



Tekes



Viable sources of clean energy in action

Fuel Cell Programme

Tekes programme 2007-2013



Major **platform** to provide a meeting place for **key players**

The Tekes Fuel Cell programme facilitates the development of successful fuel cell technologies and services. A total budget of 140 million euros has been earmarked for the programme period 2007–2013.

The programme is helping to create viable new businesses and business models, by bringing together key players along the fuel cell value chain. The programme aims to speed the development and application of innovative fuel cell technologies. So far 26 of the programme's projects have been successfully completed, and more projects are still receiving funding. More than 60 companies are involved in the programme.

The programme has a strong international dimension, since one of its aims is to support the growth and internationalisation of companies working with fuel cell technologies.

Preparing for breakthroughs

Today's modern fuel cells provide an environmentally friendly way to meet the growing demand for energy efficiently and sustainably.

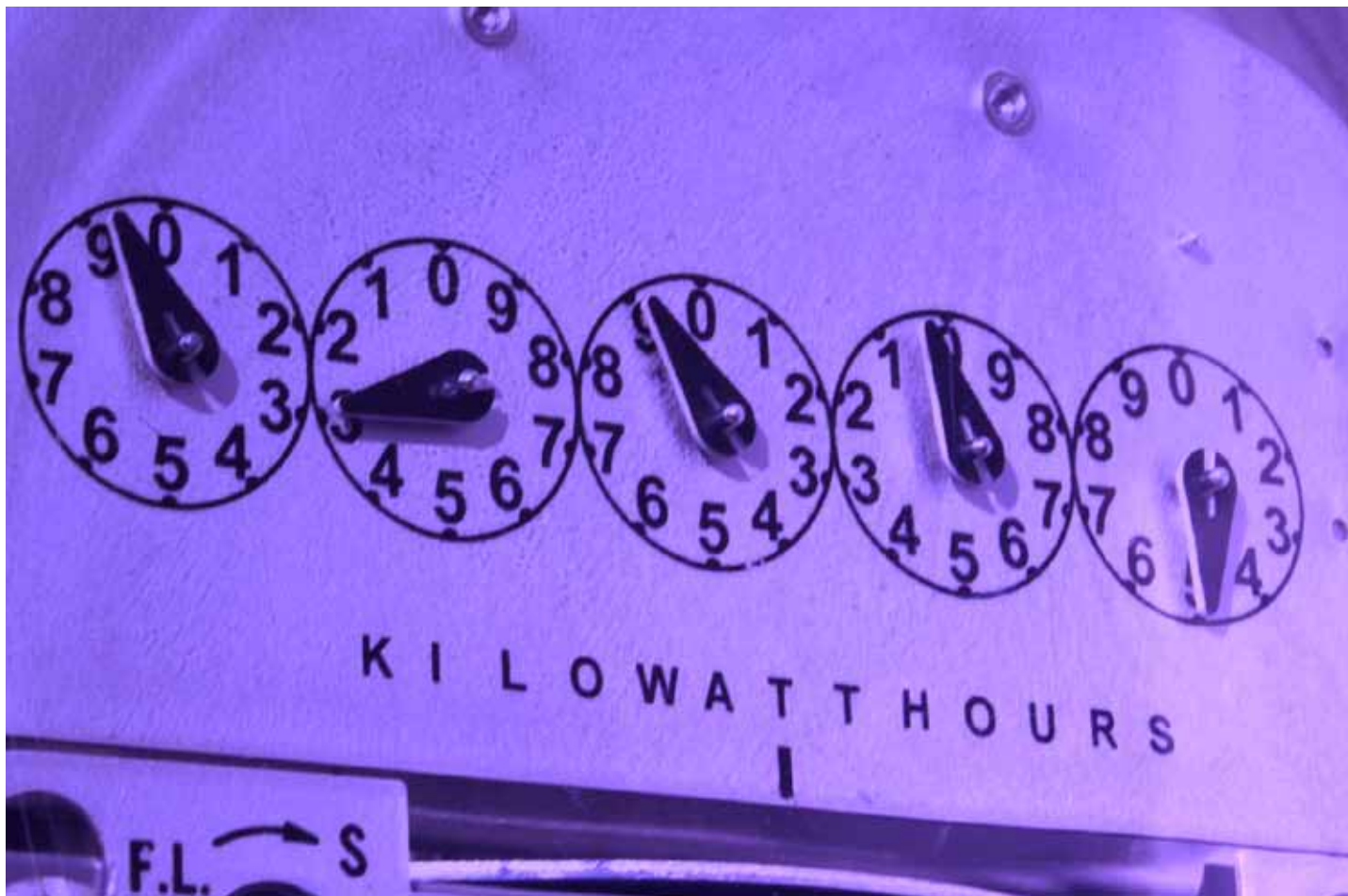
The Tekes Fuel Cell programme is striving to develop and produce new fuel cell technologies for growing global

markets through collaboration between industry, the public sector and the research community. International collaboration is extremely important in this context.

The programme's focus areas include stationary fuel cell applications, fuel cell power modules for utility vehicles such as working machines and forklifts, and portable low-power solutions. Highly innovative "wild card" ventures are also encouraged.

First results achieved

First results of the Programme include a 20 kW SOFC power plant in Vaasa by **Wärtsilä** exceeding successfully 1500 hours operating time. PEMFC systems up to 16kW_e scale have been constructed as part of a hybrid system field demonstration and research platform on forklift application by **VTT**. Heavy working machines follow a roadmap from hybridized electric versions towards fuel cell powered versions at the end of the decade. A hybridized electric straddle carrier by **Cargotec Finland** is one example.



Demo2013 project

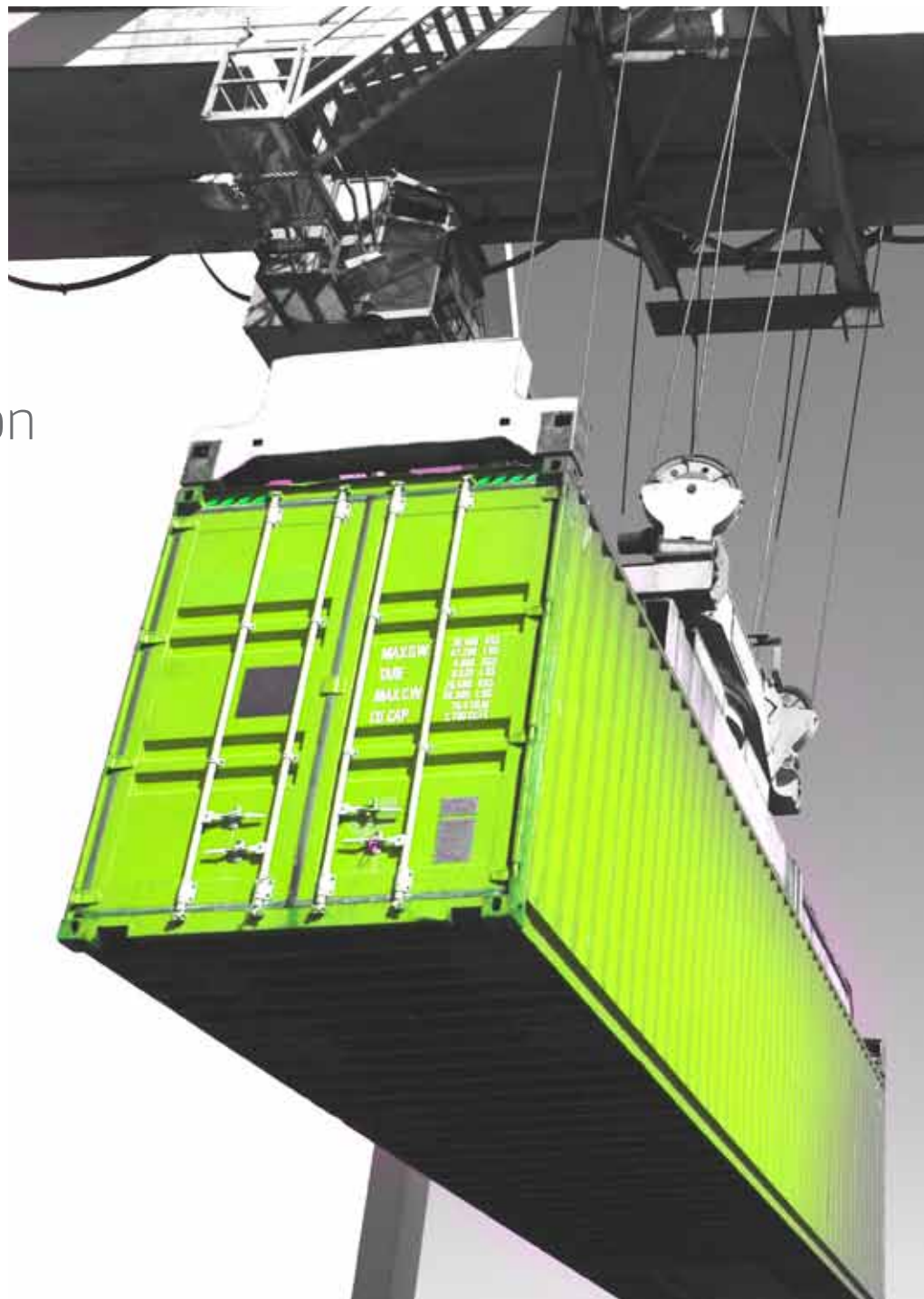
– a groundbreaking demonstration
in a major port facility

A group of leading Finnish companies and research organizations have created Demo2013 – an international fuel cell demonstration project that will present the results of the Tekes Fuel Cell Programme in Helsinki, Finland.

This unique demonstration facility for fuel cell solutions and applications will be located in and around the new port facilities at Vuosaari, on the outskirts of Helsinki. Demo2013 will feature all kinds of fuel cell applications from stationary solutions to utility vehicles, working machines, and portable low-power applications. Infrastructure will include a hydrogen fueling station. Applications will also be demonstrated in nearby

recreational facilities including a leisure boat harbour and a golf center.

Port of Helsinki and its new Vuosaari Harbour offer a modern service for container and trailer traffic. It is an ideal location for pioneering clean energy technologies. Its location within the city means that noise pollution should be minimised, and there are also strict controls on all polluting emissions. Fuel cell powered applications provide effective solutions to these challenges. By clearly demonstrating its commitment to innovation and environmental sustainability, Vuosaari aims to gain a competitive advantage over other port facilities.



From know-how to show-how

Companies developing fuel cell based products welcome demonstration projects as an essential step on the route from research and development to commercialisation. Demos give them a chance to test and market their products in a real working environment. They also enable producers to meet potential partners including other product developers, as well as end-users.

This large-scale demonstration of fuel cells in action will also increase public awareness of the benefits of fuel cell technologies, by providing evidence of their safety, reliability and effectiveness.

All kinds of applications in action

The wide-ranging Demo2013 will feature many types of fuel cells and applications to spotlight many of the rapid developments in this field, benefiting potential users and collaborators.

The port facilities at Vuosaari provide an ideal working environment for leading fuel cell system providers to test and demonstrate their products.

Benefits in the spotlight

Harbour operators will particularly benefit from this opportunity to learn more about novel energy technology solutions at first hand. Fuel cell technologies' benefits in terms of reduced emission and noise levels will particularly be highlighted.

Port facilities can play a pioneering role in promoting green technologies. Demonstrating fuel cell applications in a real harbour environment is an excellent way to publicise their benefits and make decision-makers more aware of their potential. Demo2013 will spotlight the reliability, safety and energy efficiency of fuel cells, as well as their clear environmental benefits.

A unique opportunity for technology providers

Participating companies will be able to test their products in a real environment and take advantage of this unique opportunity to meet potential partners and make the most of marketing opportunities. Increased visibility is crucial in a growing global market.

Demo2013 will constitute a comprehensive practical demonstration of fuel cell technologies and applications.

International partners welcome at Demo2013



Join Demo 2013!

Open call for international partners to participate in a major fuel cell demonstration in Finland

The preparation of the demonstration project is going on

Demo2013 aims to give leading Finnish companies, research organizations and their international partners an opportunity to demonstrate their fuel cell solutions and applications in action.

Demonstrations will feature power and electricity, cargo handling, logistics and communications. Planned activities will include stationary applications, such as a 50 kW Solid Oxide Fuel Cell (SOFC) system based power plant set up by **Wärtsilä** to feed electricity into the grid of **Helsingin Energia**. The transportation section will feature mobile working machines including hybridized straddle carriers and forklifts based on PEM fuel cell systems, and

the technology test platform will be led by company consortiums and developed by **VTT** and **Aalto University**. Producers have also been invited to present solutions for light vehicles and portable applications. **Hydrocell** will demonstrate its portable fuel cells and metal hydride hydrogen storages for boats and leisure applications. Finnish expertise is particularly strong in these areas. The demonstration site's infrastructure will include a hydrogen fueling station. Consortium led by **Åbo Akademi University** will demonstrate its small bio fuel cells which can be fitted with radio frequency identification (RFID) systems. **VTT** is widely involved in all aspects of the demo.

Finnish expertise will be widely represented at Demo2013, but international partners are also warmly invited to join the demonstration project with a view to potential collaboration. The organizers will particularly welcome participants working with light vehicles, portable back up power, fuel cell stacks, and hydrogen infrastructure. The preparation of the demonstration project is going on.

Demo2013 will help to meet the need for more demonstrations of fuel cell technologies around Europe.

Companies and research organizations operating in Finland may apply for funding directly from the Tekes Fuel Cell Programme. Other international and European public and private funding opportunities may also be exploited. Participants may benefit from involvement in the European Fuel Cells and Hydrogen Joint Undertaking and partnerships with Nordic Energy Research. Funding options will be further assessed during the preparation of the demonstration project.





Tekes, the Finnish Funding Agency for Technology and Innovation

Tekes is the main public funding organisation for research and development (R&D) in Finland. Tekes funds industrial projects as well as projects in research organisations, and especially promotes innovative, risk-intensive projects. Tekes offers partners from abroad a gateway to the key technology players in Finland.

Tekes programmes – a crucial link in the innovation chain

Tekes programmes are an essential part of Finland's innovation system. These programmes have proved to be an effective form of cooperation and networking for companies, universities and research institutes developing innovative products, processes and services. The programmes boost developments in specific sectors of technology or industry, and enable the results of research work to be systematically passed on to businesses. The programmes also serve as excellent frameworks for international R&D and cooperation.

Further information and contacts

www.tekes.fi/en/fuelcell

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