



Light Rail (UK) Group

Auchenshuggle Junction, 8 Beechmore,
Moore, Warrington, Cheshire,
England, United Kingdom.
WA4 6UE

Tel (+44) (0)1925 740675 (0) 07721378223
www.lightrailuk.co.uk email JimH@jimmyharkins.com



Barry Carruthers, Hydrogen Director At ScottishPower



Barry Carruthers 22/07/2022

Scotland's role in hydrogen production and the associated opportunities for decarbonisation.

I was invited to speak to the Scottish Affairs Select Committee this week as it considers Scotland's role in hydrogen production and the associated opportunities for decarbonisation.

As with all new, emerging technologies, we need clear support from government to allow solid investment to move forward, so I was pleased to take the Committee through ScottishPower's ambitions as leaders in green hydrogen production in the UK.

I was asked about our Whitelee site – famous for being the UK's largest onshore windfarm – where we'll be producing green hydrogen in 2024. It's a first-of-a-kind project that we've learned so much from already. One

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of the benefits of producing green hydrogen at this site is that it's a clear extension of what ScottishPower already does – 100% renewable energy generation. We will use the green electricity generated by wind turbines and solar panels to power the process that creates zero-emission green hydrogen. The added benefit of our Whitelee project is the ability to store hydrogen on site and explore that for reliable customer supply as well as optimisation of the energy system.

There are, of course, different ways to produce hydrogen – some of which (blue and grey) rely on natural gas (fossil fuels), which means they're not clean. The Committee was keen to understand why ScottishPower focuses only on green hydrogen production, and again, it's because it fits strategically with what we're doing as a business already; we're all about 100% renewable generation and the acceleration to a Net Zero future.

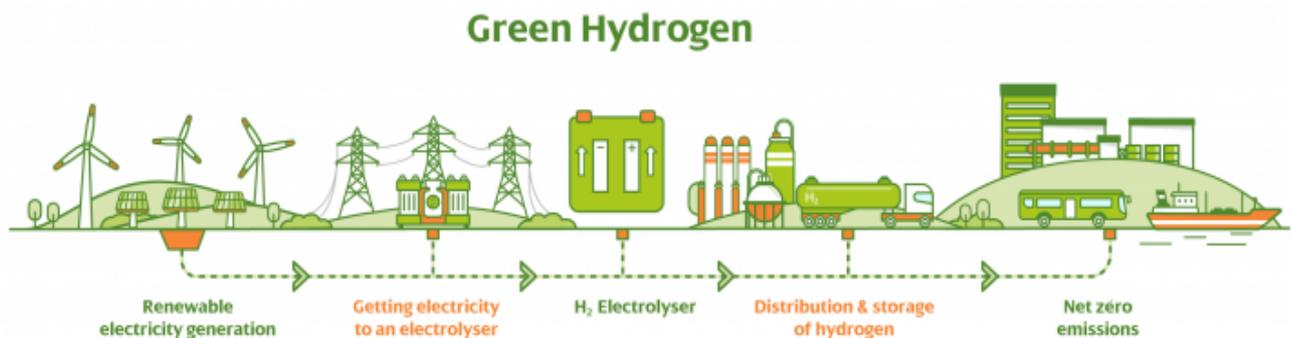
We also want to move as quickly as we can on green technology to help the country decarbonise in light of the climate emergency. And with regards to the volatility in the energy market, renewable energy assets have price stability for decades (15 years are current production contracts for example), therefore relying on fossil fuels with price volatility is not a focus for us.

There's also a geographical diversity to green Hydrogen production – and we're already looking at projects that will be multi-hundred MW scale throughout the UK, which would allow us to create renewable energy hubs serving the rail, maritime and haulage industries as well as industrial uses.

Building in strategic locations also gives resilience in production. Having diverse resources of renewable supply - like we do with our sites at Whitelee (onshore) and East Anglia (offshore) for example - allows us to put our electrolysers (the machine that produces the hydrogen) where they need to be. This also feeds into energy security – using our own renewable supply means external factors, like the war in Ukraine, won't impact on our renewable portfolio's ability to provide clean electricity.

It was a pleasure to give an outline of the work we're undertaking to the make green hydrogen sector a great opportunity across the country. We've already seen this happen with offshore wind in the UK and we know, with the right support, green hydrogen will be another success story. We want to work with the Scottish and UK Governments and take action now to tackle the final gaps in decarbonisation and make our Net Zero ambitions achievable.

How is ScottishPower Scaling up Green Hydrogen?



Quadrant Smart sits down with Barry Carruthers, Hydrogen Director for ScottishPower, to learn what green hydrogen can offer and how we will see it scale up over the next decade.

Part of the Iberdrola Group, ScottishPower is the first integrated energy company in the UK to generate 100% green electricity. The company, which focuses on wind energy, smart grids and driving the change to a cleaner, electric future, is pushing forward the scale-up of green hydrogen power.



Barry Carruthers, ScottishPower

Speaking to Quadrant Smart about the importance of green hydrogen to Scottish Power, Barry Carruthers said: “We’re already a renewable electricity generator and when it comes to the challenge of decarbonisation, we know electricity offers the majority of the solution but for that final 10/20% we need something else and that’s why green hydrogen has to be something that we offer.”

Electrification needs to be adopted to combat climate change and green hydrogen is an essential solution in replacing fossil fuels for industry and larger, heavier modes of transport.

“Hydrogen has very flexible characteristics which we can take advantage of throughout society,” explained Barry.

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This flexibility means green hydrogen can be moved around and located where people need it. To fully realise its full potential and utilise it to its full extent, green hydrogen power needs to be scaled up and adopted more widely.

Barry said there are “five key elements” which will drive forward hydrogen power:

1. Capital support is required at the production side.
2. Capital grants and support is needed for customers and hydrogen users.
3. There needs to be a creation of a green hydrogen market and business model.
4. Legislation and regulation around green hydrogen planning consent
5. A change in operational mindset which will lead to a wider acceptance of the new renewable source of energy.

Scaling-up green hydrogen

Discussing how the energy industry will change over the coming years to facilitate the much-needed adoption of green hydrogen, Barry said: “We will see early adopters in industry, they know that they have to make a change, they know that they’re going to be facing things like carbon tax and climate change levies in the future and therefore they will want to invest further in the future with cleaner fuels.”

Comparing the scale-up of green hydrogen to the success of offshore wind power, Barry explained that offshore wind power over the past 10 years has turned into a global industry “literally powering a nation.”

With this in mind, Barry said, “We shouldn’t be scared of the scale of impact and speed of growth that can happen with green hydrogen.”

“What we do need to make sure is that we use it in the right places, and we don’t get caught chasing green hydrogen in cases which could actually be detrimental to the overall decarbonisation network,” he continued.

Green hydrogen for Scotland

Committed to the uptake of green hydrogen power, Barry told Quadrant Smart that ScottishPower “have a project in planning which [they] hope will be commercially available by 2023.”

ScottishPower plans to build the UK’s largest electrolyser to the UK’s largest onshore windfarm, Whitelee. The 20MW electrolyser is part of a green hydrogen facility able to produce up to 8 tonnes of green hydrogen per day.

The green hydrogen facility will be the first to be built as part of the Green Hydrogen for Scotland partnership of ScottishPower, BOC, and ITM Power.

Keen not to lose sight of what is important, Barry rounded up the interview stating, “We really need to remember this is not about trying to find projects for hydrogen, this is about the climate emergency. We don’t talk about the emergency part of that enough – this is urgent. That means finding the right projects really quickly and building them really quickly because we don’t have time to wait until some other technology may or may not come along.”

Courtesy of  ScottishPower