PNG Energy Transition Update – November 2021

I'm writing today to share the very first Phoenix Natural Gas Energy Transition Update.

An ongoing series, our Energy Transition Updates seek to inform interested stakeholders we've engaged with over the past months and years about recent Energy Transition developments and the emerging research which is informing our approach to decarbonising the NI Gas Network.

As you have no doubt heard several times from Jonathan & I, our modern gas network has helped to significantly reduce the carbon emissions of homes & businesses across the region. However, as a fossil fuel, the gas industry recognises that natural gas, in the long-term, can only ever serve as a bridge to true renewable gases like Biomethane & Hydrogen.

With this in mind, Phoenix Natural Gas is working with other Gas Network Operators to determine the optimal pathway to decarbonising the NI Gas Network in a way which is both affordable and non-disruptive, for current, and future, gas users. As part of this process our Energy Transition team has been working with, and learning from, stakeholders and experts from across the United Kingdom, Ireland and Europe.

We enter a very interesting period in Northern Ireland's pathway to net-zero. Climate legislation is working its way through the Assembly and the publication of the Executive's Energy Strategy is expected in the coming weeks. Key decisions will soon be made that will accelerate the transition of businesses, utilities and consumers across the region towards a decarbonised future.

In Great Britain, the UK Government recently published a series of net-zero strategies. This included the long-awaited Hydrogen Strategy which sets out the UK Government's vision for how it will work with industry to meet its ambition for 5GW of low carbon hydrogen production capacity by 2030. However, its clear that industry – through the many hydrogen projects and trials underway – has significantly greater ambition.

Finally, it would be remiss of me not to acknowledge the significant impact the recent significant increase in the cost of imported wholesale gas has had on domestic consumers and industries across Northern Ireland. These last few months have driven home the necessity of ensuring that Northern Ireland's transition to net-zero is as affordable as possible for consumers – domestic and non-domestic alike. We believe this requires the utilisation of several different decarbonisation technologies working collaboratively to achieve an optimal net-zero energy system with is both affordable and resilient.

I hope you find this update helpful and informative

Best wishes,

Iain Hoy

Energy Transition Manager
Phoenix Natural Gas

Phoenix Meets Worcester Bosch - the consumer technology behind the transition

In the most recent episode of our 'Phoenix Meets' series, Jonathan interviewed Martyn Bridges, Director of Marketing and Technical Support of one of the UK's leading boiler and electric heat pump manufacturers - Worcester Bosch.

The interview can be accessed HERE

During the interview Martyn provides a balanced, expert, overview of the future of decarbonised heating. Subjects covered in the interview include:

- The progress and learnings from ongoing Hydrogen trials
- Worcester Bosch's plans to ramp up the production of Hydrogen-ready boilers
- Which type of homes are suitable for heat pumps or boilers
- Worcester Bosch's experience of replacing boilers with heat pumps – only 6% of current heating systems can accept a heat pump without significant retrofit
- The skills and training requirements associated with installing heat pumps and hydrogen boilers
- How Worcester Bosch boilers have been designed to accept a 20% hydrogen blend since 1996

This insightful episode is essential viewing for people interested in the decarbonisation of heat as Martyn gets beyond high-level strategic policy to illuminate the practical challenges associated with low-carbon heating.

Previous episodes of Phoenix Meets have featured Thomas Byrne (DfE), David Surplus (B9 Energy), and Peter Dixon (Chairman, Phoenix Energy Holdings)

UK Policy Developments

In the run up to COP26, the Department for Business, Energy and Industrial Strategy (BEIS) have released a series of far-reaching policy documents including the UK Hydrogen Strategy, the UK Heat and Buildings Strategy and the UK Net-Zero Strategy.

These strategies recognise that many different technologies will need to be utilised for the UK to successfully achieve its net-zero goal. Hydrogen will have a particularly important role to play and this was recognised by the UK Government's commitments to:

- Make a final strategic decision regarding the role of hydrogen for heat in 2026 once upcoming trials are completed.
- Make a decision regarding blending hydrogen into the gas network in late 2023 following testing of the safety, technical and economic case.
- Issue a consultation on the case for enabling, or requiring, new natural gas boilers to be easily convertible to use hydrogen by 2026
- Launch a £140 million Industrial and Hydrogen Revenue Support scheme to accelerate industrial hydrogen production and carbon production and support green hydrogen projects.
- Provide £1 billion of support for two Blue hydrogen clusters – Hynet in North West England and North Wales and the East Coast Cluster in Teesside and the Humber

There are a large number of Hydrogen and Biomethane trial and research projects underway to facilitate the gas industry's pathway to decarbonisation. Initial results – particularly for the HyDeploy trial at Keele University – are extremely positive and have demonstrated that hydrogen can be

blended into the existing network safely without any disruption for the consumer. SGN's upcoming 100% Hydrogen network trial at Levenmouth, Fife, will demonstrate that Hydrogen can safely substitute natural gas on the network.

Hydrogen's role in supporting energy system resilience

The latest Gas Goes Green report, A System for All Seasons, examines how Hydrogen's suitability for long-term, intra-seasonal, storage makes it a crucial element of any resilient decarbonised electricity system.

A key issue confronting policymakers when designing a decarbonised energy system is the high degree of intermittency associated with wind generation. As this report's analysis of wind generation output between 2010-2019 demonstrates, this often means that when the weather is coldest, and correspondingly demand for electricity and heat is at its highest, there is very little wind.

As a result, to ensure our future decarbonised energy system is sufficiently resilient, Green Hydrogen should be produced at times when renewable electricity supply exceeds demand, stored in large volumes, and then used to heat peoples homes and fuel back-up zero-carbon power generation when demand hits its peak during the winter.

As the report outlines, a decarbonised energy system which embraces the storage potential of hydrogen has several advantages;

- **Resilience**: It provides confidence that there is sufficient energy available during cold winter days, when consumers need it the most
- **Efficient**: It maximises the use of installed capacity. Without seasonal storage, a significant amount of additional wind capacity would be necessary to meet the winter peaks, and it is likely that capacity would be unutilised for much of the year
- **Less disruptive**: It reduces the need for disruptive interventions in buildings that are not deemed suitable for electrification via electric heat pumps
- **More practical**: Without seasonal storage, a prohibitive amount of wind capacity would be necessary which would be challenging to deliver from a practical perspective
- **Cost-effective**: It can be delivered with minimal upgrades to existing infrastructure and it is all in all cheaper to deliver

While this report focuses on Great Britain, the lessons from its analysis are applicable to Northern Ireland. Its vital we build up our regional Hydrogen infrastructure base – particularly large-scale storage – to ensure future energy system resilience.

Biomethane Update

Since August 2019, the Northern Ireland gas industry has been working collaboratively with the Utility Regulator and Gas Market Operator to develop the regulatory and technical framework required to allow producers to inject biomethane directly into the NI Gas Network. Biomethane injection is already commonplace throughout Europe, and we expect to be able to begin facilitating local producers efforts to decarbonise Northern Ireland's gas supply from Q2 2022.

A collaborative research project featuring Phoenix, Queen's University Belfast, Centre for Advanced Sustainable Energy, Agri-AD, Enerchem, AFBI, suggest that Northern Ireland's comparatively large

agriculture sector could produce a significant volume of biomethane which could be utilised to decarbonise the gas flowing through the NI gas network. A full report quantifying Northern Ireland's biomethane potential is expected to be finalised by December 2021.

More details

All feedback is very welcome, so if you have any comments, queries or are interested in discussing any of the issues raised in this update then please contact our Energy Transition Manager at iain.hoy@phoenixnaturalgas.com

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