



Low Carbon Fuels Strategy: Call for Ideas

About RenewableUK

RenewableUK's members are building our future energy system, powered by clean electricity. We bring them together to deliver that future faster; a future which is better for industry, billpayers, and the environment. We support over 400 member companies to ensure increasing amounts of renewable energy are deployed across the UK and to access export markets all over the world. Our members are business leaders, technology innovators, and expert thinkers from right across industry.

About Scottish Renewables

Scottish Renewables is the voice of Scotland's renewable energy industry, working to grow the sector and sustain its position at the forefront of the global clean energy transition. We represent around 280 organisations across the full range of renewable energy technologies in Scotland and around the world, ranging from energy suppliers, operators and manufacturers to small developers, installers, and community groups, as well as companies throughout the supply chain.

Dear Department for Transport's Low Carbon Fuels Division,

RenewableUK and Scottish Renewables have issued a joint response welcoming the opportunity to provide input into the *Low Carbon Fuels Strategy: Call for Ideas* consultation. Our submission focuses on hydrogen, with particular reference to green hydrogen produced using renewable energy.

In responding, we support the expansion of the Renewable Transport Fuel Obligation (RTFO) to support developing fuels, such as hydrogen. Hydrogen will be crucial to decarbonise heavy transport, particularly where electric batteries are limited due to their weight, volume and recharging time restrictions.

Making the RTFO fit for purpose:

RTFO support requires the hydrogen producers to evidence the renewable nature of the power used to drive electrolyzers, which is necessary to protect the integrity of green hydrogen industry and to transparently deliver net-zero. However, to ramp-up electrolyser deployment at the scale needed for cost reductions, it is important we ensure the criteria for defining green hydrogen is pragmatic and flexible. We therefore invite the DfT to revisit the RTFO to ensure it supports a full range of green hydrogen projects in transport use cases.

We recommend that temporal correlation should be set on an annual basis as this reduces the complexity involved in evidencing the RTFO and will increase utilisation of the electrolyser and decrease costs. Recently, Frontier Economics found a 20% reduction in the

cost from less strict accounting periods (e.g. annual) compared to shorter accounting periods (e.g. quarter-hourly) for using power from existing renewable plants.¹ The accounting periods could be reviewed once the hydrogen market becomes more competitive.

We urge the DfT to take a pragmatic approach to additionality criteria in the RTFO as this will hinder the initial rate of deployment and effect the feasibility of green hydrogen as an alternative low carbon fuel source in transport. We would expect that additionality criteria would be phased in over the long term.

Applying additionality criteria to low carbon power used for green hydrogen production is based on an inappropriate way of thinking about the future net-zero energy system. Direct electrification is required in certain transport applications to deliver net-zero and this extra demand for renewable power is widely recognised as necessary to displace fossil fuels. Similarly, extra demand for renewable power is required to produce hydrogen which needs to be used in several transport applications (i.e. heavy road vehicles, shipping, rail, aviation and non-road vehicles) where direct electrification is not feasible due to economic and technical constraints. Green hydrogen is therefore a solution for decarbonising hard-to-electrify sectors which is essential for achieving net zero and so it must be incorporated.

At present, the concept of additionality is applied in discussions around green hydrogen options, but not around the direct electrification options, even though both could arguably be seen to “divert energy from existing applications”. Instead, we accept the better view that greater increases in demand for renewable power underpins net-zero, and that this should be supported by wider policy options that promote deployment of renewables, rather than placing additional barriers on emerging net-zero technologies, such as electrolyzers. Focusing on electrolyzers as only a source of final electricity demand also obscures the benefits green hydrogen offers in a renewables-dominated future energy system: namely, overcoming network constraints and mismatches in electricity supply and demand.

Crucially, additionality criteria will harm the early ramp-up of a hydrogen economy and increase the cost of hydrogen fuels in transport. This is because:

- It places significant constraints, complexities, and uncertainty on the development of a green hydrogen project and creates ambiguous and arbitrary rules around what constitutes as “new”.
- It ties developers to the complex permitting regimes and lengthy development timetables of renewable generators. For example, an offshore wind turbine takes about 3 years in development and 3 to 5 years in construction. Different project development durations of electrolyzers and renewables will result in misalignment when they come into operation.
- Using surplus power alone limits the operating regime of the electrolyser to times where there is excess power on the grid. This limits the availability of electricity which decreases utilisation of the electrolyser and creates high production costs.

Our members have stated that, in the short-term, additionality will slow down the growth of an emerging industry which already faces high investment costs. However, we recognise that

¹ RED II GREEN POWER CRITERIA- IMPACT ON COSTS AND AVAILABILITY OF GREEN HYDROGEN IN GERMANY. Frontier Economics.

once the hydrogen economy is more established, additionality criteria, if required, could be phased in.

Finally, the DfT must ensure its definition on green hydrogen (and additionality) is aligned with the UK Government's Low Carbon Hydrogen Standard (LCHS). Aligning the RTFO with the LCHS is an effective and low-cost method to reduce barriers to market entry, reduce complexity and reduce the administration costs for industry and the government. There should therefore be cross-department agreement on the role of renewables in the definition of green hydrogen, as outlined in the LCHS.

Accelerating hydrogen uptake in the maritime sector:

As mentioned in the UK Hydrogen Strategy, renewable hydrogen will play a fundamental role in the decarbonisation of the maritime sector, with demand expected to be 95TWh by 2050. Offshore wind operators, for example, will rely extensively on vessels to service their assets. To ensure hydrogen demand is joined-up with production, we recommend:

- Continued development of large-scale green hydrogen mobility projects to build confidence in the sector and encourage private investment.
- Explore options that create a level playing field for renewables to displace fossil fuels. For example, a sunset clause requiring vessels to phase out fossil fuels by a specified date.

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