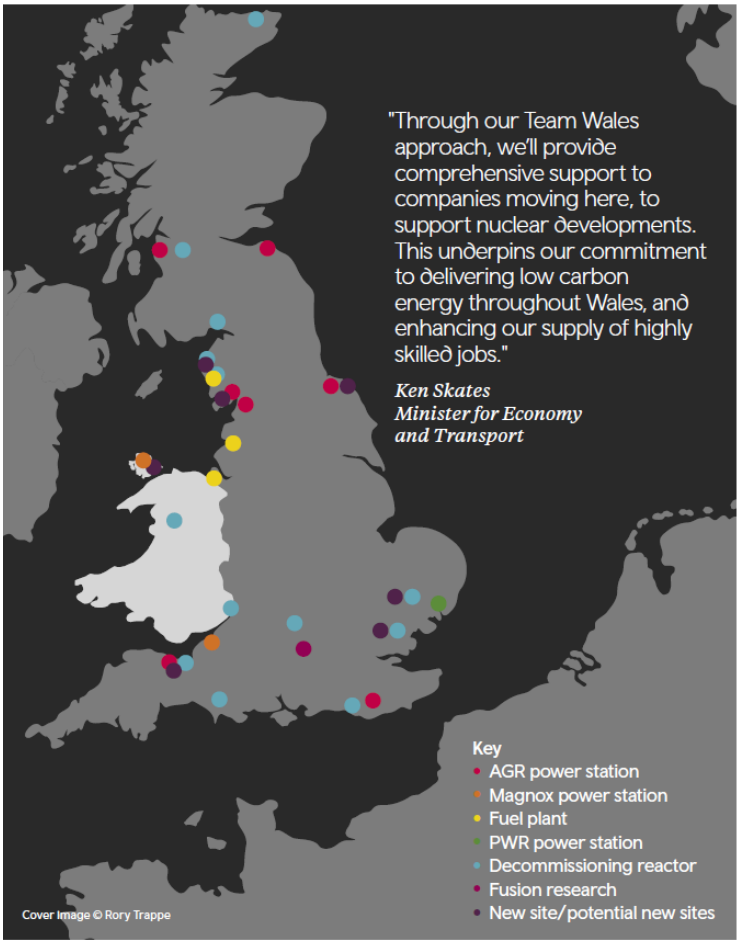
Canadian Nuclear Association

- John Stewart, Director of Policy and Research

Natural Resources Canada

- Anita Kuipers, Deputy Director, Strategic Partnerships and International Relations, Nuclear Energy Division
- Zainab Feroz, Senior Policy Advisor, Nuclear Energy Division

Background – The Welsh Story



There are around 1,500 people employed within the civil nuclear sector in Wales and they have an extensive track record of delivering safe nuclear energy from our sites at Wylfa and Trawsfynydd in north Wales.

The ongoing decommissioning process at Trawsfynydd, has adopted 'lead and learn' principles with lessons learnt being extended to the other plants in the Nuclear Decommissioning Authority's (NDA) portfolio across the UK.

The government of Wales has identified the following as being key future opportunities within the sector:

- New Build
- Small Modular Reactors (SMRs)
- Ongoing decommissioning across the UK fleet
- International opportunities for Welsh supply chain, particularly in decommissioning.

Image and details from Nuclear Energy booklet produced by Trade and Invest Wales.

Brief History

Wales has a nuclear heritage extending back over 50 years to the opening of the Trawsfynydd magnox fuelled station in 1965.

Both the Trawsfynydd and Wylfa sites have now closed and are in the process of being decommissioned.

The Trawsfynydd station, located on a 15.4-hectare site on an inland lake in Snowdonia National Park is unique in being the only inland, lake cooled, civil magnox nuclear station (2 x 235 MW reactors) in the UK. It generated 69 TWh of electricity over its 26 years of generation and permanently shut down in 1993. Decommissioning has been ongoing since 1995.

Wylfa, which is located on the north coast of the Isle of Anglesey, was commissioned in 1971 and was the last and largest of the magnox stations to be built (980 MWe). The station, which was the last generating magnox reactor in the UK, was shut down on 30 December 2015 after 44 years of successful and safe operation. Defueling has now been completed at Wylfa with an expectation that decommissioning will reach the care and maintenance stage by the mid to late 2020s.

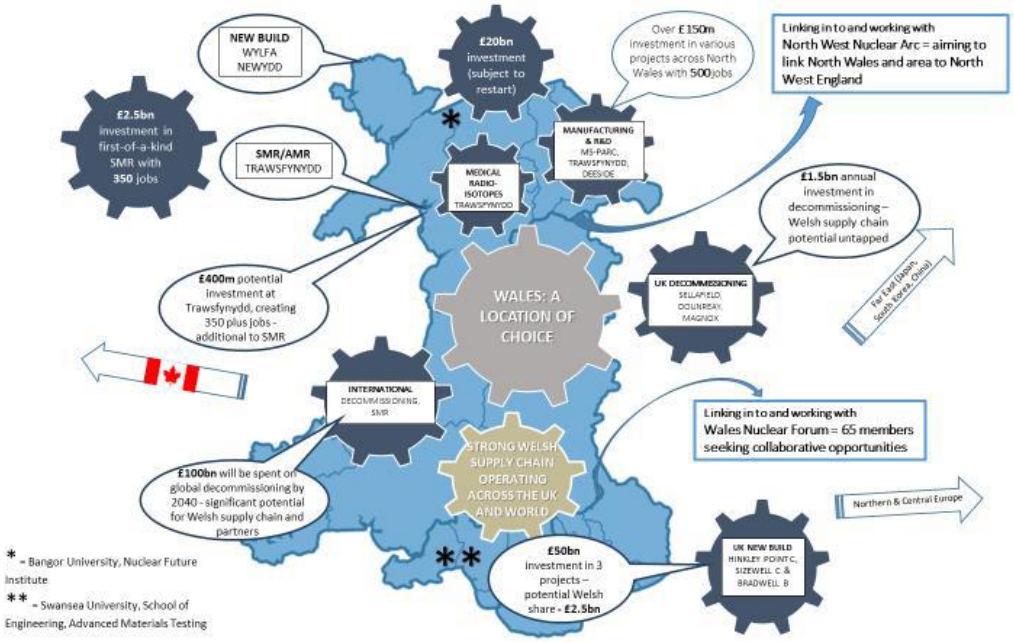
Significant experience has been gained by companies from Wales in the decommissioning of the Trawsfynydd plant and more widely across the UK and globally.

These companies have been involved in a number of complex and testing projects, more often than not, working with a number of large, global Tier 2 decommissioning contractors – e.g. Nuvia, Doosan Babcock.

Experience has been gained in helping to address a wide variety of challenges including sludge and resin retrieval and removal, fuel element debris retrieval and the development of storage facilities for Intermediate Level Waste. Your local workforce here includes technically skilled professionals, with Trawsfynydd able to access a highly skilled and experienced workforce and is within easy reach of a substantial advanced manufacturing hub across north Wales.

The Present Day

Aside from the on-going decommissioning at both Wylfa and Trawsfynydd, there is a lot happening around the Civil Nuclear sector within Wales and on its borders.



Hinkley Point C

The construction of Hinkley Point C, Britain's first new nuclear power in a generation is well underway. The new power station will produce 3.2 GW of secure low-carbon electricity – enough to power 6 million homes for 60 years. As part of the procurement strategy for this major infrastructure project, EDF set up a supply chain engagement partnership, which includes the Welsh Government.

With over 100 Tier 1 contractors, each planning to deliver multi-million to several billion-pound contracts and each with multiple Tier 2 and 3 supply chain requirements, the opportunities for local and regional suppliers is both impressive but also complex.

For Wales, there are over 100 companies from across different trades working on the site currently. The value to Wales from these contracts is estimated to be greater than £700 million.

Current work packages can be viewed here.

Trawsfynydd

Trawsfynydd is named as Lead Project for Magnox Decommissioning. Until recently, the expectation was that Trawsfynydd would enter a 'Care and Maintenance' phase in mid 2020s with final site clearance taking place in the 2070s.

However, plans are now being detailed, to make Trawsfynydd the lead site for the 'continuous decommissioning' of former Magnox stations in the UK. This would involve progressing decommissioning to full site clearance without a care and maintenance hiatus and represents a new approach to the decommissioning strategy within the UK. It also represents a great opportunity for the supply chain to be in at beginning of a new phase in the decommissioning of the Magnox fleet. Trawsfynydd, which had two 195-MW gas-cooled Magnox reactors, is on a 15-hectare site, on an inland lake in Snowdonia National Park, North Wales.
It started service in 1965 and generated 69 TWh of electricity over the 26 years until its closure in 1991.

Subject to the acceptance of the full continuous decommissioning strategy business case, the twin reactors at the site will now become the very first in the UK to be fully decommissioned and cleared.

This will cover a programme over twenty years to deliver three main phases –

1. Remove the reactor building's concrete panel outer shell down to ground level.

2. Increase the height of the inner walls to gain leverage to access the reactor, remove the six 1,000 tonne boilers stored in sections and the 45-tonne overhead crane from each reactor for off-site disposal and remove the reactors, their components and the reactor core.

3. Demolish the remaining reactor buildings and cap their footprint in accordance with planning consent requirements and finally landscape.

Research and Development Facilities

Bangor University continues to expand its nuclear-related research capacities following the establishment of its Nuclear Futures Institute, with projects such as the Nuclear Energy Centre of Excellence proposal - a project that is supported by the North Wales Growth Deal.

Further education in North Wales also recognises the importance of strong nuclear skills, with the new energy centre for apprentice training opening at Coleg Menai in Llangefni – Grŵp Llandrillo-Menai's largest capital build to date and acknowledged as featuring the highest quality, most state-of-the-art engineering training equipment in Wales.

Research into advanced manufacturing in Wales is being strengthened by the AMRC Cymru facility in Broughton, enhancing the role that North Wales can play in the development of advanced nuclear technologies.

The centre will provide a new level of support to business and facilitate collaboration between industry, academic partners and entrepreneurs. It will be a catalyst for growth by driving innovation and commercialisation and the development of cutting-edge skills.

A planned second phase of the project has an initial development scope of 2,000m2 to consist of training and skills centre facilities that dovetail with the larger AMRC Cymru Phase 1. In broad terms this facility would develop a pipeline of future high-calibre skills that would align with the needs of the region and facilitate light industrial collaborative research with the SME base and supply chains.

Future Opportunities

Cwmni Egino - a Development Company for Trawsfynydd

The development company - to be known as Cwmni Egino - will help exploit the economic benefits of small modular reactors and associated technologies on the site, including the potential for a medical research reactor, to provide a secure and sustainable supply of medical radioisotopes for Wales, the UK and Europe. The Development Company is technology agnostic.

The exploitation of this technology would not only bring direct economic benefits to the Trawsfynydd area but also to the wider region - supporting the case for the thermo-hydraulic testing facility at M-SParc on Anglesey and generating work for the AMRC Cymru facility on Deeside.

SMR and AMR technologies and deployment

The convergence of a site, a government backed Development Company and the Research facilities clustered in North Wales allied to an experienced Supply Chain, creates the ideal environment for the development, testing and deployment of these technologies.

Allied to this, as a Devolved Administration within the UK, the Welsh Government has the power to consent for power generation up to 350MW, making the Trawsfynydd site the ideal location for any First of a Fleet deployment.

Medical Isotopes

The development of a research reactor for the production of Medical Isotopes is a further commercial opportunity that will be pursued at the Trawsfynydd site.

In Europe, the current isotope producing reactors were all constructed in the 1950s and 1960 and are approaching the end of their lifespan. This is increasing the frequency of unplanned production interruptions and the need for planned maintenance shutdowns. As a result, the global supply of radioisotopes has become more fragile in recent years.

Wylfa Newydd

Wylfa Newydd - a £12bn, 2.7GW new nuclear project on the Isle of Anglesey in North Wales – aimed to deliver 2 x Hitachi ABWR reactors and was being financed by Hitachi. The project however, was suspended in January 2019 following the Hitachi Board's decision that the company could not sufficiently mitigate the inherent financial risk in developing such a large infrastructure project. Hitachi confirmed in September 2020 that it intended to formally withdraw from the project.

Current activity is centred around the efforts of a US consortium – led by Bechtel and including Southern Company and Westinghouse - who are in talks with the UK Government about reviving the Wylfa Newydd project by building Westinghouse AP1000 reactors at the site.

The Mission Agenda

All times listed are in EST

January 26, 2021

9:00 am	**Introduction to the Nuclear Landscape in Wales** • Ken Skates, Minister for Economy, Welsh Government
9:20 am	**SMR Roadmap and Action Plan in Canada** • Shawn Tupper, Associate Deputy Minister, Natural Resources Canada
9:40 am	**Message from Ontario** • Vic Fedeli, Minister, Ministry of Economic Development, Job Creation and Trade
9:45 am	**The Nuclear Landscape in Canada** • John Gorman, President and CEO, Canadian Nuclear Association
10:00 am	**BREAK**
10:15 am	**Opportunities at Hinkley Point C** • The EDF Stakeholder Team
11:00 am	**Introduction of Raven Delta Group**
11:05 am	**Opportunities in Ontario** • Gary Rose, Deputy Site Vice President - Execution, Darlington Refurbishment, Ontario Power Generation • Helen Viveiros, Project Resource Planning & Strategies, Ontario Power Generation • Richard Horrobin, VP & Managing Director, Supply Chain, Bruce Power
11:45 am	**Introduction to Huntingdon Fusion Technologies**
11:50 am	**Introduction to Flamgard**

January 27, 2021

9:00 am	**On-grid and Off-grid Opportunities in Canada** • Lubna Ladak, Vice President Corporate Business Development & Strategy, Ontario Power Generation • Gina Strati, Head of Directorate (Acting) - Advanced Reactors at Canadian Nuclear Laboratories
10:00 am	**BREAK**
10:15 am	**Opportunities at Trawsfynydd Development Company** • Wyn Roberts, Head of Nuclear Welsh Government • John Idris Jones, North West Nuclear Arc
11:00 am	**Introduction to Robert & Prowse**
11:05 am	**Introduction to Rototherm**
11:10 am	**Introduction to C & P Engineering Services**
11:15 am	**Medical Isotopes – Commercialisation** • Andrew Thiele, CNIC • Lucy Gleeson, Deputy Chief Science Officer, Welsh Government • Karin Stephenson, Manager, Commercial Operations, McMaster Nuclear Reactor

January 28, 2021

9:00 am	**Opportunities in New Brunswick** • Colleen d'Entremont, President, Atlantica Centre for Energy • Brett Plummer, CNO and Vice President Point Lepreau Nuclear Power Station, Énergie NB Power • Norm Sawyer, President & CEO, ARC Clean Energy Canada Inc. • Rory O'Sullivan, CEO for North America at MOLTEX ENERGY • Steve Milbury, VP, Investment Attraction and Trade at Opportunities NB
10:15 am	**BREAK**
10:30 am	**Introduction to Clywd Compounders**
10:35 am	**Introduction to Drone Evolution**
10:40 am	**Collaboration and Innovation – Research and Academic Partnerships** • Speakers from the University of New Brunswick • Bangor University and • UNENE
11:10 am	**Introduction to Swansea University**
11:15 am	**Introduction to Zip Clip**
11:20 am	**Introduction to Teddington**

January 29, 2021

9:00 am	**Opportunities at Magnox Decommissioning Strategy, Trawsfynydd** • Angharad Rayner, Site Director
10:00 am	**BREAK**
10:15 am	**Decommissioning Strategies in Canada** • Carla Carmichael, VP Nuclear Decommissioning Strategy, Ontario Power Generation (CCNS) • Paul McClelland, Director Waste Management and Technical Support, AECL • Neil Alexander, Principal Consultant, Bucephlus Consulting
11:10 am	**Introduction to Matom**
11:15 am	**Introduction to Mona Lifting**
11:20 am	**Closing Remarks and Next Steps**

Participants from Wales

Bangor University

Clywd Compounders

C & P Engineering Services

Drone Evolution

Flamgard

Huntingdon

Matom

Mona Lifting

Raven Delta Group – eft Consult

Roberts and Prowse

Rototherm

Swansea University

Swansea University Material Advanced Characterisation Centre (MACH1)

Advanced Sustainable Manufacturing Technologies - ASTUTE 2020

Teddington Engineered Solutions

Zip Clip

Participants from Canada

ARC Clean Energy Canada Inc.

Bucephalus Consulting

Calian

Canadian Nuclear Laboratories

CANDU Owners Group Inc.

DB2 Consulting Inc.

Deep Trekker

EXO Insights

FuseRing.com

Gowling WLG

Hatch Ltd

KEPCO E&C Canada

Kinectrics Inc.

L3Harris (L3 MAPPS Inc.)

Laurentis Energy Partners

Laveer Engineering

Mirion Technologies (IST Canada) Inc.

Moltex Energy

Nuclear Promise X

Power Generation Integrated Consulting Limited (PGICL)

Rapid Evac Emergency Communications Inc. (Tap Report)

Rolls-Royce Civil Nuclear

Sargent & Lundy

SNC-Lavalin