Buildings in Key Role towards meeting Sustainable Development Goals

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Harri Heinaro, Motiva Oy
Motiva in the field of buildings and construction

- Expert
- Communicator
- Networker
- Coordinator
- Strategist
- Trainer
- Impact Assessor
Buildings and construction in the heart of society

Over 1,5 million buildings
About 1,3 million residential buildings
Value of Building stock 500 billion Euro
Renovation debt nearly 1/10 of building stock value
Major employer as a cluster 520 000 people

UN Agenda 2030
Sustainable cities and communities
Climate actions
Responsible production and consumption
Affordable and clean energy
Clean water and sanitation
Good health and well-being

National strategies, etc.
Energy and climate strategy
Strategy 2030 – A better environment for future generations

EU directives, etc.
Energy Efficiency Directive
Renewable Energy Directive

SHARE OF
energy use
32%

SHARE OF
CO₂ emissions
30%

BUILDINGS

32%

30%
Finnish Building Stock

- Detached houses
- Attached houses
- Blocks of flats
- Commercial and office buildings
- Public service buildings
- Industrial buildings and warehouses
- Other buildings
Long-term renovation strategy 2050
REMPPA
REMPPA – Aim of the Strategy

To highlight the different perspectives, methods and habits as well as needs associated with renovation. To serve Finland's needs as well as possible while meeting the requirements of the directive.

Roadmap
Status of Building Stock
Policies, actions, advice
Financial instruments

Long-term renovation strategy for energy efficient and low carbon building stock in 2050
Building the Strategy

Ministry of Environment, Motiva Oy, VTT and Tampere University of Applied Sciences in co-operation with stakeholder and target groups
Energy Efficiency Investments

IEA Energy Efficiency 2018

- **Buildings, $140 Billion**
  - Envelope
  - HVAC and Controls
  - Appliances
  - Lighting

- **Transport, $60 Billion**
  - Premium paid for energy efficiency vehicle
  - EV subsidy
  - Freight vehicles

- **Industry, $35 Billion**
  - Energy-intensive industry
  - Other industry
Banks and investors
...

Financing Energy Efficiency

- Banks and investors
- Tax credit for households
- Large companies
- Households
- Agriculture
- Municipalities
- SMEs

Other EU and International financing: EIB, EFSI, ELENA, etc.

European Agricultural Fund for Rural Development (EAFRD)

Municipalities

Energy Efficiency

Third party financing (ESCO)

European Social Fund + European Development Fund

National energy aid
Energy Production
Space Heating by Energy Source

District heating: CO2-neutral 46%
Forest fuelwood, industrial wood residue, other biofuels, recovered heat

Electricity generation by Energy Source

Renewables: 47%
Carbon dioxide free: 79%
Domestic: 53%

District heating: CO2-neutral 46%
Other: 1%
Oil: 8%
Wood: 13%
Electricity: 17%
Heat pumps: 15%
District heating: 46%
Oil: 0,30%
Natural gas: 6%
Coal: 9%
Hydro power: 19%
Wind power: 9%
Solar power: 0,20%
Biomass: 19%
Waste fuels: 1%
Nuclear power: 32%
Other: 1%
Peat: 5%
Coal: 9%
Oil: 0,30%
Natural gas: 6%
Peat: 5%
Solar Electricity Campaign
"It doesn’t have to be that difficult"

**OBJECTIVES**

Raise consumer interest

Highlight the possibilities of solar energy in households and housing companies

Make contacting providers easy and reliable

**MOTIVATE CONSUMERS**

- Step by step – directions
- Move forward with the basics
- Indepth information and links
- Contact point – find the companies in Your area.
Buildings and Mobility
Buildings and Mobility
Looking in to the Future
ENERGY EFFICIENCY AGREEMENTS 2008-2016

ANNUAL CUMULATIVE ENERGY SAVINGS IN 2016

15.9 TWh

AGREEMENTS COVERED APPROX. 2/3 OF TOTAL ENERGY USE IN FINLAND

667 COMPANIES
5,000 SITES
132 MUNICIPALITIES

ANNUAL SAVINGS EXCEEDED HEATING ENERGY CONSUMPTION FOR ALL RESIDENTIAL BLOCK OF FLATS IN FINLAND

> 100% ≈ 2 MILLION INHABITANTS

ADDITIONAL ANNUAL SAVINGS FROM ENERGY ADVICE SERVICES FOR CUSTOMERS

≈ 1 TWh

NUMBER OF ENERGY SAVING MEASURES IMPLEMENTED

21,200

INVESTMENTS ON ENERGY EFFICIENCY (€ MILLION)

1,300

ANNUAL COST SAVINGS (€ MILLION)

560

ANNUAL REDUCTION OF CO₂ EMISSIONS (MILLION TONNES)

4.7
Conclusions

Many Challenges

- Residential renovation rate needs to pick up
- Energy production needs to move in to renewables
- Need for education in the building sector
- Need for new workforce in the building sector

Solutions

- Longterm renovation strategy
- Digitalisation
- Working energy efficiency agreement program
- Good co-operation between different parties and the government