

ICT as a Motor of Transition: to a low energy, low carbon society



Josefin Wangel, PhD, Researcher
fms - Environmental Strategies Research
& CESC – Centre for Sustainable Communications
KTH Royal Institute of Technology

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the challenge

- 1) The 2 degree target
- 2) Projections of future availability of renewable energy resources
- 3) An equal distribution of these energy resources across the global population

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Implies that **each person** cannot use more than an average 2kW of energy (**17.5 MWh/year**) and emit more than **1 tonne CO₂/year**.

the challenge

In a city such as Stockholm, this per capita target of 2kW of energy (17.5 MWh/year) and 1 tonne CO₂/year implies **a reduction**

- **in energy use by 60 %**
- **in CO₂ emissions by 90 %**

(Calculations made according to a consumption based accounting of energy use and CO₂ emissions)

the challenge

In Sweden as in many other countries the main areas of environmental impact are:

- Transports
- Housing
- Food



the challenge

In this study we focused on

- Transports
- **Housing**
- Food

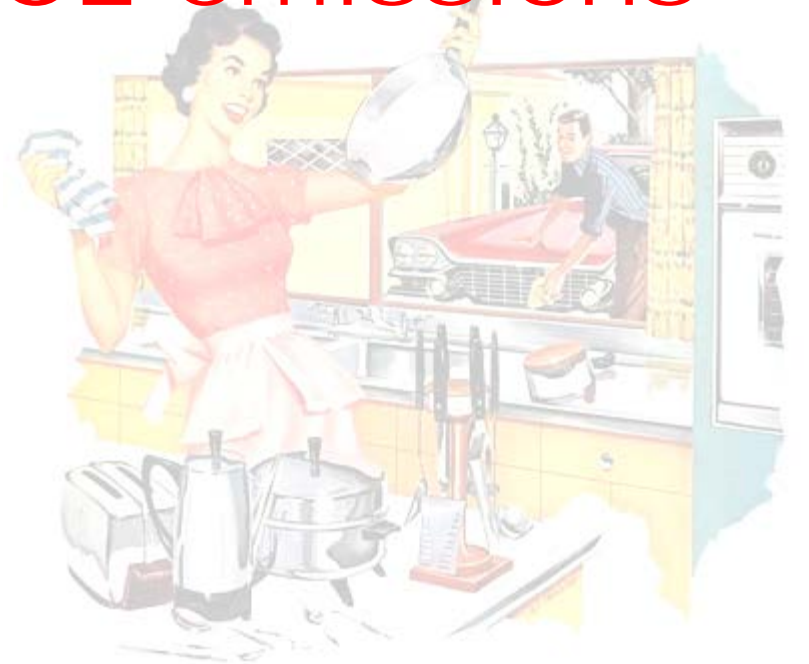
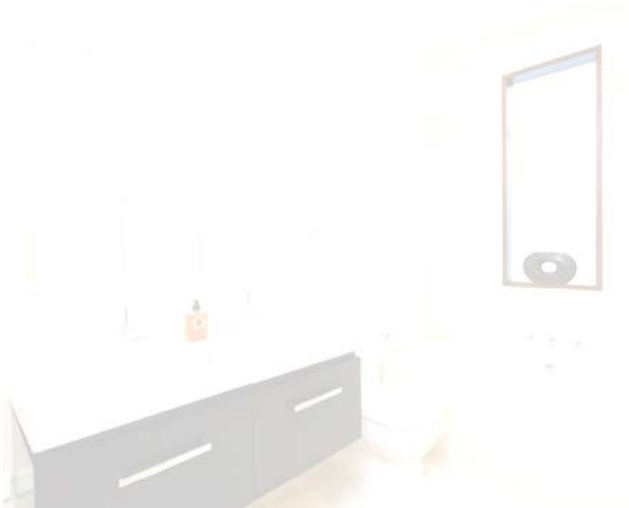
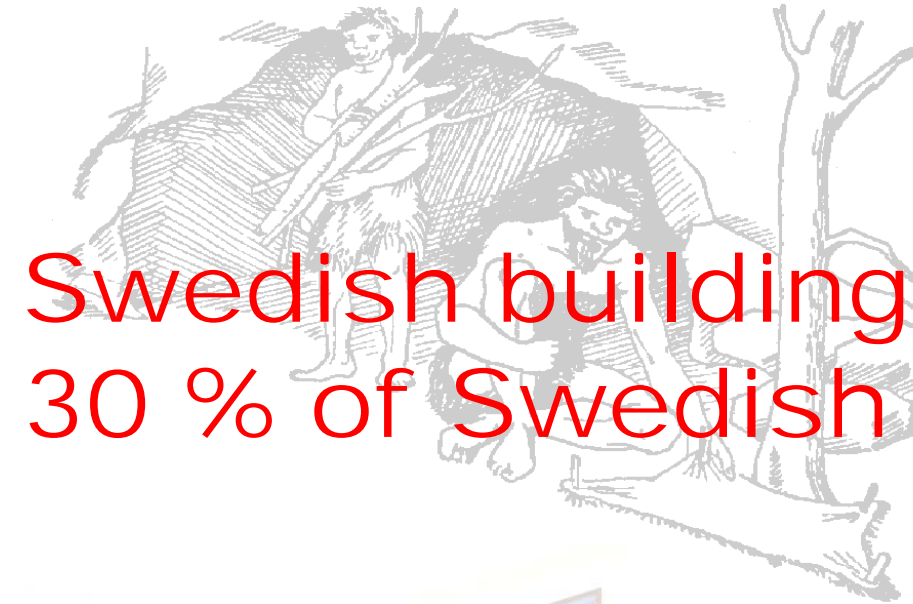


housing



housing

Swedish building sector:
30 % of Swedish CO2 emissions



the question

To what extent and how can ICT contribute to achieve this 60-90 target?

the study

A scenario study exploring:

How an innovative and ubiquitous introduction of ICT could act as a motor for a socio-technical transition towards a low energy, low carbon (2kW) society within the time span of 20 years?

Through asking **what if...?**

theoretical & methodological framework

Transition Management – for a multileveled perspective on change and stability

Situations of Opportunity – for exploring change by a what-who iteration in a local context

Backcasting – for a target-oriented futures studies methodology

why target-oriented scenarios?

Exploring how a future in which the target has been met could look like, and assess this.

Such a construction of “counter prognoses” helps pointing at the openness of the future.

A basis for evaluating current policies and elaborating new ones.

Situations of Opportunity

As a way to integrate:

- **What?** Physical, institutional, socio-cultural?
- **Who?** What actors? In what collaborations?
- **How?** How could changes come about?
- **When?** When can we/do we need to make strategic decisions?
- **How much?** What is the potential gain for sustainability?

what-who iteration

Identification and delimitation of the opportunity at hand through an iteration between objects and actors of change

ICT potentials in buildings

- **Intelligent heating, ventilation and air conditioning** (HVAC)
- **Smart meters**
- **Smart lighting**
- HEM (interpreted as a BMS – **Building Management System**)
- Smart **household appliances** (ICT in household appliances such as refrigerators, dishwashers, laundry machines etc.)
- **Standby management**
- **Smart phones** – no potential of themselves but can facilitate the realisation of potentials of other ICTs
- **Social media** (persuasion)

the potential of ICT

(a very optimistic assessment)

The total potential reduction of total GHG emissions through these ICT amounts to **7-20 %** (GeSI 2008; Bio Intelligence Service, 2008)

(Swedish building sector: **30 %** of Swedish CO₂ emissions)

Allocating this potential to the building sector equals a reduction in GHG by **23-66%**

whose ICT future is this?

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Who are empowered to be agents of change?

Who should change (whose) behavior?

Who can afford this future?

And what about integrity?

Do we want such a future?

Thank you!



Contact:

email: josefin.wangel@abe.kth.se

phone: +46 8 790 85 88