



NVE

Energy efficiency in buildings

<http://webtjeneservice.nve.no/API/PublishedFiles/Download/2019010669/2174217>

Ingrid H. Magnussen
The Norwegian Water Resources and Energy Directorate

Foto: Simon Qidani/NVE



Content in presentation

- NVE - briefly
- Energy consumption in Norway
 - Historically and possible development
- Energy efficiency in buildings
 - From the authority's perspective





The Norwegian Water Resources and Energy Directorate

Energy market and regulation

The Norwegian Energy Regulatory Authority is the national regulator for the Norwegian electricity and downstream gas market.

- Consultation on the methodology for capacity calculation in the day-ahead and intraday timeframe
16.06.2020
 - Fact sheet on Norwegian glaciers 2019
14.05.2020
 - Paper on Electricity Distribution Tariffs Supporting the Energy Transition recently published
05.05.2020
- [More news articles](#)



International cooperation
Current programs worldwide

National Hydrological Service
Real-time hydrological data

Forecasts from NVE

We manage Norway's water and energy resources

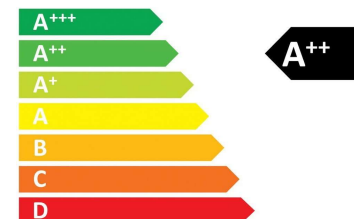
NVE's mandate is to ensure an integrated and environmentally sound management of the country's water resources, promote efficient energy markets and cost-effective energy systems and contribute to efficient energy use.

The directorate plays a central role in the national flood contingency planning and bears overall responsibility for maintaining national power supplies. From 2009 NVE is assigned greater responsibility for the prevention of damage

- Søk
- International cooperation
- Electricity Certificates
- Energy Consumption and Efficiency**
- Licensing
- Map services
- Climate change adaptation
- Hydrology
- Floods and landslides
- Supervision of dams
- About NVE



Department of Energy Systems



RAPPORT
Nr 41/2019

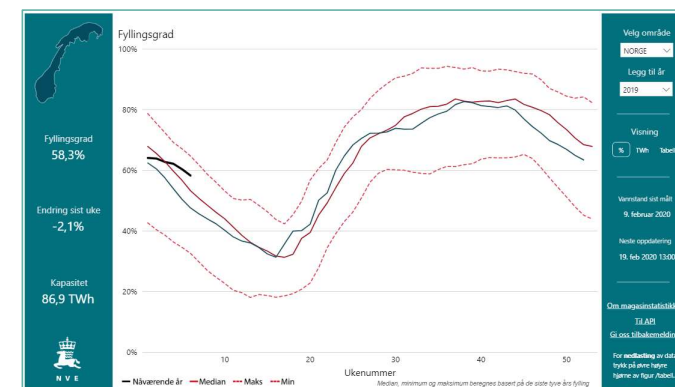
Langsiktig kraftmarkedsanalyse 2019-2040

Mer ambisiøs klimapolitikk gir utslag i kraftprisen
Raghav Gogia, Harald Endresen, Ingrid E. Haukeli, Jarand Hole, Henriette Birkelund, Frida H. Aulie, Ann Østenby, Magnus Buvik, Birger Bergesen

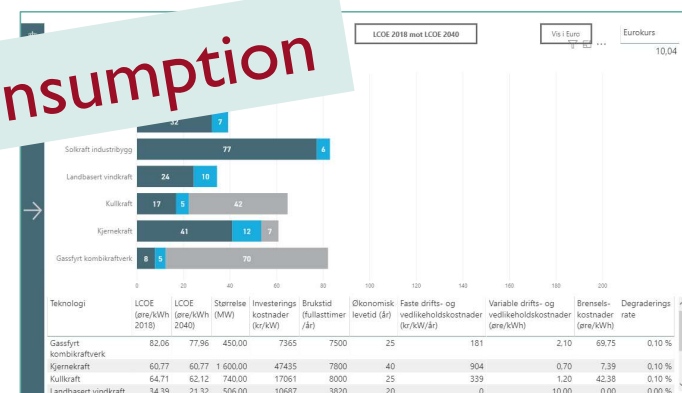
RAPPORT
Nr 22/2019

Strømforbruk mot 2040

Analyse av strømforbruk i Fastlands-Norge, Norden og utvalgte EU-land
Dag Spilde, Lene Elizabeth Hodge, Ingrid Helene Magnussen, Jarand Hole, Magnus Buvik, Hallgeir Horne



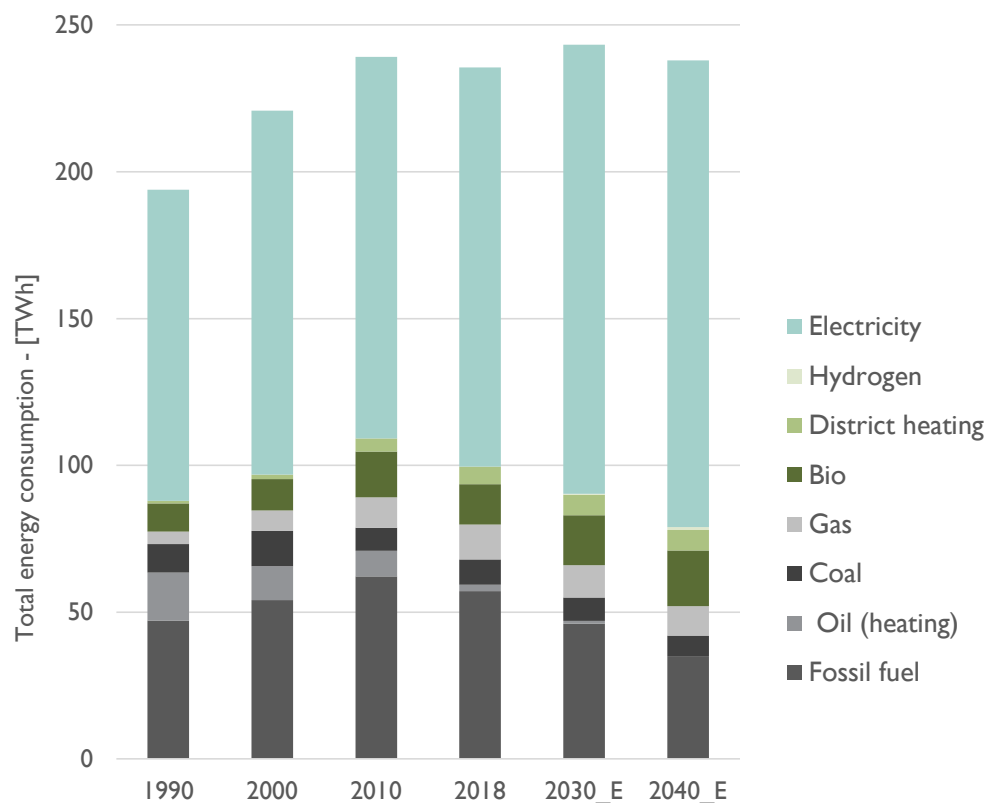
Analyses and forecasts on energy consumption





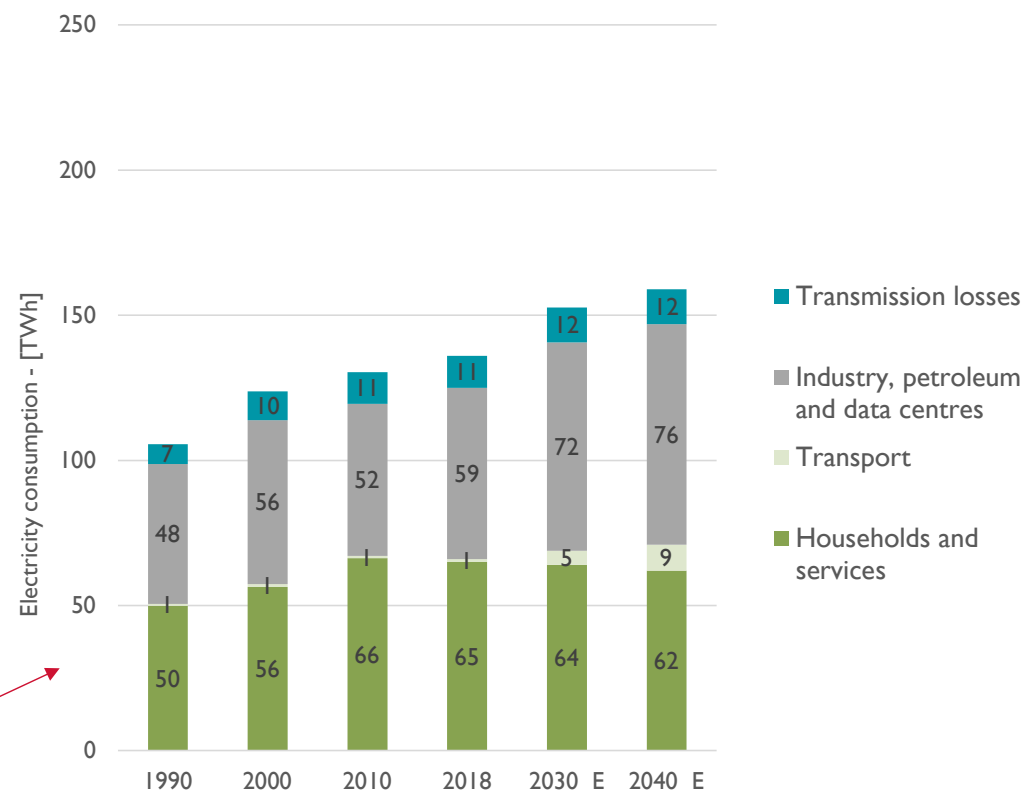
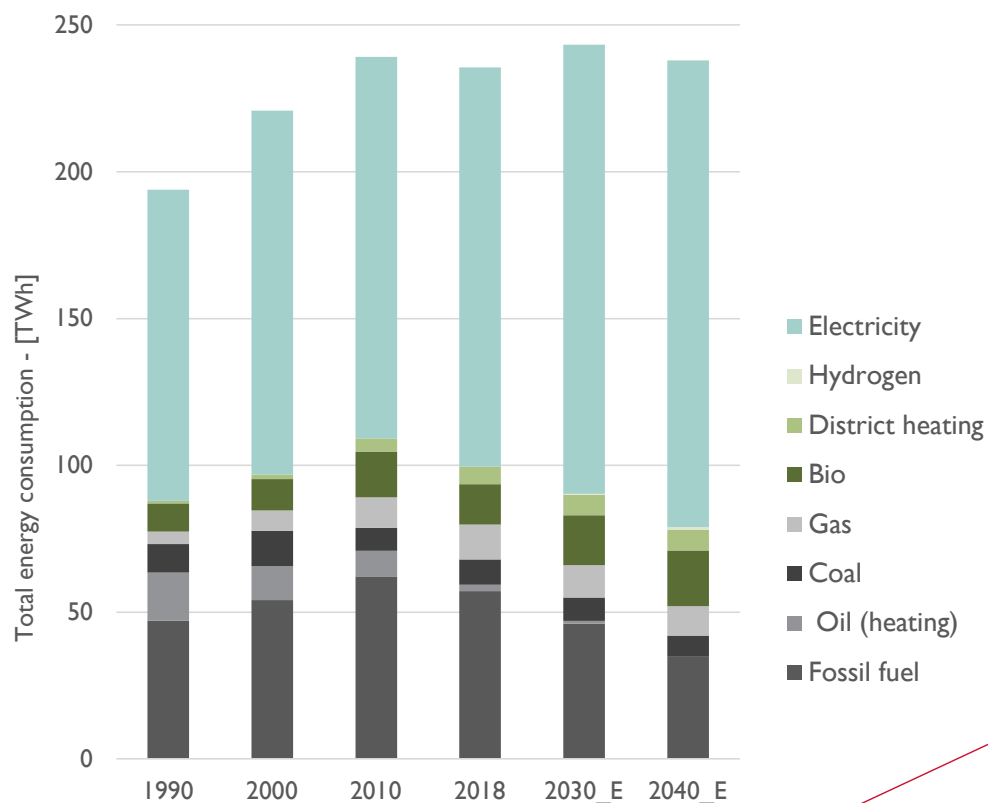
Trends in energy consumption in Norway

Energy consumption



- Rise in consumption since 1976
- Energy consumption growth slows down
- Consumption in buildings steady – despite growth in population
- Transport consumption will go down
- New consumption in industry

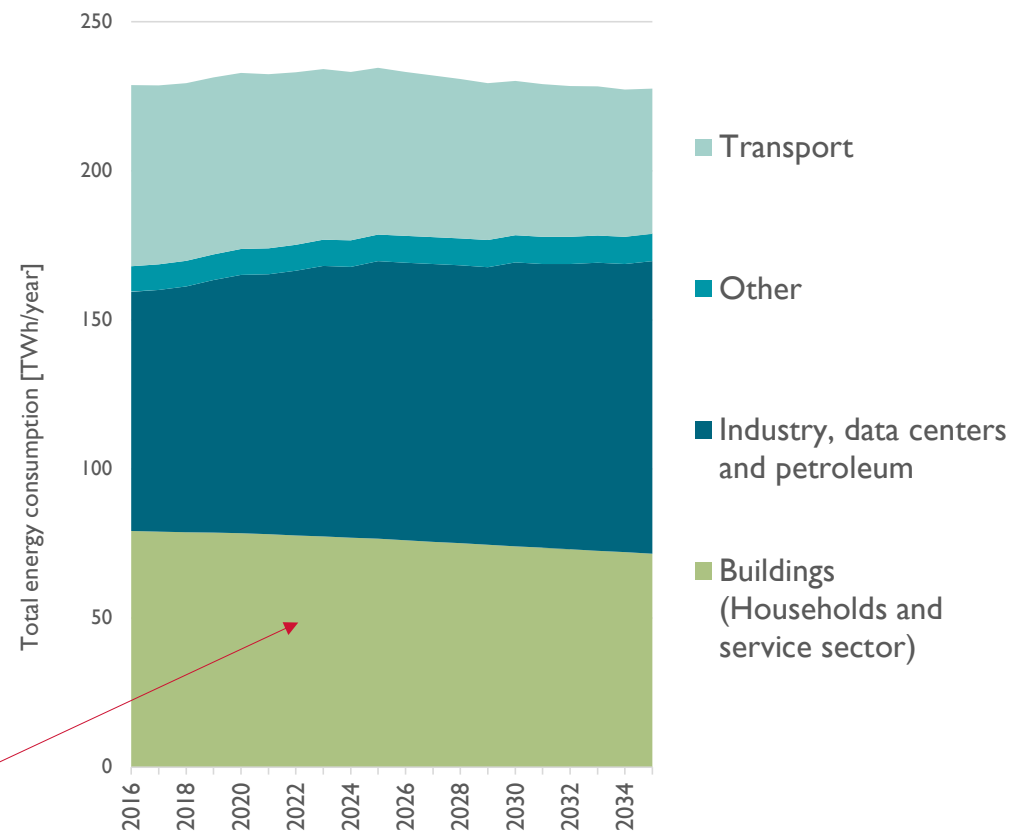
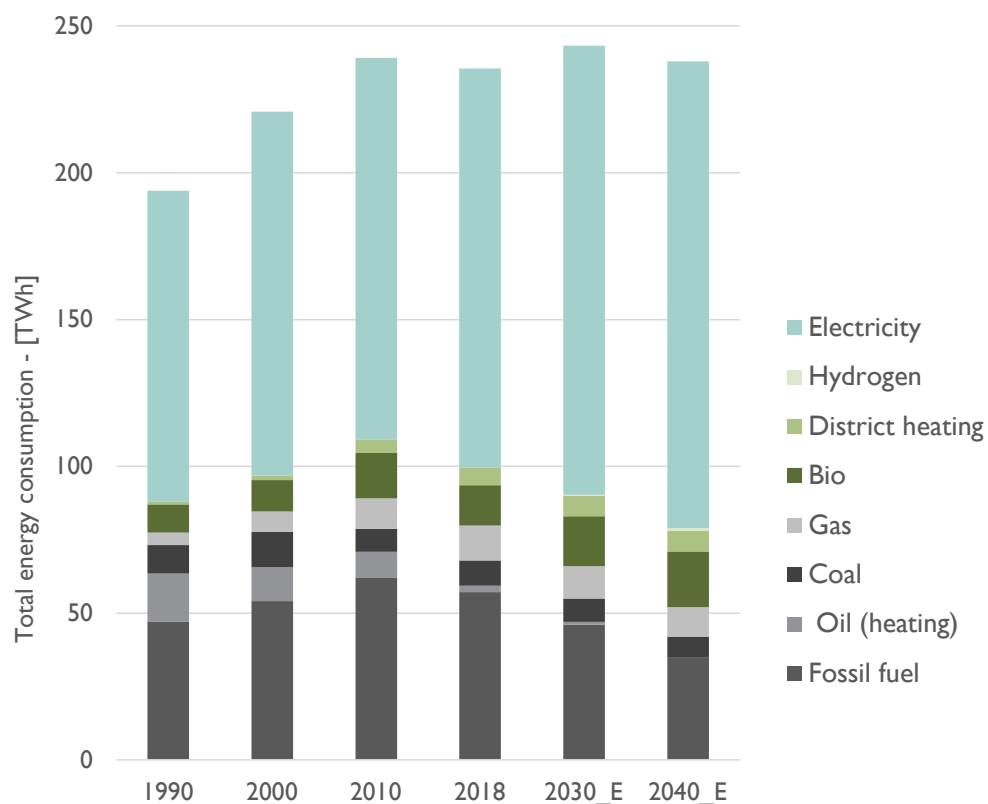
Energy consumption stable – but electricity consumption is rising



electricity consumption is raising

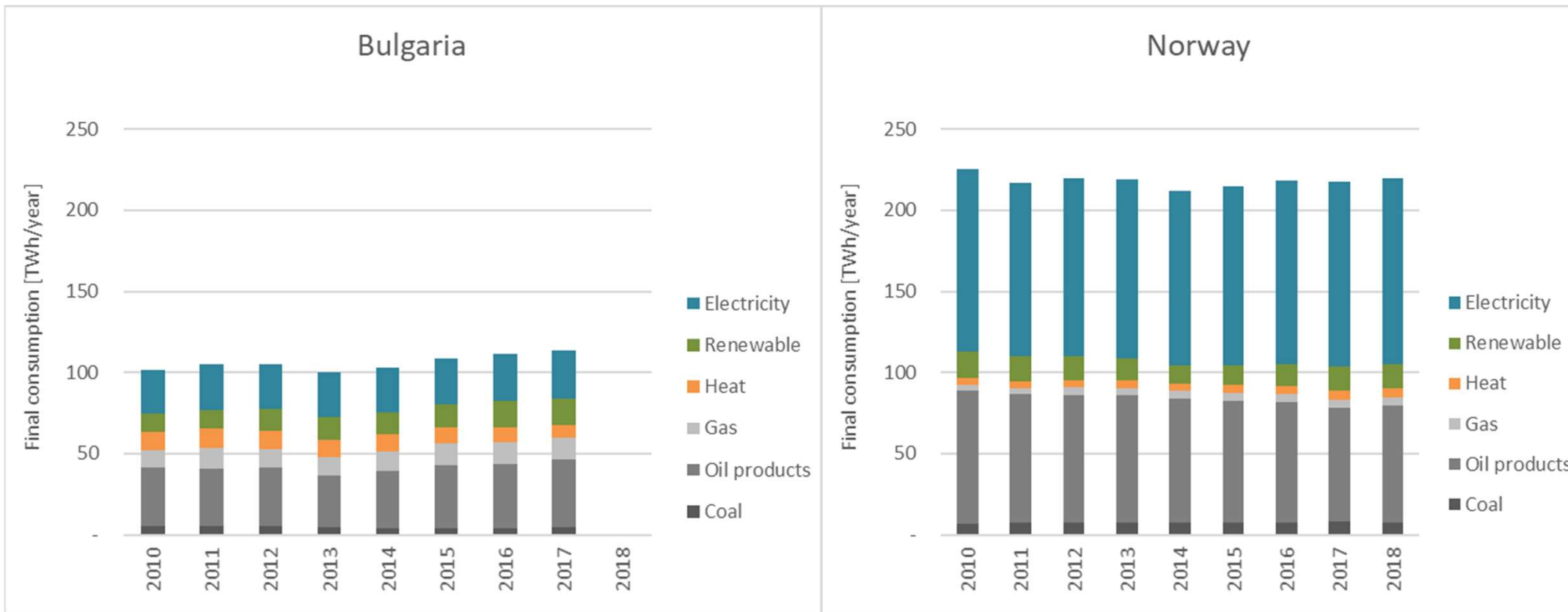


Energy consumption stable – but buildings consumption is expected to fall



building consumption is expected to fall

Energy situation is different – not all experience can be transferred



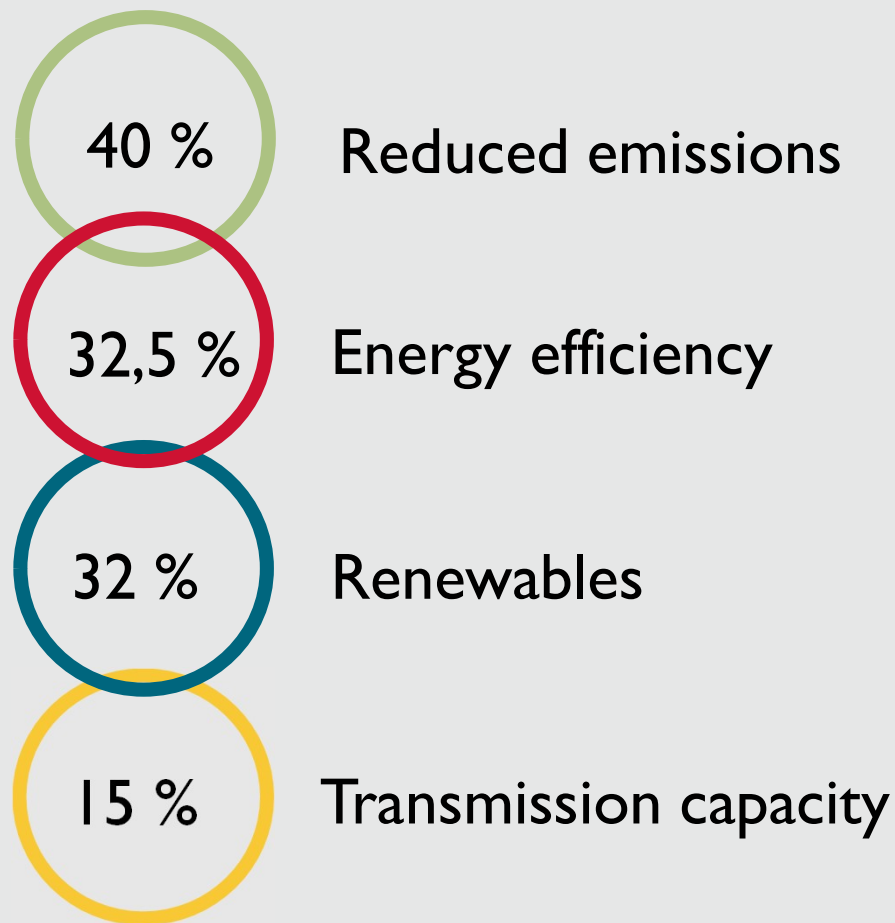


Energy Efficiency

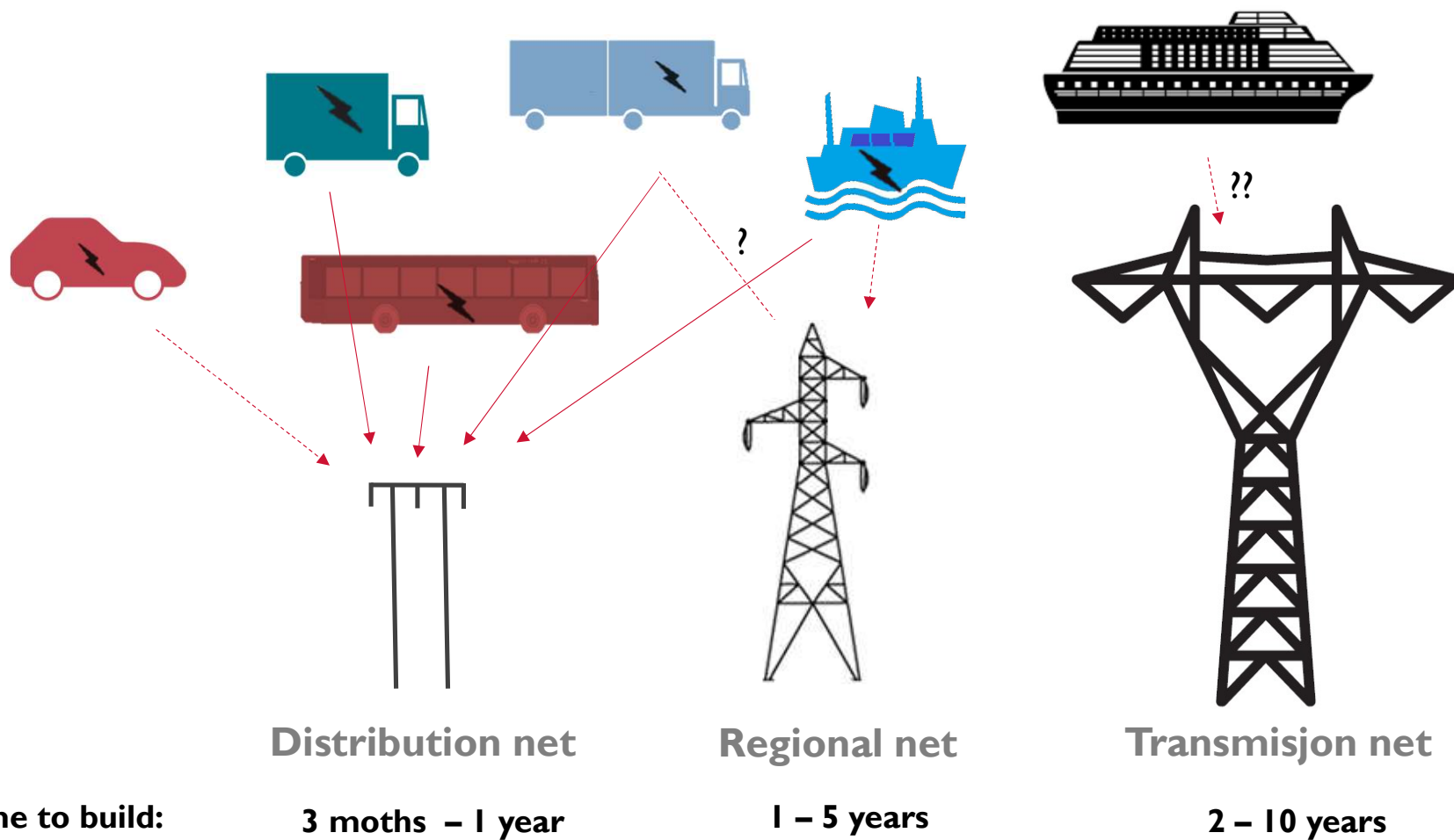


Clean energy for all europeans

- Reported trough national energy and climate plans



Infrastructure and flexibility will be important



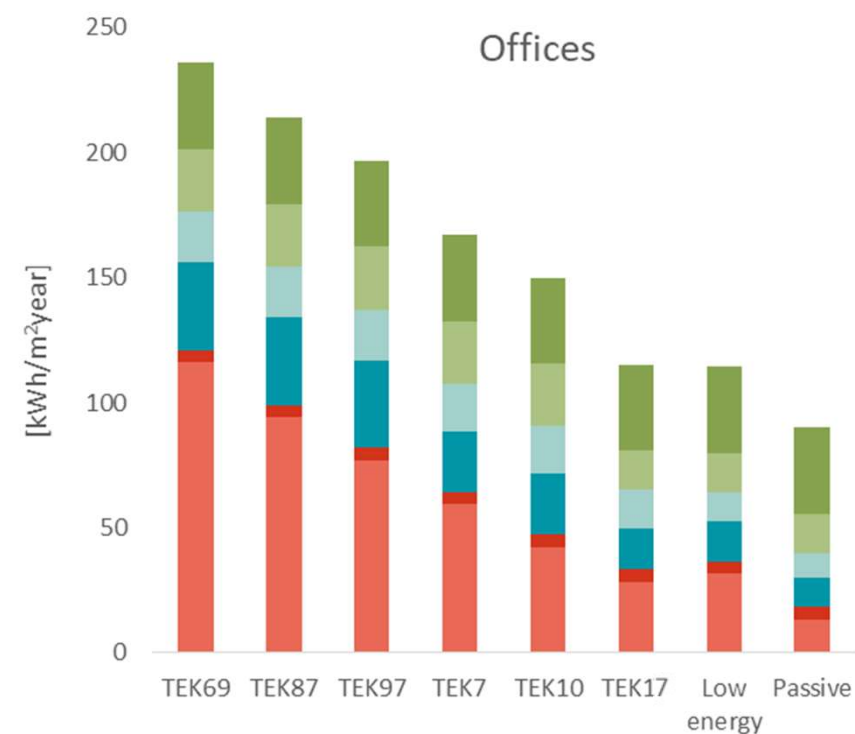
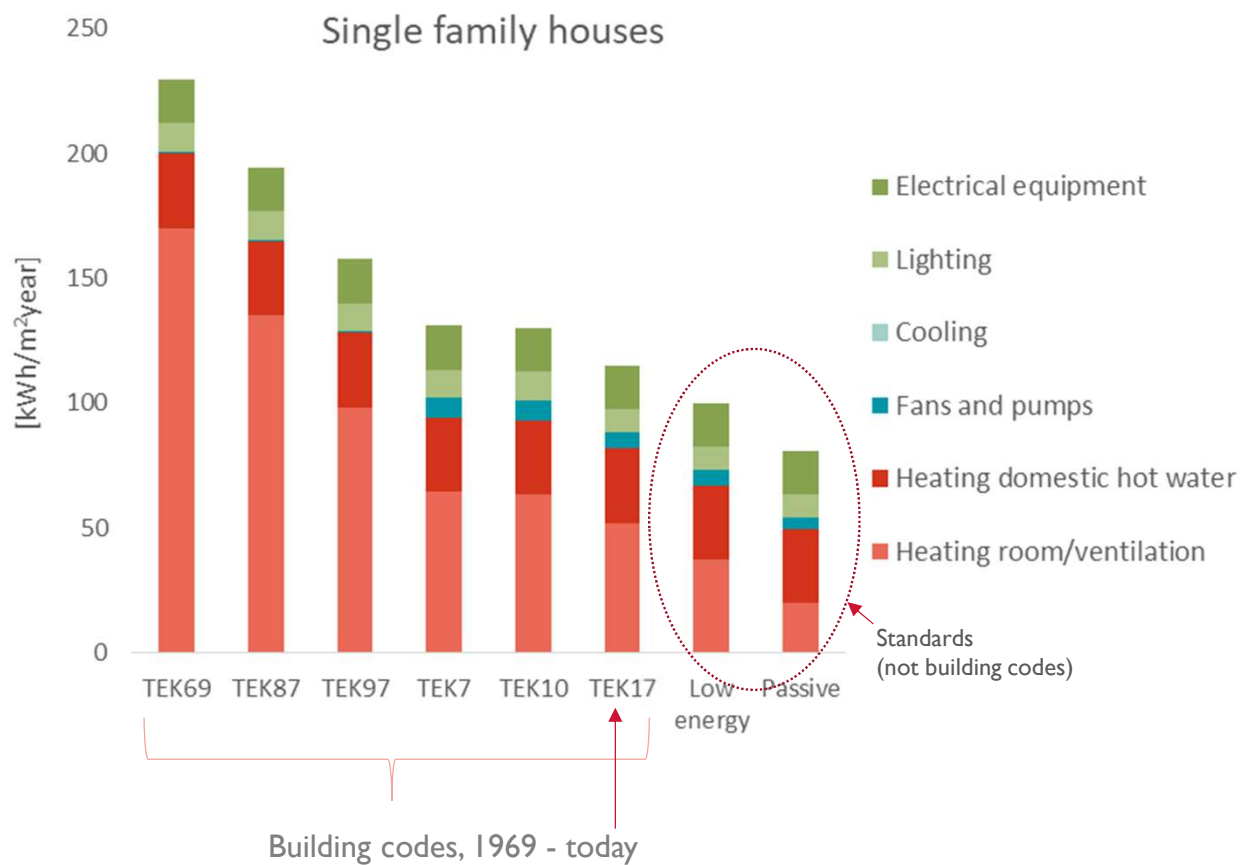
Energy Efficiency in buildings

1. Building codes / acts
2. Ecodesign requirements
3. Schemes
 - Enova
 - Research
 - other
4. Heat pumps and PV in buildings

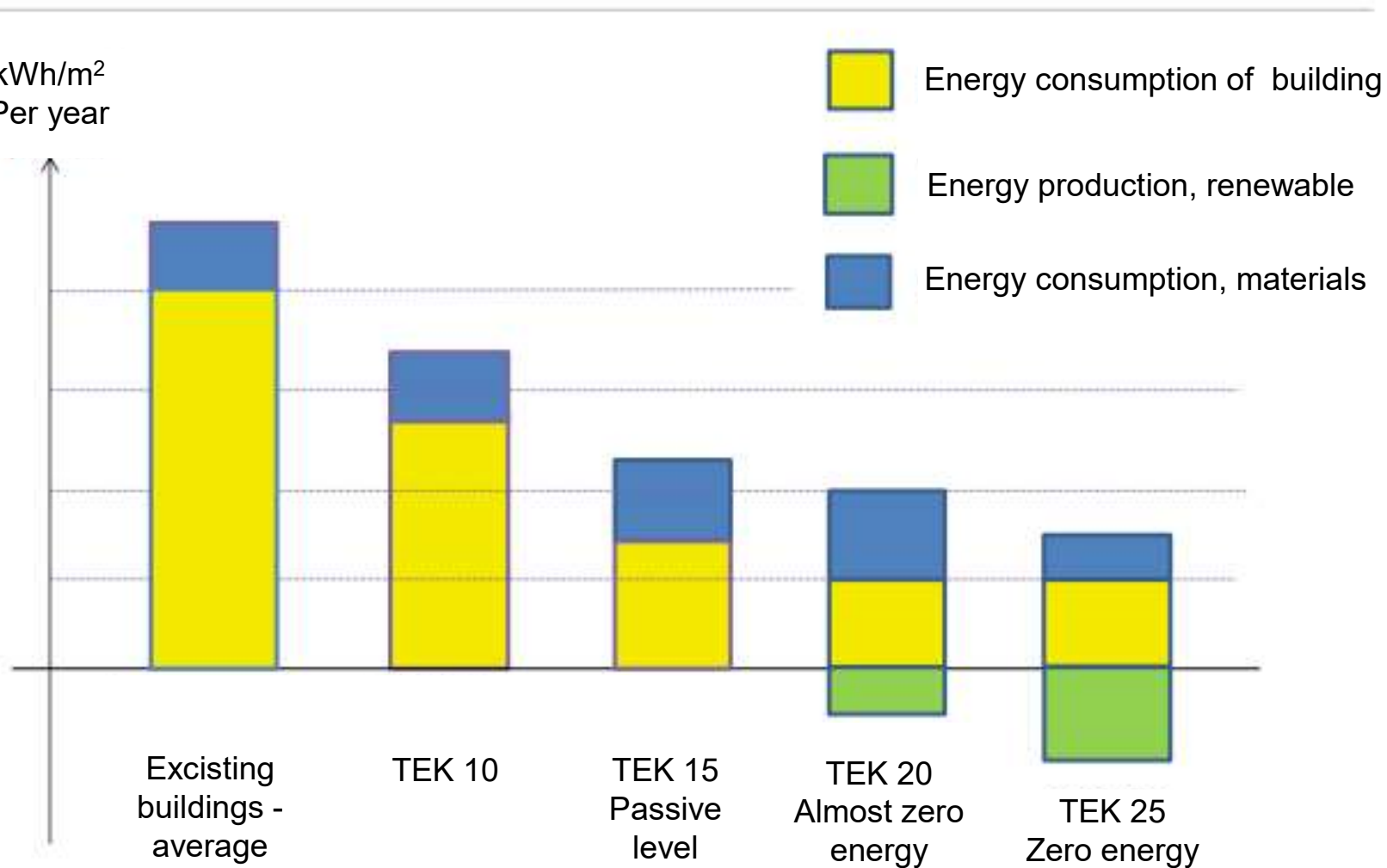


Foto: I. Magnussen

I. Building codes - Requirement get tighter..

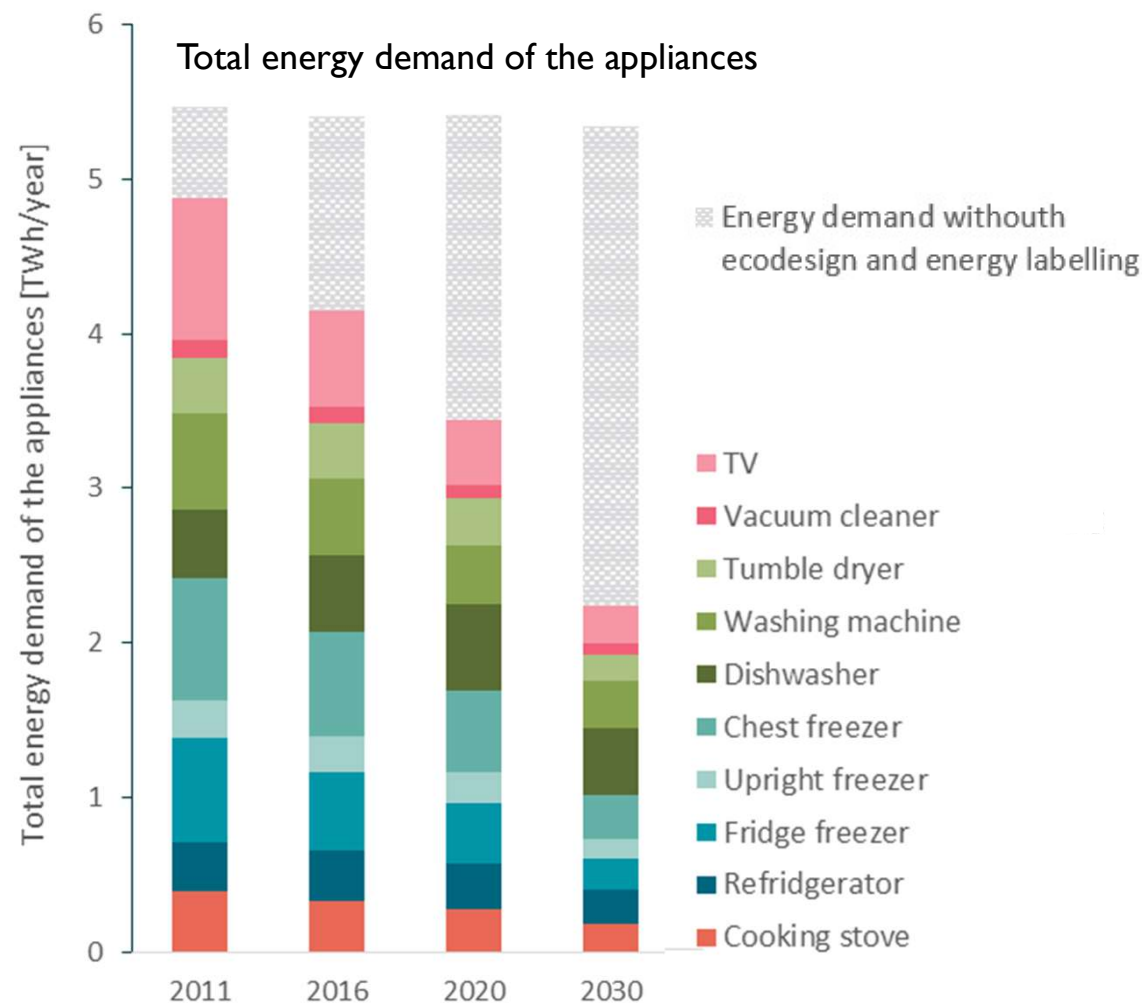


kWh/m²
Per year



2. Ecodesign and energy labelling

- Implementation of Ecodesign and Energy Labelling directives will lead to 3 TWh energy savings 2030
- Despite rise in population and ownership of appliances
- Results are based on study of 10 appliances
 - Survey in 2000 households
 - Technical information on appliances



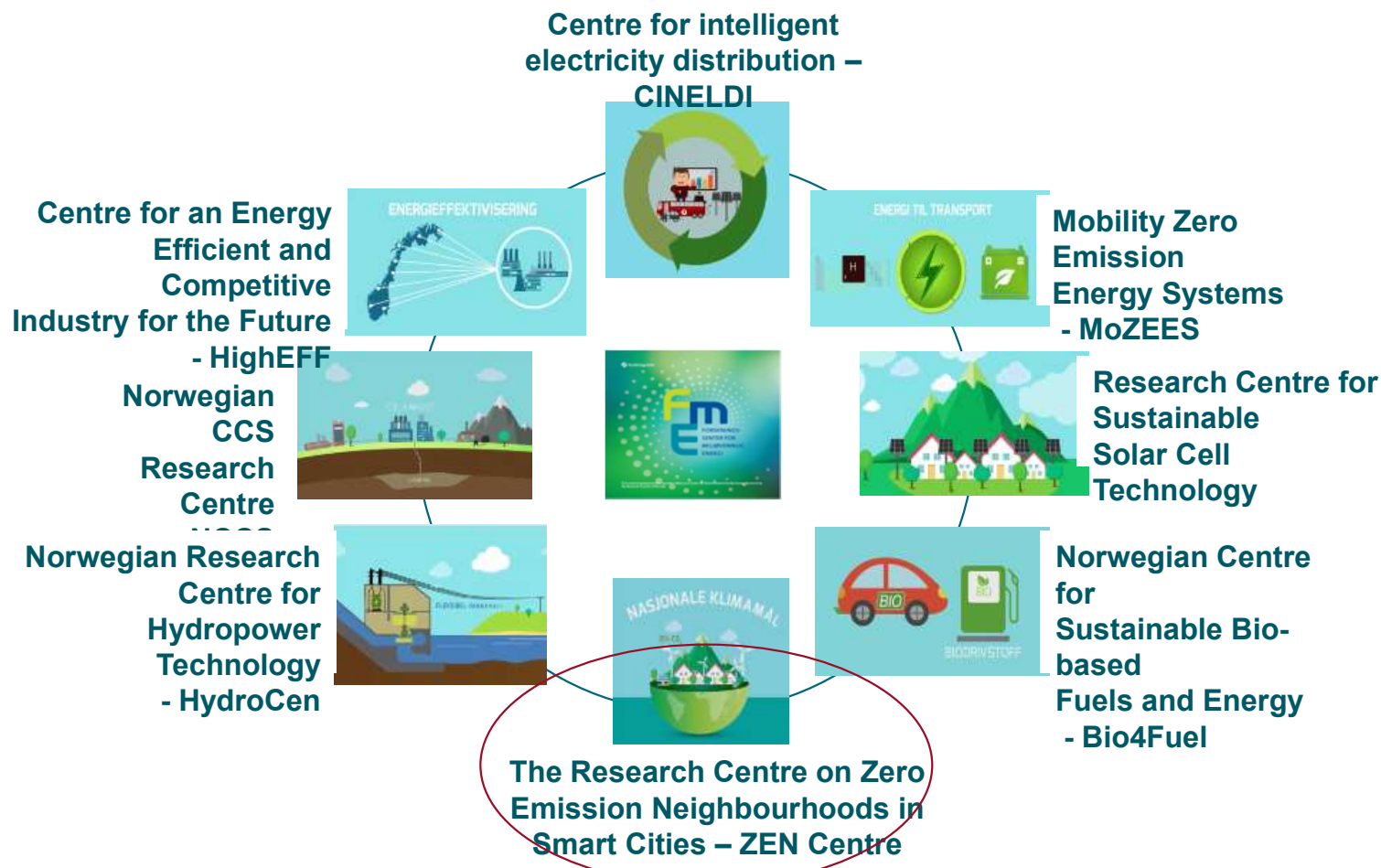
3. Schemes and funding from Enova

- National energy agency
 - Energy efficiency and GHG reductions
- Support schemes -all sectors
 - Industry, transport, buildings
- Market transformation, demo, pilots
- The schemes give substantial savings



3. Schemes for research –

Centres for Environment- friendly Energy Research (FME) - (2017-2024)

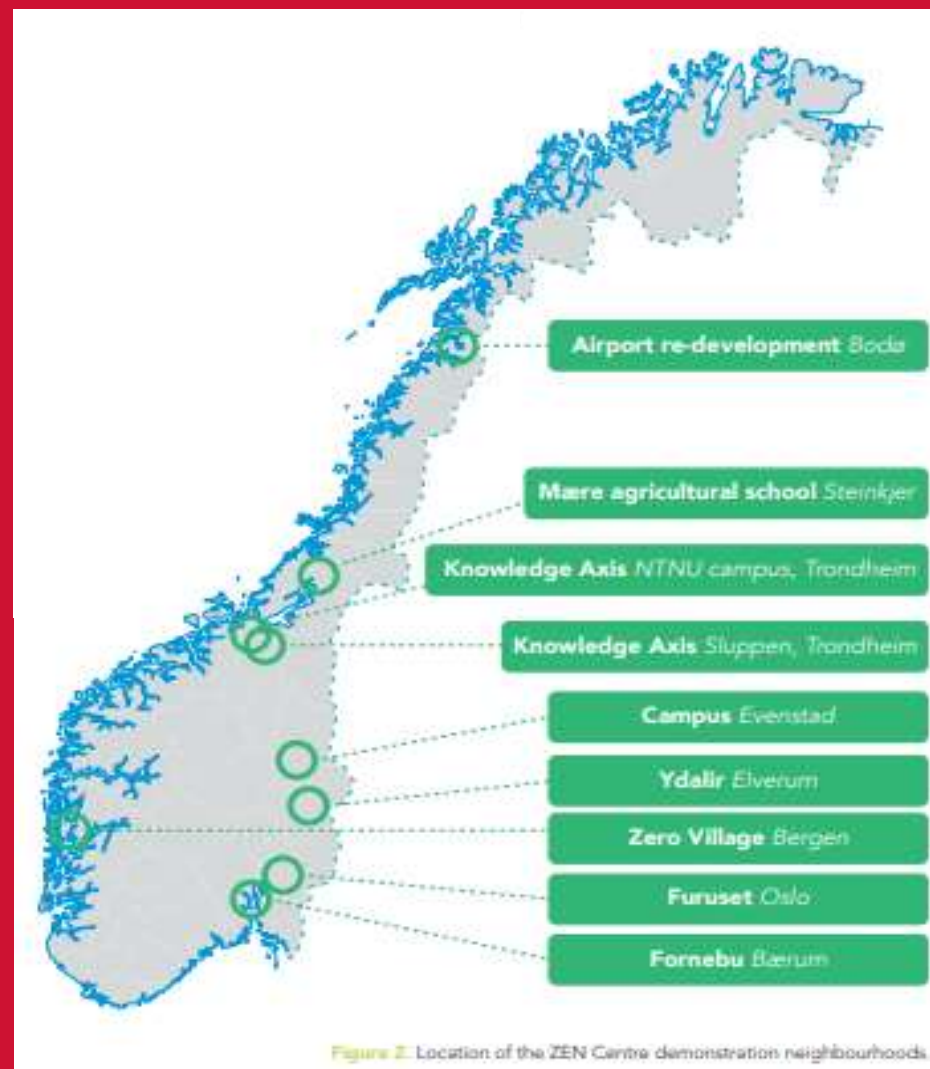




Research Centre on Zero Emission Neighbourhoods in Smart Cities – ZEN



<https://fmezen.no/about-us/>



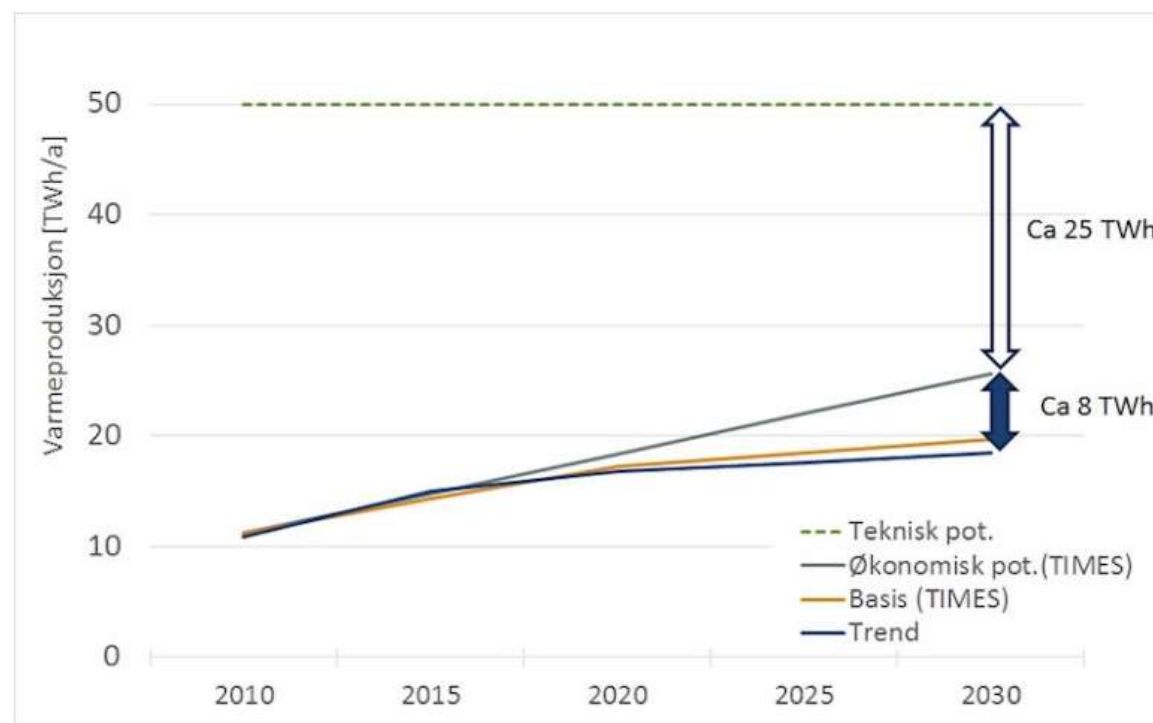
4. Local energy production

- Heat pumps
- Solar PV systems



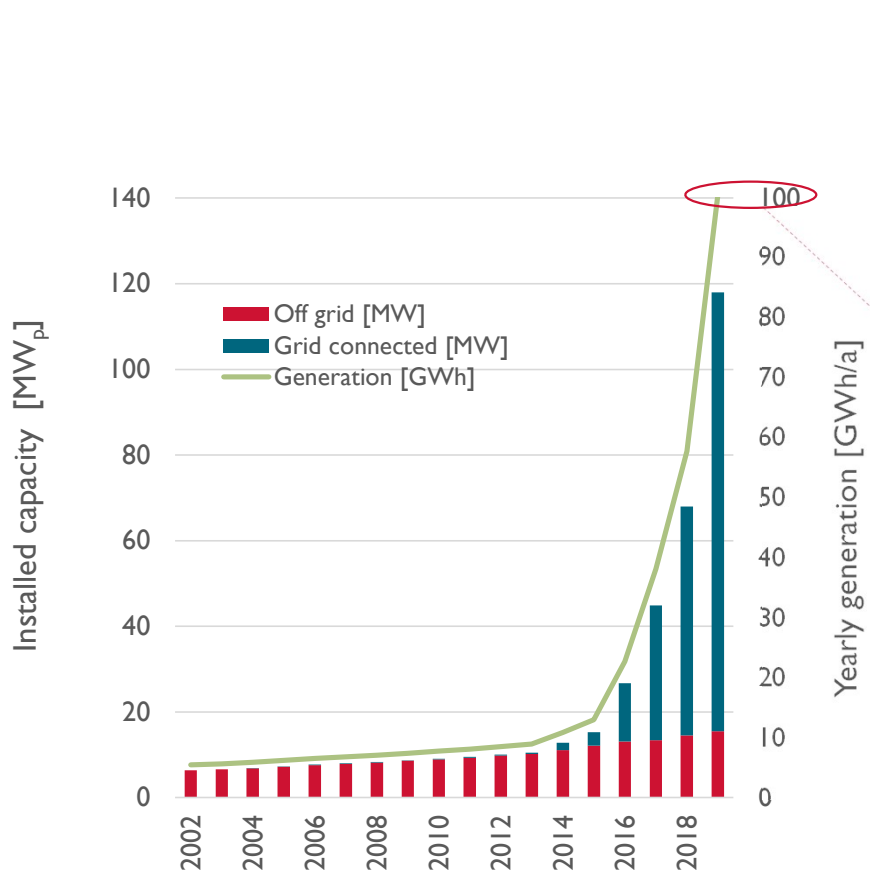
Huge rise in installation of heat pumps

- Large growth since 2003
- Mainly due to support schemes and regulation
- Air-air pumps dominant in households
- Estimated heat production in 2030 -> 15-18 TWh,
 - Of which ambient heat > 10 TWh

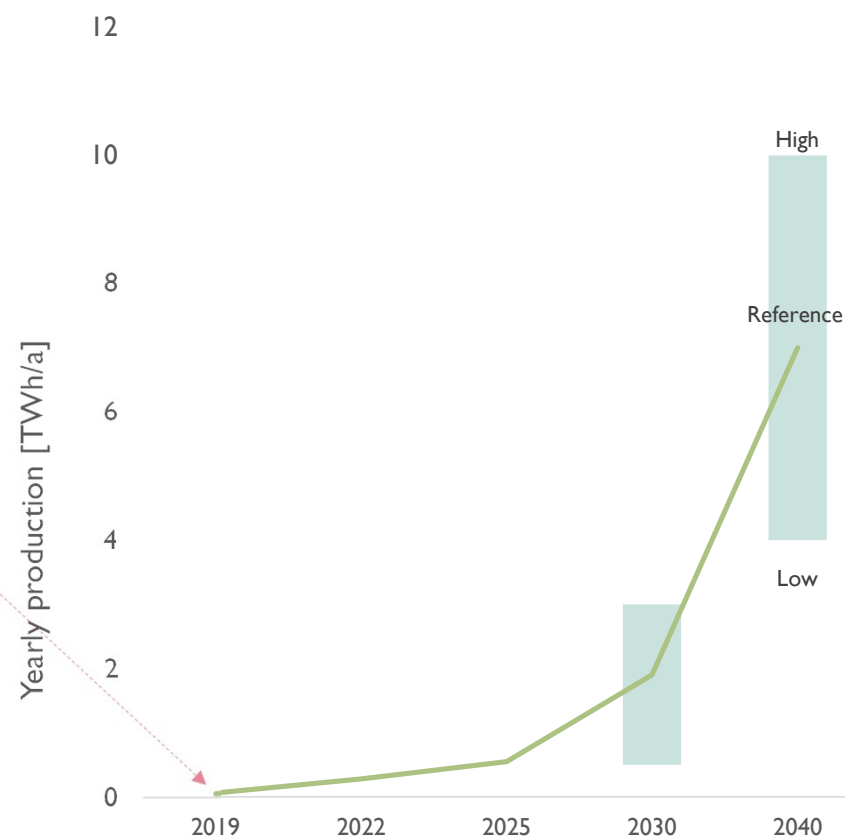




Solar PV - Massive growth, but the volumes are low



Source: Asplan Viak/Multiconsult/IEA-PVPS/SSB



NVEs projections on solar power generation



Important learnings



Some final remarks

— Design and management of schemes are important

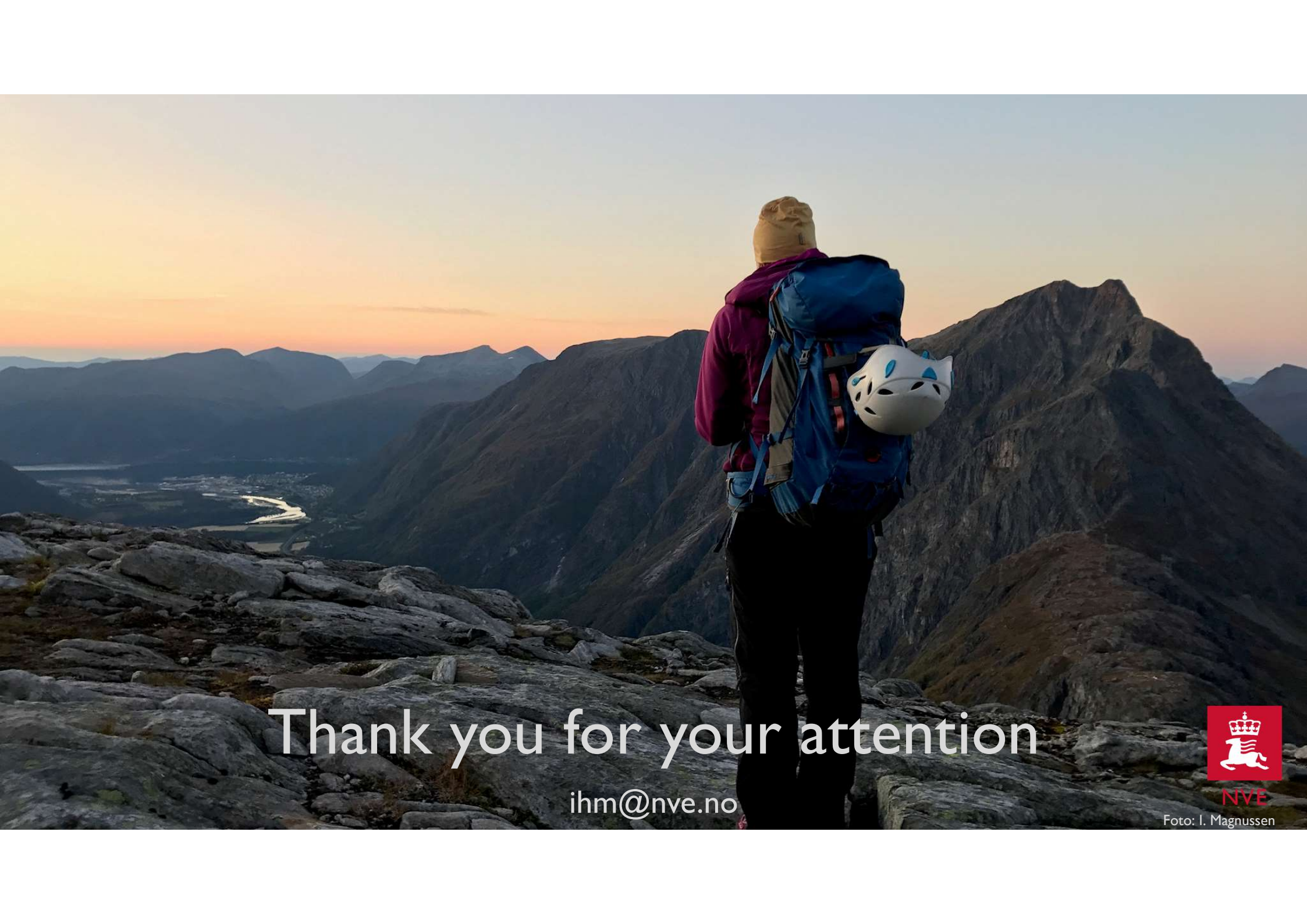
- Must meet actual need
- Consumers addressed must have possibility to respond
- Measure, follow up, redesign and cancel (..) schemes

— Don't forget rehabilitation

- in 2040, the majority of the area in the buildings sector is still “old”.
- Use opportunities when houseowner are in decision processes
- Competence in building sector important – poor work can spoil good technology

— Research and pilots should meet needs

- Enforce technology and market mechanisms



Thank you for your attention

ihm@nve.no



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Foto: I. Magnussen