



From Potential to Impact: Making Energy Efficiency Deliver in Practice

SESSION 3: Energy Efficiency

Energy efficiency creates capacity faster than new infrastructure

Immediate Impact of Efficiency – Societal point of view

- Efficiency measures deliver quick benefits by avoiding delays from new generation permitting and construction.
- Energy efficiency complements new infrastructure by reducing pressure on the system.

Energy Resilience – End-user point of view

- Efficiency reduce costs directly and improves resilience to price volatility and energy crisis.

Energy efficiency is called the “first fuel” in clean energy transitions.

(IEA)



Swedish Reality

Low-Emission Energy Mix

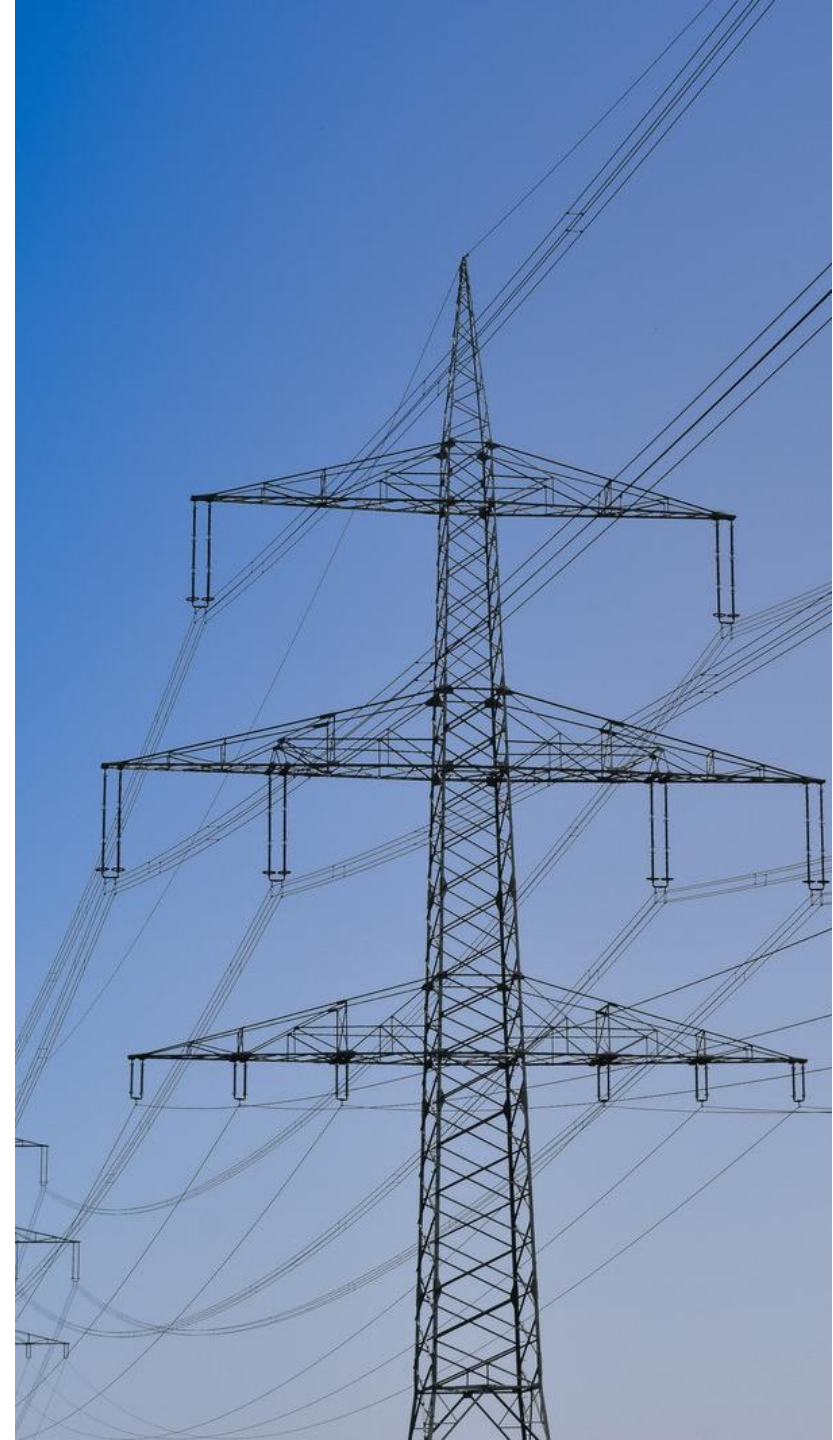
- Sweden's electricity largely comes from hydropower, nuclear energy, and increasing wind power, achieving near zero emissions.

Industrial Electrification

- Many industrial sectors in Sweden are highly electrified, changing energy efficiency motivations compared to fossil-fuel reliant countries.

Therefore:

- Climate incentives not enough, do not target energy efficiency.
- Specific measures for energy efficiency with focus on reduced capacity demand is required.



The Real Value of Efficiency

Value	Meaning
kWh	lower annual energy use
kW	lower peak capacity demand
Flexibility	ability to shift demand
Cost	lower exposure to energy prices
System value	less pressure on grids and heat networks



Reference Projects With Results

Project	Sector	Result	Message
Cityfied / Linero, Lund	Buildings	Up to 40% lower energy use	Renovation can unlock major savings in existing buildings.
Enflate / Fjärås, Kungsbacka (Horizon Europe)	Households / peak load	Up to 15% lower peak-hour electricity use	Flexibility can reduce grid pressure quickly.
RETROFEED (Horizon 2020)	Industry	8% higher energy efficiency, 23% higher resource efficiency, 73 kton CO₂ reduction	Efficiency protects competitiveness and reduces price-risk exposure.
OptiHeat-LEB	Buildings	Low-temperature district heating was the least-cost local heat option	City planning can reduce electricity use for heating and system cost.
Tidstegen	Buildings	Tool for climate assessment of building energy solutions	Energy choices should be assessed by timing and system impact, not only annual kWh.

Learnings from industry: competitiveness and survival

Energy efficiency helps industry:

- protect margins
- reduce exposure to price volatility and energy crisis
- reduce dependence on constrained grid capacity
- improve resilience

“It’s a matter of survival for European industry.”

(Industrial partner in the Horizon 2020 project RETROFEED)



District Heating – A key to efficient energy use

Unique opportunity for waste heat recovery = Smart Resource Use

Lower Network Temperatures

- Decreases heat losses.
- Allows integration of waste heat sources and storage without heat pumps.

Building-Side Optimization

- Optimized controls improve overall system efficiency.

Collaboration Importance

- Coordination between system operators and building owners for optimal performance.



Policy gaps

- Develop information efforts to households – raise awareness of simple measures.
- Targeted investment support and financing for energy efficiency in industry and built environment. (With or without climate mitigation.)
- Targeted investment support and financing for waste heat recovery.
- Enhance incentives for energy efficiency with focus on reduced capacity demand and demand control.
- Support collaboration between energy sector, industry and building owners.



Thank you!

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