Nuclear Derived Hydrogen

The Next Success Story for the North West Region

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OPPORTUNITY BRIEF

North West Business Leadership Team

NORTHERN NUCLEAR ALLIANCE

Opportunity Brief

Nuclear & Hydrogen: The Region's Next Success Story

The Northern Nuclear Alliance (NNA) have developed this opportunity briefing to highlight the new opportunity for North West England and North Wales, regarding the existence of two world leading industries: Hydrogen and Nuclear, within the same geographic region of the UK. The briefing paper has been developed in conjunction with the North West Business Leadership Team, alongside key stakeholders from both the North West nuclear and hydrogen communities. The paper draws upon information and data developed by leading institutions such as the Dalton Nuclear Institute, the National Nuclear Laboratory, the Welsh Nuclear Forum, the North West Nuclear Arc, the North West Hydrogen Alliance, Hydrogen UK and Net Zero North West. This first opportunity briefing paper is designed to inform both policy makers and industry leaders of the vast opportunity that nuclear derived hydrogen could offer, with the intention of stimulating further debate, gaining Government interest and ultimately attracting new investment into the region.

Who Are We?

Northern Nuclear Alliance

The NNA (Northern Nuclear Alliance) is a group of like-minded nuclear industry organisations who see a mutual benefit in sharing their collective business knowledge and collaborating to grow and develop a thriving nuclear sector in the North of England. We represent over 50 companies, many SMEs, in Liverpool, Cheshire, Lancashire and Manchester, working with similar organisations in Cumbria and North Wales.

Together we act as a collective voice with UK Government, Non-Governmental Organisations and International Agencies, driving the case for Net Zero Needs Nuclear and championing the wealth of nuclear capability, capacity and expertise in our region. We work with our members and similar organisations to deliver a regional response to consultations and competitions from UK Government and commercial organisations to increase the nuclear capability and bring opportunities to the region.

"This is a once in a generation opportunity for the North West to leverage its history in developing and delivering innovative transformational energy infrastructure. Bringing together for the greater benefit of society, nuclear and hydrogen to deliver net zero, not only for the North West but setting the blueprint for all areas"

RACHEL O'DONNELL
Chair - Northern Nuclear Alliance

Foreword

Nuclear & Hydrogen: The Region's Next Success Story

"The North West features both the UK's leading nuclear region and the UK's leading hydrogen cluster. The two industries are coming together to enable greater dialogue and collaboration, and investigate how the power of a nuclear backed hydrogen economy in the North West, could position the region as a world leader for zero carbon hydrogen production"

PAUL HENNESSEY
Vice-Chair
Northern Nuclear Alliance

"The North West has a delivery record second to none. It is not hyperbole to say that this opportunity to bring together ground breaking nuclear and hydrogen projects is a once in a generation opportunity that we must all grasp"

EMMA DEGG
Chief Executive
North West Business Leadership Team

Net Zero, Hydrogen and the Future

The future of UK energy is moving towards decarbonisation via an array of sources including: Wind, Solar, Tidal, Hydroelectric, Geothermal, CCS and Nuclear. Whereas the future is rooted in enhanced electrification, not all industrial, transportation and residential energy uses can conveniently be converted to electricity.

Hydrogen is a clean alternative energy vector which offers opportunities for the UK (and the North West in particular) to lead on system integration.

The North West is positioned to be the first UK region to significantly develop hydrogen production, initially through HyNet to produce 350 MW of hydrogen from the EET Hydrogen plant at the Stanlow Manufacturing Complex.

This will supply hydrogen to multiple industrial end users through Cadent's planned hydrogen pipeline network. While hydrogen may in the first instance be produced from natural gas (with CCS), significant efforts are being made to commercialise hydrogen production using electricity from renewable energy sources.

Nuclear energy is also potentially important as a similarly clean energy source since hydrogen can be produced efficiently from nuclear electricity, or the heat deriving from the nuclear reactor or a combination of both.

With the development of next generation nuclear reactors, such as SMR (Small Modular Reactors) and AMR (Advanced Modular Reactors), which provide new found flexibility in siting/licensing and offer applications beyond just grid power, there is a new opportunity for the North West to realise another first; namely to be the first region to adopt nuclear to significantly contribute to the UK's hydrogen ambitions.

This could either be through conventional means, providing high capacity factor, low carbon electricity for the electrolysis of water with conventional electrolysers (Alkaline or Proton Exchange Membrane - PEM type) or by more innovative methods, such as using the reactor to provide heat and steam for 'hot electrolysis' with Solid Oxide Electrolysis Cell (SOEC) electrolysers or for driving a 'Thermochemical Water Splitting' process to produce hydrogen at higher efficiencies and potentially, lower levelised costs.

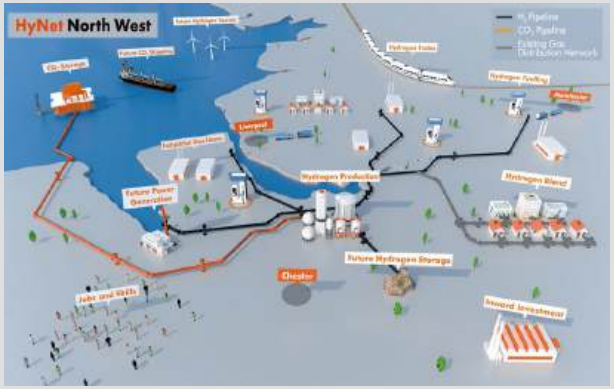
Hydrogen in the North West

The UK's Leading Hydrogen Cluster

The Story So Far

The North West of England is poised to be one of the primary regions for the development of a decarbonised, hydrogen-based energy market for the UK.

All the necessary components are present to develop a hydrogen economy – thriving industry, an existing skilled workforce, city regions that collaborate, as well as natural and industrial assets.



After achieving official track 1 CCS cluster status and UK Government backing, the North West is a leading energy powerhouse – made up of Manchester, Liverpool, Warrington, Chester, Lancashire, Cumbria and North Wales. That provides a compelling destination for future investment and a test bed for the energy revolution on the road to net zero.

- Recognised as a first mover, having achieved UK Government backed, Track 1 CCS Cluster status.
- Driven by industry, the North West is driving investment into the net zero economy. By supporting and safeguarding existing jobs, creating 33,000 new jobs and attracting over £4 billion investment, the North West will be a catalyst for economic growth.
- The region hosts the first large-scale hydrogen production and distribution network (HyNet, live by 2027) in the UK.
- It has geological formations that support major CCS infrastructure, it is anticipated that 10 Mte per annum of CO2 will be stored in Liverpool Bay by 2030.
- It hosts Europe's leading hydrogen storage development, capable of storing 1.4 TW/hours per annum of hydrogen in salt caverns.
- There are significant hydrogen off-taker requirements, with a regional 2050 demand forecast between 32 and 48 TWh, requiring up to 7.5GW of new, low carbon hydrogen production.
- There are varied hydrogen use needs featured across the region, including: power generation, industrial heat, blending and transport including road, rail, maritime and aviation.

BREAKOUT BOX:
Nuclear Reactor Types

GW (or large) Scale Reactors:
Current nuclear reactor types deployed or under construction around the world today e.g. Hinkley Point C in the UK. Provide significant base load electricity, with outlet temperatures around 275 degrees.

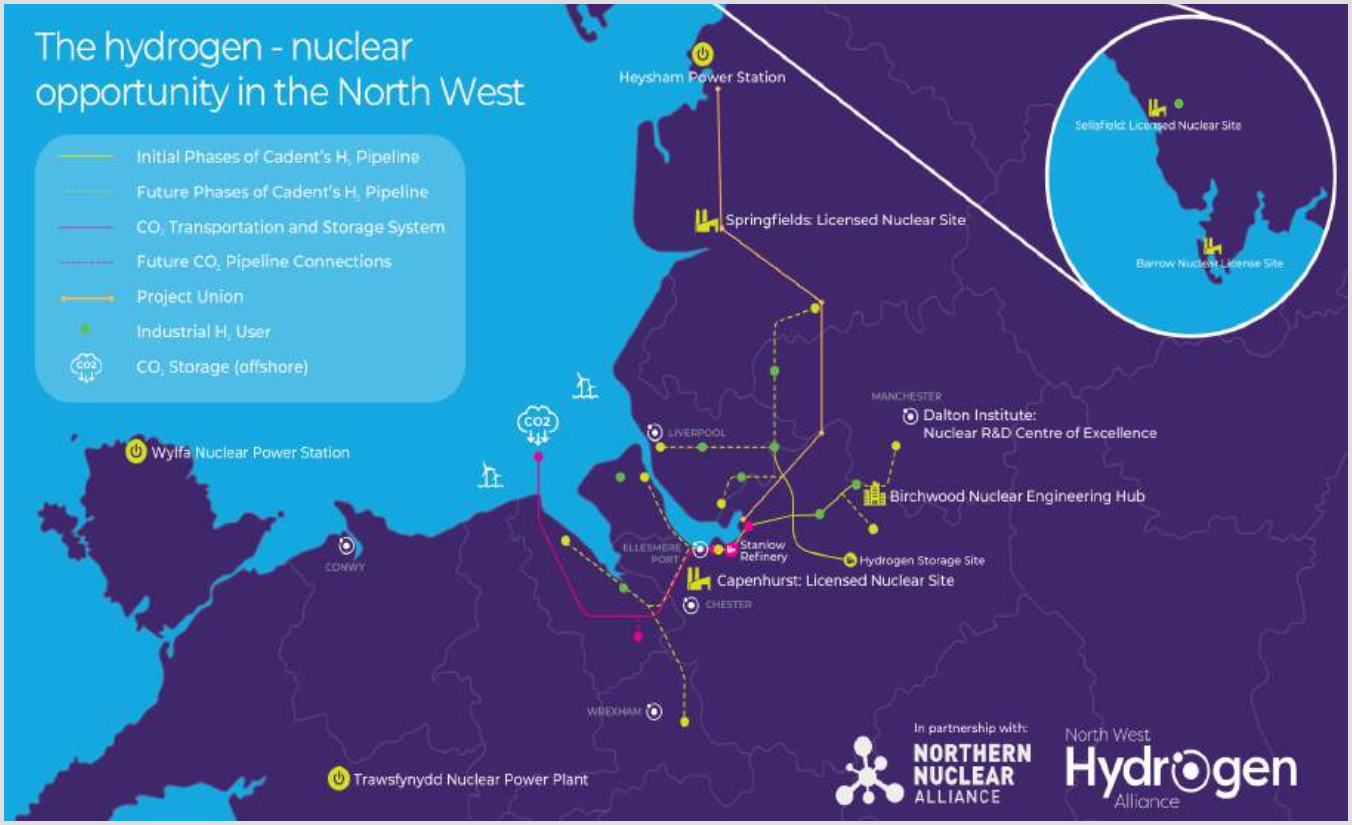
Small Modular Reactors:
Current reactor technology (3rd Generation, typically water based technologies) but at a smaller scale. Under development in the UK and globally, with 6 designs recently down-selected to the next phase of the UK's SMR competition, overseen by Great British Nuclear.

Advanced Modular Reactors:
Next generation reactors (4th Generation) that typically operate at temperatures between 500 and 1,000 degrees, allowing for more flexibility in how they are deployed and utilised e.g. Industrial Heat. Typically, smaller and easier to site next to industry due to enhanced safety case and smaller exclusion zones.

Under development in the UK and globally, with 2 designs in the UK DESNZ AMR Phase B programme (4th Generation designs typically includes; High Temperature Gas Reactors, Sodium Cooled Fast Reactors, Lead Cooled Fast Reactors and Molten Salt Reactors).

World Leading Industries Sitting Side-by-side

North West Nuclear Cluster, HyNet & Project Union



"There is without doubt a huge opportunity for regional development of 'joined up thinking' to embrace and optimise the role of nuclear derived hydrogen within the wider hydrogen market. This leadership could create national and international benefits across the energy supply chain leading to regional investment, jobs and GVA as well as creating major UK export opportunity. The road to net Zero will have many twists and turns along its journey, hydrogen and nuclear offer huge opportunity through collaboration and smart thinking"

DR TONY SMITH - Managing Director, Andas Consulting

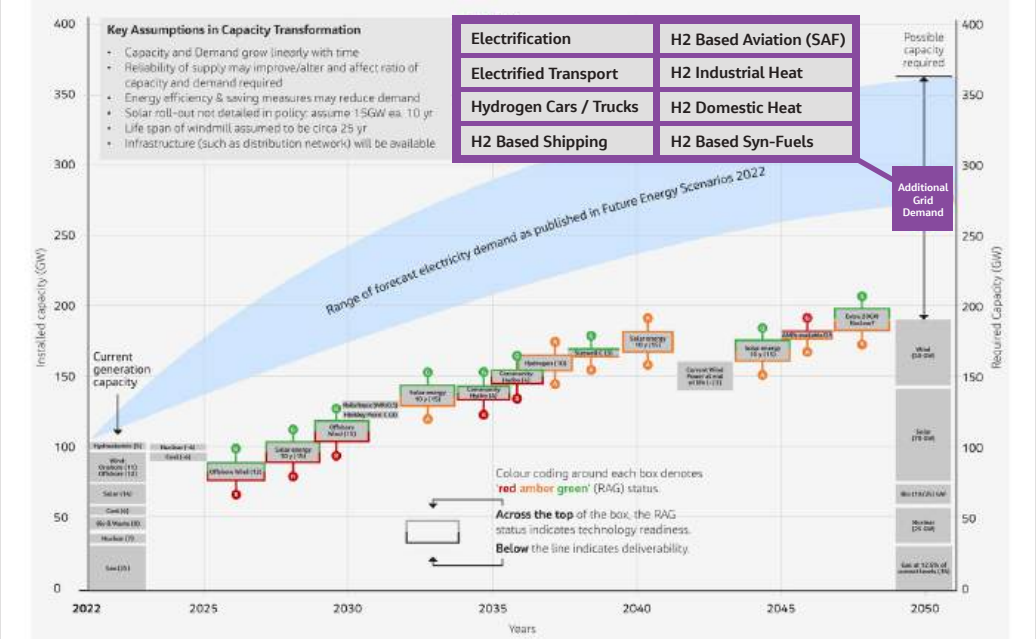
BREAKOUT BOX:
Bay Hydrogen Hub, A UK First

Nuclear Derived Hydrogen is already a reality. The Bay Hydrogen Hub, a consortium made up of EDF, construction materials producer Heidelberg, National Nuclear Laboratory (NNL), and Vulcan Burners, is aiming to pilot a project in which nuclear derived hydrogen, produced at Heysham in Lancaster, North West England is used to decarbonise asphalt and cement production.

The project, with combined Government and Industry funding exceeding £15m, will go towards developing a final design for the hydrogen production, distribution and end use technology and for exploring the full costs and delivery plans.

"For decades nuclear power in the UK has provided zero-carbon electricity to the grid and helped to constrain the nation's emissions, collectively saving more than 700m tonnes of carbon dioxide going to the atmosphere. But we know nuclear power can do even more to drive the nation towards decarbonisation. Our hope is that this project shows industries that are dependent on fossil fuels, as well as the nuclear sector, that by working together we can build a lower carbon future for industry and confirm the UK's place as a global decarbonisation technology leader."

RACHAEL GLAVING
Commercial Director, EDF UK



Example Industry Demand: Aviation

Number of Nuclear Reactors (Estimated) Required to Decarbonise UK Aviation (Production of Hydrogen / Sustainable Aviation Fuel / e-kerosene)

300MW Reactor	SMR Grid Power	SMR 350 °C	AMR 650 °C	AMR 500-1000 °C
(2 x Football Pitches)	Cold Electrolysis	Hot Electrolysis	Enhanced Hot Electrolysis	Thermo Chemical
Reactor N.O. By Type	180	118	74	42

Hydrogen Production Efficiency Increases as Temperature Increases

Based on 100% of 2019 UK Demand (Dukes 2020) + NIA Net Zero Aviation Paper 2023 (55GW of New Clean Energy Requirement) | Reactor Estimates: National Nuclear Laboratory (NNL), Extract from New Build Working Group Report, Scale of Opportunity

Powering the Hydrogen Revolution

The Clean Energy Gap

Hydrogen Production: Where is the power coming from?

There is a significant challenge both for the North West, and the wider UK, to develop and source the vast amounts of new clean energy required to drive the production of zero carbon hydrogen. Currently, electricity production accounts for just 20% of the UK's energy demand, with heat (40%) and transport (40%) accounting for the remaining 80% of consumed energy. As electrification progresses, UK policy plans for an expansion of electricity capacity from 107GW (today) to circa 180GW by 2050.

However, as more and more industries begin to switch away from hydrocarbons to clean energy sources and vectors such as electrification, zero carbon hydrogen or other clean heat sources, it is clear that powering this clean energy revolution will require the expansion of the UK's clean energy production capacity on an unprecedented scale.

When accounting for new sectors entering the clean energy arena, through the phasing out of fossil fuels, the UK's electrical required capacity could increase way beyond the planned 180GW, to be in excess of 375GW (more than 3.5 times the UK's current production capacity), creating a significant capacity gap. (Range of forecast electricity demand as published in Future Energy Scenarios 2022).

Renewables have and will continue to have a significant role in the energy transition, but their intermittent nature and geographic location could limit their role in certain hydrogen production scenarios and with certain end use applications (e.g. zero downtime industrial heat requirements for glass or fertilizer production). Whilst the UK target for wind (50 GW) by 2030 and Solar (70 GW) by 2035 is ambitious, the clean energy gap could still be over 195 GW. As a zero carbon, non-intermittent, high-capacity factor technology, nuclear offers a powerful technology solution to support the UK's hydrogen production ambitions.

Nuclear in the North West

The North West has established itself as a leading region in the nuclear industry due to its extensive and successful history in the sector. Key factors contributing to its pedigree include the presence of major nuclear facilities like Sellafield, NNL, Heysham, Capenhurst, Springfields, LLWR, Trawsfynydd and Wylfa, covering the full nuclear life cycle.

The region boasts the highest concentration of nuclear expertise, experience, test facilities, and employment in the UK, with over 25,000 direct jobs in the nuclear sector. This concentration of skills and resources makes the North West a prominent hub for nuclear activities and reinforces its position as a significant player in the industry.

"We hear a lot about the potential role of hydrogen in achieving Net Zero, but very little to explain where that hydrogen will come from without generating emissions elsewhere. This work looks to progress a possible solution, based on advanced nuclear technology, which could leverage huge opportunity across the North West"

PROFESSOR ADRIAN BULL, MBE
Dalton Nuclear Institute

- Significant nuclear heritage, with several existing nuclear licensed sites in the Northwest and North Wales regions.
- Region has unparalleled knowledge and engineering capability across the whole nuclear life cycle (research, design, build, operations, including generation, decommissioning and waste management routes.).
- North West features the UK's leading nuclear supply chain, hosting 178 separate nuclear focused businesses / regional offices and the UK's largest nuclear talent force of over 25,000 engineers, scientists, manufacturers and specialist researchers, making the Northwest the number 1 region for nuclear in the UK.
- 50% of potential UK sites for large nuclear new build and 70% for potential Small Modular Reactor deployment sites are in the Northwest.
- Largest nuclear R&D capability in UK, including the leading UK universities, Institutions, National Laboratories, Birchwood Nuclear Hub and collaboration networks such as the Northwest Nuclear Arc, Northern Nuclear Alliance and Cumbrian BECBC Group, seeing almost half of all nuclear research and innovation take place in the Northwest region.

BREAKOUT BOX:

Opportunity for Nuclear Derived Hydrogen at scale in Cumbria

In Cumbria, the Solway Community Power Ltd (SCPC) proposed development offers the opportunity to deploy 940MW of new, clean and non-intermittent energy for a period of over 60 years.

With the creation of a new Nuclear Licensed Site, on NDA estate land adjacent to the Sellafield nuclear waste processing plant (Moorside), SCPC is positioned to deliver over £6.5Bn of private investment into the North West economy, supporting over 40,000 UK supply chain jobs.

Independent of UK Treasury and with agreed funding in place, Solway represents the first UK opportunity for a full privatised nuclear investment. The business case for the Moorside site for deploying two Small Modular Reactors, includes both electrical power to grid, to support the decarbonisation of North West industry and also, the production of low carbon, Nuclear Derived Hydrogen.

Options under review include: Interface and connection to Project Union (National Gas) to supply Cumbrian produced Hydrogen UK wide, Ammonia production to support UK farming and Sustainable Aviation Fuel (SAF) production.

Nuclear & Hydrogen

What is Nuclear Derived Hydrogen?

Hydrogen Production Using Nuclear

Nuclear derived hydrogen is developing around the world, with projects underway in Japan, USA, Canada and Malaysia.

In the UK, exploring the potential of nuclear derived hydrogen is part of Government Policy, through inclusion in the July 2022 UK Hydrogen Strategy "Nuclear energy could power electrolysers today, while in the future small modular reactors and advanced modular reactors could facilitate greater deployment and use of nuclear-derived heat and power in high temperature electrolysers or via direct thermochemical water splitting."

1: Cold Electrolysis

All Reactor Types: The Cold Electrolysis option involves nuclear electricity powering the electrolysis of water with Alkaline or PEM type electrolysers to produce zero carbon hydrogen. This option is available using nuclear electricity from existing nuclear power stations, but when used for electricity production, nuclear reactors are typically only about 35% efficient, due to inevitable thermodynamic losses in turning heat into electricity.

2: Hot Electrolysis

Current Technology Reactor Types: Hot electrolysis involves nuclear heat at 250 ^{0}C to 400 ^{0}C to create high temperature steam. When used for direct heat production, nuclear reactors are typically 80% efficient. Heat converted to steam, is then used by SOEC type electrolysers to produce zero carbon hydrogen.

550 MW of Hydrogen Production via the UK nuclear fleet, using hot electrolysis could produce circa 220 tonnes of hydrogen per day by 2035, with a levelised cost of hydrogen as low as £1.89/kg*

(EDF, H2H Heysham Feasibility Report 2019)

As the majority of energy in a SOEC electrolyser unit is used to transform water to steam, the use of nuclear derived steam removes this energy intensive step, significantly improving the overall efficiency of the process. SOEC electrolysers then use minimal energy to increase steam temperatures up to approx 650 ^{0}C for optimum efficiencies. This offers the potential for lower levelized cost low carbon hydrogen production compared to renewables.

3: Enhanced Hot Electrolysis

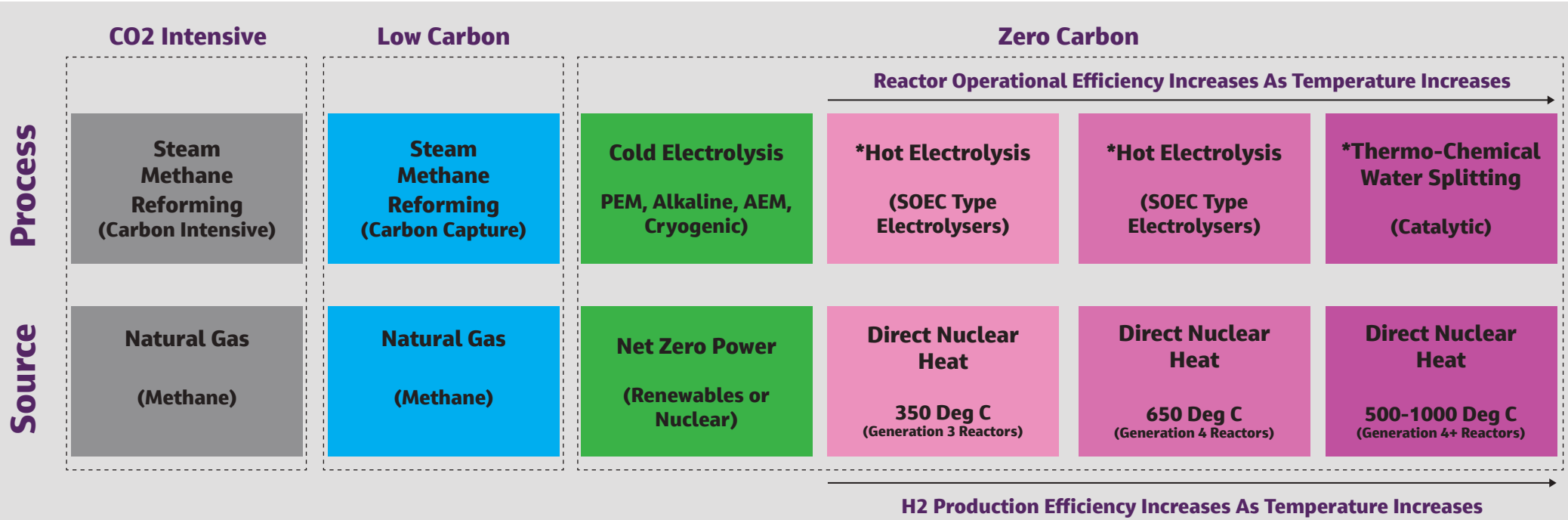
Next Generation Reactor Types (Advanced Modular Reactors) : This will involve nuclear heat at 750^{0}C to 900 ^{0}C from Advanced next generation reactors, to create very high temperature steam. The steam is then already at the optimum temperature of 650 ^{0}C to be used directly by SOEC type electrolysers without any need for additional energy to increase steam temperature, thereby producing zero carbon hydrogen at optimum efficiency. This offers the potential for highly competitive, low levelized cost net zero hydrogen production (<$1.0/kg).

4: Thermochemical Water Splitting

Next Generation Reactor Types: The final option uses nuclear heat to drive a 'Thermochemical Water Splitting' process, to produce hydrogen without the need for the inefficiencies inherent in first converting the nuclear heat into electricity. This potentially provides the lowest levelized cost hydrogen production available, however more research is needed on how to scale up this technology.

300 °C Hot Electrolysis could deliver net zero hydrogen <$2/kg and 650°C Next Generation, Advanced Modular Reactors could achieve <$1.0/kg

(Hydrogen Council; IEA, NREL, M. Ruth et al. Yan, 2020)



BREAKOUT BOX: UK's Nuclear Stockpile: A New 'North Sea' for Future Generations

Over the past six decades the UK has built up the largest stockpile of civil plutonium in the world, with 140-tonnes currently stored at Sellafield (Cumbria) as plutonium dioxide powder. For uranium, the enrichment and fuel use processes leave behind 99% of the fuel (still energy dense) with the UK having stockpiled >100,000 tonnes of uranium, also located in the North West at Capenhurst (Cheshire).

Currently, this resource is classified as a waste and therefore a liability on the UK balance sheet, however options are emerging to switch this significant energy rich resource from a liability to an asset. New research by the Dalton Nuclear Institute, in their report (September 2023) **Managing the UK plutonium stockpile: No easy choices**, has started a new dialogue on how the UK manages its legacy nuclear waste. Currently after a period of storage, the end point for spent nuclear fuel (plutonium and Uranium) is disposal into the planned UK Geological Disposal Facility (GDF). However, the advent of new reactor types (particularly 4th Generation AMRs has created a new and exciting opportunity for the UK: The ability to re-purpose our spent nuclear fuel (waste) stockpiles and re-use this as a fuel for the future.

In this scenario, The UK's 140-tonne stockpile of civil plutonium (Sellafield) could be used as fuel for next generation thermal reactors or combined with the country's 100,000-tonne supply of depleted, natural and low-enriched uranium (Capenhurst) which becomes a viable energy source in partnership with plutonium, to fuel new fast reactors.

In this scenario, the potential energy stockpiled in the North West is a staggering 10 x the equivalent energy potential of the North Sea.

"Successfully delivering on the use of plutonium for one of the fuel options "could power the UK for centuries"

PROFESSOR CLINT SHARRAD
Dalton Nuclear Institute, Acting Director

"Here at Net Zero North West, support for plans and initiatives that drive the hydrogen economy is top of our agenda and is something we are actively working hard to drive as a cluster group as we work towards net zero targets. 'We are therefore delighted to work with the Northern Nuclear Alliance and the industry to help shape and grow this opportunity for nuclear derived hydrogen"

GED BARLOW
Chief Executive
Net Zero North West

"The North West region has unique resources and facilities to deliver zero-carbon nuclear-derived heat and hydrogen using facilities already available today. In the near future nuclear fission power also has scope for achieving massively greater efficiency (and hence lower cost) through better utilisation of heat and greater efficiency of fuel use in new reactor designs"

DR DAVID BRADBURY
Nuclear Industry Expert
TÜV UK Ltd (TÜV NORD GROUP)

Our Vision

The UK's Leading Nuclear Derived Hydrogen Region

The North West has a forecast demand of between 32 and 48 TWh of low carbon hydrogen, requiring 5 to 7.5 GW of low carbon hydrogen production capacity by 2050 to decarbonise key industries. These include hard to abate sectors such as shipping, aviation, energy intensive manufacturing and high process heat applications. These industries are within one of the UK's leading industrial clusters, currently supporting over 913,000 jobs.

The risk of clean energy supply constraints is a real risk to the success of the UK's hydrogen ambitions. To mitigate this risk, and take a leadership role on tackling this challenge, the Northern Nuclear Alliance, its membership of over 50+ leading regional businesses (large and small businesses) have come together to investigate how we can facilitate the merging of two nationally leading industry sectors that are present in the same region.

Our vision is to facilitate mutual success to both industries and achieve the common goal of regional development, through the delivery of net zero, with nuclear power underpinning the regions hydrogen production ambition.

The ambitions of the North West's hydrogen plans, e.g. HyNet, have been well publicised and acknowledged by policy makers, seeing HyNet achieve Track 1 CCS cluster status. The role of nuclear in hydrogen is yet to be well defined.

Hydrogen benefits from the North West's geographic attributes such as development space, clustered end users and world class defined geological structures. The North West also provides these benefits to the nuclear sector, hosting 50% of potential UK sites for large nuclear new build (GW scale) and 70% of potential UK sites for the deployment of small and advanced modular reactors.

Analysis through the Northwest Nuclear Arc, presented as evidence to Parliament in August 2022 demonstrates how with two GW scale reactor sites and five small or advanced modular reactor sites developed in the North West and North Wales, could deliver over 8.1 GWe of new clean electricity, or over 20GWth of reliable, low cost, clean nuclear derived heat, that when converted to high temperature steam and interfaced with SOEC electrolysers could provide fully support and surpass the Northwest region's 2050 hydrogen production demand.

With nuclear derived hydrogen, using direct nuclear 'heat' already part of the UK's Hydrogen Strategy (July 2022) and with 4 new Government backed R&D / Demonstrator projects already underway in the region, the combined efforts of the Northern Nuclear Alliance, membership, and the wider communities of both the hydrogen and nuclear sectors are coming together to make nuclear derived hydrogen, the next North West region success story.

North West & North Wales Offers*

50%
Of Potential UK Sites
For New Large Nuclear

70%
Of Potential UK Sites
For SMR/AMR
Modular Reactors

2 x Large Nuclear (GW) & 5 x SMR/AMR Sites Could Deliver

8.1GW
New Clean Electricity
(Or >20GW of Heat)

£125Bn
In investment & Skills
& Technology Exports

60,000
New Jobs at Peak
Construction

2,600
New Long Term,
Highly Skilled Jobs

What's Next

Developing the North West Region

1. The Northern Nuclear Alliance will facilitate the development of a 'nuclear derived hydrogen' leadership group here in the North West, including wider stakeholders such as the: Dalton Institute, University of Liverpool, North West Nuclear Arc, Welsh Nuclear Forum, BECBC and the National Nuclear Laboratory (NNL).

2. The initiative involves two leading industries, in one geographic region: The NNA will look to further develop discussions with key stakeholders from outside the nuclear industry such as: The North West Hydrogen Alliance, Hydrogen UK, Net Zero North West, the North West Business Leadership Team, Regional Business Boards and the Northern Powerhouse. Together, we will provide a community of support to potential investors and project developers attracted to the North West region.

3. We will seek to immediately bring Government departments and bodies such as Great British Nuclear, DESNZ and the ONR into discussions early around nuclear co-generation, regional investment, levelling up and the creation of new nuclear licensed sites and developments in the North West.

4. We will look to attract and subsequently support new schemes to the North West, such as new nuclear at Wylfa and Trawsfynydd and new nuclear licensed sites at Moorside (Cumbria) to provide the much-needed clean energy (both electricity and heat) to power the net zero energy revolution, including the hydrogen production ambitions of the region and beyond.

5. Together with our membership of over 50 nuclear organisations in the North West region, plus the combined memberships of our non-nuclear industry stake holders, we will seek to identify and collaborate on funding and investment opportunities to further develop the concept of nuclear, as the net zero power house behind the North West's hydrogen production ambitions.

** North West Nuclear Arc, presented as evidence to Parliament in August 2022 - North West England & North Wales.*

"We're pleased to see this important work exploring the benefits and synergies of nuclear and hydrogen in the North West. These are two critical technologies for delivering Net Zero and by bringing them together we can maximise the environmental and economic benefits of both. We look forward to working with the Northern Nuclear Alliance and partners to capitalise on this opportunity and support the North West in its ambition to be a global leader in this area"

CLARE JACKSON - HYDROGEN UK
Chief Executive Officer

WIDE CROSS SECTOR SUPPORT IN THE NORTH WEST

Northern Nuclear Alliance

North West Business Leadership Team

Jacobs

The University of Manchester Dalton Nuclear Institute

Nuclear Industry Association

mace

Net Zero North West

Hydrogen UK

National Nuclear Laboratory

TÜV NORD TÜV UK Limited

EDF

cavendish nuclear

SOLWAY COMMUNITY POWER CO.

amentum

University of Liverpool

cwmni Egino

North West Nuclear Arc

North West Hydrogen Alliance

urenco The Energy to Succeed

national gas

NP11

Cadent Your Gas Network

BECBC

WNF Wales Nuclear Forum Excellence in Energy

FfNC Fforwm Niwclear Cymru Rhagoriaeth Mewn Ynni

"This is yet another fantastic opportunity for hydrogen production development, and one which could particularly benefit the North West region. Effective decarbonisation to get the whole country to reach net zero is going to need an array of energy sources, and nuclear offers a promising route to generate significant volumes of hydrogen. These ambitions in development by the Northern Nuclear Alliance would provide an enormous advantage to multiple North West based industrial end users, with any nuclear derived hydrogen produced supported by our Cadent pipeline network. We're pleased to support this opportunity; as another defined route to support carbon reduction targets, and to keep the North West leading the way as the primary hydrogen based energy market for the UK."

HELEN BOYLE- CADENT GAS LTD
Head of Regional Development, North West