

Action D1.2: Socio-economic assessment



This report includes the socio-economic assessment related to the LIFE EconomisE -project. The assessment is completed based on the plan submitted with the project Midterm report (annex 11). The assessment focuses on the socio-economic situation in Finland that the project has operated on, looking at relevant statistics and their development trends during the period. We have utilized the most recent statistics available, usually these are until the end of 2019.

Climate change mitigation requires major changes in our ways of living and consumption. Energy efficiency is an integral part of this change. Improved energy efficiency will lead to reduced energy costs and good quality apartments will improve the standard of living, i.e. socio-economic benefits. New investments in “green” business create jobs enhancing both societal and economic benefits. In the EconomisE project we have aimed to influence this by encouraging major building owners to set science-based targets for their activities and invest on energy efficiency renovations of buildings. Therefore, the socio-economic change that the project has contributed to is long-term and should be looked at on a much longer time perspective than few years the project was active. This report looks at some related indicators and statistics on the societal level, which are connected to the overall situation in Finland (which of course includes a variety of factors outside the project).

1. Overall economic situation of Finland in connection to the Energy Efficiency and Energy Efficiency in building stock.

The new government of Finland set a goal of carbon neutrality for Finland by 2035 in 2019. More than a third of the greenhouse gas emissions generated in Finland are caused by construction and buildings, therefore the sector has a significant role in reaching the carbon neutrality goal.

According to Statistic Finland¹, the CO₂ emissions of Finland in 2019 were 53,1 Mt CO₂ -ekv. (based on preliminary information, excl. LULUCF). This is 6% lower than the previous year (56,4 Mt CO₂ -ekv.), 25% lower than in 1990 and 38% lower than in 2003 when the emissions peaked for the monitoring period of 1990 -2019.

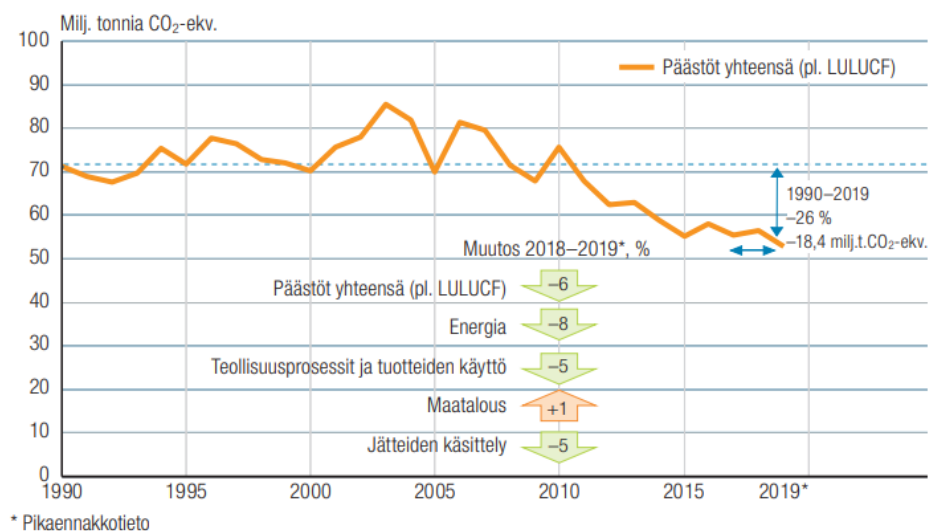


Figure 1 GHG emissions of Finland 1990-2019, excl. LULUCF, and changes in emissions 1990-2019. Source: Statistic Finland 1

¹ [Suomen kasvihuonekaasupäästöt 2019 . Helsinki: Tilastokeskus \[viitattu: 19.2.2021\].](https://tilastokeskus.fi/julkaisut/2020/02/19_2021.html)

Emissions of the energy sector generated 74% of the total emissions in 2019. The emissions of the energy sector decreased by 7% between 2018 and 2019. Main reasons for these reductions are reductions in the use of coal and peat for energy. Finland has decided to phase out the use of coal for energy by 2029 and the use of fossil fuel oil in heating by the start of the 2030s. Utilizing peat for energy production will be reduced at least with 50% by 2030. The overall emission trend is decreasing, however, a lot of work is needed to reach the carbon neutrality goal.

The statistics related to energy consumption of housing² show that the overall energy consumption has slightly decreased during the project implementation (i.e. 2017-2019, which is the latest year this statistics is available for). In the below image it can be seen that although during the project years the trend is slightly negative, years that were significantly warmer than average (here 2015) can be clearly distinguished from statistics.

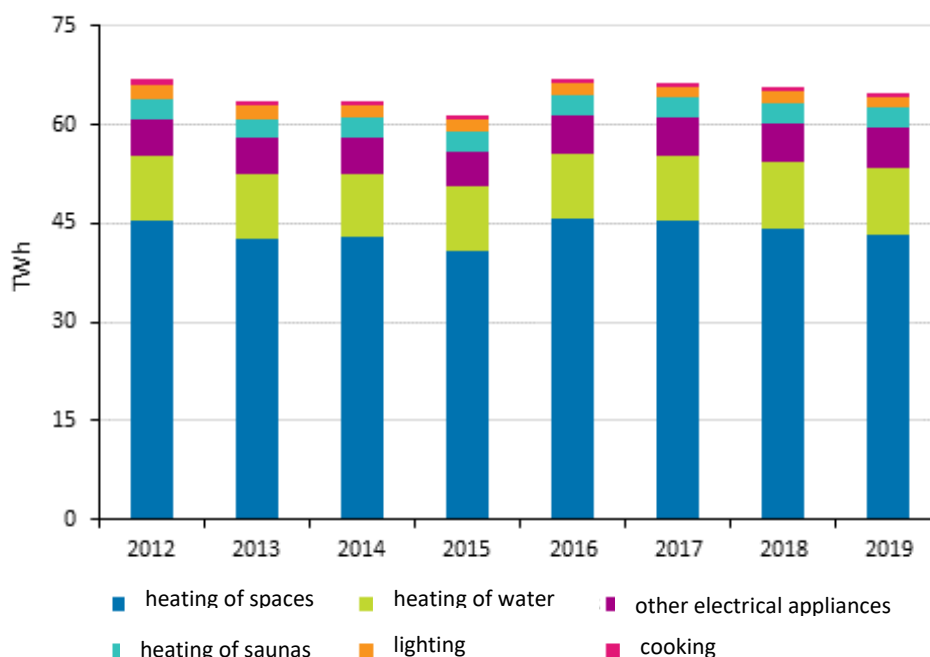


Figure 2 Energy consumption of housing in Finland 2012 - 2019

The decrease of energy consumption 2018-2019 is 2% (ca. 0,5TWh). The number and size of apartments is rising at the same time. 67% of energy is used for heating spaces in residential buildings, 15% for heating water and 5% for saunas. The share of residential housing out of total energy consumption is around 20%. A little over one third of the energy consumption is electricity, a bit under one third district heating and around one fifth is wood. The most common heating sources of apartments are district heating, wood and electricity (82%) and fourth largest heat pumps. According to Statistics Finland the share of heat pumps for heating has grown exponentially since the turn of the millennium. Heating demand of apartments is influenced by the yearly temperatures, but also energy efficiency of buildings.

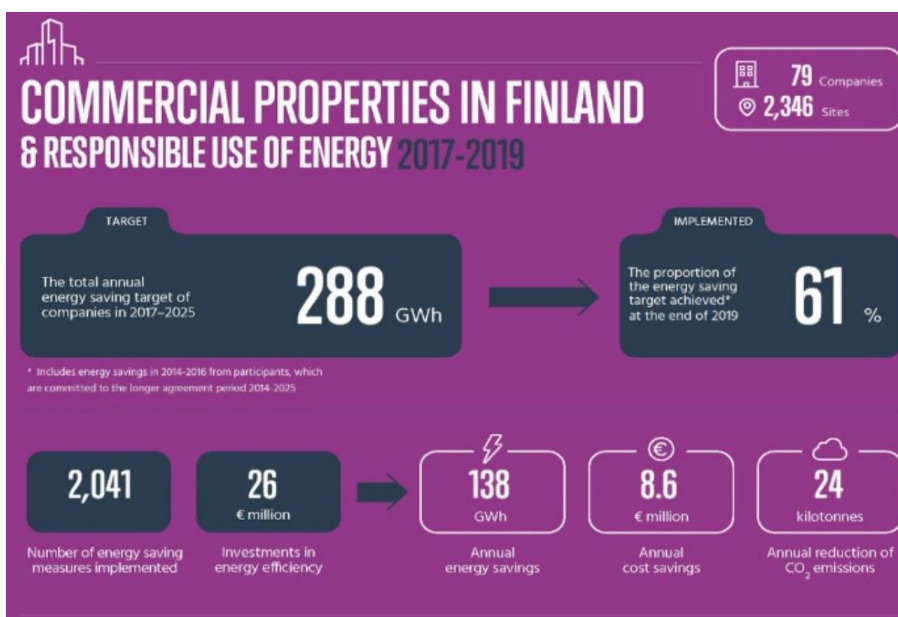
² Suomen virallinen tilasto (SVT): Asumisen energiankulutus [verkkojulkaisu]. 2019. Helsinki: Tilastokeskus [26.3.2021]. http://www.stat.fi/til/asen/2019/asen_2019_2020-11-19_tie_001_fi.html

Statistics Finland also produces statistics related to environmental business³, which shows that between 2017 – 2019 the business category “savings and management of energy/heating” has grown from 13 597Mio € to 14 295Mio €. This reflects the increasing interest for energy efficiency solutions.

2. Investments’ and improvements’ potential costs as compared to the cost-saving potential.

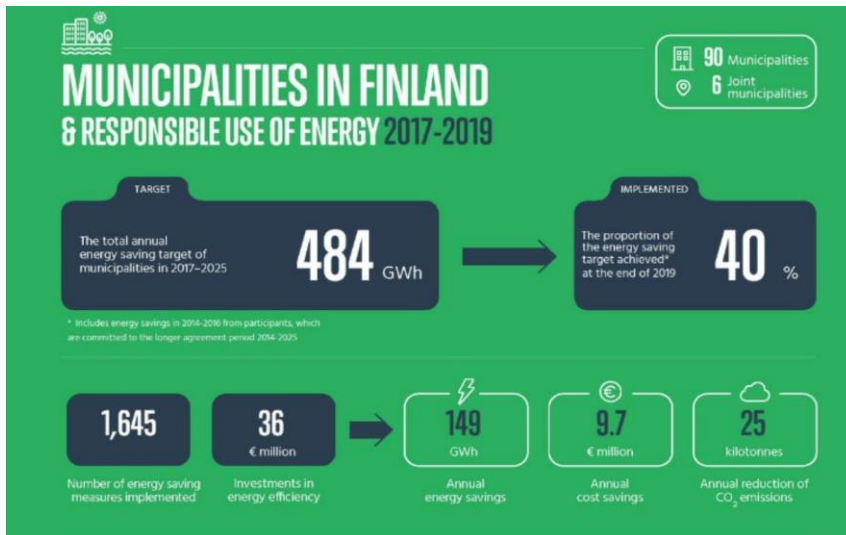
The total investments of the energy efficiency investments made in the municipalities under action C4 is 4 572 336€. Looking at the annual cost savings to end users (428 490€) we can estimate that within the average operative lifetime of the investments of 22 years of the total savings during the 22 years is 9 523 067,223€. Therefore, the investments made can be estimated to be very cost-efficient.

According to “Energy efficiency first”, a cooperation by Energy Authority and Motiva⁴ improving energy efficiency has a considerable potential for cost savings. During the 2017-2019 the voluntary energy efficiency agreements prepared in cooperation by the Government and industrial/municipal associations are reported to have saved nearly 290 million € per year. The images below summarise the total investment value and cost savings for commercial properties, municipalities and housing properties in Finland that have joined the energy efficiency agreement.



³ Ympäristöliiketoiminta 2019. Helsinki: Tilastokeskus [1.4.2021] https://tilastokeskus.fi/til/y/t/2019/y/t_2019_2020-12-10_fi.pdf

⁴ <https://energiatehokkuusensin.fi/> and <https://energiatehokkuussopimukset2017-2025.fi/en/results/>



These examples verify the results of the EconomisE project regarding the profitability of energy efficiency investments. Generally, knowledge about the profitability of energy efficiency renovations has increased during the EconomisE project lifetime.

2. Available financial incentives

The role of financial incentives in speeding up the rate of energy efficiency related renovation is very important. The financial incentives available for improving energy efficiency and climate resilience at the end of the project include the following;

The Housing Finance and Development Centre of Finland (ARA)

- Subsidies for energy efficiency renovations during 2020-2022
- Private owners of residential buildings, housing cooperatives, as well as rental apartments owned by municipalities and ARA cooperatives are eligible for subsidies.
- https://www.ara.fi/fi-FI/Lainat_ja_avustukset/Energiaavustus (in Finnish only)

Business Finland BF

- Energy aid for companies, including self-employed persons, traders and sole traders & communities and organisations, such as municipalities, parishes and foundations
- The key aim of energy aid is to promote the development of innovative solutions for replacing the energy system with a low-carbon alternative in the long term. Energy aid can be granted for investment and investigation projects that promote: 1) the production or use of renewable energy, 2) energy savings or improving the efficiency of energy production or use and 3) otherwise replacing the energy system with a low carbon one.
- <https://www.businessfinland.fi/en/for-finnish-customers/services/funding/energy-aid>

Ministry of Economic Affairs and Employment

- Energy and investment aid for innovative energy projects
- Mainly for larger projects developing new energy technology or large-scale demonstration projects, but also available for municipalities.
- <https://tem.fi/en/energy-support>

MuniFin (Kuntarahoitus)

- Green finance for projects that promote the transition to low-carbon and climate resilient growth
- Loans and leasing with a lower costs than with “normal” investments
- For municipalities
- <https://www.kuntarahoitus.fi/palvelut/vihrea-rahoitus/>

Tax credit for household expenses

- Tax deductions for renovations, including energy efficiency related available for all.
- <https://www.vero.fi/henkiloasiakkaat/verokortti-ja-veroilmoitus/tulot-ja-vahennykset/kotitalousvahennys/>

In the EconomisE project we have shared information about these financing opportunities in order to encourage energy efficiency investments. SYKE has also offered practical advice on how to apply, tendering, etc. The work has resulted in energy efficiency investments in the value of 4 572 336€, contributing to 428 490 € annual cost savings to end-users.

4. EconomisE project impact based on the monitoring of impact

The socio-economic impact assessment plan prepared in the Midterm report phase and as foreseen in the Grant agreement suggested to use various per capita numbers in the target municipalities as an indicator in assessing the project socio-economic impact. At the end of the project, we can conclude that this approach is somewhat problematic, because the network of HINKU municipalities has grown from 37 municipalities at the application stage to 79 municipalities in the end of the project. The growth rate was especially high in 2019 when 27 new municipalities joined. This alone demonstrates the growing importance and interest in the target of the network, namely achieving carbon neutrality. The number of FISU municipalities has remained unchanged (11). In the end of 2017, the municipalities in these networks had 1,6 million inhabitants and in the beginning of 2021, there are over 3 million inhabitants in the network municipalities. Therefore the per capita deduction is not a reliable way to estimate the socio-economic impact. However, the assessment of the project results based on the plan is as follows.

a) Trained authorities

The project training activities conducted by Sykli were not foreseen to be targeted to the HINKU and FISU network, but municipalities in Finland in general. There are 309 municipalities in Finland, out of these Sykli contacted 293 to offer the free energy efficiency training. The 16 municipalities excluded are those on Åland islands because Sykli does not have the mandate to operate on Åland. The final reach was 39 municipalities. Sykli's training activities reached 13,3% of the municipalities in the target area in Finland.

As for the HINKU/FISU municipalities, SYKE offered energy audits/assistance to 40 municipalities and contacted 70. The assistance therefore reached 44,4% of the municipalities included in the network in the end of the project, 83% of the originally foreseen target group of municipalities.

b) Cleantech investments in building stock 2017-2020 (in euros) per capita in HINKU/FISU municipality

The total value of investments made as a result of project activities is 4 572 336€. As mentioned above, the per capita assessment is not a very reliable indicator in this case. If we compare the value of investments to the initial scenario (2017) of the network of municipalities the per capita investment value would be 2,839€. In the end of the project scenario (2021) the per capita value is 1,496€.

c) Price of saved energy-related CO2 in HINKU / FISU municipality

The estimated emission reduction potential as a result of the investments made is calculated to be 1 093 810 kg/a. The average lifetime of the investments is 22 years, average per capita saved emissions 2017 scenario are 14,943 kg and 2019 scenario 7,874 kg.

Comparing this to the value of investments made would suggest that price of kg CO2 saved would be 0,190€.

d) Technologies, business sectors and industries with growth potentiality due scaling up solutions

Various business models aiming to aid the transition to green energy have appeared / grown in recent years. For example, the PPA (power purchase agreement) where the selected supplier owns the technology installed in a building to produce energy, e.g. solar panels, and the building owner pays a monthly fee roughly in the value of the regular electricity bill. After a time period, e.g. 10-15 years, the technology will become the property of the building owner.

A similar context are the energy efficiency and ESCO services presented at Motiva's website https://www.motiva.fi/ratkaisut/energiatehokkuus- ja_esco-palvelut (in Finnish). Several such companies were captured in the project events and activities related to innovative business solutions (e.g. LeaseGreen, nollaE)

SYKE has included advice on utilizing these new types of business models in the advice offered to municipalities.

e) New, scalable business models add jobs. We expect at least 10 new full-time jobs to be created with new investments.

As explained in the Final report, the EconomisE project has focused on supporting existing business models and matchmaking innovative companies with investors, contributing to the EU's priorities around growth and SME's. Therefore, the project cannot be directly credited for created jobs, but has acted as a platform for bringing forth innovative companies via the innovation and matchmaking events organized in the

project. Furthermore, on the other end the project partners have worked with municipalities, institutional investors and real estate owners in highlighting the need and profitability of energy efficiency investments.

The job creation is difficult to measure exactly, as the project is not in charge of e.g. the investment decisions made as a result of capacity building done by project partners and therefore we do not have ownership of such data. The value of municipal investments (4 572 336€) indicates a significant potential for created FTE's. If calculated purely based on € value, the median salary in Finland in 2020 was 2 958€ according to Statistics Finland, adding statutory fees of 21% would give a yearly cost of 42 950€. Compared to the value of investments this would have a potential of over 100 jobs, but of course in reality it is not this simple.

The cleantech and other innovative companies that the project has worked with are growing and have hired more staff during the years the project has been active. Based on openly available information about the companies that form the innovative projects and business concepts supported during the project, as well as the energy efficiency investments completed in the target municipalities, it can be estimated that most likely the goal of the 10 new full-time jobs has been reached.