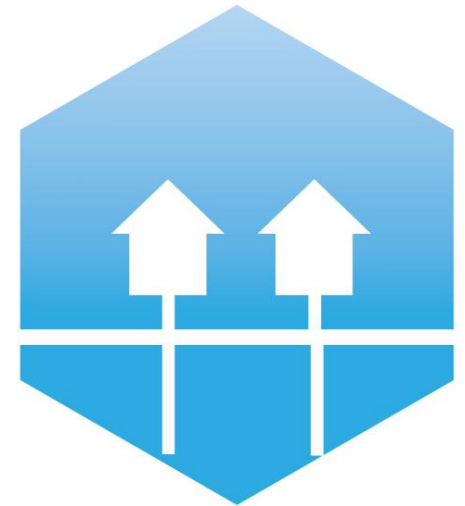
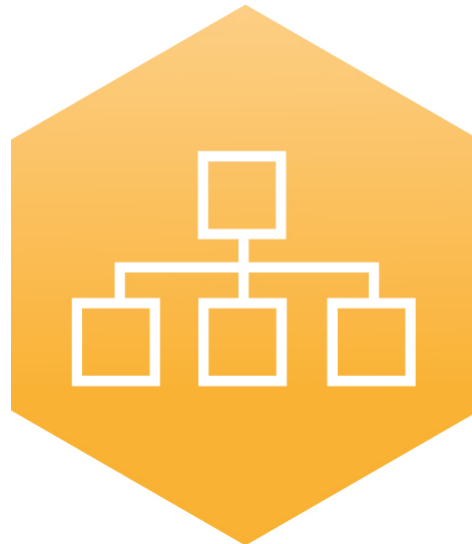


Survey of Radiator Temperatures in Buildings Supplied by District Heating

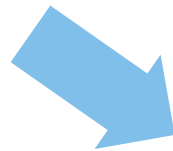
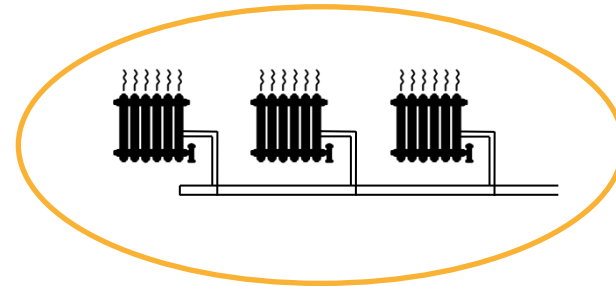


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Purpose and Aim With Study



The Actors Involved in This Project



District Heating Provider



Public Housing Company



Research Institution



CHALMERS
UNIVERSITY OF TECHNOLOGY



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- Major DH customer
- 330 Substations
- 26 900 Apartments
- Hourly data measurements available from SCADA system

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Data Selection



3. North Hisingen

4. South Hisingen



1. Angered

2. Guldheden

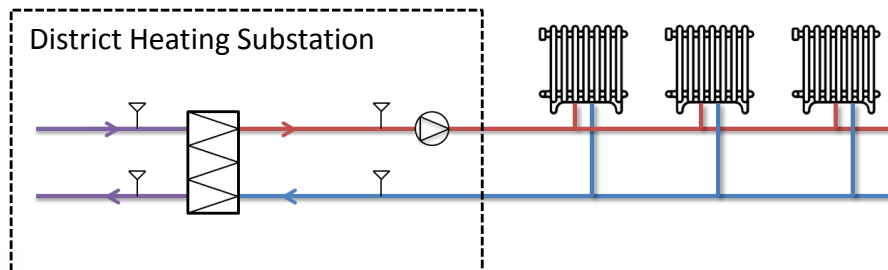
5. Frölunda



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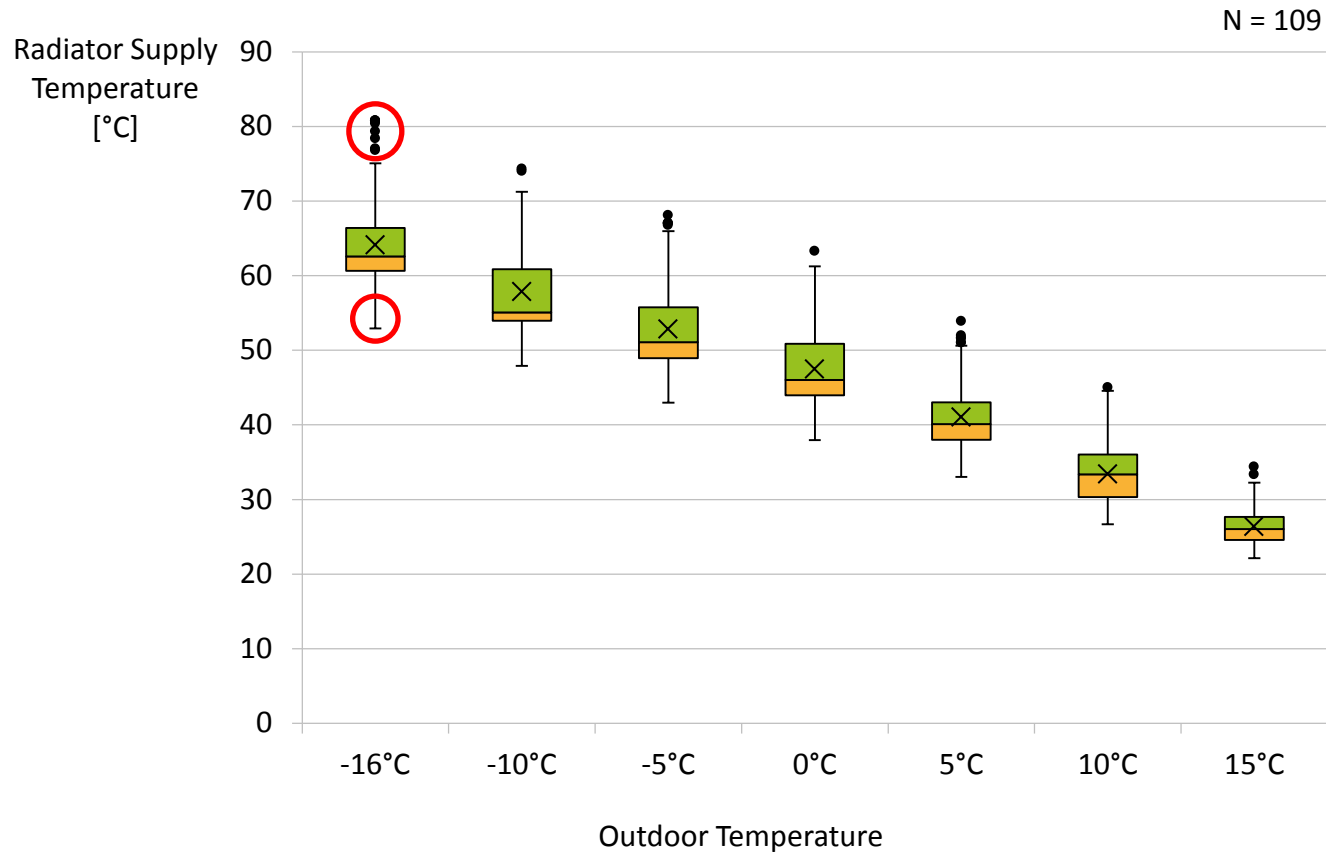
Data Collection



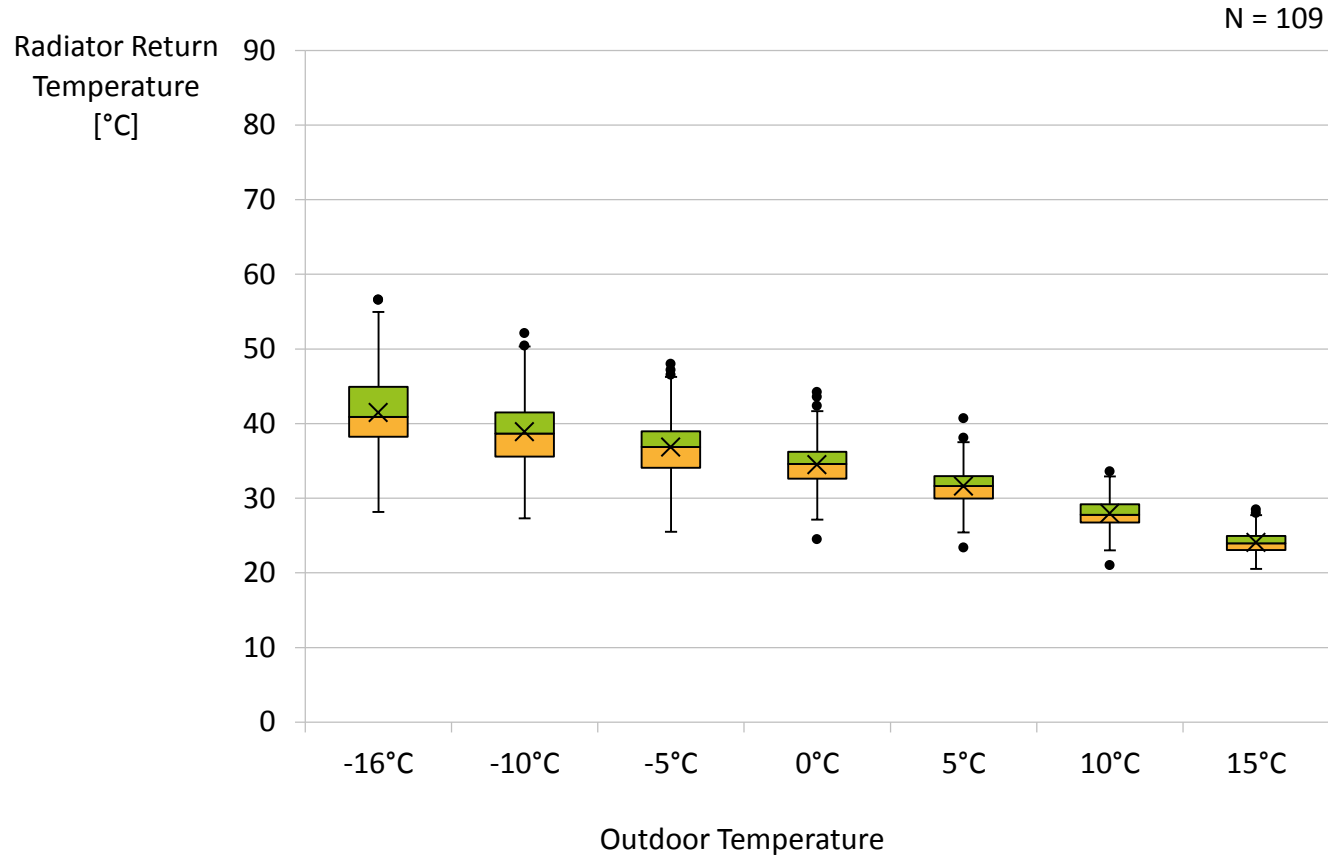
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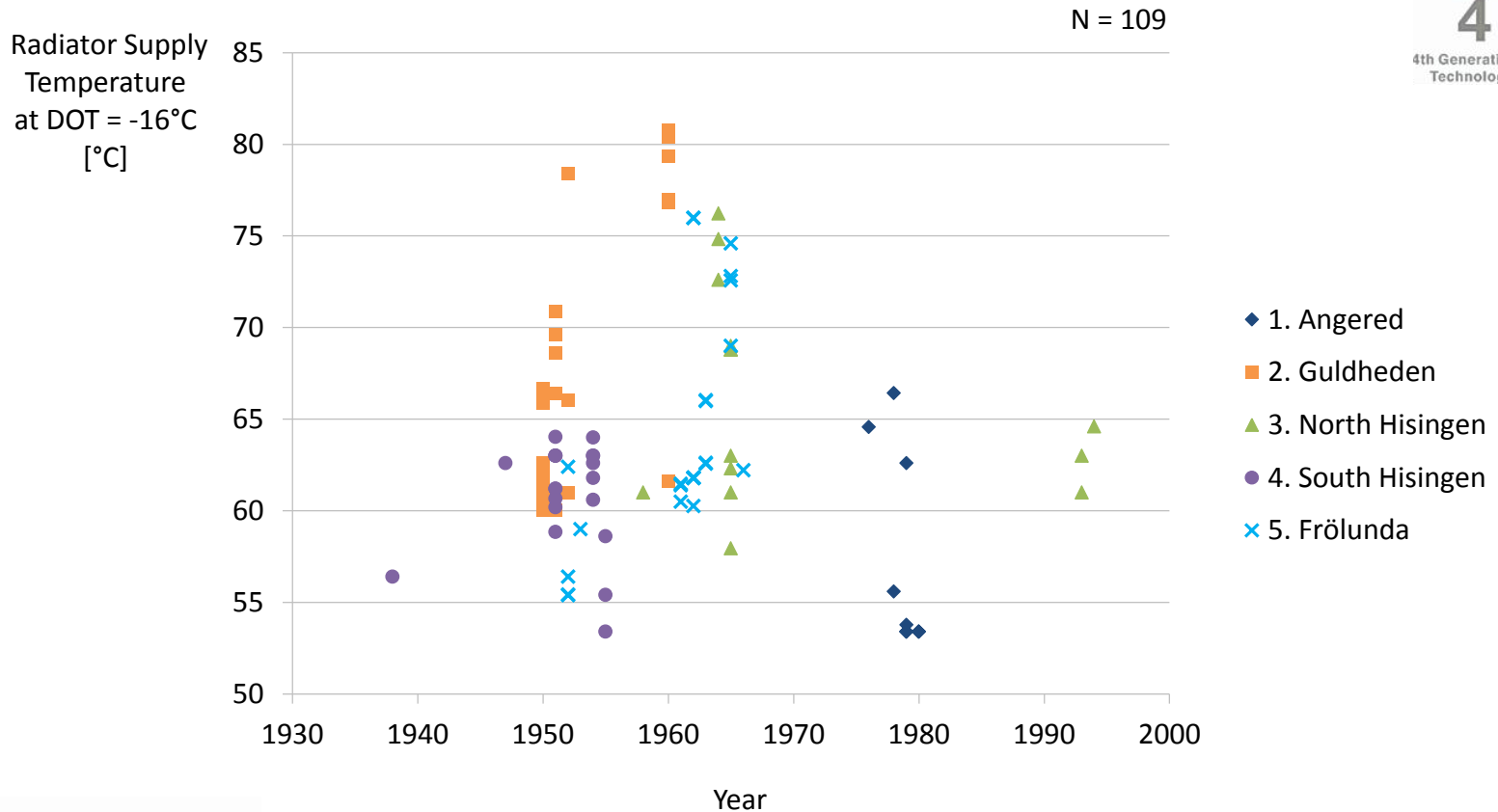
Radiator Supply Temperatures



Radiator Return Temperatures



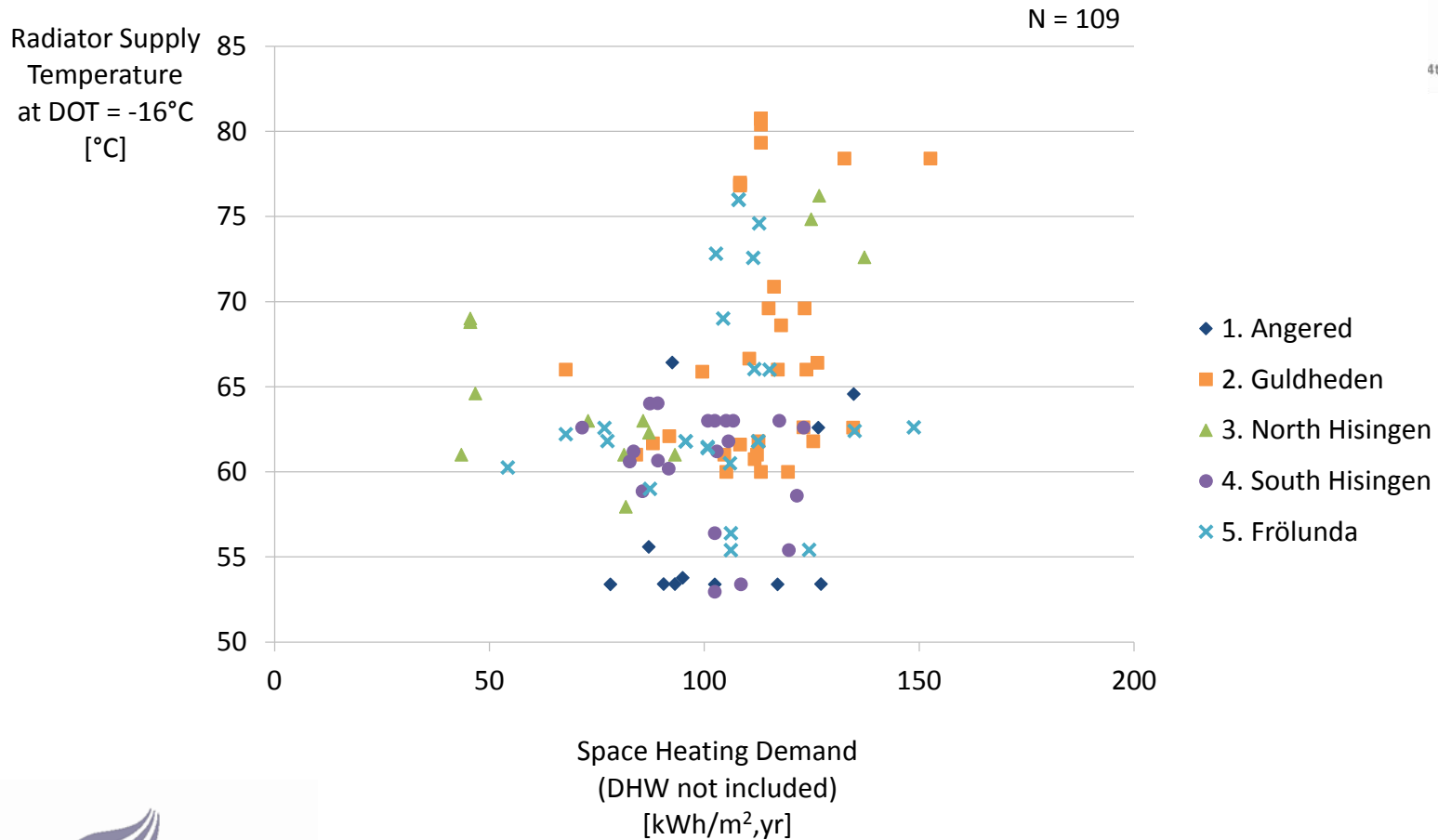
Building Construction Year



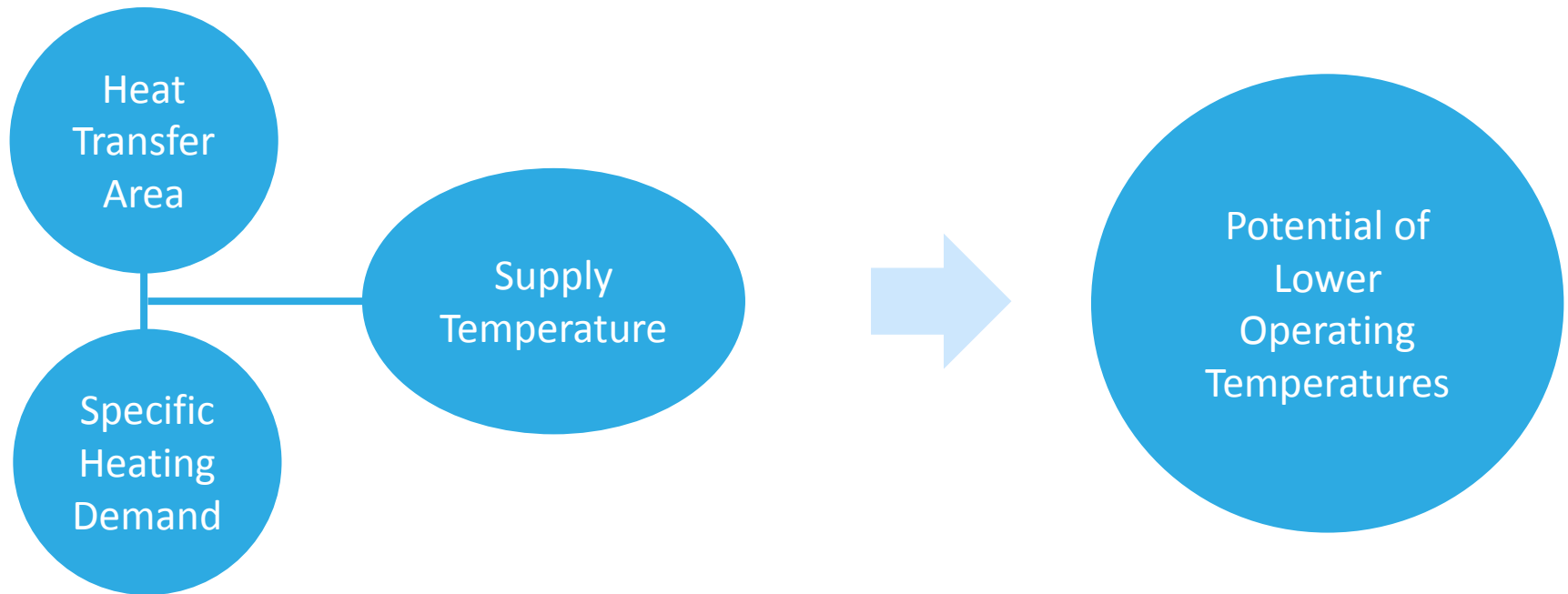
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Building Specific Heating Demand



Heat Transfer Surface Area



Conclusion



Radiator temperatures in existing buildings

- 64/42°C for DOT = -16°C
- Large range of values

Fourth generation district heating

- 8% of radiator systems with supply temperatures less than 55°C
- Renovation needed and heat transfer surfaces to be increased

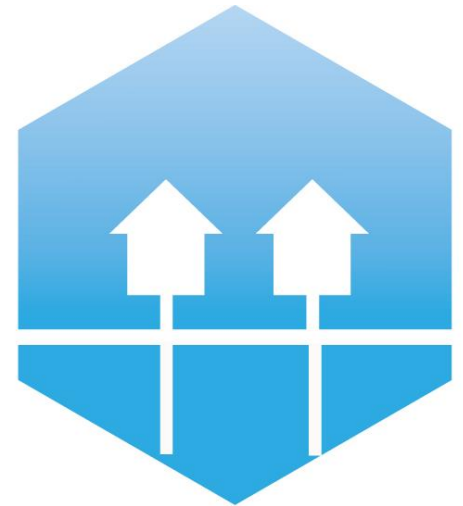
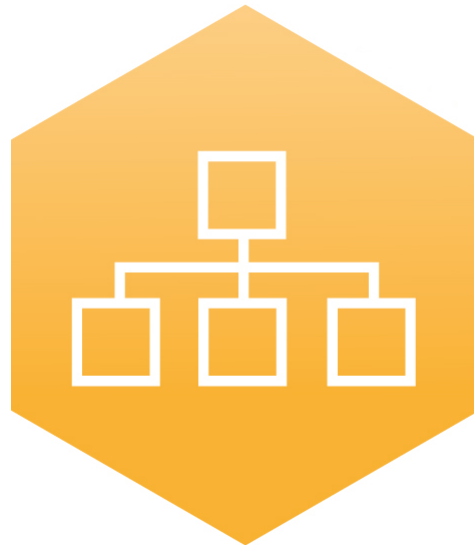
Potential actions today

- Reduce temperatures to some extent
- Reduce temperatures during parts of the year



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Thank you for your
attention!
Questions?



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