



The partners of the EU 7th Framework Programme IAPP project “HELTSTACK” – NICPB, VTT and Elcogen’s Estonian and Finnish branches – organise an International Seminar “The Role of Fuel Cell and Hydrogen Technology in Delivering Energy Security for Europe” in Tallinn.

The seminar, taking place on Wednesday, 13 September 2017 in the premises of the Estonian Academy of Sciences (Kohtu 6, Tallinn), has the aim to give an overview of the latest developments in the field of energy technologies and security.

The speeches will give a good overview of the economics and positive impact on the future energy systems of the latest technologies; as well as present practical examples. The speakers are internationally acknowledged researchers and from among the top management of technology enterprises.

The seminar welcomes anybody interested in the field from research organisations and companies to public sector organisations, NGOs, etc.

The language of the seminar is English.

Participation is **free of charge!**

Please **register to the seminar by Friday, 8 September 2017 (included)** via e-mail piret.jakobson@elcogen.com or phone +372 634 6750.

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Programme of the international seminar

“The Role of Fuel Cell and Hydrogen Technology in Delivering Energy Security for Europe”

(“Kütuseelement- ja vesinikitehnoloogia roll Euroopa energiaturvalisuse tagamisel”)

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|-------------|---|
| 08:30-09:15 | Registration and welcome coffee |
| 09:15-09:30 | Opening words / <i>Enn Õunpuu, Founder and CEO – Elcogen AS</i> |
| 09:30-10:00 | Keynote: The Status of the European Fuel Cell and Hydrogen Joint Undertaking Programme and the Expected Impact on Europe’s Energy Security /
<i>Bart Biebuyck, Executive Director – European Fuel Cell and Hydrogen Joint Undertaking</i> |
| 10:00-10:30 | The Role of Fuel Cell and Hydrogen Technology in Delivering Energy Security for Europe /
<i>Prof. Robert Steinberger-Wilckens – University Of Birmingham</i> |
| 10:30-11:00 | Energy Conversion Efficiency – Key to Energy Security /
<i>Enn Õunpuu, Founder and CEO – Elcogen AS</i> |
| 11:00-11:45 | Lunch and networking |
| 11:45-12:15 | Hydrogen and Fuel Cells as a Part of Future Energy System /
<i>Ian Staffell – Imperial College London</i> |
| 12:15-12:45 | Fuel Cell Based High Efficiency Chp Plant in Operation /
<i>Tuomas Hakala, Co-Founder – Convion</i> |
| 12:45-13:15 | Hydrogen Refueling Station in the City of Pärnu /
<i>Raigo Pert, CEO – NT BENE</i> |
| 13:15-14:00 | Panel discussion, networking and snacks |

Abstract of the “HELTSTACK” project

Project duration 01/03/2014-28/02/2018

The main development challenges related to the commercialisation of SOFC technology and SOFC systems lie in reduction of its cost, increasing lifetime and efficiency. SOFC stacks are the key components of SOFC systems, form approximately one third of the total system cost. Stacks with high performance and efficiency are required for high system efficiency.

HELTSTACK combines the top European know-how in single cells, coatings, gaskets, and stack designs to produce a novel 1 kW SOFC stack, together with the proof-of-concept of a 10 kW SOFC stack. Multiple improvements over the state-of-the-art in cost, performance, efficiency, and reliability will be stated.

The project is based on the products of industrial partners Elcogen AS (cells) and Elcogen OY (stacks) and motivated by their interest to further develop and commercialise their products. Other project partners include 2 research institutes: Estonian National Institute of Chemical Physics and Biophysics (NICPB) supports cell development and coordinates their use in stack; VTT Technical Research Centre of Finland (VTT) provides stack design and evaluation. Transfer of knowledge in HELTSTACK promotes harmonised development of cell, stack and their characterisation methods.

NICPB provides Elcogen OY knowledge about achieving optimal cell properties and their adjustment for stack production, also about cell design for optimal electrochemical performance. Elcogen provides VTT knowledge about cell mechanical properties important for stack production. VTT provides Elcogen knowledge about long term cell testing. Elcogen provides NICPB knowledge about ceramic production challenges, to improve cell production efficiency.

All manufacturing methods, designs and materials are chosen to be suitable for mass production and lead to decreased costs compared to current state-of-the-art. HELTSTACK outcomes will form the basis for Elcogen companies' commercial SOFC cell and stack technology subject to immediate commercialisation.