The 'Next Generation EU' recovery package

Great news for green hydrogen

By **Stephen B. Harrison**

Green hydrogen is likely to get a significant boost as part of a new €750bn EU recovery package. The 'Next Generation EU' instrument will create a 'green, digital and resilient Europe'. In the section related to 'Kick-starting the economy and helping private investment', there is an explicit reference to support for 'clean hydrogen'.

And in a speech that European Commission President, Ursula von der Leyen, gave on 27th May, she confirmed the three European priorities as, "strengthening our digital single market, European Green Deal and resilience."

The Green Deal includes 2050 net-zero carbon emissions targets – where green hydrogen can play a leading role. She also alluded to a potential CO_2 tax which could be implemented on goods imported into the EU to raise funds to support the transition.

Dreams coming true

In a thought leadership article for **gas**world about the Coronavirus published in its May issue, I wrote about my hopes for the future. "My wish is that when this bug is behind us and when our human and political bandwidth begins to open again, that we continue to take global warming as seriously as we are taking the dramatic Covid-19 situation."

I followed with a plea: "And, if funds can also be made available in the future for projects that will reduce and reverse the pace of global warming, then we stand some chance of preserving the prospects for life on our planet and ensuring the health of future generations." It appears that the EU might now be taking major steps in this very direction.

Just a mirage?

At present, the best we have on the recovery package are several EU documents released on the 28th May. Many details still need to be finalised. And then, EU member states will most likely want to cast local legislation.

For example, in Germany, the national 'Wasserstoffstrategie' (Hydrogen Strategy) may be used as a vehicle to carry some of the Green Deal proposals. Nevertheless, the smoke signals are promising at all levels. For example, the Bavarian parliament published its Hydrogen Strategy on 28th May. Hopefully more oases will materialise from the mirage.

How far will it go?

How much money is €750bn? Well, somewhere between $750bn and £750bn is one answer. To put it into context, it is approximately €1,500 per EU citizen.

Expressing that as an actionable programme, it is about €45,000 per new car registered in the EU in 2019 – approximately the amount that would be required to fund the total annual new vehicle purchases in the EU as FCEVs. But, I must emphasise – the total will be spread across a large number of areas, of which green hydrogen is only one.

The *Süddeutsche Zeitung* recently reported that €22bn will be earmarked to incentivise the purchase of new 'clean-cars'. With Audi, BMW and Mercedes all headquartered in southern Germany, it is no surprise that this south German newspaper was quick to pick up on this automotive news. The definition of 'clean' is still being trashed through and it may extend beyond BEVs and FCEVs to internal combustion engines with low CO_2 emissions.

With Germany leading the way with hydrogen mobility fuelling infrastructure (83 hydrogen fuelling stations at the time of writing), there is good reason to hope that some of that €22bn is earmarked for FCEVs.

Will Britain be left in the cold?

Now that the UK is no longer part of the EU, how will it react to the latest flow of policy from the continent? The chancellor has already committed a very high percentage of UK GDP, relative to similar commitments made by the EU. How much of this will find its way to paving the way to net- zero?

There are plenty of reasons for optimism and the proposed project in Levenmouth, Fife, to heat 300 homes with green hydrogen is a good example amongst many. As a nation that embraced natural gas as a heating medium and invested heavily in a gas pipeline distribution infrastructure, it makes good sense for the UK to take a lead on the heating side of green energy.

How green is green?

The use of hydrogen as a fuel is emission-free at in the fuel cell or heating boiler. But, the production of hydrogen can potentially produce significant CO_2 emissions. Most of the hydrogen produced in the world today is derived from the catalytic conversion of natural gas. This process yields what is sometimes known as 'blue' hydrogen. The gasification of coal produces syngas, which is rich in hydrogen. This is designated as 'brown'. Blue and brown hydrogen production methods are both sources of significant CO_2 emissions.

In the EU, we are fortunate to have a scheme which can validate how 'green' hydrogen actually is. CertifHy *Green Hydrogen* refers to hydrogen generated by renewable energy with carbon emissions 60% below the benchmark emissions intensity threshold, CertifHy *Low Carbon Hydrogen* is hydrogen created by non-renewable energy with emissions below the same threshold, for example by capturing and sequestering a significant share of the CO_2 by-product.

These classifications mean that hydrogen produced on an SMR (steam methane reformer) followed by capture and storage of the CO_2 could potentially produce *Low Carbon Hydroge*n. Wind-powered hydrogen production, as proposed for the project in Leven, could be classified as *Green Hydrogen*.

What next?

Am I excited? Yes! Is this a done deal? Not yet. But I see enough in the potential EU Recovery Plan to fill me with hope. There are many years until 2050 and a huge hill to climb to net-zero carbon emissions. And, there will inevitably be imperfections in the policies, debate and criticism (which can, hopefully, be set in a constructive way to help further policy iterations).

But, as a German electrolyser company C-level executive said to me recently… "Steve, at present it's broken. Anything would be an improvement. The policymakers should not worry about making the next steps perfect. We need to decide and move on, whatever they do next, it can't get any worse."

So, with that sentiment in mind, I take my hat off to this proposed initiative from the EU. Let's go! **gw**