How To Save Energy Using Renovation Policy Measures

The overall performance of current best practice renovation policies for residential buildings in Sweden

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Overview

• Historical and political context relating to renovation.
• Key factors that were significant in driving change.
• How Sweden reduced their consumption: what mixtures of measures worked.
• Market conditions at the time of development of the renovation strategy.
• Sweden’s renovation story.
Historical & Political Context

• Environmental policies since the 1960s.
• Cold climate – forced to build well insulated buildings
• Hydro- and nuclear power production and district heating means low GHG emissions from buildings
• Overall national zero-net GHG emissions target for 2050.
• Sweden’s ‘Integrated Climate and Energy Policy’ (ICEP) introduced the goal of increasing energy efficiency in buildings by 20% in 2020 and by 50% in 2050.
Mixture of Measures: Holistic Package

• Overall country reduction targets,
  – Government set a zero-net GHG emissions target (2050)
  – Integrated Climate and Energy Policy increase EE by 50% (2050)

• Energy requirements for both new buildings and renovations
  – Both have the same requirements – has been noted and new requirements are to be presented in June (implemented Jan 2015)

• Labelling schemes (EPC)
  – Auditing of buildings energy performance
  – Strict performance requirements and implementation of EPCs
  – Large percentage of buildings have labels

• Audits are required to provide information on energy saving measures

• Training and education campaigns

• One-stop solution centres
  – Centre for Renovation / Bebo (Multi-famly house) / Belok (Commercial) / Besmå (single family)
Exemplary Deep Renovation Projects

BROGÅRDEN, ALINGSÅS

• The first, really big Million area renovated to almost passive house standard.
• A total of 16 buildings that will be completely renovated.
• The first three buildings are completed.

renZERO

• 1.5 million houses built before 1980- large proportion in need of renovation and energy efficiency.
• Three companies developing renZERO™ concept, a cost effective renovation concepts for single-family houses built before 1980 to become nearly zero energy.
• Developed for Nordic weather conditions.

http://www.renzero.se/
Change in Energy Consumption
(Base year equals 100)

Sweden
Challenges for Sweden

• Most buildings built in the 60s-70s (Million Program) with poor energy performance
• 75% of existing buildings need to be renovated by 2050 – over 100,000 a year
• Today: between 20,000-30,000 renovated each year
• Incentives are needed
  – To renovate and increase efficiency in Million Program
  – To increase rate of renovation
• A new “Million Program” for renovation
Key Factors that must be considered

- Improvement of housing performance
- Better quality of life
- Correspondence to needs of elderly people
- Housing adjustment for disabled people
- Energy conservation & improving energy efficiency
- Reduction of GHG emission
- Generator of employment
- Economic revitalization
- Improvement of hygienic matter
- Health of nationals
- Disaster prevention, safety

Most factors target the society in Sweden
Market Conditions

Market Parties Efforts:
• The *Building industry has settled*, in Sweden subsidies for new building and renovation have been cut significantly
• Tax reduction for renovations (ROT) has stimulated energy efficiency & renovation
Sweden’s renovation story

• Plans – overall targets
• Ambition of the business sector: want to go further – use 2050 target to gather momentum
  – Building community can do better than current regulation
  – Especially with regards to energy issues and performance
• Awareness of energy efficiency of residents – taught from a young age
• Best practice building data quality
  – all available online
  – Know where Sweden stands
• Whole society has high standards for building performance
• High degree of penetration of:
  – District heating
  – Heat pumps
  – Triple glazing
• Low rate of new construction – relative importance of renovation increases
• Existing network in Bebo/Belok
Closing Remarks

• Cooperation between politics, government, and construction sector
• Financial solutions are needed
• We must go beyond best practice and towards “state-of-the-art” practices aiming for a shift to deep renovations of the building stock.
• More information to the whole public.