USE OF MEASUREMENTS IN DH SYSTEMS

NINA DETLEFSEN

GRØN ENERGI

BACKGROUND

- Data for DH consumption has been collected for a long time
- Intelligent meters opens frequent meter readings – and therefore higher resolution
- Now also data from individual household consumption is collected by the ministry

- So – lots of data available – what can it be used for?

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CHALLENGES

- Green development
- Fossilfree electricity and heating sector by 2035
- Fossilfree energy system 2050

… leads to discussing

- Energy savings of all kinds – also heating
  - Invest in energy savings
  - Zero-energy houses
  - Efficient production of heating etc.

- Mainly focus has been on consumption (households) and production/transmission (DH company)

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IMPROVED KNOWLEDGE ON ENERGY CONSUMPTION IN BUILDINGS

- Data from FIE-database (Ministry of Housing, Urban and Rural Affairs)
- Yearly data for heat consumption for
  - District heating
  - Oil consumption
  - Gas consumption

- Purpose of analysing this data is to develop tools to be used by members of the Danish District Heating Association

- Challenges with data:
  - Missing data for electricity consumption for heating and individual biomass heating solutions
  - Yearly resolution
  - Periodicity

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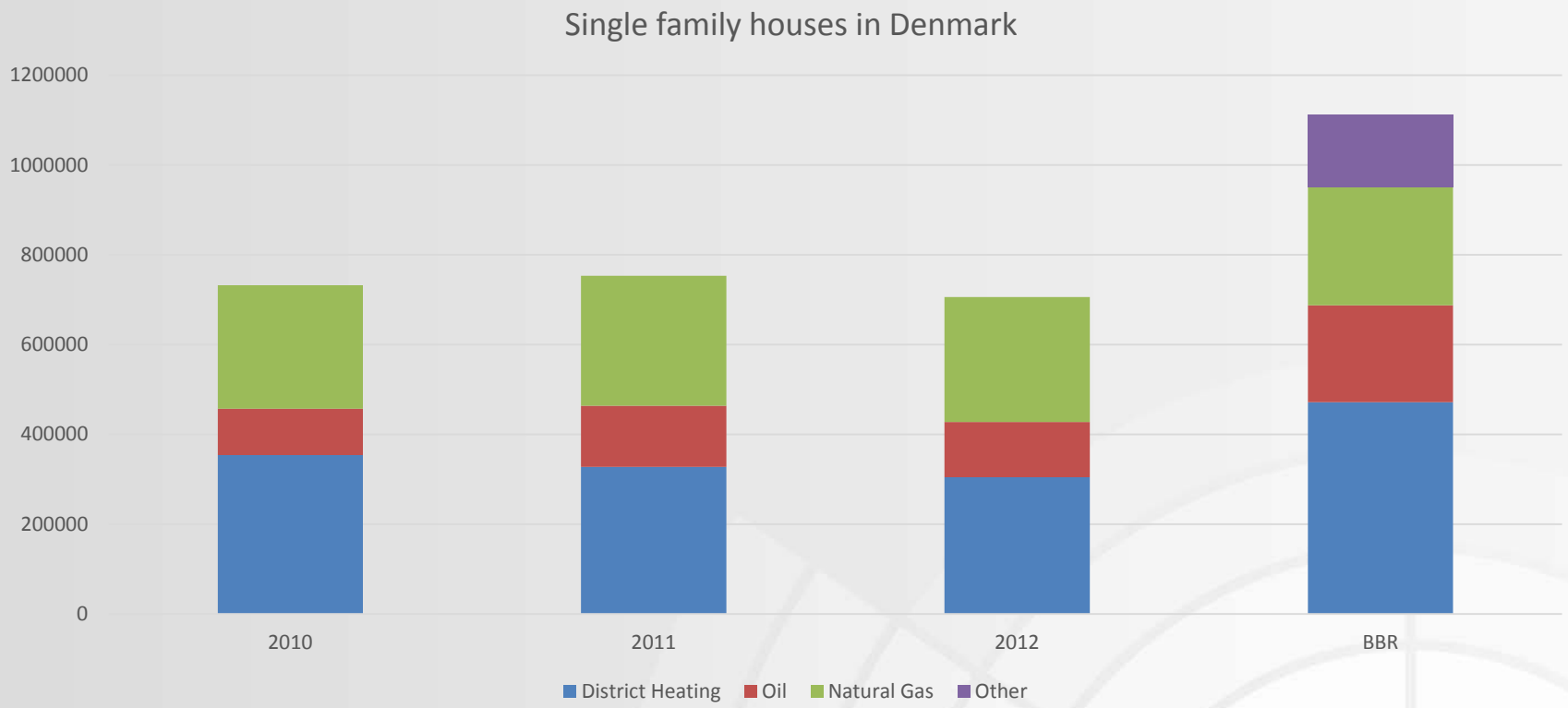
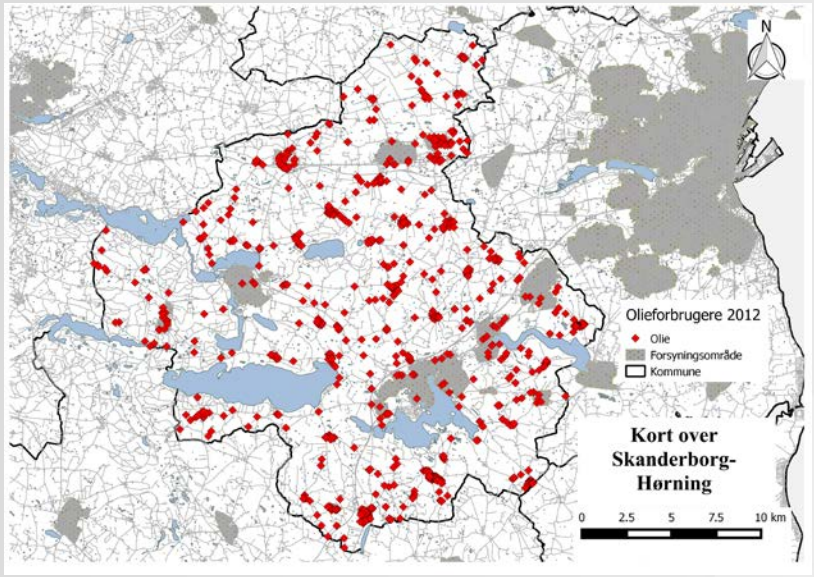
COMPARISON FIE AND BBR

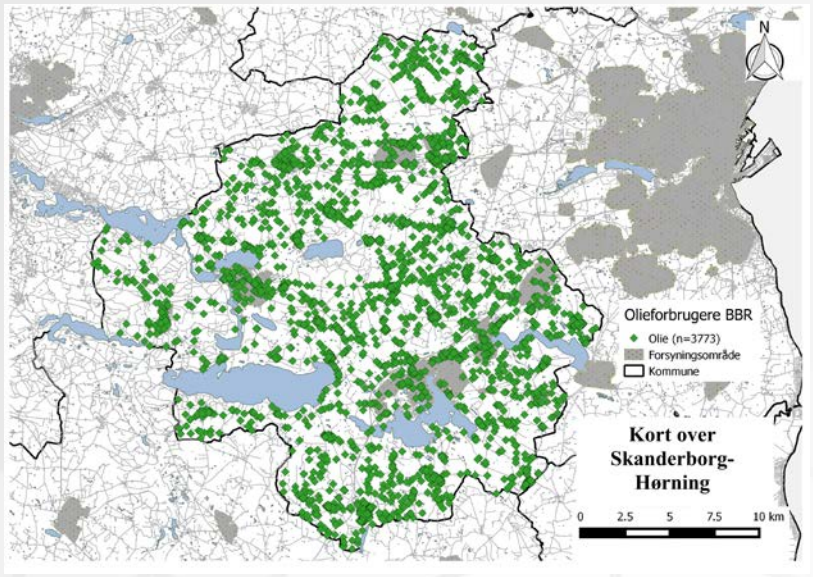


MUNICIPALITY OF SKANDERBORG

OIL SUPPLY IN 2012



REGISTRED OIL IN BBR



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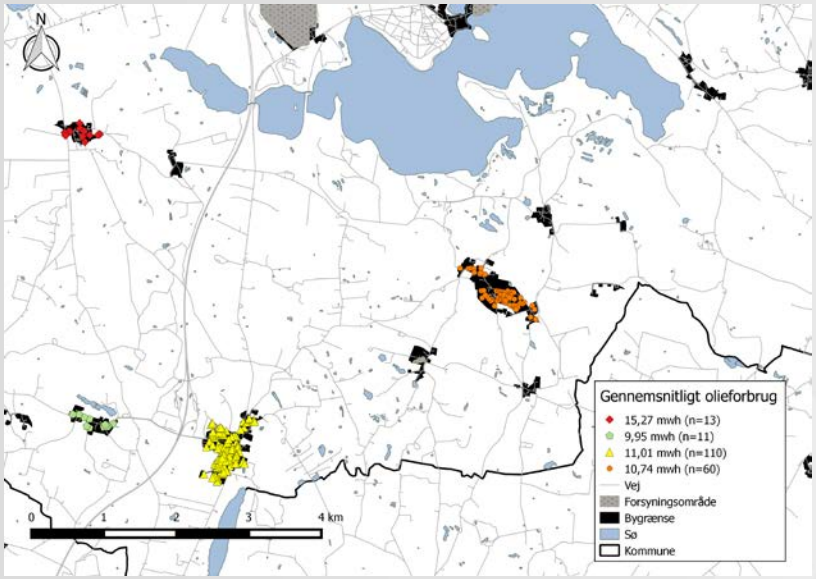
EXPANDING DH IN THE MUNICIPALITY OF SKANDERBORG

OIL SUPPLY IN 2012



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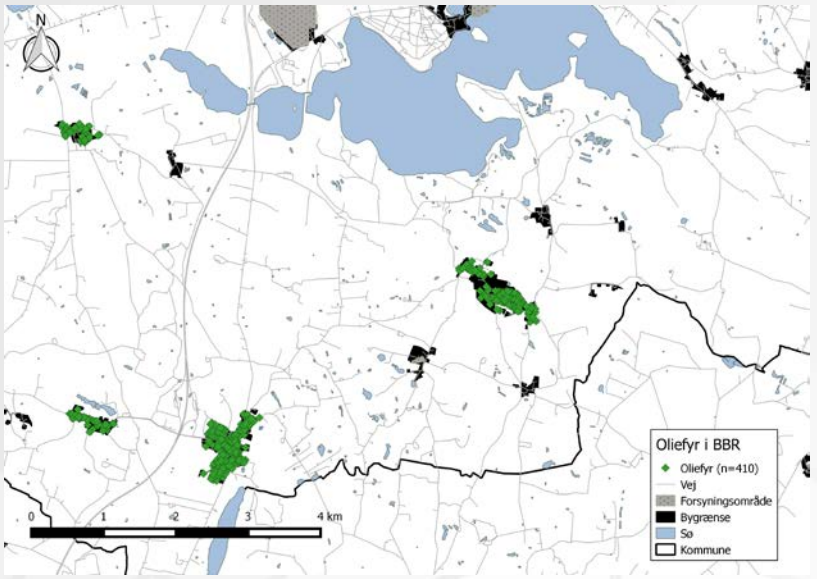

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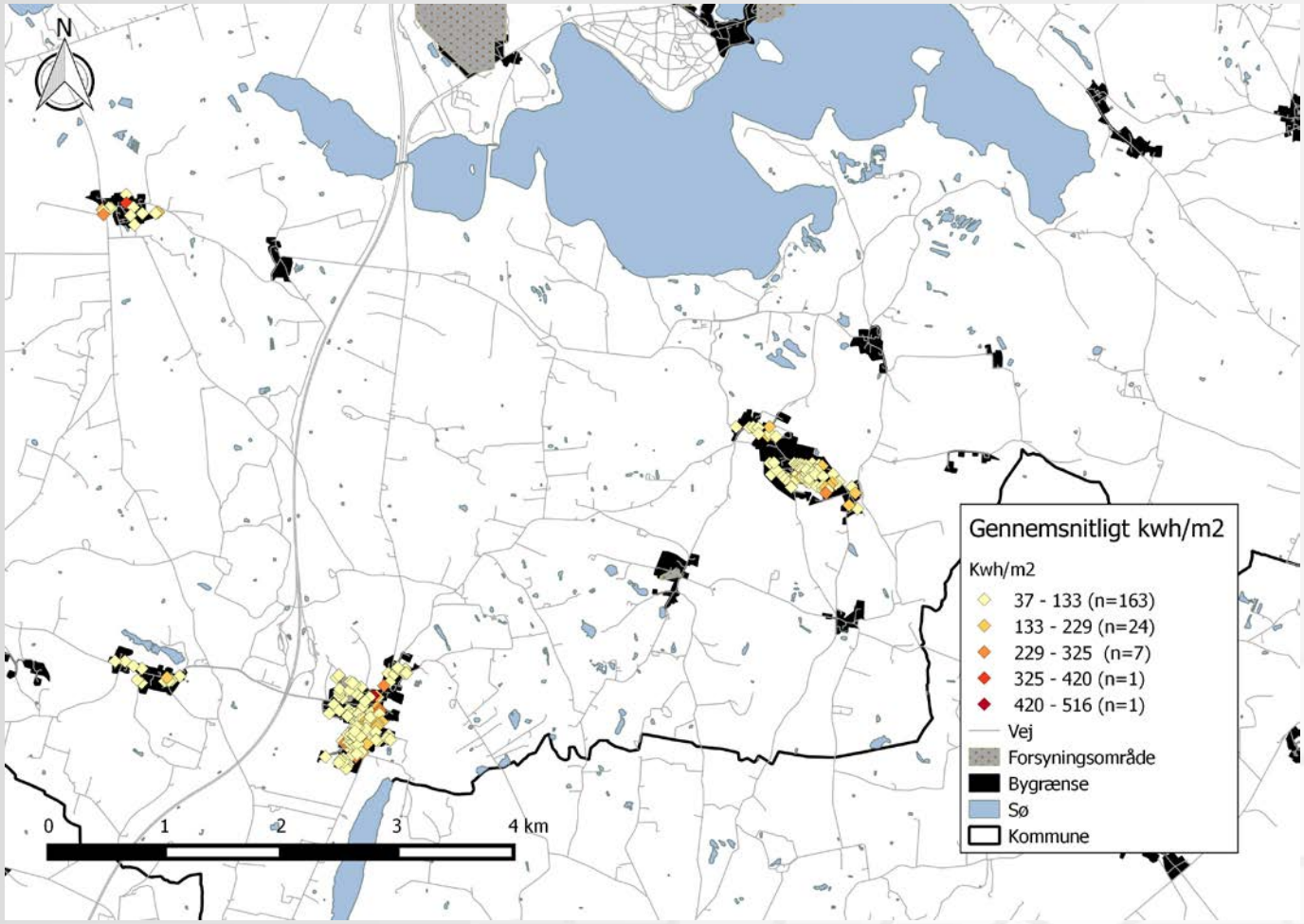
OIL CONSUMPTION KWH/M2



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BACK TO DH: FROM DH COMPANY TO HOUSEHOLD

- DH Users/costumers has traditionally not had so much focus on the district heating unit installed
- District heating companies are focused to optimize production
  - And minimize loss in the transmission system
- Users has focused on energy savings such as isolating, reduce water and electricity consumption and sometimes supplement heating by other sources

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USE OF FREQUENT MEASUREMENTS

- Partners: DFF-EDB, DFP, Grøn Energi, District Heating Companies, DTU??

- The project is to
  - analyse frequent meter data,
  - develop predictions
  - develop decision support systems based on data and predictions

- This is not unique – plenty of applications exists

- Challenge: Find suitable theory and apply this to district heating
- Next challenge: Implement this for households in 460 district heating companies

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SUGGESTED PROJECT

- Increased knowledge on heat consumption
  - Improve information to consumers and knowledge on consumption patterns
- Better models for heat consumption in a household
  - Current model build on degree days and could be improved
  - If better models exists it will be possible to improve DH system management and run the system with less buffer
- Monitor the system
  - Make warnings if there is a sudden change (leak)
  - Also give a warning if something is drifting
- Consumer savings
  - Give consumers more insight into what to improve to make savings
- Possible business opportunity for district heating companies

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Thank you

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