Energiaviisaat KAUPUNGIT

Energy Wise Cities project presents pilot results



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Speakers



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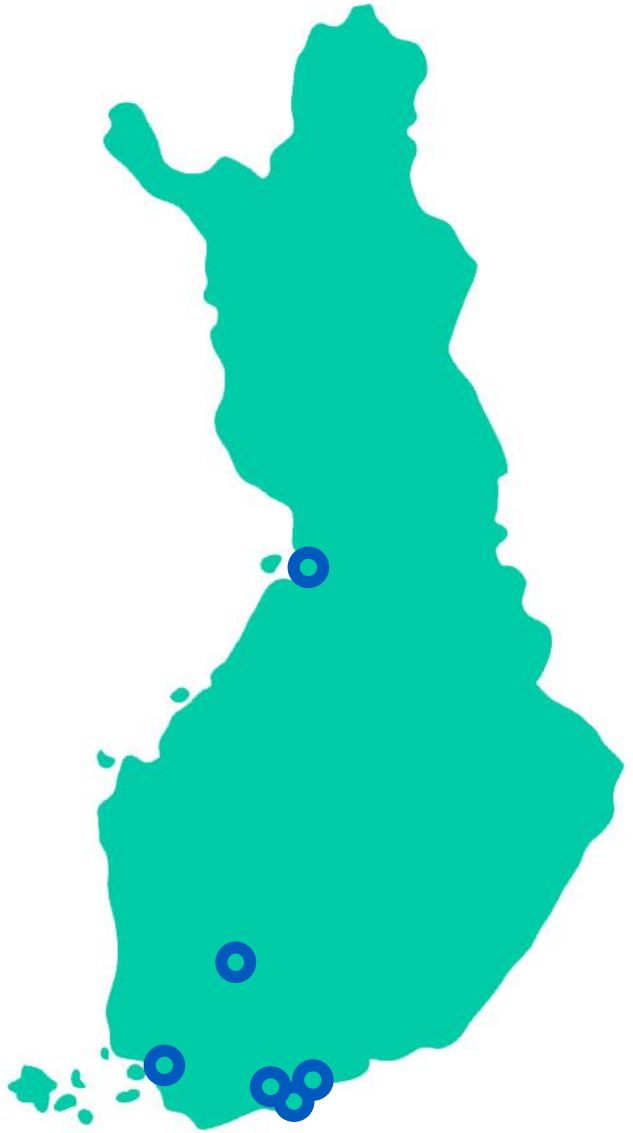


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Vantaa TURKU eko KUMPPANIT ESPOO Helsinki OULU TAMPERE VALONIA

Energy Wise CITIES

Six largest cities of Finland working closely together: **Oulu, Tampere, Turku, Vantaa, Espoo, Helsinki** accompanied by Valonia and Ecofellows Ltd.



6Aika

Vipuvoimaa EU:lta 2014–2020

Euroopan unioni
Euroopan aluekehitysrahasto

Uudenmaan liitto
Nylands förbund

Budget 3,3 million euros

Funded by ERDF (European Regional Development Fund)

The Energy Wise Cities project has searched for new ways to improve buildings' energy efficiency and regional energy systems

Now we can Enjoy the Results

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Life Cycle Assessment and Carbon Footprint Calculations as part of building projects in the City of Turku – Examples from public buildings

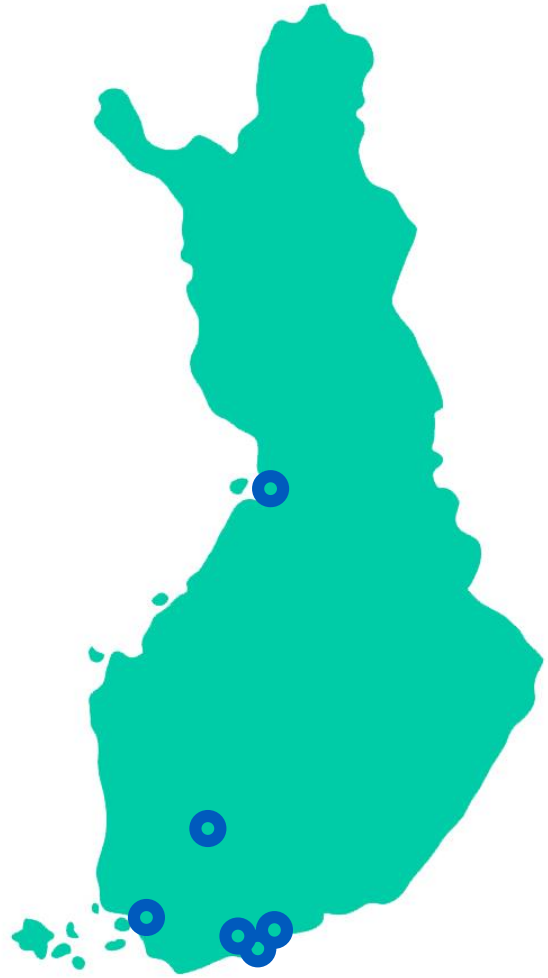
Ann-Sofi Österberg-Aikio, City of Turku



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The six largest cities in Finland have committed to be carbon neutral in the next 15 years.

The City of Turku aims to be carbon neutral by 2029 and climate positive from then onwards.



The task

The cities have a mutual goal to diminish the emissions and life cycle costs.

Helsinki, Tampere and Turku have piloted life cycle assessment and carbon footprint calculations and developed the planning processes.

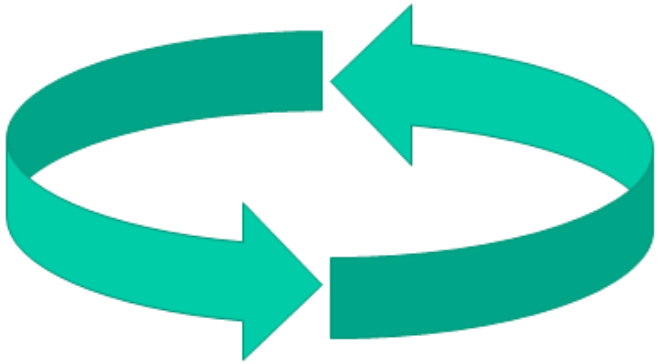


The cities wanted to:

- Develop planning guidelines and service network reviews
- Compare the effects of different solutions
- Compare regional development solutions

Process

- Tight co-operation: Turku, Helsinki, Tampere
- Market research event for companies 27.2.2019
- Planning of the purchases together
- Piloting of different life cycle assessment and carbon footprint calculations
- Collecting the results





Examples from the City of Turku

Life Cycle Assessment and Carbon Footprint Calculation pilots in the City of Turku – Energy Wise Cities project

- 3 different pilots in Turku
- Budget 55 000 €
- Life cycle assessment for the planning phase and purchasing criterias - Skanssi School and community center
- Sofiankatu day care center carbon footprint and carbon handprint calculation/pilot for the Ministry of the Environment
- Kupittaa sports area: Energy simulation and life cycle assessment

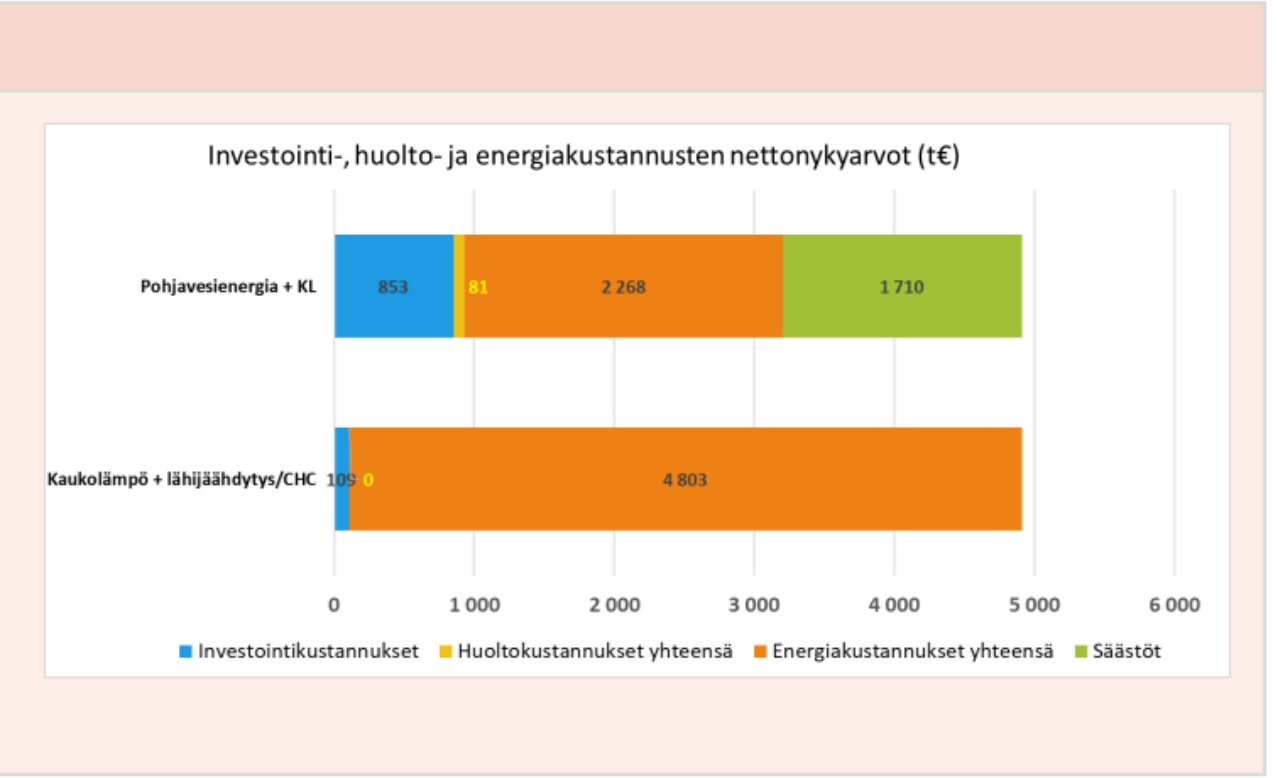
Life cycle assessment for the planning phase and purchasing criterias: Skanssi school and community center

- Purpose: To set goals for the planning phase and purchasing criterias that support the carbon neutrality goals.
- The RTS environmental classification was used.
- Minimum criterias
  - Energy Efficiency class A_{2018}
  - RTS environmental classification 3 stars
  - Low emission energy in co-operation with the local energy company Turku Energia



Life cycle assessment for the planning phase and purchasing criterias: Skanssi school and community center

- Carbon neutral solutions can concern for example purchase of emission free energy, selling of energy and minimizing emissions during the building phase.
- Setting the minimun criterias for energy efficiency and the lifecycle carbon footprint makes it possible to compare the future bids from the point of view of energy efficiency and the lifecycle carbon footprint



Results

- **Different carbon neutral solutions** with life cycle cost and payback period calculations.
- **To reach the A-energy efficiency class is quite easy,** the level 80 kWh/m2 can be reached with good basic solutions. When putting money and effort of energy efficient solutions it is possible to reach a level of under 70 kWhE/m2.
- It is **possible to produce up to 90% of the energy needed** to warm the building with ground water energy.
- The results also consists of **assessment of different material choices** and their carbon footprint and life cycle costs.
- It is **possible to use the evaluation tools and criterias in the future** when choosing a constructor for the school and community center building.

Setting of minimum criterias and criterias for additional points

Use of the results in the future

- In the future the RTS sertificate can be used for controlling the citys building projects energy and environment solutions and sustainable development.
- The results from this pilot have been used when developing the citys public space guidelines.

Carbon footprint and carbon handprint - Sofiankatu daycare center

- The goal was to calculate the carbon footprint and and life cycle emissions for the new daycare center at Sofiankatu.
- The work also included calculations of the carbon handprint – the positive climate effects - with the the Ministry of the Environments model.
- The goal was to analyze the results from different angles, so that it would be possible to optimize the emissions for building projects. A period of 50 years was used.



Sofiankatu daycare center - Results

Life cycle carbon footprint from materials and energy consumption

Results

- The production of building materials affects the buildings emissions most.

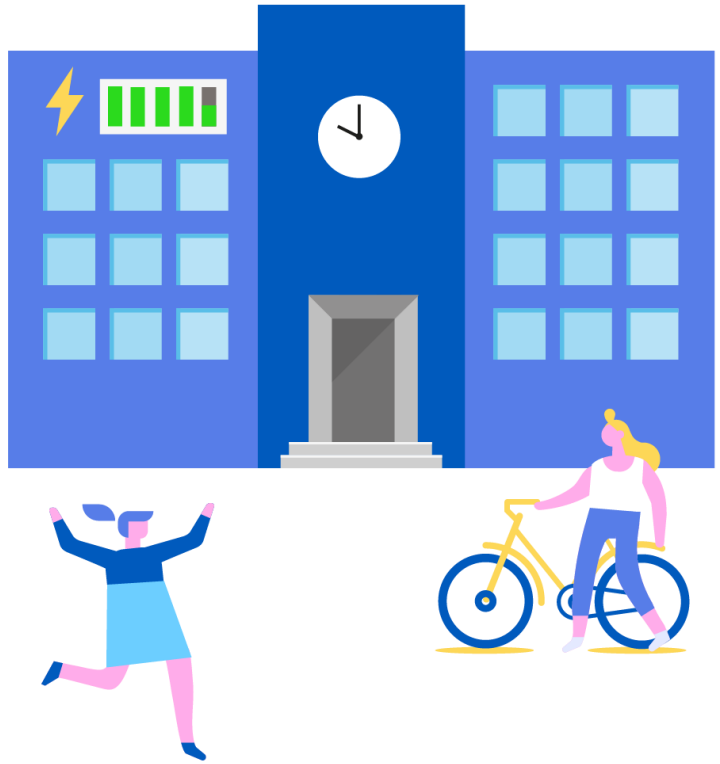
Use of results

- With the life cycle carbon footprint assesment it was possible to pick the building materials that affected the carbon footprint most.
- The results presented solutions, with which it is possible to diminish the carbon footprint in future projects.
- The project also resulted in comments and feedback to the Ministry of the Environment.

Results

General results

- Co-operation between the cities
- Possibility to try different methods in different cities and good examples and results from these
- Everyone involved learned more about carbon footprint and life cycle assessments
- Possibility to pilot the Ministry of the Environment calculation method and comment on the use of it together with the other cities (Sofiankatu)
- Input to future building projects at all building stages
- New energy efficient solutions that can be taken into account during new renovations (Kupittaa).



Knowledge data base:

https://energiaviisaat.fi/rakentamisen-elinkaariohjauksen-ja-hiilijalanjalkilaskennan-hanketulokset/

Pilots, results, videos from webinars

www.energiaviisaat.fi

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Thank You!