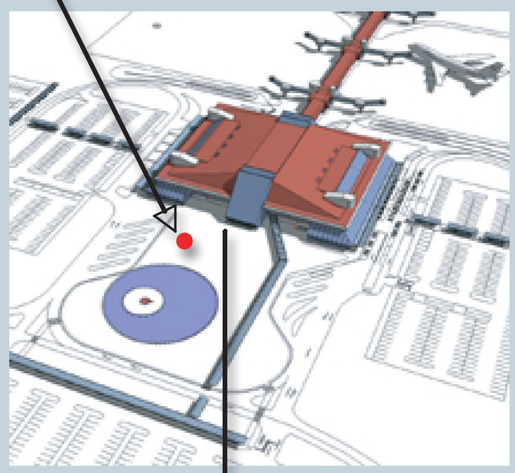
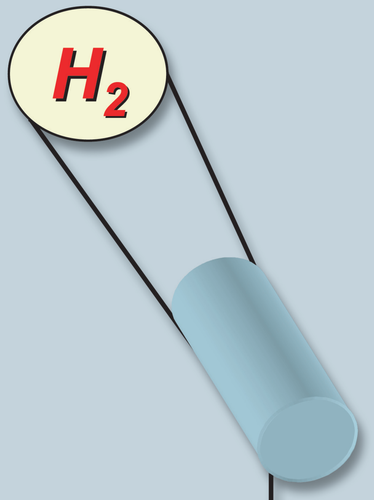


The fuel cell will operate outside in the various Icelandic weather conditions.
Over the one year demonstration period the fuel cell will start and stop over 400 times.



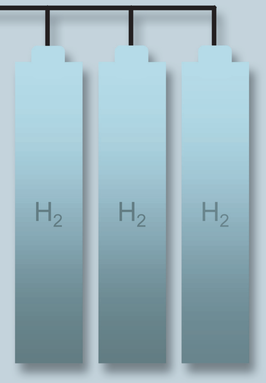
Remote control

Power supply from the terminal for controls and heating

Connection box

GenCore Fuel Cell

5kW



Reliability test on a 5 kW GenCore Fuel Cell

In this setup the electricity from the fuel cell is used to power a large spotlight and to light up the Fuel cell unit

Floodlight

Hydrogen, originating from renewable energy sources, is used to generate electricity with the help of the GenCore Fuel Cell

Us$_e$ H_2 backup

The Icelandic government aims at increasing the share of renewable energy within the Icelandic economic profile. Iceland is a leading advocate of international cooperation for sustainable use of natural resources, including energy. Basically all electricity and space heating derives from renewable sources, constituting 72% of all energy consumption in Iceland. The remaining 28% is based on fossil fuel. Hydrogen as an energy carrier made from water and renewable energy would reduce Iceland's dependency on fossil fuel even further.

In 1999, the Icelandic Government declared its intention to introduce the Sustainable Hydrogen Economy. It has offered Iceland as a platform for hydrogen research and demonstration. The company Icelandic New Energy is a public/private partnership established to facilitate this transition, based on cooperation between DaimlerChrysler, Shell Hydrogen, Norsk Hydro and VistOrka (www.newenergy.is).

The H2 project at Keflavík airport is a step towards evaluating the possibilities of using hydrogen and fuel cells in a modern society as back-up power. Over a one year demonstration period the fuel cells will be turned on and off over 400 times, enabling the project owners to evaluate the potential for using them as an alternative to batteries and diesel generators under demanding climatic circumstances.

The project is a joint technological initiative between Icelandic and US stakeholders: The United States Army Corps of Engineers, the Construction Engineering Research Laboratory, the US Naval Air Station Keflavik, LOGANEnergy, the Ministry for Foreign Affairs & Ministry of Industry and Commerce (Iceland), Icelandic New Energy, the Leifur Eiríksson Air Terminal, Plug Power, AGA and EXTON.

Vetni fyrir varaafl

Ríkisstjórn Íslands stefnir að því að auka notkun endurnýjanlegrar orku. Ísland er í fararbroddi á sviði sjálfbærrar nýtingar náttúruauðlinda á alþjóðavettvangi. Nánast öll raforkuvinnsla og húshitun á Íslandi kemur frá endurnýjanlegum orkugjöfum, samtals yfir 70% af heildarorkunotkun landsins. Mikill hluti innflutts eldsneytis fer í að knýja samgöngur og fiskiskip. Vetni sem framleitt er með rafgreiningu úr vatni með innlendu rafmagni gæti tekið við þessu hlutverki og þar með drægi úr losun gróðurhúsalofttegunda frá Íslandi.

Fyrirtækið Íslensk NýOrka (www.vetni.is) var stofnað árið 1999 með það að markmiði að undirbúa vetnissamfélag á Íslandi. Ríkisstjórn Íslands hefur beint athygli umheimsins að landinu sem kjörnum vettvangi fyrir vetnistilraunir, þróun og rannsóknir. Að baki Íslenskrar NýOrku standa Vistorka, DaimerChrysler, Shell Hydrogen og Norsk Hydro.

Verkefnið við Flugstöð Leifs Eiríkssonar er liður í að prófa vetnistækni. Vetni er notað til að knýja efnarafala sem er ætlað að fara í gang tvisvar á dag í heilt ár eins og varaaflstöð. Ef hægt er að nota vetni sem orkubera fyrir varaafl væri hægt að draga úr notkun díselrafstöðva. Verkefni þetta er tæknilegt samstarfsverkefni íslenskra og bandarískra þátttakenda.

Þátttakendurnir eru: United States Army Corps of Engineers & Construction Engineering Research Laborotory, US Naval Air Station, LOGANEnergy, Utanríkisráðuneyti, Iðnaðar- og viðskiptaráðuneyti, Íslensk NýOrka, Flugstöð Leifs Eiríkssonar, Plug Power, AGA og EXTON.