Best Practice Example - ICELAND

Background

Iceland is an island country in the North Atlantic, located between latitudes 63 and 68°N, and longitudes 25 and 13°W. With an area of 103.000 km2, the Icelandic population was in 2019 roughly 360.000, with over 60% living in the capital area of Reykjavík.

Iceland is widely known for its abundant natural and renewable energy resources from geothermal fields and numerous rivers, harnessed for the generation of electricity and district heating. In 2018, 70% of Iceland's electricity production was derived from hydropower and 30% from geothermal energy. This great supply of renewable energy and the small size of the country are among the reasons for Iceland embrace the opportunity to join the hydrogen and fuel cell community in 1999.

Twenty years ago, the Icelandic government made the bold decision to introduce and implement policy to support the creation of a hydrogen economy on the island. The reasons were manifold, for example the reduction of fossil fuel imports and in the national carbon footprint and foreign currency savings in addition to an important contribution to energy security.

Various research and demonstration projects ensued involving the fuel cell buses, fuel cell electric passenger vehicles and the establishment of the world's first hydrogen refueling statin open to the public. This government policy has now been expanded and the goal is to convert the transport system fully from fossil fuels to renewable energy, electric, hydrogen, methane, electro-fuels, etc.

Current hydrogen activities: Hydrogen Mobility Europe

Hydrogen Mobility Europe, also known as H2ME, is a natural successor to various other hydrogen related projects in Scandinavia and wider Europe, following in the footsteps of H2moves, Next Move, HyTEC and HyFIVE. Spanning seven years (2015-2022), H2ME is a flagship project giving fuel cell electric vehicle (FCEV) drivers access to the first truly pan-European network of hydrogen refuelling stations (HRS). Its deployment involves 49 HRS and over 1400 FCEVs and FC vans and aims to hydrogen-fuelled road transport as a pan-European solution to the need to have viable, competitive, alternatives to fossil fuels. H2ME also seeks to spread awareness and understanding of hydrogen mobility technology.

Role of Iceland in H2ME – Icelandic New Energy, a Reykjavík-based company working in research, development and demonstration of alternative fuel mobility projects, serves as the Scandinavian coalition coordinator in addition to overseeing activities in Iceland under H2ME. Two hydrogen refuelling stations were commissioned in June 2018 coinciding with the deployment of several Hyundai ix35 FCEVs. The President of Iceland, Mr. Guðni Th. Jóhannesson, formally opened the third station along side Mr. Bart Biebuyck, Executive Director of the European Commission's Fuel Cells and Hydrogen Joint Undertaking (FCH JU). Further vehicles will be deployed under the project in 2020.

The Future

In the coming decade, hydrogen is highly likely to play an important role in decarbonising transport in Iceland. In 2017, the transport sector was responsible for 58% of Iceland's total greenhouse gas emissions, and the share of passenger vehicles amounted to 40% out of the total. Already, Iceland has achieved 9% alternative fuels in road transport as of late 2019 and 7% of the national passenger vehicle fleet runs on alternative fuels (including hybrids, plugin hybrid electric vehicles pure battery electric vehicles, methane vehicles and fuel cell electric vehicles), but there is much room for improvement.

Already, there are plans underway for hydrogen to feed into the production of various electro-fuels, such as Liquid Green Gas (LGG), methanol and ammonia. Long haul transport, larger vehicles, buses, trucks, coaches are currently highest on the agenda for next steps. Currently projects, involving infrastructure, are in the planning as such will create basis for larger hydrogen production and then economies of scale start kicking-in and make hydrogen more cost competitive. Also project involving production of different electro-fuels both for domestic usage and potentially for export. There is a firm, long-term political commitment to support various alternative energy options and those are essential to bringing ambitious plans for hydrogen to fruition.