

# RESPONSIBLE ENERGY



Finnish Energy Industries



## **A carbon neutral future as a goal**

The Finnish Energy Industries' goal is to achieve carbon neutral production of electricity and district heat in Finland by 2050. We have answered the question of how energy can be produced and used in Finland while meeting the challenges of climate change and energy security, as well as maintaining energy as the basis of Finnish welfare.

According to the carbon neutral vision, electricity and district heat can be produced with very low emissions. In addition to reducing direct emission, may also be cut by using electricity and district heat in place of fossil fuel in heat, transportation and industry. Thus, electricity will play a bigger part in society in the future than today. Electricity and district heating should be seen as a solution to energy and climate challenges.

Sustainable development is a continuous process that advances step by step, taking into consideration all three aspects of sustainable development – economy, environment and society – in a balanced way. It is a question of responsibility when taking continuous actions at the company level. The carbon neutral vision lays the foundation for the Finnish Energy Industries' continuous work for sustainable development.

## **CO<sub>2</sub> emissions, energy efficiency and renewables are in the focus**

In the process of sustainable development, our current topics are reduction of GHG emissions, improvement of energy efficiency, and increasing the use of renewable and carbon-free ways of producing electricity and district heating. We are taking actions that improve the welfare of Finnish citizens and the competitiveness of Finnish business. At the same time, we are taking into account the other environmental impacts caused by energy industries.

## **Efficient use of materials is among the next steps**

The Finnish energy industries is constantly meeting new challenges. We need to be flexible and ready to take corrective actions on the way to a carbon neutral future. Thus, we have identified the need to widen our strategic vision. The role of energy in Finnish welfare and efficient use of resources as well as biodiversity are among the next steps.

The Finnish Energy Industries' publication 'Carbon neutral vision for electricity and district heat for 2050' is available on the internet at: [www.energia.fi/en/publications/vision2050.html](http://www.energia.fi/en/publications/vision2050.html).

## Co-operation with stakeholders is a key

Meeting the challenges the energy industries are facing means improved ways of taking action and making decisions. We need to be open and transparent when communicating with our stakeholders and interest groups, and listen to them carefully. For example, round table discussions and workshops with interest groups have proved a fruitful way of deepening the interaction between energy industries and their interest groups.

The preparation work for a carbon neutral vision has involved researchers from universities, as well as futures and economic research. A large number of interest groups took part in the preparation work in various workshops. We have also launched the Sustainability Forum with a role of acting as mentor to energy industries in issues dealing with sustainable energy. The chair of the Sustainability Forum is the Chief Secretary of the Ministry of the Environment. Members of the Forum include relevant stakeholders, e.g. in future research, R&D, universities, NGOs, and the media.

## Actions Are Needed Now, a climate competition

Achieving a carbon neutral future requires concrete actions and investments. We want to pick up good examples and practices, and award the best of them. The competition entitled Actions Are Needed Now seeks for concrete actions for reducing carbon dioxide emissions by energy companies or interest groups.

The Sustainability Forum of the Finnish Energy Industries will select the winner in this competition organised for the first time in 2010.

The criteria for the assessment of the competitors are as follows:

- Reduction of CO<sub>2</sub> emissions
- Benefits for final customer
- Novelty value, innovativeness and courage
- Significance and possibilities to copy the action
- Continuous climate actions

In addition to the above-mentioned criteria, reduction of other emissions could also be taken into account. Companies need to be involved in the voluntary energy efficiency agreements, and the actions for reducing CO<sub>2</sub> emissions must be in balance with other aspects of sustainable development.

Young people play a key role in the implementation of a carbon neutral future. Thus, students are among the main interests group of the Finnish Energy Industries. As a part of the competition Actions Are Needed Now, the Finnish Energy Industries launched a design competition for students of the Aalto University. The task was to design the prize of the climate competition.

## Achieving a carbon neutral future calls for consistent policy-making

The Finnish Energy Industries supports the EU's long-term target of reducing greenhouse gas emissions by 80-95 % by 2050 as part of international co-operation. Reaching the target calls for new energy investments.

Energy investments that tie up a lot of capital cannot be implemented without a stable and predictable operating environment. A carbon-neutral energy future requires a goal-oriented and consistent energy, climate and environment policy.

# **ACTIONS ARE NEEDED NOW – a climate competition in 2010**



## **The gas-engine power plant (Ämmässuo)**

All of the gas from the old and new landfills are collected and exploited in the gas-engine power plant, which was introduced in May 2010 at Ämmässuo. It is one of the largest recovery plants for landfill gases in Europe. It is able to generate 15 MW of electricity. This amount is sufficient to meet the electricity requirements of some 5,000 detached houses. In addition to this, the waste treatment centre at Ämmässuo produces heat mostly for its own use. Due to the gas-engine power plant, the area will be self-sufficient in its energy production, and there are also plans to sell a portion of the generated gases. The power plant will reduce the carbon dioxide emissions resulting from the waste treatment centre by some 8,500 tons per year.

The Sustainability Forum as a jury: 'The gas-engine power plant is an excellent example of exploiting gas collected from landfills and decentralized energy production. It reduces GHG emissions in a cost-efficient way while improving energy efficiency. It is also a result of continuous and goal-oriented development.'

The gas-engine power plant (Ämmässuo).



Picture: HSY/Kai Widell

HONOURABLE MENTIONS OF  
THE COMPETITION IN 2010

## **A smart energy solution for the Kalasatama project in Helsinki**

Helsingin Energia, Helen Sähköverkko Oy, ABB, and Nokia Siemens Networks have launched technological collaboration and testing in the development of future smart energy solutions. This is taking place in Kalasatama (Fish Harbour), a new development to be built in the central eastern area of Helsinki. Kalasatama is located in the city centre of Helsinki, tucked in on the shore of the Baltic Sea. By the early 2030s, the development will provide 10,000 jobs and homes to about 18,000 Helsinki residents. Residential construction in Kalasatama is set to begin this year.

The smart energy system includes local renewable electricity generation, such as solar and wind power, infrastructure to support electric vehicle use and storage of electricity, as well as energy-efficient real estate automation for homes and business buildings. The goal is a model neighbourhood with a smart grid of global significance, combining the latest technological innovations in energy, information and telecommunications. This will create a sustainable energy system with services that are also suitable for further application elsewhere.

HONOURABLE MENTIONS OF  
THE COMPETITION IN 2010

## **Passive apartment building**

OKM Suunnittelu Ky has designed and provided consultancy for the building of a passive apartment house. The amount of heating energy the house will need is only 25 per cent of the heating energy needed when building a house in accordance with the building standards. The total primary energy needed is around 130 kWh/m<sup>2</sup> per year and total heating energy will be under 20 kWh/m<sup>2</sup> per year.



Kalasatama.

## List of competitors in 2010

### ENERGY EFFICIENCY

An energy efficiency solution for data centres  
[Fortum Oyj](#)

Exploiting the heat output of a data centre  
[Helsingin Energia](#)

Logistics centre heated by renewables  
[SOK](#)

Passive apartment building  
[OKM Suunnittelu Ky](#)

Energy efficiency of windows and doors  
[Skaala Ikkuna ja Ovet](#)

Smart energy solutions for the Kalasatama project  
[Helsingin energia](#)

Maintenance of a nuclear power plant  
[TVO](#)

### RENEWABLE ENERGY

Biofuel pellets  
[Vapo](#)

Environment account from renewable energy  
[Oulun energia](#)

CHP power plant  
[Lappeenrannan energia](#)

Co-operation project for improving fuel instructions  
[E.ON Kainuu](#)

Renewable energy power plant  
[Vattenfall](#)

Renewable energy power plant  
[Keravan Energia](#)

Renewable energy programme  
[PVO](#)

Raahe – a wind power-friendly community  
[Raahe](#)

Wind power programme  
[EPV Energia](#)

Urban windmill  
[Nurmijärven Sähkö Oy](#)

Recharging electric cars by solar power  
[Fortum Oyj and the City of Espoo](#)

### WASTE TO ENERGY

Waste-to-energy power plant  
[Vantaa Energy](#)

Waste-to-energy power plant  
[Kotkan Energia Oy](#)

Gas-engine power plant (Ämmässuo)  
[HSY Helsinki Region Environmental Services Authority](#)

### CONSUMER INFORMATION

No Emission Monday

Climate diet calculator for consumers  
[Finland's environmental administration](#)

Energy Family of the Year competition  
(incl. smart energy meters)  
[Vattenfall Oy](#)

**The next round of the Actions Are Needed Now -  
a climate competition will be launched in autumn 2011.**



## Finnish Energy Industries

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**The Finnish Energy Industries** is a trade and business organisation for producers, suppliers, transmitters, distributors and sellers of electricity, for district heating and district cooling, and for the design, implementation, operation, maintenance and construction of networks and power plants. Our strategic goal is to achieve carbon neutral electricity and district heating by 2050.