



# DSM and norwegian energy efficiency programs

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*Audhild Kvam*

*Director Energy Efficiency*

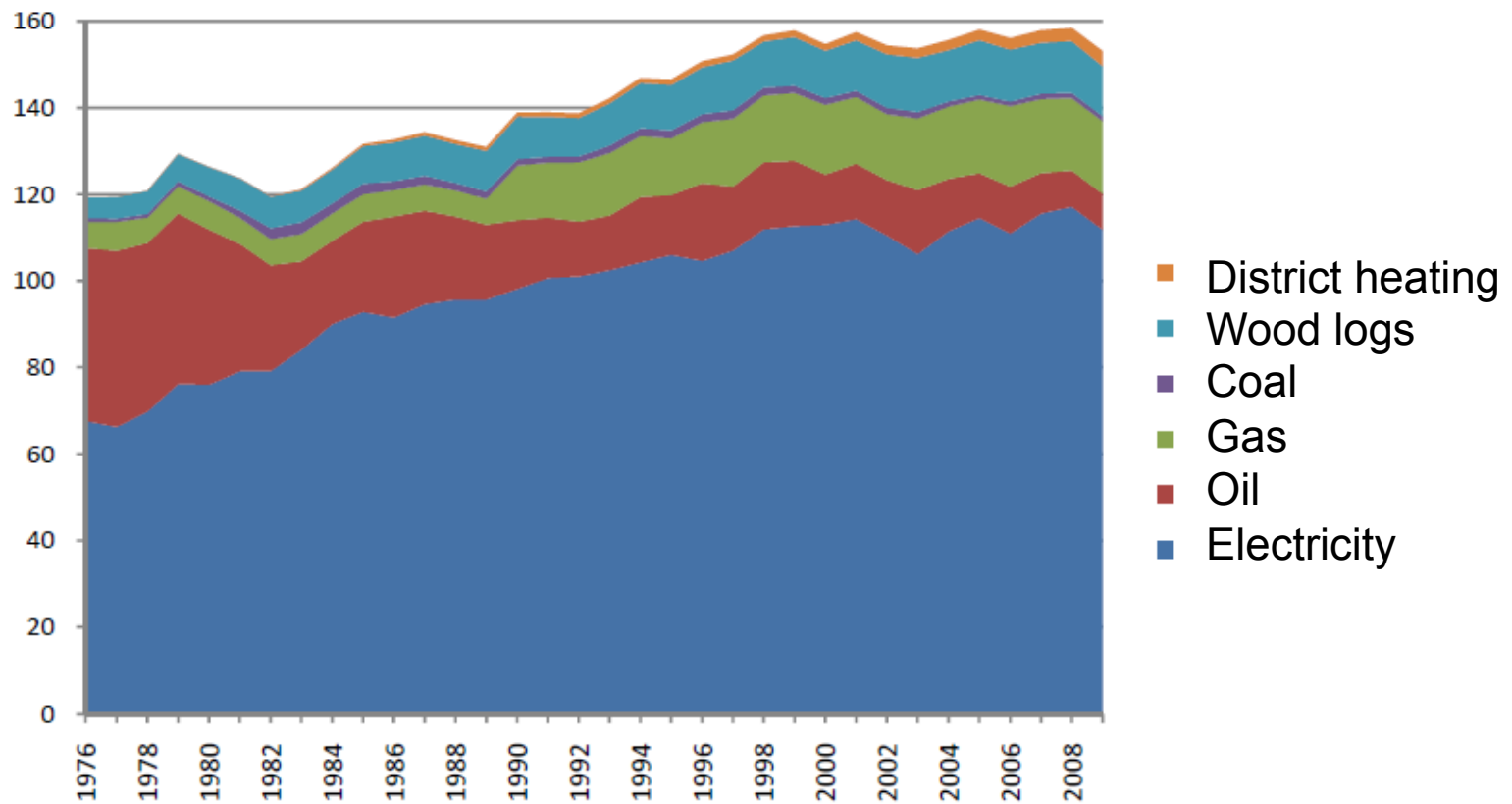


# Agenda

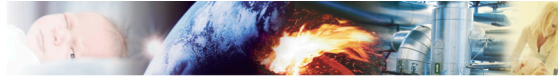
- Norway's use of electricity
- Norwegian and Nordic energy market
- The purpose of Enova
- Enova's programs for energy efficiency and converting to renewable heating systems
- Enova's results so far
- Some success stories



# Electricity is the main energy carrier

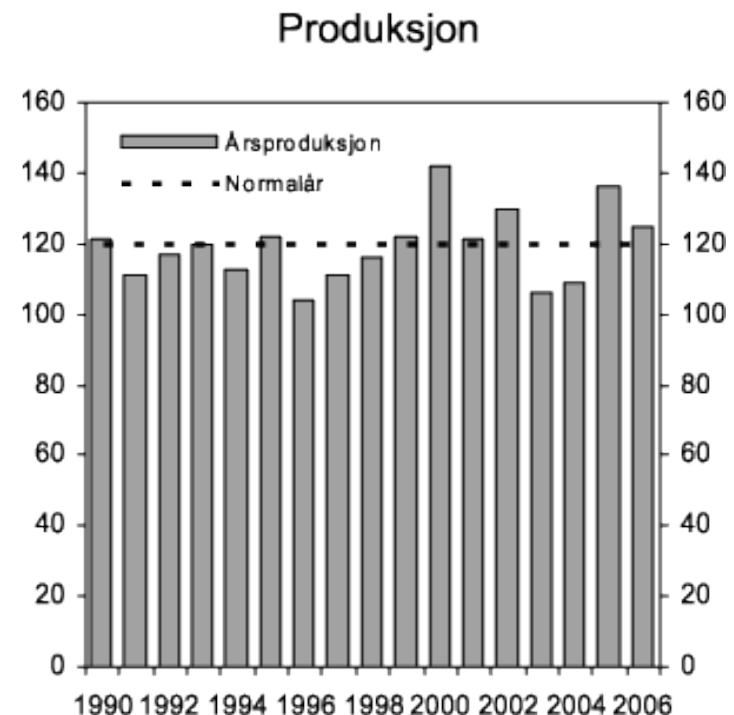


Stationary energy use in mainland Norway, TWh , Source: NVE



# Hydropower as the main source

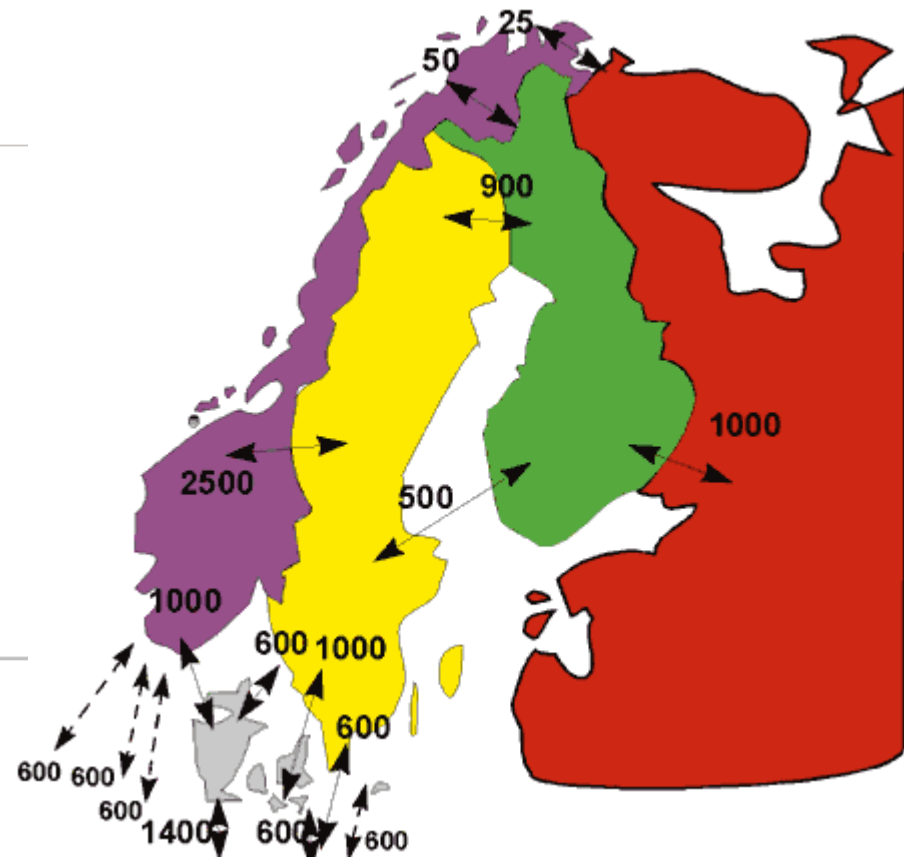
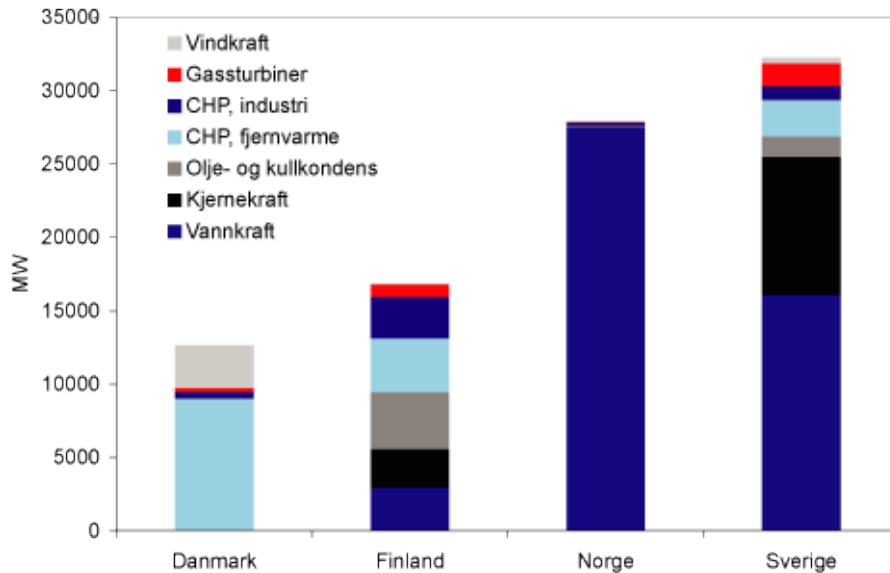
- 99% of all electricity production in Norway comes from hydropower.
- On a global basis 1/6 of the power produced comes from hydropower.
- Supply and prices of energy highly dependent on how much it rains



Source: OED

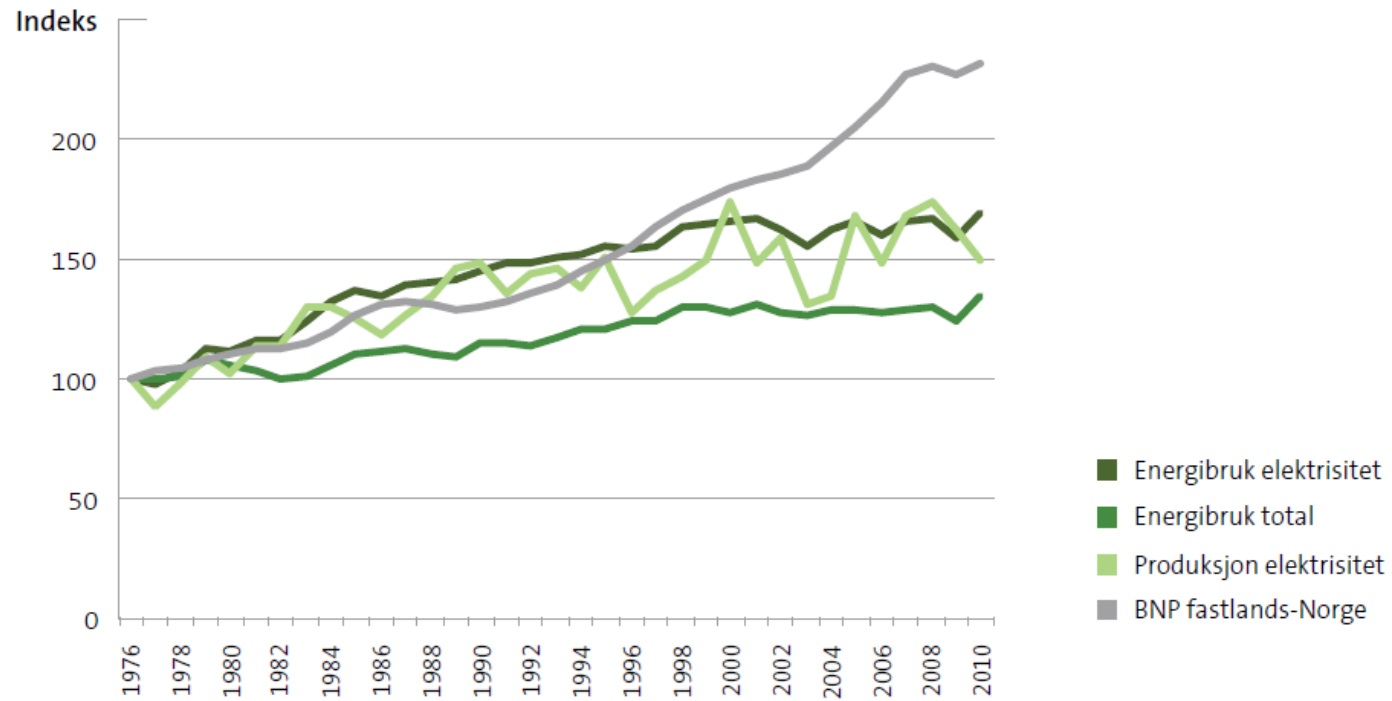


# A Nordic market for electricity





# Development of energy use in Norway



KILDE: SSB (Bearbejdet av Enova)

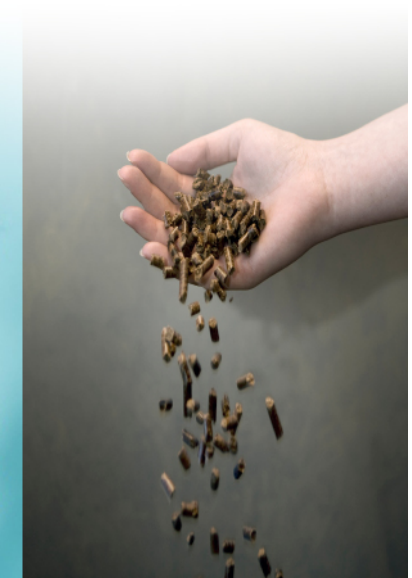


# The responsibility of Enova

To promote environmentally friendly restructuring of energy consumption and energy production in order to reinforce supply reliability and reduce greenhouse gas emissions.

The energy restructuring is a long-term commitment to developing markets for efficient and environmentally friendly energy solutions.

**Our vision:**  
A energy-efficient and renewable Norway





# Our main objectives are

- more efficient energy consumption
- increased use of other energy carriers than electricity, natural gas and oil for heating
- increased production from renewable energy sources
- introduction and development of new technologies and solutions in the energy market
- Functional markets for efficient and environmental friendly energy solutions
- More general awareness of the possibilities for using efficient, environmentally friendly energy solutions

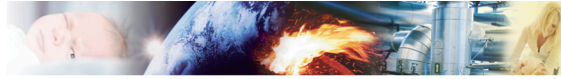




# Commercial Buildings

1. Support to evaluate whether to build passivhouse or not
2. Expert-team passivhouse
3. Investmentsupport for passivehouses
4. Investment support for existing buildings
5. Heating centrals





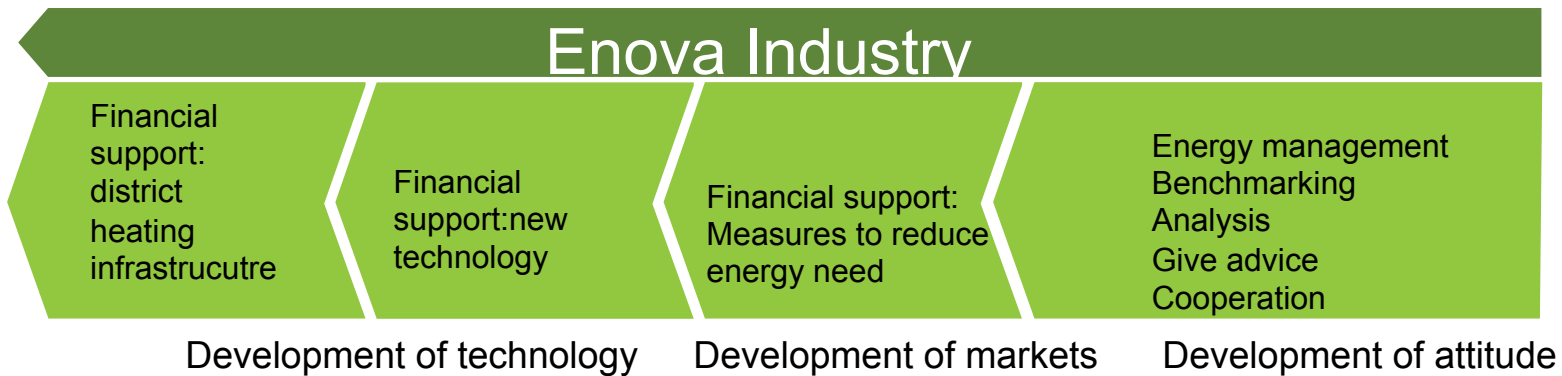
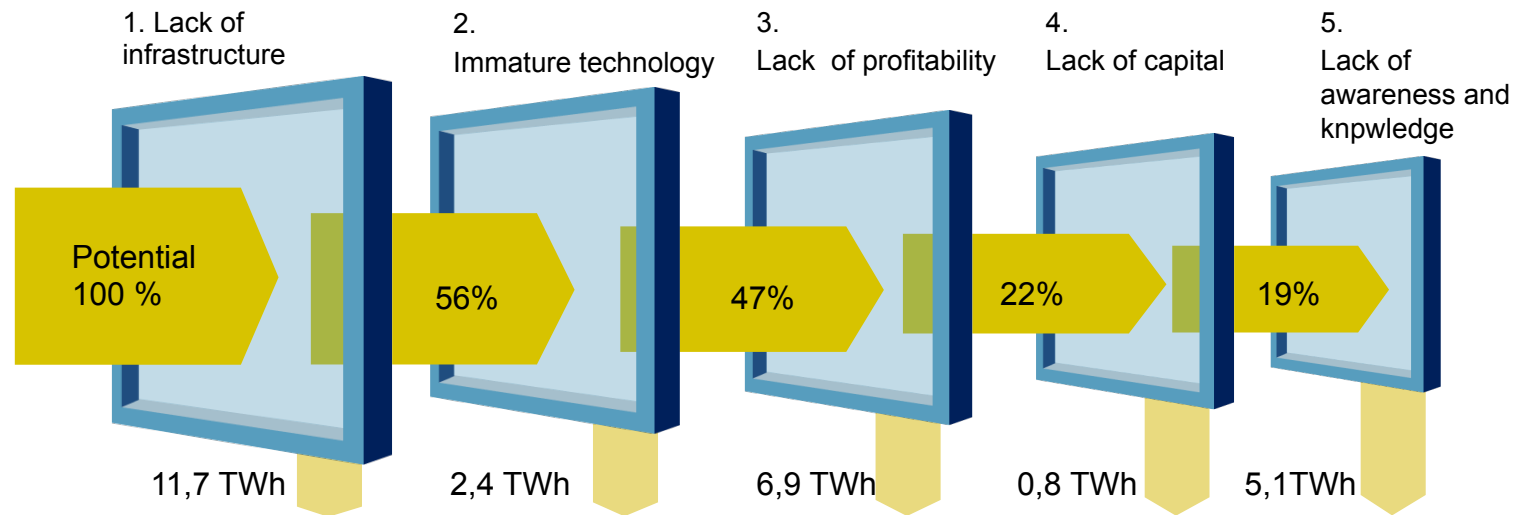
# Residential market

- Financial support
- Give good advice to privat households
- Improving behavior
  - Regnmakerne
  - Enova Hjemme
  - Enova Anbefaler





# Industry





# Financial support to increase renewable heating

District heating production



District heating infrastructure



Local heating

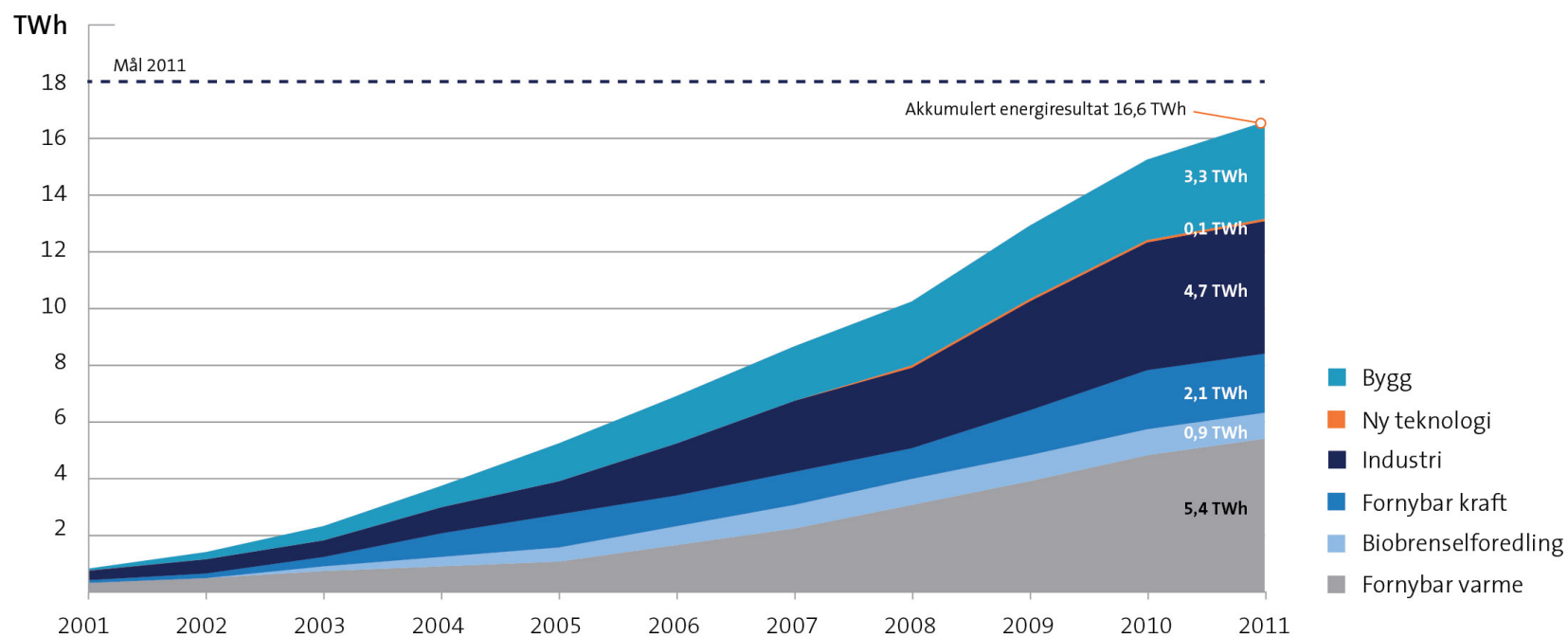


Biogas production



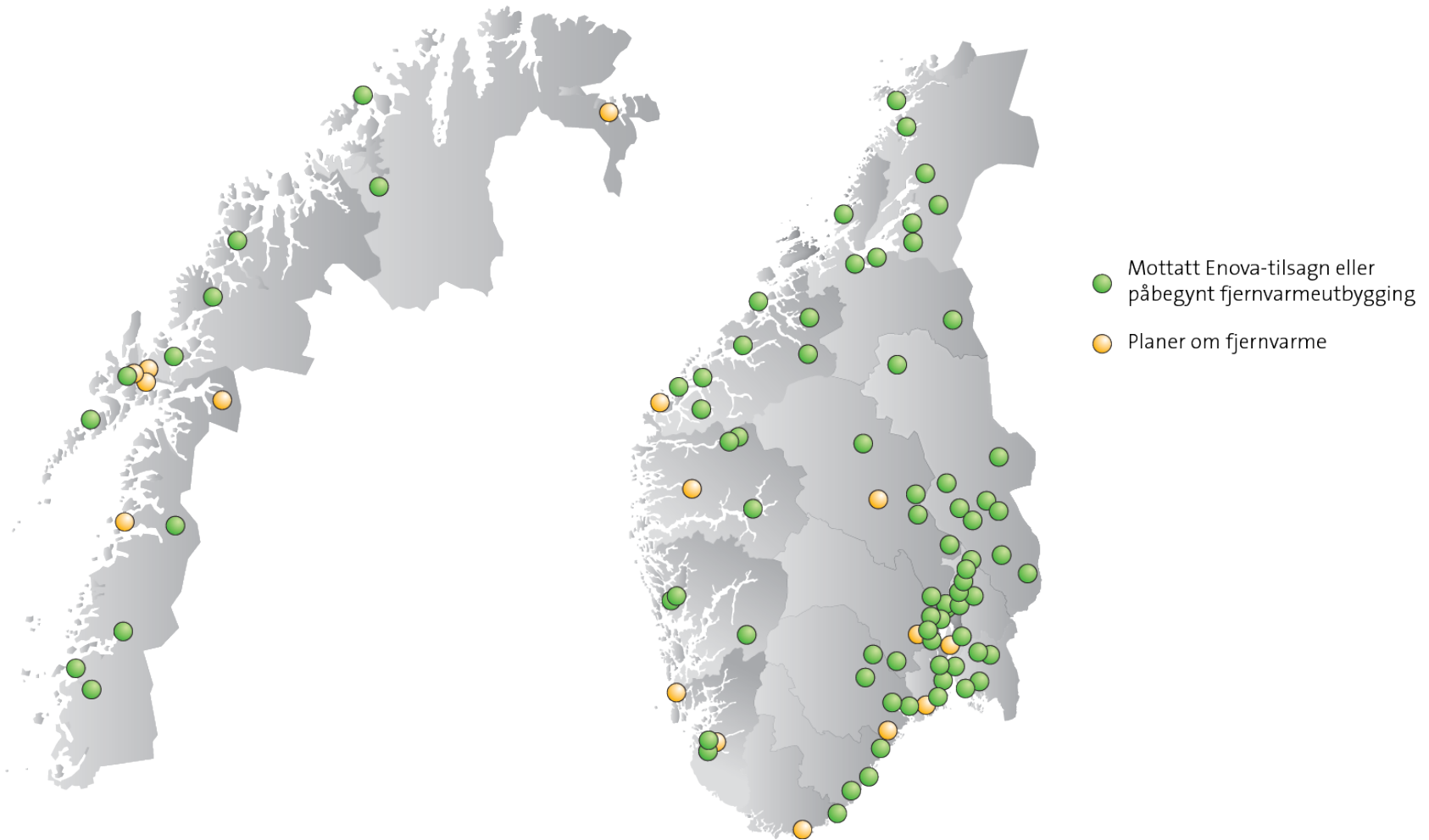


# Enovas results





# District heating throughout Norway



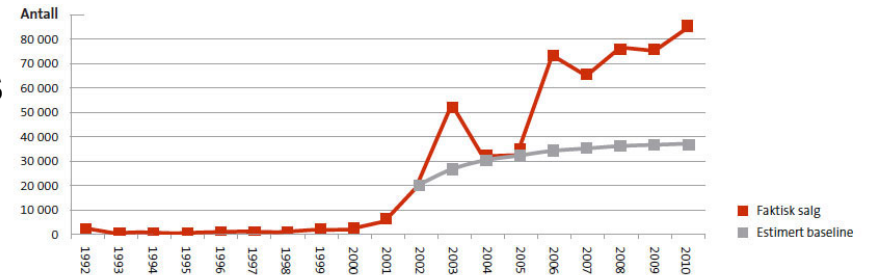


# Heatpumps in 1/3 of Norwegian homes

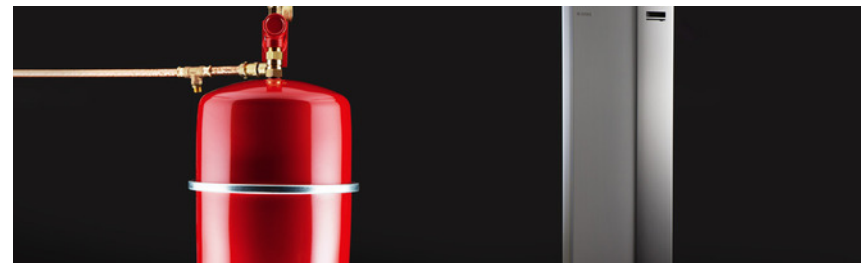
Targeted efforts have contributed greatly to the large increase in the number of energy-efficient heat pumps have been installed in Norwegian homes.

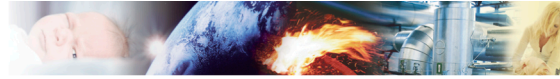
In 2002 - the year before Enova implemented technology-specific support for environmentally friendly heating solutions to households - the annual sales of air / air heat pumps was 19 000 units. In 2010, the number of units sold reached the 85,000 - a very large increase in no time.

**FIGUR 2.1** UTVIKLINGEN I DET NORSKE MERKEDET FOR LUFT/LUFT-VARMEPUMPER



*"Estimert baseline" er den salgsutviklingen som mest sannsynlig ville ha skjedd dersom dette markedet hadde vært overlatt til seg selv. Differansen fra baseline og opp til faktisk salg er da effekten av Enovas ulike virkemidler, som i praksis startet med den kortvarige tilskuddsordningen vinteren 2003.*





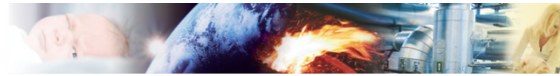
# Energy efficiency with global effects



Through a unique partnership with Hydro, Enova contributes to the Norwegian aluminum industry becoming the world's most energy-efficient and climate friendly. For Hydro, it is a simple calculation: these measures will save millions and give the company a stronger position in the market.

Since 2006, Enova has been a driving force and has contributed to Hydro carrying out several projects related to energy efficiency, technology development and utilization of waste heat to generate electricity. For example, Enova has supported full-scale test cells for electrolysis to Hydro's plant in Årdal.





# Passivehouses, soon to be the standard

Enova's efforts to achieve the passive house standard for commercial buildings in 2020 has contributed to a market change that seems to come quicker than expected.

Now the commercial front-players in the real estate market make effort to improve energy efficiency - and the reason is simple: Energy-efficient commercial buildings is about to get a higher value in the market.

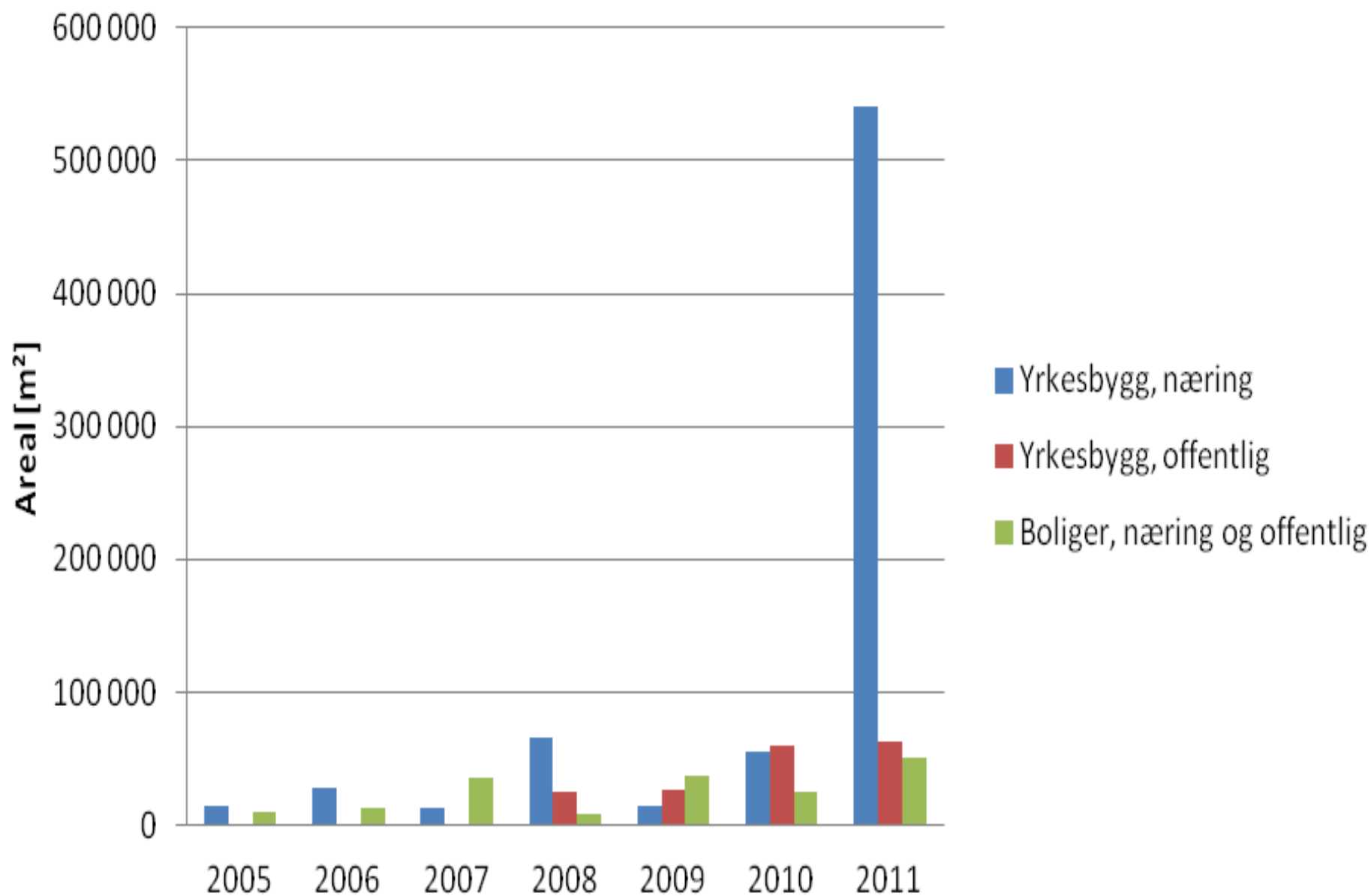
With its new headquarters at Ryen in Oslo, GK demonstrate that a commercial officebuilding with passivehouse-standard is an attractive option for businesses looking to strengthen its position in the market and save money - in addition to providing its employees a friendly and functional building.

Enova has been working towards for commercial real estate market since 2002 and intensified in the new construction in recent years. In the period 2008-2011, Enova supported in all 975,000 square meters new buildings and extensive rehab, of with the proportion of passive amounted to 33 percent.



Ryenstubben 10, Oslo  
Byggherre: Ryenstubben Invest AS  
Illustrasjon: SJ-Arkitekter

## Støttet areal, passivhus og lavenergibygg



Thank you for  
your attention!

