

Hydrogen energy storage stockholm

Fossil Free Sweden has developed a strategy to use hydrogen to achieve the climate goals but also with a focus on new industrial initiatives to create innovations, jobs and export products.

The strategy has been developed in cooperation with companies and other actors in the hydrogen value chain and contains policy recommendations for handling common challenges and to use the full potential of hydrogen.

Hydrogen can be produced from reforming fossil fuels (natural gas, coal), biomass (solid biofuel, organic waste, biogas) and by electrolysis from electricity that splits water. At water electrolysis, hydrogen, oxygen and heat are produced.

The terms renewable hydrogen, clean hydrogen or green hydrogen refers to hydrogen produced from renewable energy or raw material. If hydrogen derived from nuclear power is included the term is pink or fossil-free hydrogen.

The cost of renewable electricity production is declining worldwide and is expected to continue to fall. Electrolyte technology is also constantly improving and the cost of electrolyzers is expected to be halved by 2030. Fossil-free hydrogen in Scandinavia is expected to be competitive with fossil hydrogen before 2030 and the proposal in the strategy is that only fossil-free hydrogen should be rewarded.

Expansion of the hydrogen infrastructure in the country can be accelerated by establishing cross-sectoral local and regional hydrogen clusters (Hydrogen Valleys). They can be established where existing industries use or will use hydrogen and where infrastructure such as ports and railways already exist.

There are currently a number of major industrial projects in Sweden, where the production and use of hydrogen is, or is planned, to be central to one or more new value chains. Several new initiatives and partnerships have been announced in 2020 and more are expected in 2021. Here are some examples:

This hydrogen strategy shows that today's known hydrogen projects in Sweden can achieve a reduction of 7,1 million tonnes of carbon dioxide per year in direct emissions by 2045. That equals 14 per cent of Sweden's national emissions. Counting the emission reductions from customers using the products in Sweden it will amount to over 30 percent. Apart from that it will reduce emissions from customers in other countries. The carbon-free sponge-iron from LKAB could reduce emissions from customers in other countries by 30 million tonnes.

The electricity system is key to implementing hydrogen investments in several parts of Sweden. The planning goal for electrolysis effect of 8 GW the year 2045 that is suggested in the strategy would require about 55

TWh of electricity. In short term the electricity grid needs to be developed but in long term increased electricity production will also be needed.

A lot of investments are needed in hydrogen initiatives, and to start with they can result in higher costs than conventional investments. Therefore, the Government needs to contribute financing solutions and introduce various financial instruments so as to reduce the investment risk for companies.

In addition, research and development will continue to be important as hydrogen is introduced into the market. There is also a need for skills enhancement within government agencies and other actors in society in relation to the new technologies and systems required for this development.

This analysis includes a compilation of literature, reports, roadmaps, interview response and a scenario analysis. It shows an overview over the production potential and demand scenarios for Swedish hydrogen and electrofuels.

Contact us for free full report

Web: <https://sumthingtasty.co.za/contact-us/>

Email: energystorage2000@gmail.com

WhatsApp: 8613816583346

