Become Zero-Carbon and Save Energy Costs

Many large energy users are utilising combined heat and power (CHP) plants to provide significant financial savings on their energy bill. Counterintuitively the energy crisis that is going on now is making the financial savings from these plants even greater. However, most CHP systems no longer save carbon. As the carbon intensity of electricity is dropping each year it is nearly impossible to have a CHP running on natural gas to save carbon anymore, marginal savings at best. How do you balance the agenda of keeping the lights on and still trying to contribute to the environmental agenda? Hydrogen-enabled CHP systems from 2G Energy allow for a long-term carbon-free strategic plan to take place as well as benefitting from financial savings now.

The UK Government is committed to developing the low carbon hydrogen economy and has identified up to 20GW of potential hydrogen projects through to 2037. As companies and organisations start to develop their own renewable energy sources such as wind, PV, EfW, there is nearly always a point when over generating. Utilise this excess energy and generate hydrogen. Alternatively, the gas grid is going to start with higher percentages of hydrogen in the mix and you could be lucky enough to be one of the dedicated 100% hydrogen pipelines. Running 100% green hydrogen into the engine makes all the energy zero carbon. These assets are generating financial savings now and have already been paid for and will generate massive carbon savings in the near future.

Working in partnership with Altrad Babcock, 2G installed the UK's first 100% hydrogen CHP solution at Kirkwall Airport in the Orkney Islands. Once fully commissioned, the CHP system will be integrated with the airport's existing heating system to meet some of the heating and power requirements of the main airport building. Funded by the Scottish Government, the CHP installation at Kirkwall Airport is part of a series of initiatives led by the European Marine Energy Centre (EMEC) in collaboration with Highlands and Islands Airports Limited (HIAL) to decarbonise the airport. A study undertaken by EMEC found that space and water heating demand in the airport terminal represented the biggest source of greenhouse gas emissions after aircraft operations. This project is supported by the German Federal Ministry for Economic Affairs and Climate Action as part of the Renewable Energy Solutions Programme of the German Energy Solutions Initiative.

Even though there are already 2G CHPs operating on 100% hydrogen worldwide, there is no need to go entirely 100% hydrogen straight away. 2G's standard engines can run on blends of gases, including hydrogen at up to 40%, before a simple engine retrofit is required to accommodate a higher percentage of hydrogen. Hydrogen-enabled CHP systems can use a blend of input gases and enable a gradual entry into the hydrogen economy – the sudden decommissioning or start-up of large infrastructure projects is not necessary – and these systems can reduce operational costs and carbon emissions.

German Energy Agency (dena)

The German Energy Agency (dena) is a centre of excellence for the applied energy transition and climate protection. dena studies the challenges of building a climate-neutral society and supports the German government in achieving its energy and climate policy objectives. Since its foundation in 2000, dena has worked to develop and implement solutions and bring together national and international partners from politics, industry, the scientific community and all parts of society. dena is a project enterprise and a public company owned by the German federal government. dena's shareholder~~s~~ is the Federal Republic of Germany. www.dena.de/en

German Energy Solutions Initiative

With the aim of positioning German technologies and know-how worldwide, the German Energy Solutions Initiative of the Federal Ministry of Economics and Climate Action (BMWK) supports suppliers of climate-friendly energy solutions in opening up foreign markets. The focus lies on renewable energies, energy efficiency, smart grids and storage, as well as technologies such as power-to-gas and fuel cells. Aimed in particular at small and medium-sized enterprises, the German Energy Solutions Initiative supports participants through measures to prepare market entry as well as to prospect, develop and secure new markets. www.german-energy-solutions.de/en

Renewable Energy Solutions Programme (RES Programme)

With the RES programme, the Energy Export Initiative of the Federal Ministry of Economics and Climate Action (BMWK) helps German companies in the renewable energy and energy efficiency sectors enter new markets. Within the framework of the programme, reference plants are installed and marketed with the support of the German Energy Agency (dena). Information and training activities help ensure a sustainable market entry and demonstrate the quality of climate-friendly technologies made in Germany. www.german-energy-solutions.de/GES/Redaktion/EN/Basepages/Services/dena-res.html

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