

Towards Carbon Neutral Municipalities – An Innovative Finnish Approach

Through the Carbon Neutral Municipalities (HINKU in Finnish) project, several Finnish municipalities have committed themselves to reducing their greenhouse gas (GHG) emissions more extensively and more rapidly than would be required according to current EU targets and eventually to become carbon neutral. Currently 36 Finnish municipalities are involved – and more are likely to come. The project brings in a unique way municipalities, businesses, residents and experts together to devise and tailor new cost-effective solutions to reduce greenhouse gas emissions at municipal level. All actions and procurements have been tailored for each municipality taking into account their strengths and economical profitability. Successful practices devised during the project can then be applied more widely, both in Finland and abroad. During the project since 2007 the HINKU municipalities have reduced their GHG emission on average 29 %. Changes have been achieved especially by replacing fossil fuels with renewable energy and saving energy. The future goal is to join forces with larger Finnish cities to accelerate the transition towards a low-carbon society in Finland and also abroad.

Background

The Carbon Neutral Municipalities, (*HINKU* in Finnish*), project started in October 2008 with the help of the Finnish Funding Agency for Technology and Innovation (TEKES). The project is related to an earlier process known as “Let’s surprise society”, launched in September 2007 by seven companies in order to support municipalities’ efforts to improve energy efficiency. In an initiative of the Finnish corporate executives’ networking community Devoi Oy, leading corporate figures came together to brainstorm ideas on corporate responsibility. The Finnish Environment Institute (SYKE) was asked to find ways to implement these ideas and future energy saving actions, and this led to the idea of carbon neutral municipalities.

The project brings in a unique way municipalities, businesses, residents and experts together to devise and tailor new cost-effective solutions to reduce greenhouse gas emissions at municipal level. The role and commitment of municipal/town leaders is very important for success. Their support is possible if climate change mitigation is seen as an opportunity, and the benefits of the process are understandable. The aim is to create “win-win-win” situations where efforts to mitigate climate change give full consideration to economic, environmental and social factors. The project aims to treat the participating localities as miniature versions of Finland, where the activities of local authorities, businesses and residents can be examined in detail with a view to identifying new ways to curb greenhouse gas emissions. The project is ongoing and does not have an end date. The municipalities have committed to reduce GHG emissions in their area by 80% by 2030 compared to the GHG emissions for 2007, more extensively and more rapidly than would be required according to current EU targets.

The forerunner municipalities involved in the beginning of the project – Mynämäki, Uusikaupunki, Kuhmoinen, Padasjoki and Parikkala – were chosen on the basis of their links to the project’s corporate participants. These varied localities have different opportunities to act as testing grounds for new climate-related measures. Today 31 new municipalities – Asikkala, Hamina, Hanko, Hyvinkää, Hämeenkyrö, Ii, Iloanta, Inkoo, Joensuu, Kitee, Laitila, Lappeenranta, Lieksa, Liperi, Lohja, Loimaa, Masku, Muhos, Nurmes, Outokumpu, Pori, Porvoo, Pyhäjärvi, Raasepori, Rauma, Rautjärvi, Ruokolhti, Siuntio, Tohmajärvi, Tyrnävä and Valtimo – have joined the project, and the amount of inhabitants involved in the project has increased from 36 000 to 678 000 (**Figure 1**).

*in English also CANEMU name was used before but nowadays HINKU is the established name used both in Finnish and English

Hinku-municipalities

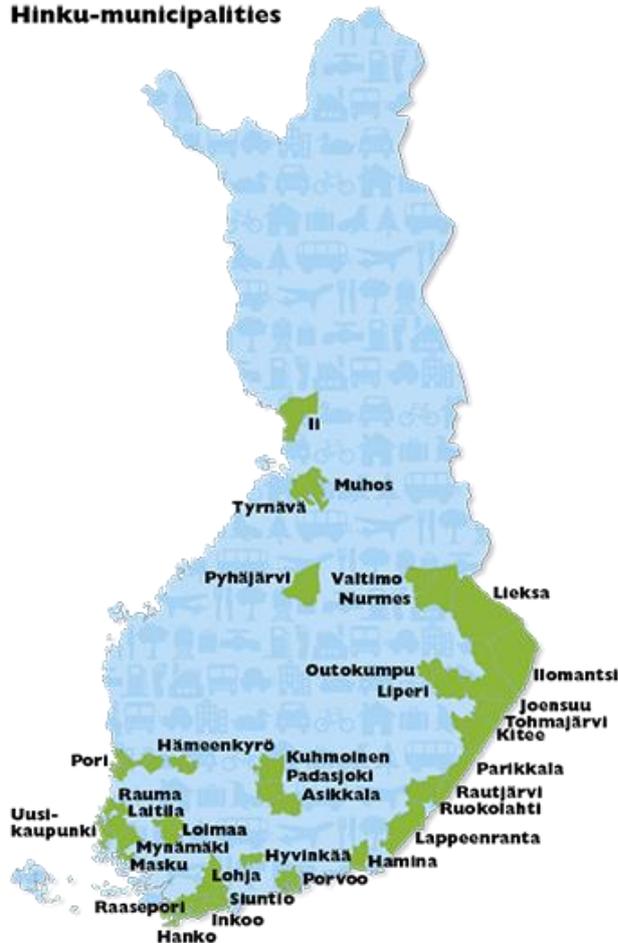


Figure 1. 36 HINKU-municipalities inhabit up to 12,4 % of the total Finnish population

Progress and participants

The HINKU project is coordinated by the Finnish Environment Institute (SYKE) which is a national environmental research centre under the Ministry of the Environment. Besides SYKE and the current 36 HINKU municipalities, a large group of cleantech companies and experts are involved as partners to ensure that mitigation of climate change can be credibly carried out on in society. In the first phase of the project, SYKE analyses the GHG emissions of each municipality with 2007 as the baseline. The calculation includes all GHG emissions released from each municipality and the results are analysed in detail. As a result annual GHG emission monitoring is now possible for each municipality involved in the project.

Sharing of information and new ideas has a pronounced role in the HINKU project. Data and experiences about good practices and action procedures from other localities are collected and shared with various stakeholders. The basic information on the project is provided on the HINKU web-pages www.hinku-foorum.fi. The pages provide several useful tools for stakeholders, such as the HINKUmappi application www.ymparisto.fi/hinkumappi. This application is free for anyone to deliver stakeholders' own experiences on renewable energy, energy saving and energy efficiency. The Hankintamappi tool www.ymparisto.fi/hankintamappi provides purchasers with the possibility for joint procurement, exchange of knowledge and sharing experiences.

Through this project municipalities are able to create jobs for the future while reducing their emissions and simultaneously improving their energy self-sufficiency. HINKU can be seen as a package of many potential tools to tackle climate change: e.g. boosting of renewable energy, establishing variable

energy saving pilot project, carrying out surveys, arranging various climate-related events, doing joint acquisitions (e.g. street lamps, solar panels), outlining road maps and much more. All actions and procurements have been tailored for each municipality taking into account their strengths and economical profitability. Co-operation plays an important role in sharing information and new ideas but also in joint acquisitions:” The bigger order, the lower price”. For example in 2013 the HINKU project organized together with municipalities’ solar panels joint acquisition which amounted for about 10 % of the total amount of Finland’s solar panel systems that year. This joint acquisition depressed the price almost half from the normal level.

About 40 Finnish companies located outside the municipalities, offering climate friendly technology and services, are involved in the project. The project has allowed environment technology companies to find new customers in the municipalities. For example, new innovative waste collection systems have been carried out. New solutions for geothermal heat systems in animal farms and the utilization of waste heat of companies in the central heat systems are being developed. The wind power companies have found new customers with the coastal municipalities.

Maybe the most challenging target group is the residents of HINKU municipalities because of its heterogeneous. In HINKU project inhabitants are activated, for example by Open homes walks where people get to know each other’s climate friendly solutions in their homes. In addition, energy evenings have been popular events to deliver information on cleantech solutions like geothermal heating, solar electricity and heating causing economic benefits.

Another target group is the seasonal owners living in the HINKU municipalities mostly during the summer months. For example, in Padasjoki and Kuhmoinen there has been a project group consisting of summer cottage owners. They are searching for energy efficiency and renewable energy solutions for the cottages. The conducted survey for summer cottage owners revealed that the most of people are willing to co-operate to decrease GHG emissions. In addition, in the municipalities there are several small groups in educational institutions working on measures to help reduce emissions.

Current results

One of the biggest challenges in the mitigation of climate change is to change the traditional way of thinking. A new innovative way of thinking changes automatically the course of each participant’s actions and, thus, also the structures of society. This has happened during the HINKU project. The change can be seen all the time and everywhere – how the things are approached, how the targets are set, who will participate in brainstorming and above all: how the things are finally done. Normally the communication level between business world and science world has been low; communication between science world and municipalities has been even less common. The HINKU project has been able to break down these barriers and made companies and the public sector work together.

During the project since 2007 the HINKU municipalities have reduced their GHG emission 7 – 67 %, on average 29 % (**Figure 2**). Most of the cut is due to positive changes in energy sector, i.e. in emissions caused by electricity use and fossil fuel consumption. A steady wave from fossil fuels to renewable energy sources has taken place in many HINKU municipalities. In some HINKU municipalities agriculture and waste management have also affected positively on emission cuts.

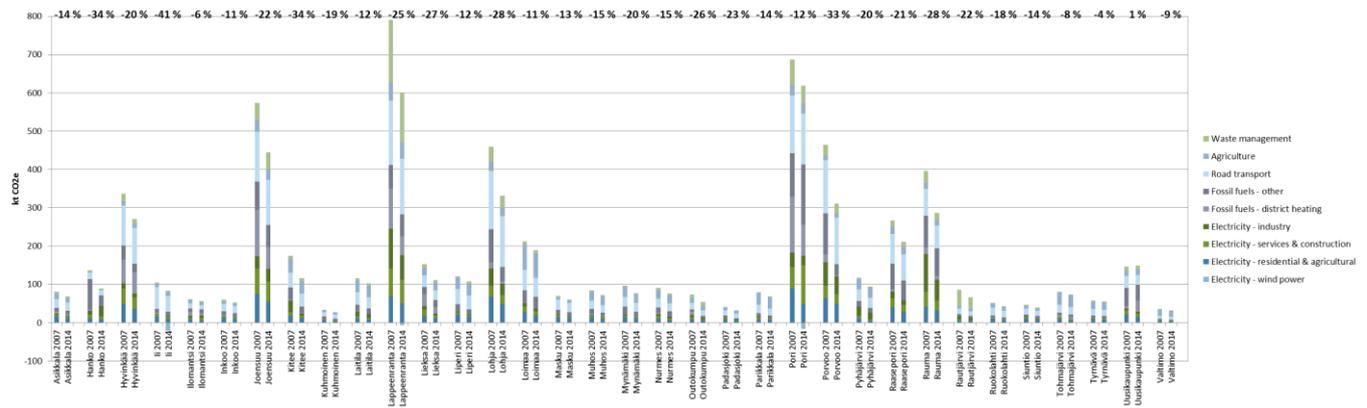


Figure 2. GHG emissions in HINKU municipalities 2007-2014

Examples of emission reduction measures from municipality li

The HINKU project could provide 36 good examples (municipalities) of the HINKU work done at local and regional level to tackle climate change. Municipality of li was chosen as one example from our HINKU municipalities:

- Municipality of li is a great example how the commitment to the HINKU program has accelerated **significant CO2 emissions cuts - just within a few years**. Located in Northern Finland with ten thousand residents, li has become one of the forerunners of low-carbon societies.
- **During the years 2010 - 2014**, li has saved total of **4 818 MWh of energy** which is equivalent to 241 electric-heated single family houses' energy consumption (~10% of all single family houses). Also li has reduced its oil use by **310 000 litres (-85%)**. The amount saved in euros is equivalent with 0,25 percent share of li's community tax (240 000€).
- li region currently produces (2014):
 - 400 GWh hydro power
 - 130 GWh wind power
 - 40 GWh wood based heat (district heating)
 ➔ Total annual power consumption in li region is around 80 GWh
- **Here is how li did it:**
 - Green growth is an essential part of municipal's strategy as well as respectful attitude towards the values of nature / climate change.
 - Municipality prepares energy efficiency action plan yearly that is linked with the next year's budget. (HINKU Roadmaps 2020/2030)
 - li has put extraordinary effort to cut the use of fossil fuels in housing and transportation:
 - The municipality has analyzed the energy consumptions in all municipal owned buildings and replaced its oil heating systems with local and renewable sources such as biomass (wood chips) and geothermal heating.
 - 6 zero emission electric vehicles have been acquired for the use of municipal's employees. Municipality has partnered to build public charging stations in the region. Vehicles are charged with wind power (10 000 kWh / a).
 - Use of online database for HINKU actions ("Hinku mappi") to share ideas and to promote best practices used by the municipalities.

- Municipality act as role model to change the behavior of the inhabitants:
 - Residents are encouraged to reduce their emissions. Li has organized Energy Days in public schools where teachers and students were introduced energy saving methods by energy experts. Tips were given on recycling, optimizing energy and water usage and lighting. Also three schools are participating EU 50/50Max Energy Saving –project where municipality donates back 50% of the achieved savings on energy bills to schools to use in recreation activities.
 - Li has accelerated adaptation of renewable energy solutions in the community by organizing joint procurement/tendering program to acquire solar energy and thermal panels. About 80 local residents, companies and leisure apartment owners have been participating the program. Benefits are lower prices / economies of scale and sharing expertise on sustainable energy solution.
- li's local village association is pursuing to become the first low-carbon village in Finland.

Next steps

The media coverage of the project has been effective in raising awareness of the project, the targets and measures of the project for the inhabitants in the municipalities. The regional and national media have published up to several hundreds of articles on the HINKU project over the last few years. Due to the positive interest of media awareness about HINKU among local inhabitants has been very high and the attitude to the HINKU project has been a positive and enthusiastic. Because of these encouraging results SYKE will try to spread the carbon neutral municipalities' progress even further into the county level and abroad. In the future SYKE will start information change on experiences between HINKU and corresponding international initiatives and projects. The scope is also to start joint projects with international partners. In the future the co-operation at the national and international level will be improved.