BEST PRACTICES FROM THE ENERGY EFFICIENT REGION IN SKAFTKÄRR

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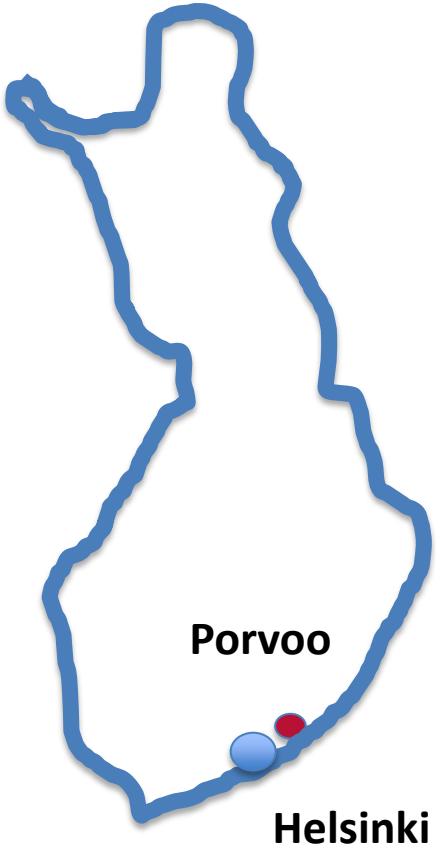
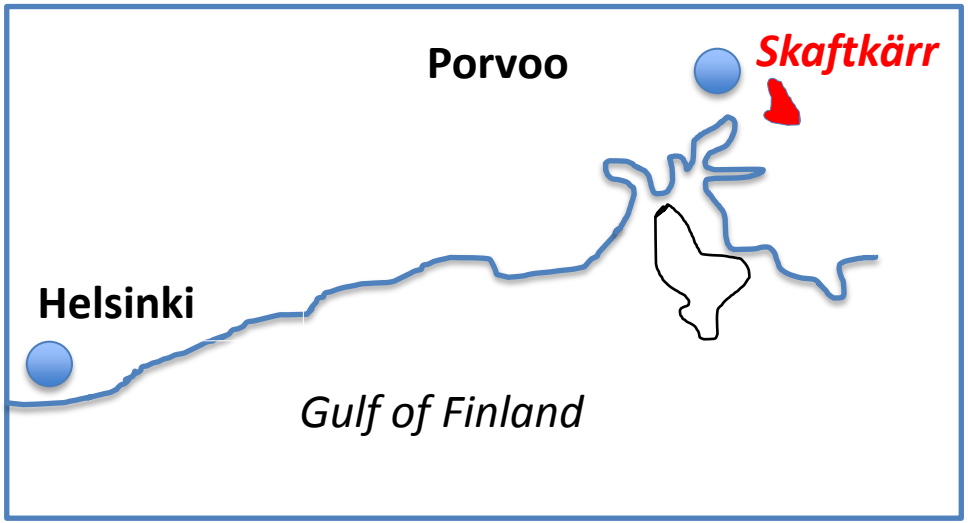

Porvoo
Helsinki


Porvoo
Skaftkärr
Helsinki
Gulf of Finland

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Skaftkärr residential area

- Skaftkärr is a new energy-efficient residential area in Porvoo, Finland
- With sustainability as the guiding principle of both design and construction of the area, the living environment, buildings, services and traffic will operate as energy-efficiently as possible
- The area is 400 hectares in size
- At least 7 000 inhabitants
- The first houses will be built in 2014

Creating a concept to be utilised on a national level

”The Skaftkärr project has clearly demonstrated that significant emissions reductions can be achieved in Finland if the evaluation of energy and emissions impacts is included in all town planning.”

”One might say that energy-efficient town planning has been initiated in Finland as a result of the Skaftkärr project.”

Jukka Noponen, Director, Sitra

The Skaftkärr pilot project 2008-2012 was a part of Sitra´s five-year Energy Programme, the purpose of which is to help communities reduce their energy use and greenhouse gas emissions.

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Controlling carbon dioxide emissions through district heating

Photo from Porvoon energia –yhtiöiden asiakaslehti 1/2013

- The houses in the Skaftkärr area will be connected to district heating
- About 90% of the district heating is produced through renewable energy because of the new bioenergy plant
- The local energy company have been developing new, innovative, clean and economically competitive energy production solutions

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Energy efficiency as a cornerstone for town planning

The town planning work for the Toukovuori neighbourhood is the first pilot plan based on the Skaftkärr structural plan.

- Energy efficiency has been taken into consideration in all phases of town planning
- One of the central emphases has been planning smooth traffic solutions with low emissions
- A fast, high-quality bicycle lane, good connections to bus routes and pedestrian paths

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Anticipatory quality management as a part of building supervision

- The building supervision plays a significant role in ensuring building quality
- Counselling and training of one-time home builders and experts in the field of construction ensure the implementation of energy efficiency goals

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Cooperation between different parties

- Wide-ranging cooperation between different groups of experts
- Authorities, energy producers, contractors, device manufactures, companies and future residents
- Changes in the way of thinking

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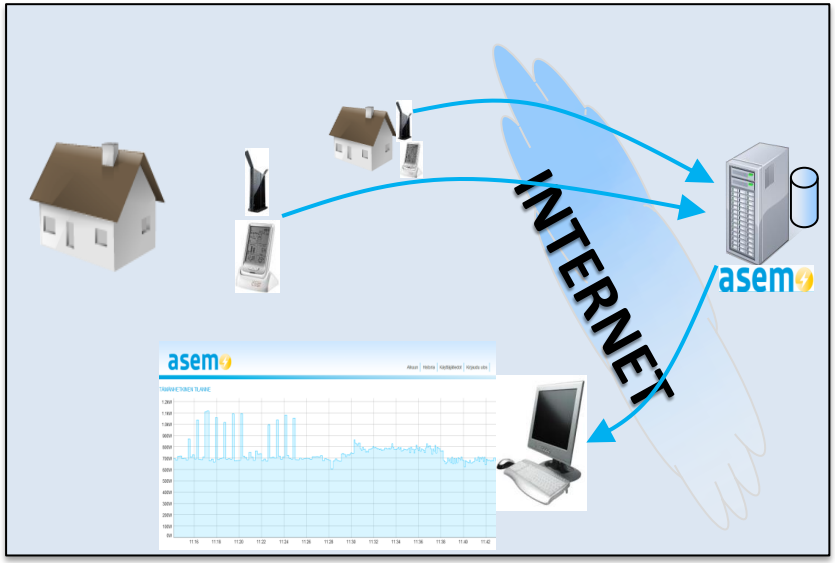
Making electricity use visible



- Asemo is a real-time electricity monitoring system; a stand-alone, plug-and-play solution based on off-the-shelf consumer hardware supplemented by special software created in Posintra
- The system provides you with instant feedback on your energy use at any given moment

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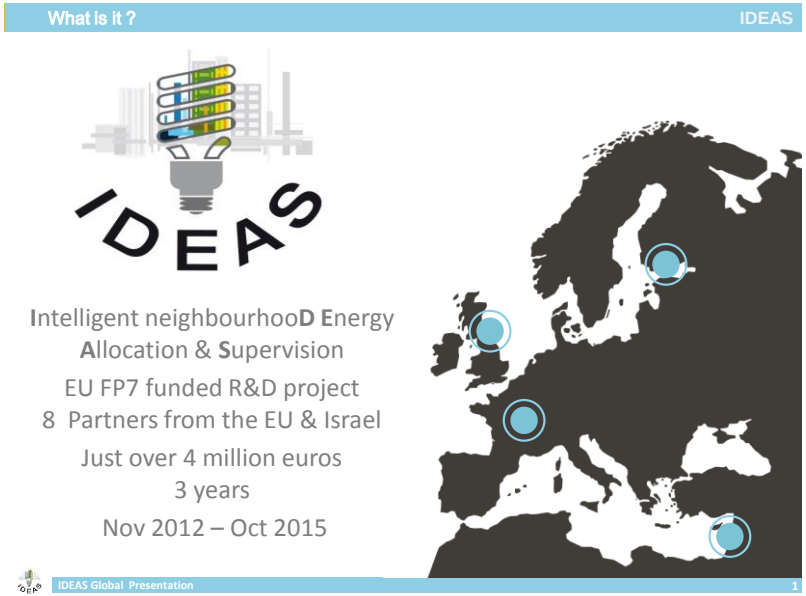
Further development



- **IDEAS Main Goal**
  Illustrate how communities, public authorities & utility companies can be engaged in the development of energy positive neighbourhoods
- **IDEAS Main Outcomes**
  Reduction of energy demand & CO 2 emission at pilot sites validated IDEAS business models & tools which optimise local energy supply & demand solutions
- **IDEAS pilots**
  - A University Campus in Bordeaux France
  - A Residential Area in Porvoo, Finland (Omenatarha in Skaftkärr)

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Pilots and demos: Electric bus

- An electric bus was tested for 3 weeks as a free hop on - hop off bus tour in Porvoo

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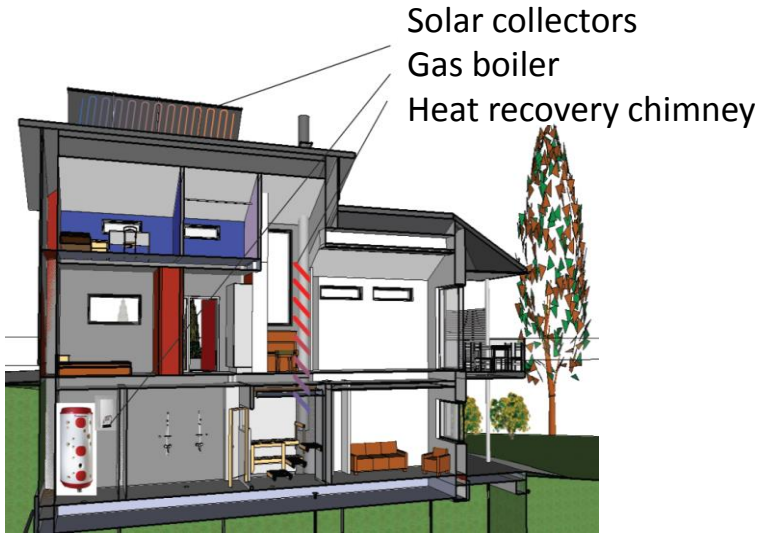
Pilots and demos: Demo house

- An example of a newly-built Finnish family house in Porvoo



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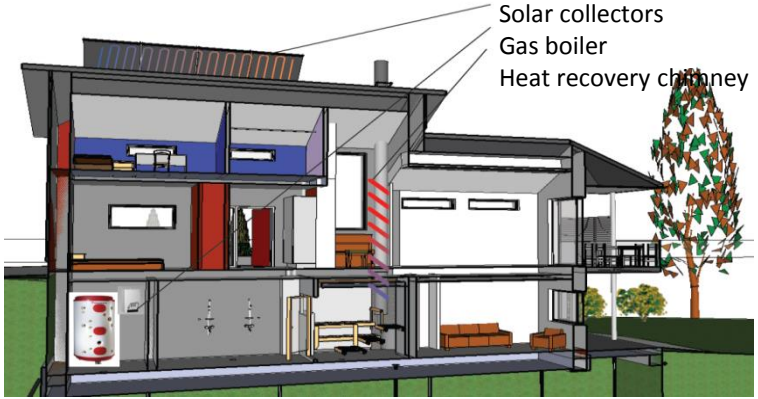
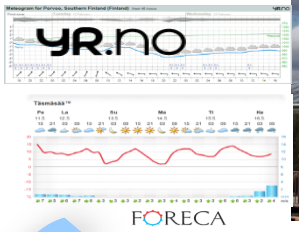
Pilots and demos: Demo house

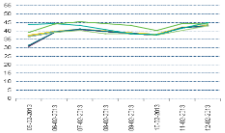




Weather forecast

INTERNET

nordpool spot



Heating control

Heating information

Energy prices

Data logging

Outdoor temp: 10.8 (24h avg: 9.4)
Solar collectors (returning from tank) temp: 16.6
Solar collectors (from collectors) temp: 26.1
Solar collectors circulation pump: 0 %
Heat recovery chimney temp: 19.4
Underfloor heating feed temp: 25.2
Underfloor heating return temp: 23.7
Requested hydronic temp: 24.8
Storage tank top: 56.5
Storage tank mid: 23.6
Storage tank bottom: 21.8
Mix valve: 6 % open
Heating curve..

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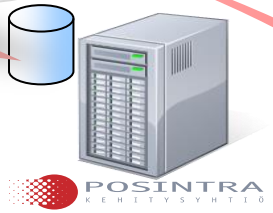
1-wire sensors
temperatures

Power usage

Home automation
Water pulses
Gas pulses
(state, weather information
temperatures, presense control,
ventilation machine,
controllable coils)

KNX
EIB

accessed through KNX IP-router



SMS alerts if necessary

Clickatell
Any message, anywhere.

NETWORKING:

KESTI – a network project for new technologies and methods for sustainable urban development in the Baltic Sea Region

aims to promote new forms of sustainable technologies and practices in urban and residential environments planning

Benchmarking:
20-21 March 2013 Malmö and Lund (Sweden)
22-24 May 2013 Hamburg (Germany)
9-10 October 2013 Copenhagen (Denmark)
19-20/21 March 2014 Estonia
14-15/16 May 2014 St. Petersburg (Russia)

A symposium held in Finland will complete the project.

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Best practices from the energy efficient region Skaftkärr

- Creating a concept to be utilised on a national level
- Controlling carbon dioxide emissions through district heating
- Energy efficiency as a cornerstone for town planning
- Anticipatory quality management as a part of building supervision
- Making electricity use visible
- Further development
- Pilots and demos

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THANK YOU!

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