6th International Conference on Smart Energy Systems
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#SESAAU2020

FairHeat

Process for optimising heat network performance of existing buildings

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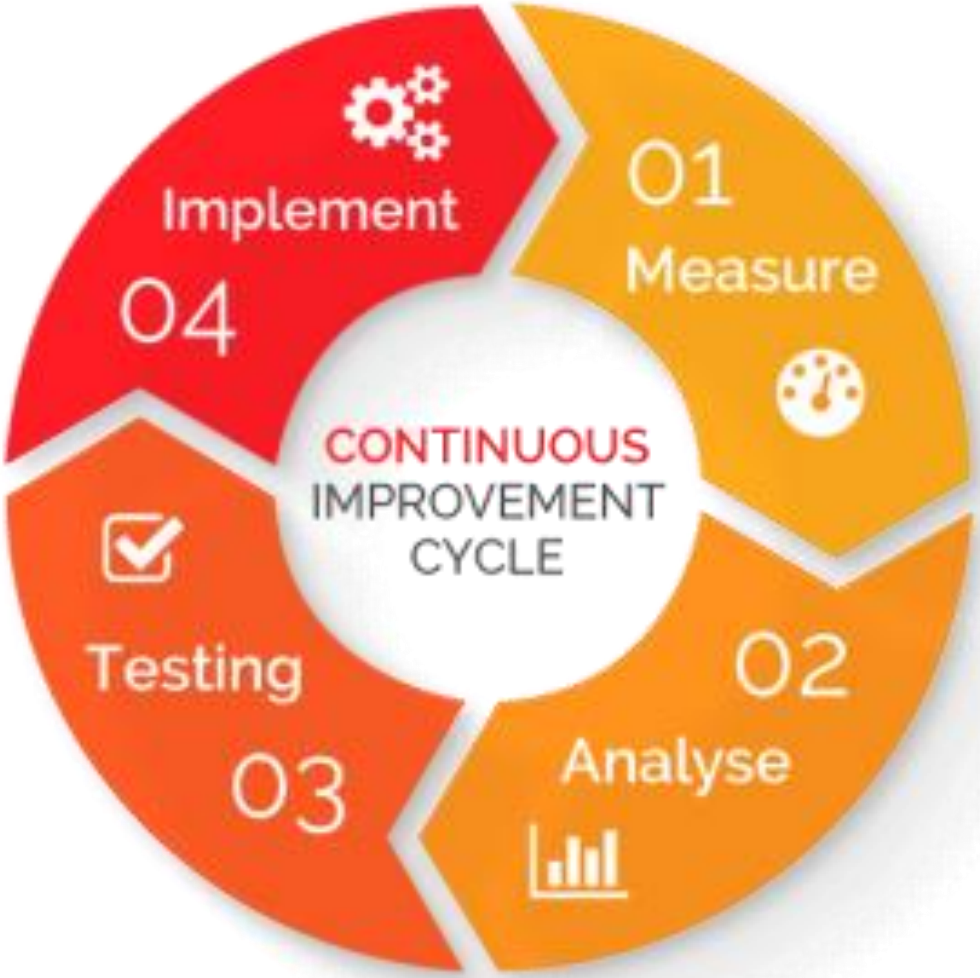
UK challenge

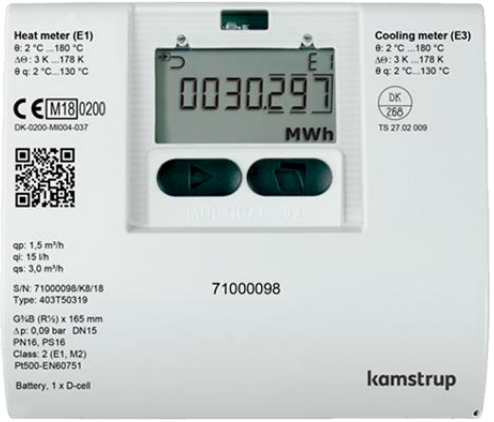
- 1% of existing stock replaced annually
- Retrofit biggest challenge
- Historic 82 °C – 71 °C heating temperatures

FairHeat approach

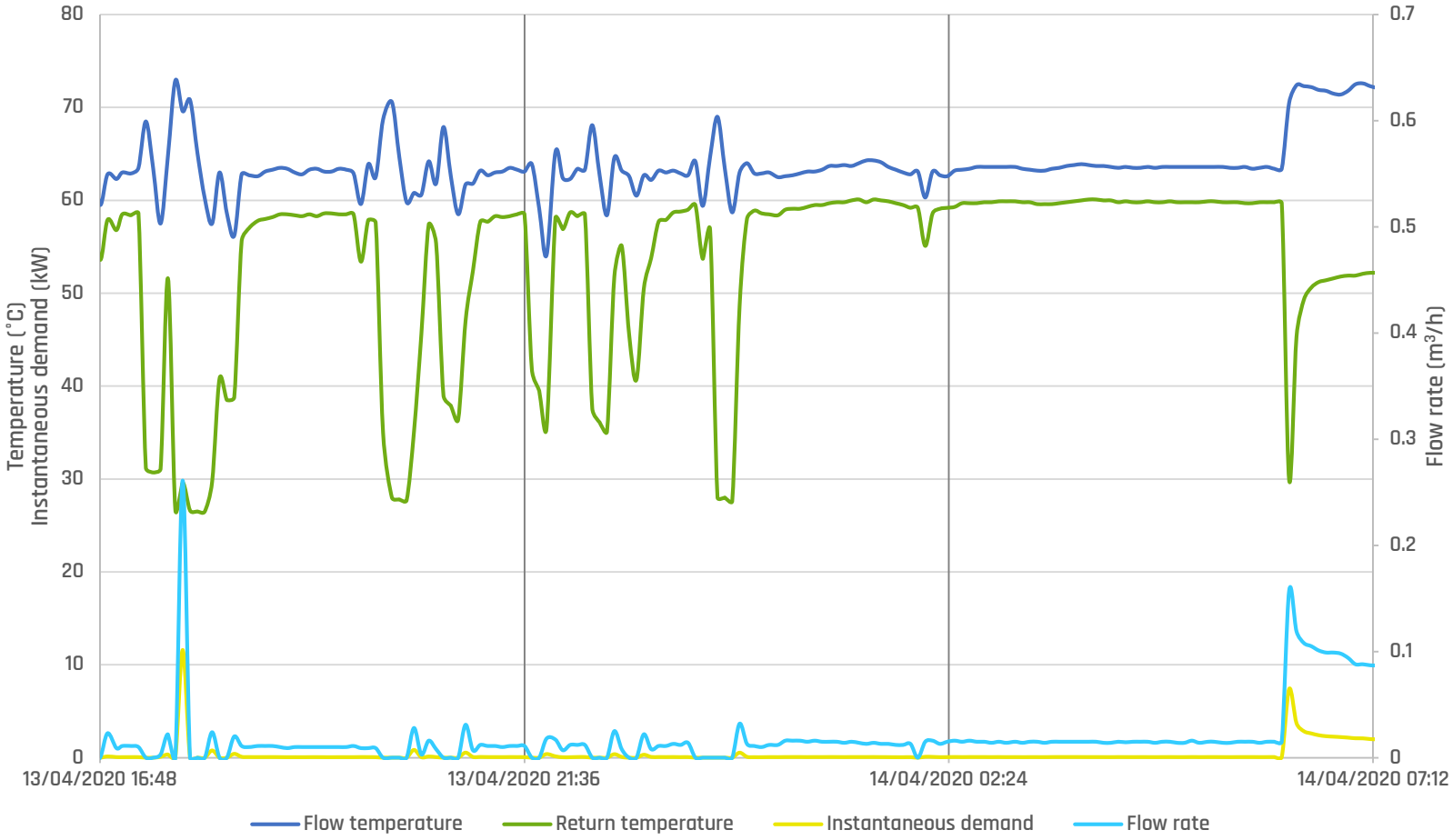


Measure

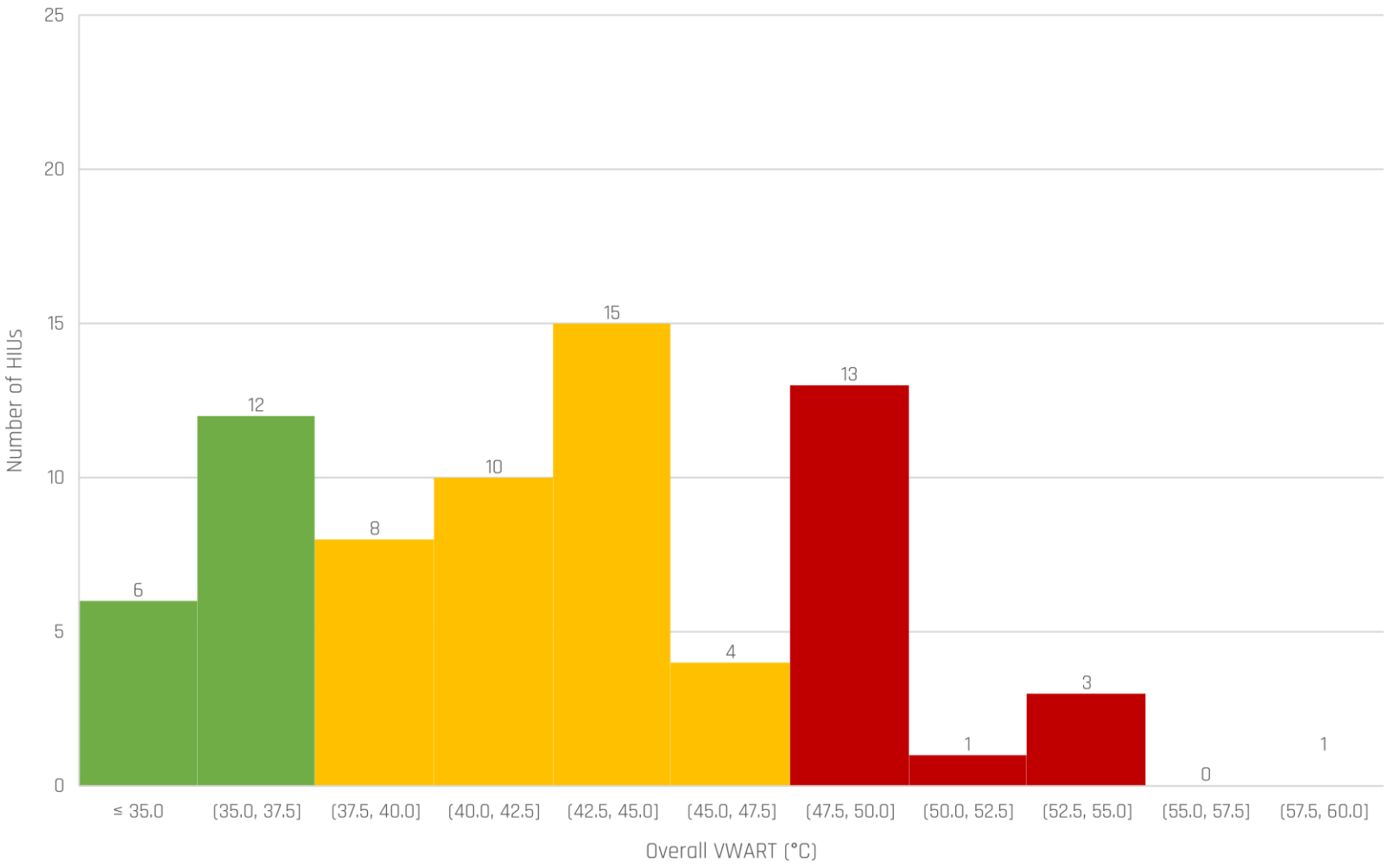
"If you cannot measure it, you cannot improve it"



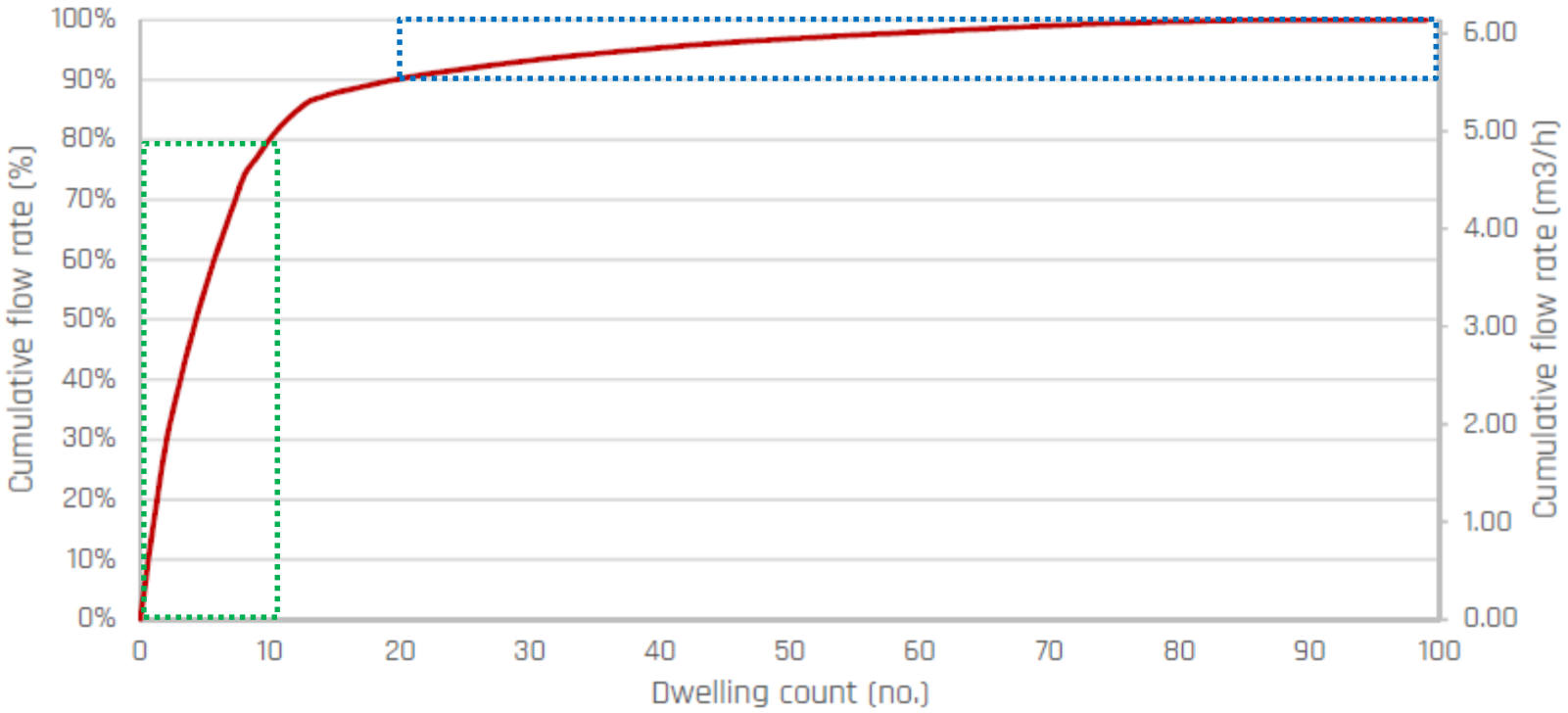
Anaysis - Dwelling level data



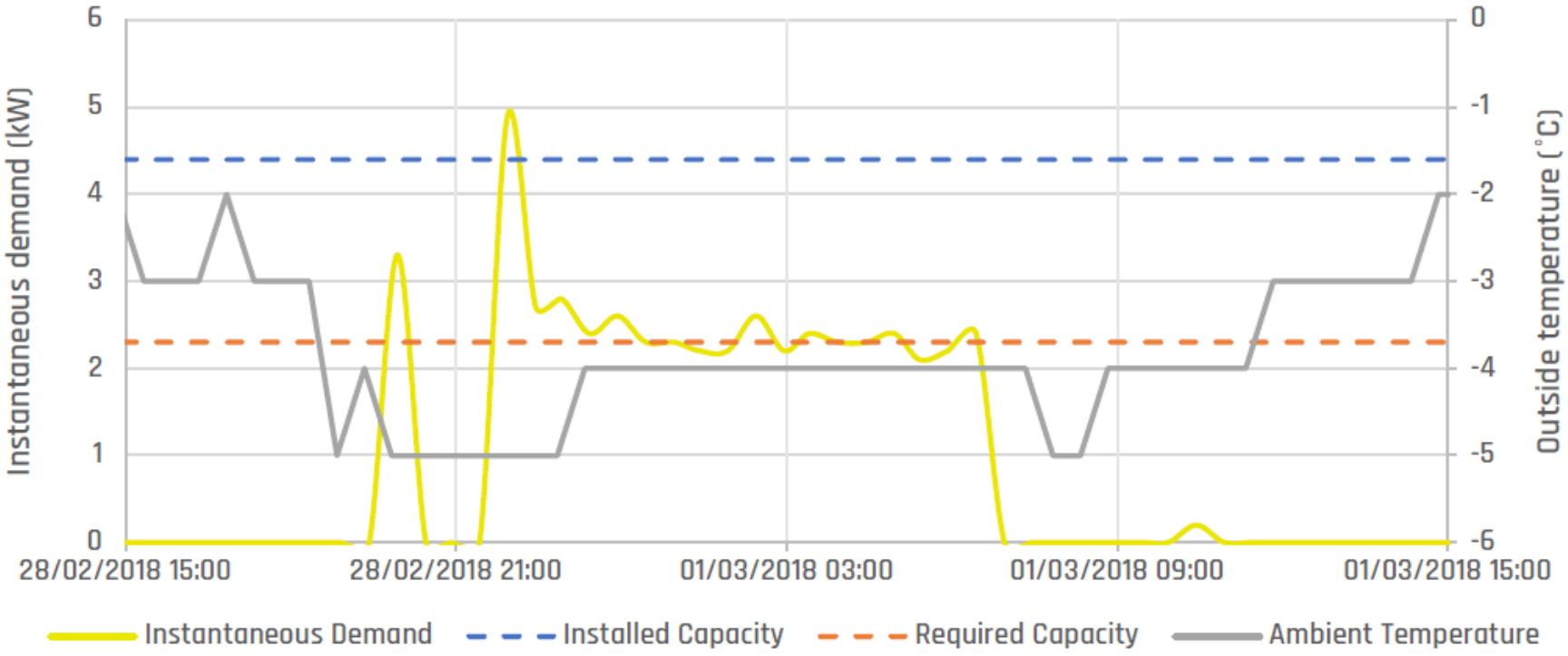
VWART analysis



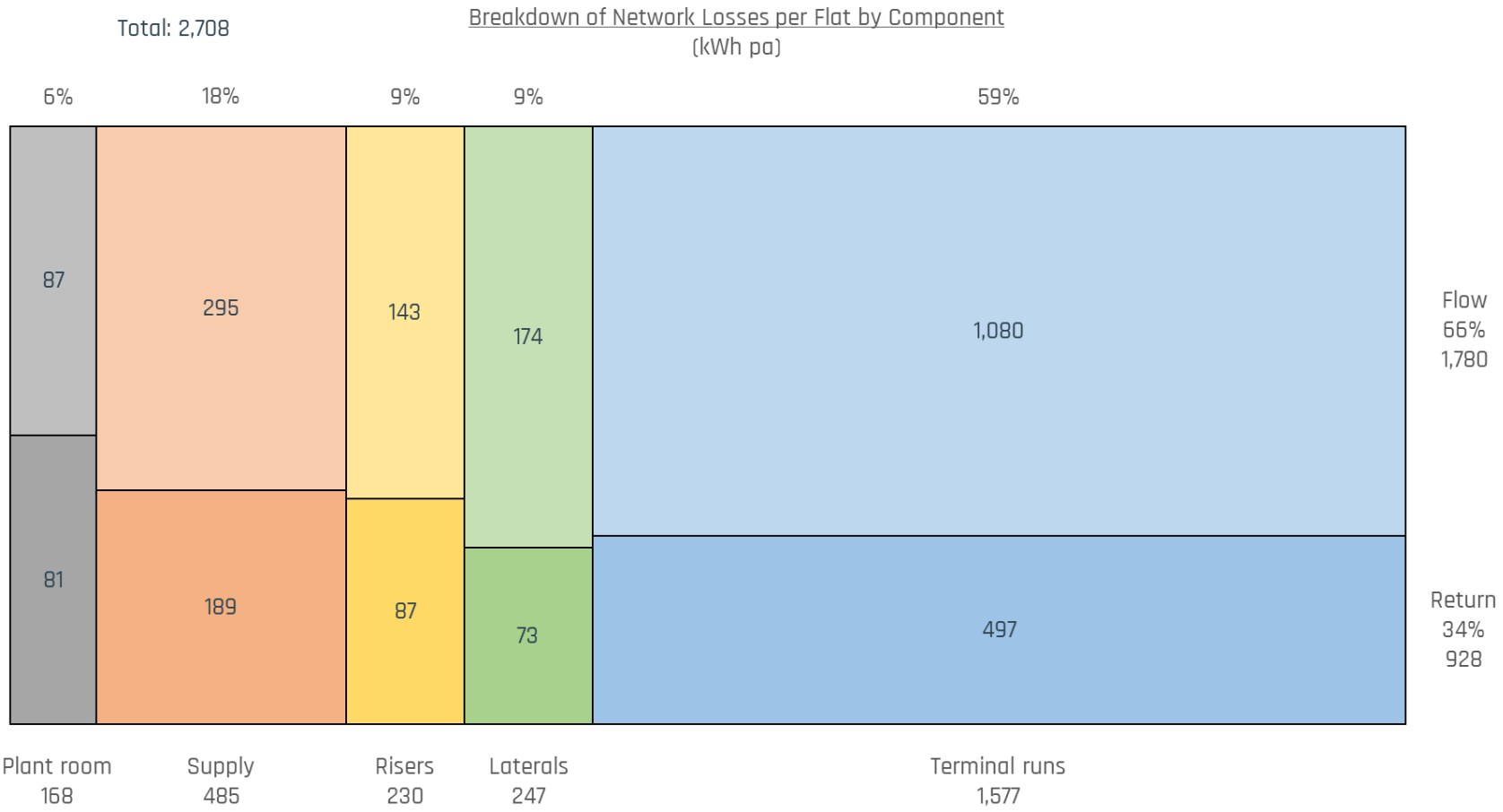
Pareto Curve analysis



Space heating temperature reduction opportunities



Heat network loss model – Marimekko chart

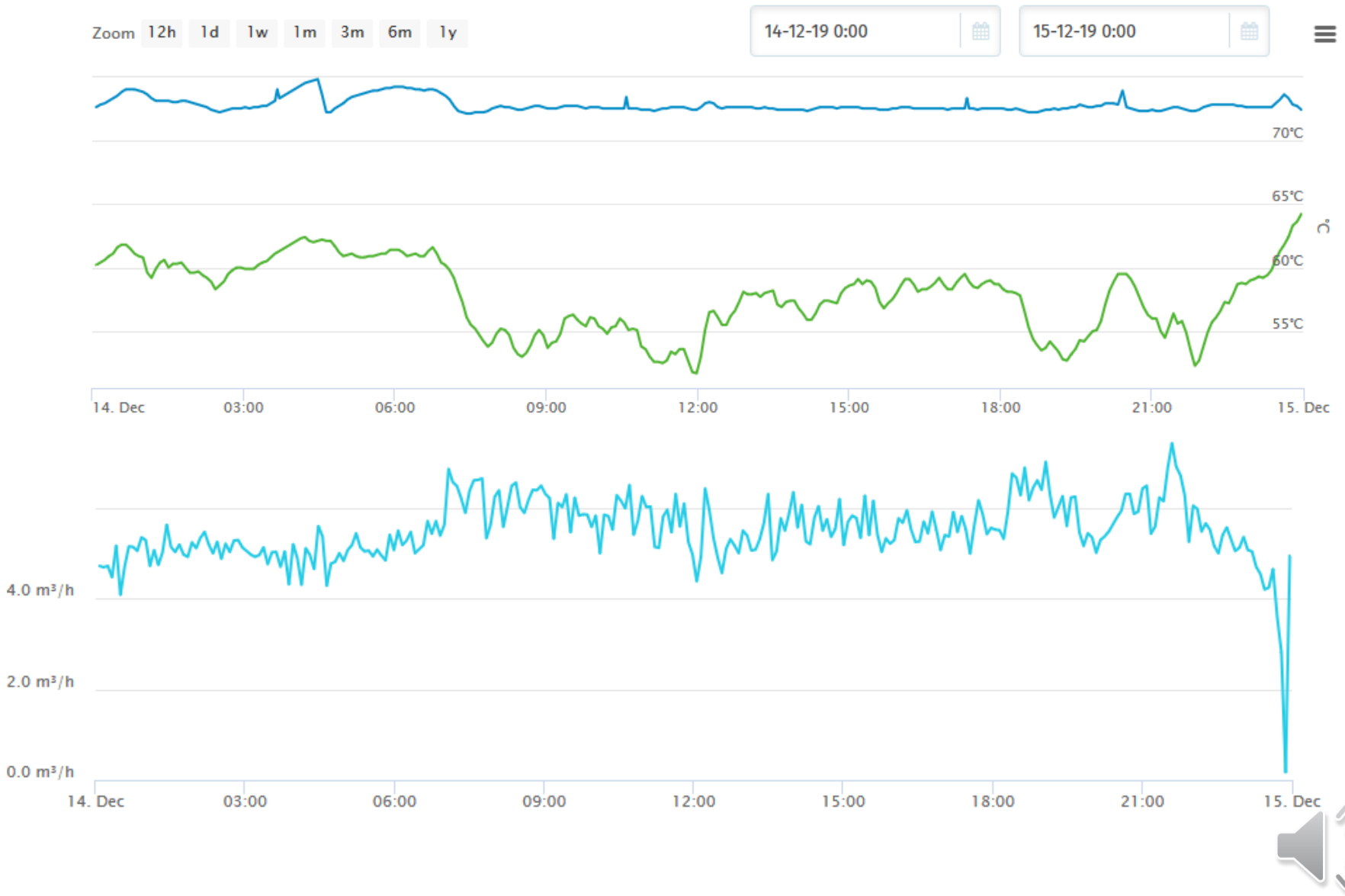


Example of methodology in action

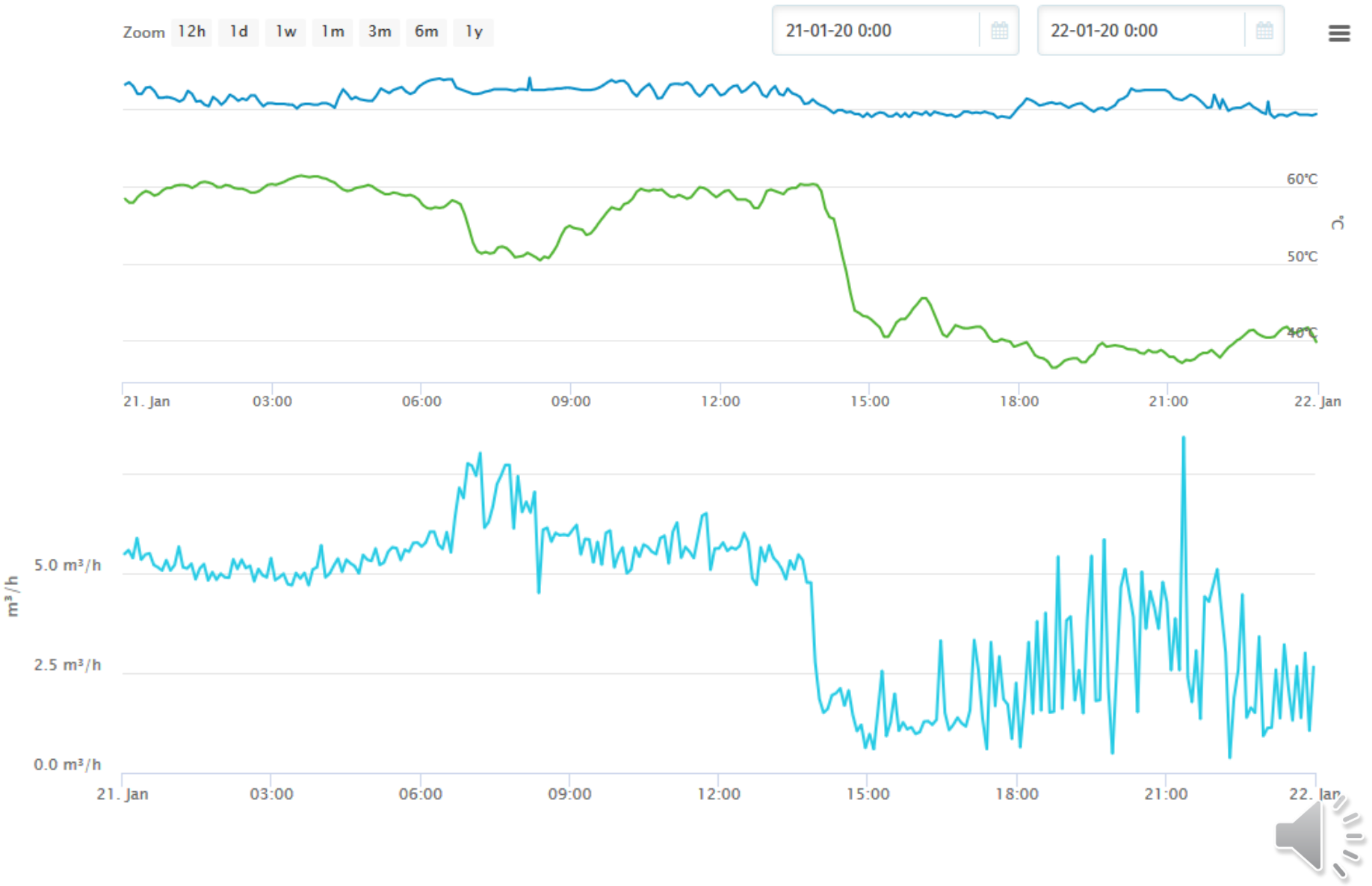
Site issues

- Overheating corridors
- High heat tariffs for residents
- Poor reliability of substation/HIU
- High cold water temperature

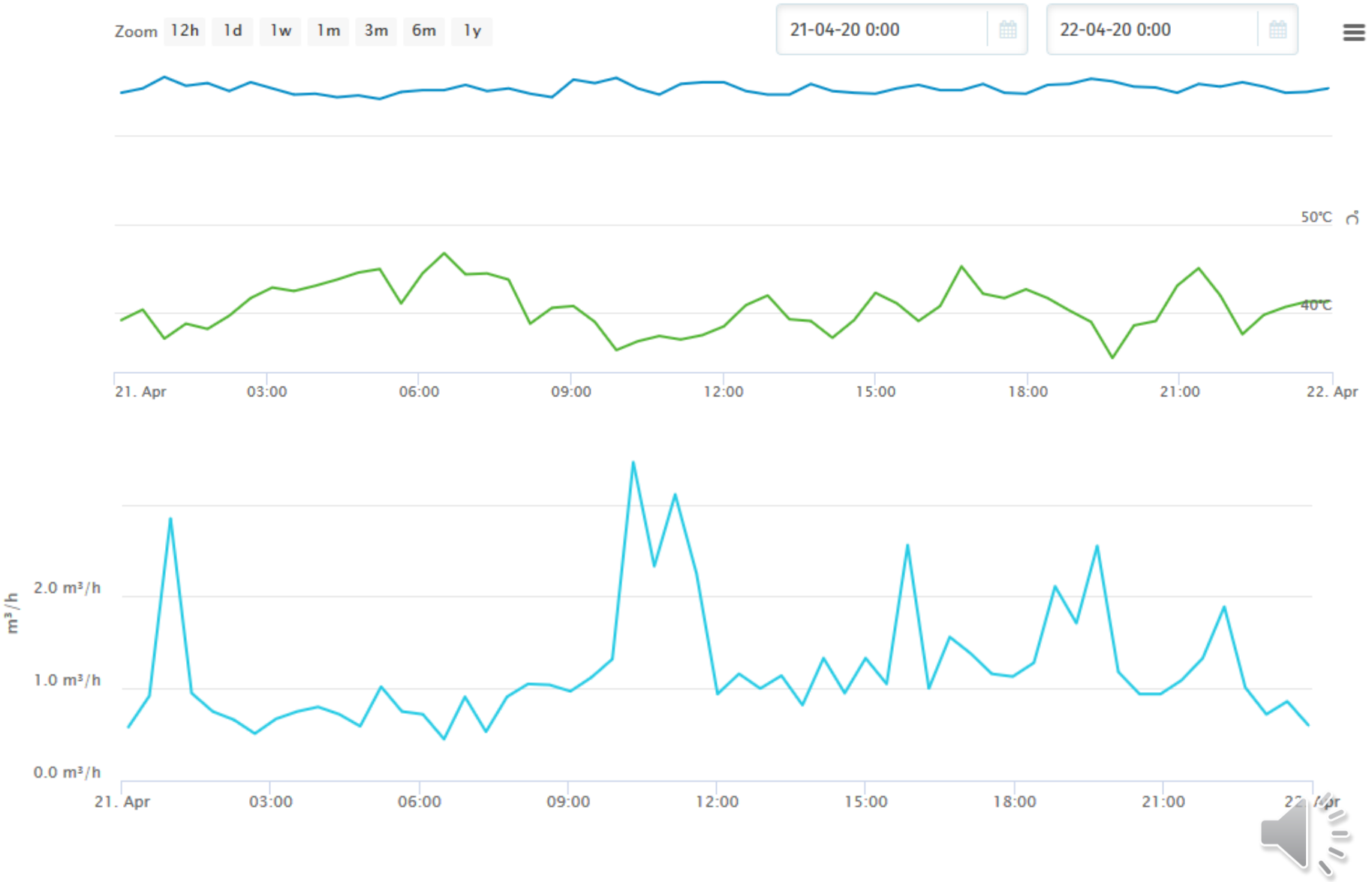
Halfway through retrofit



Replacing last HIU



Dropping flow temperature – 65 °C / 40 °C



Replacing oversized pumps

Summary

- High frequency data is vital:

  "If you cannot measure it, you cannot improve it"

- Dwelling data is essential for maintaining low return temperatures
- Dwelling performance dictates heat network performance
- Data provides insights into potential for reducing operating temperatures

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