

Pressure situation in low temperature network with a third distribution pipe

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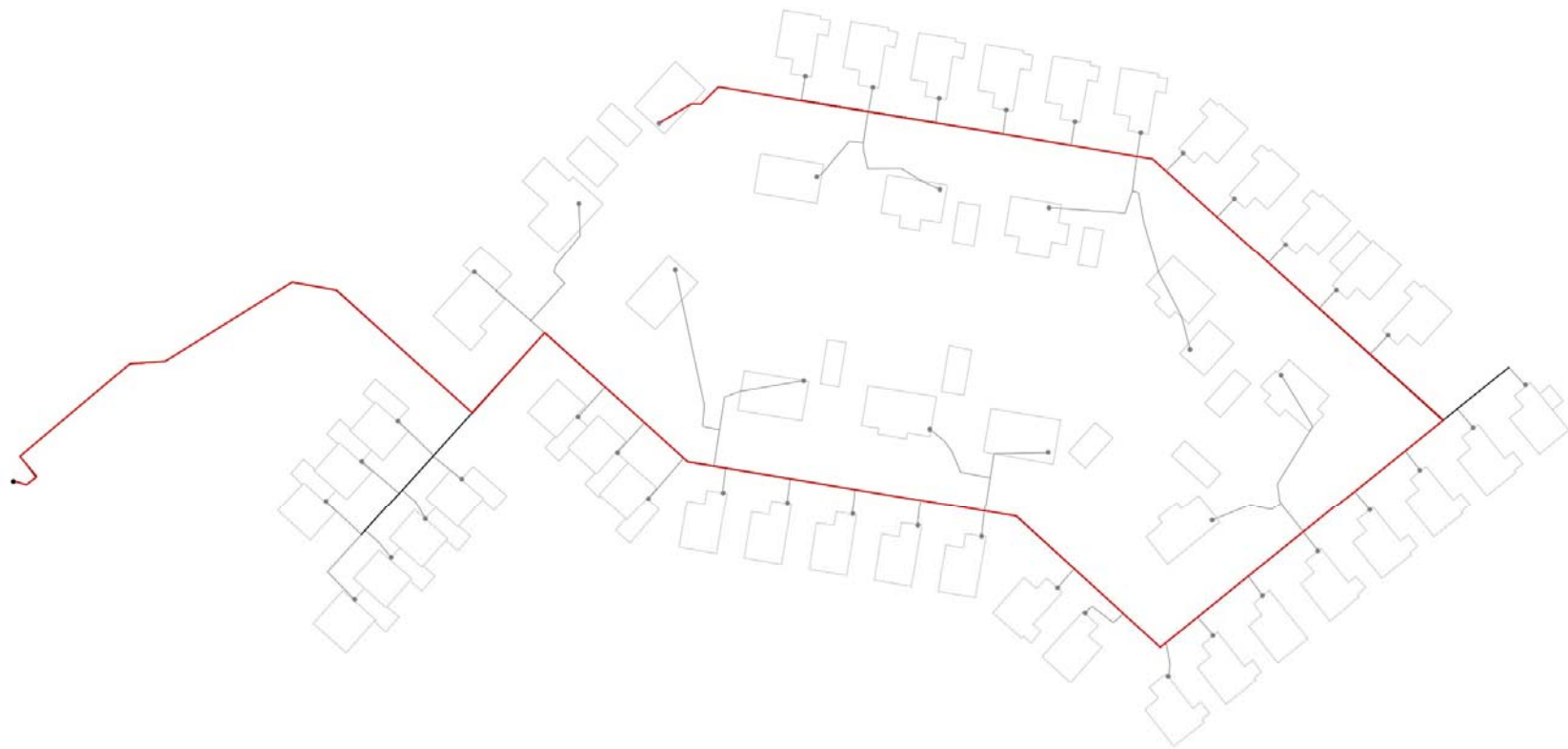
Outline

- Terminology
- Previous work
- Research questions
- Preliminary results
- Conclusions

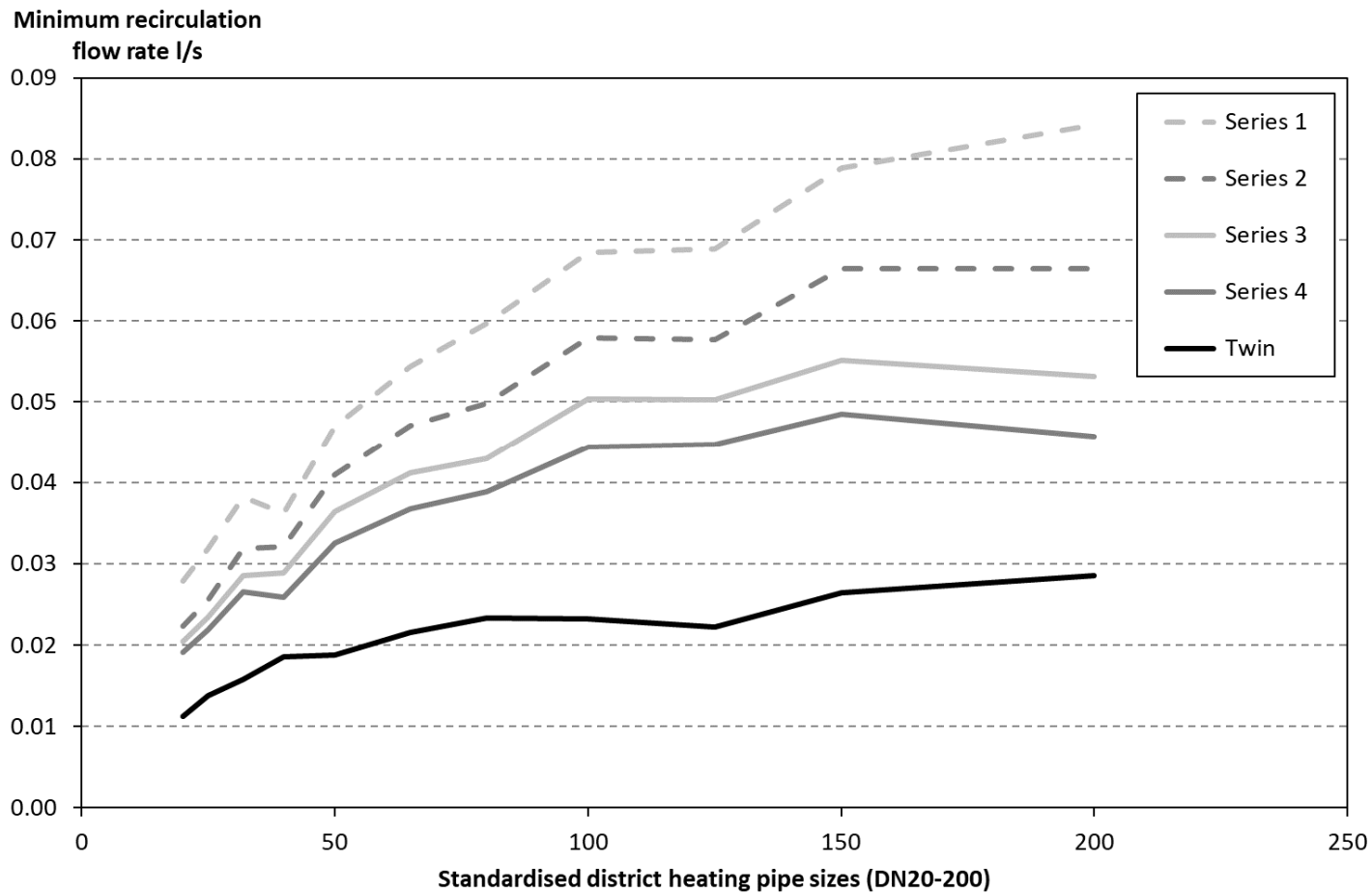
Terminology

- 4GDH-2P (two pipes) one return pipe (common)
- 4GDH-3P (three pipes) two return pipes (delivery and recirculation)
- Temperature contamination
- Temperature degradation
- Displacements (0-4)

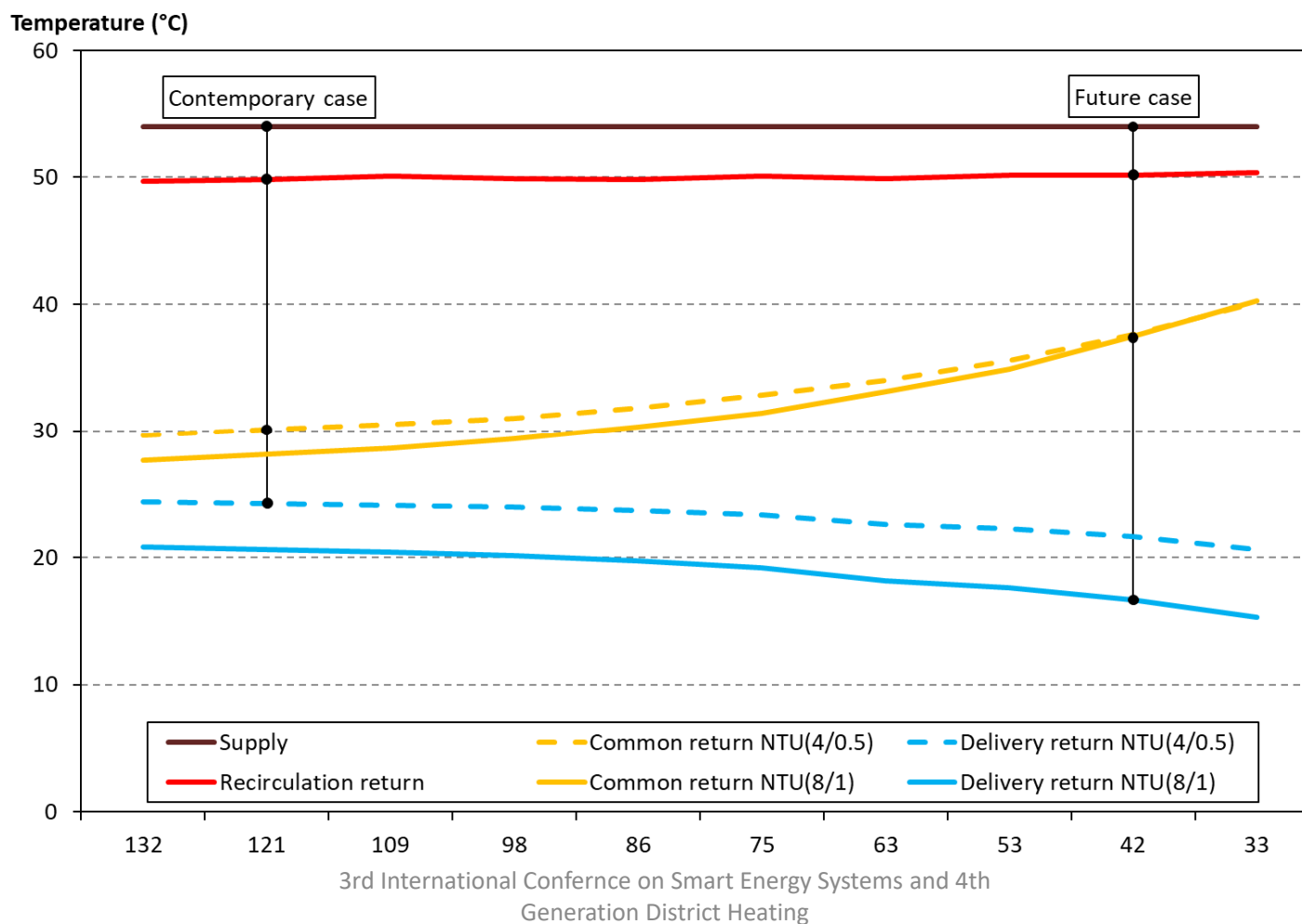
Previous work – Case area network



Previous work – Minimum flow recirculation pipe



Previous work – Temperature situation



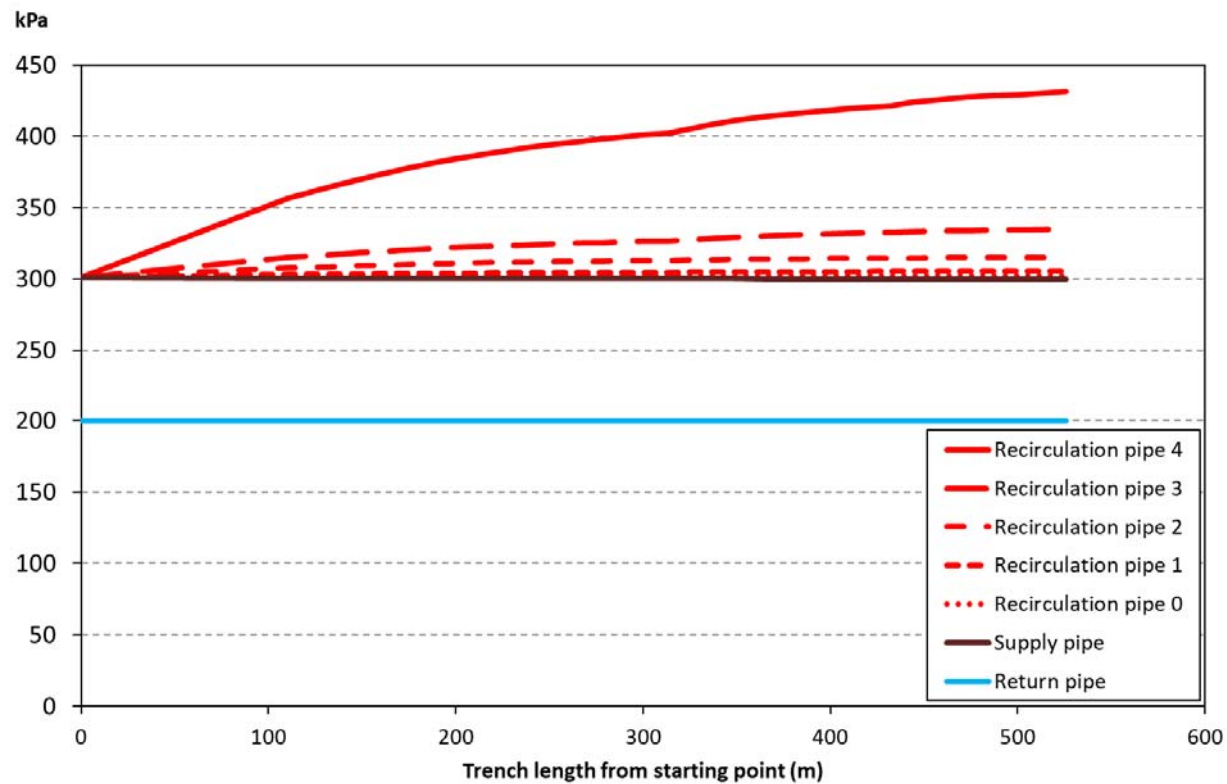
Research questions

- Pressure situation at design conditions (total and specific)?

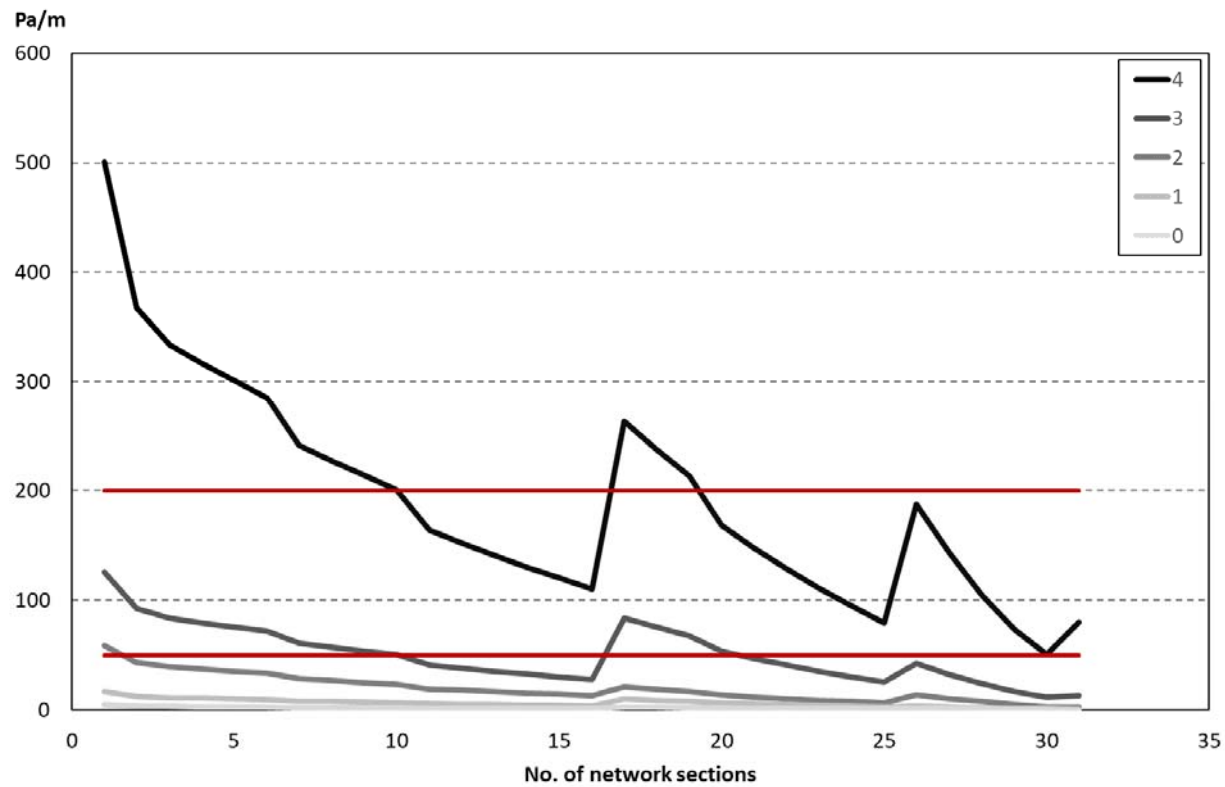
How narrow can recirculation flow pipes be?

- How does heat transfer rate for different pipe configurations compare?

Preliminary results – Pressure total



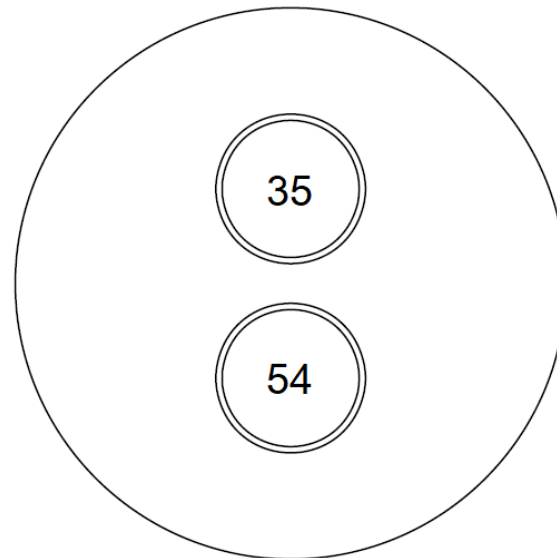
Preliminary results – Pressure specific



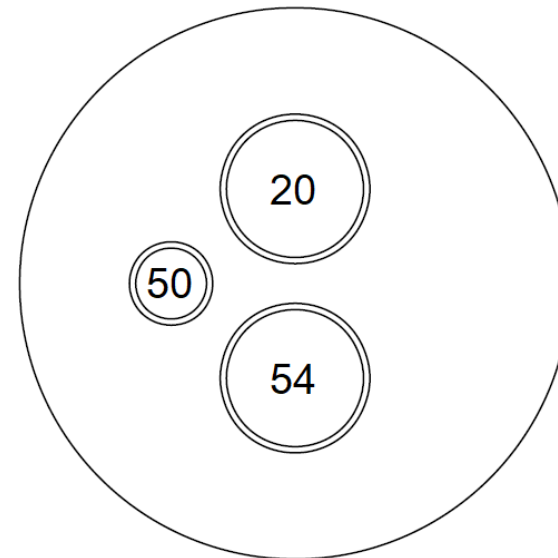
Preliminary results – Temperature levels

DN65 - Series 3

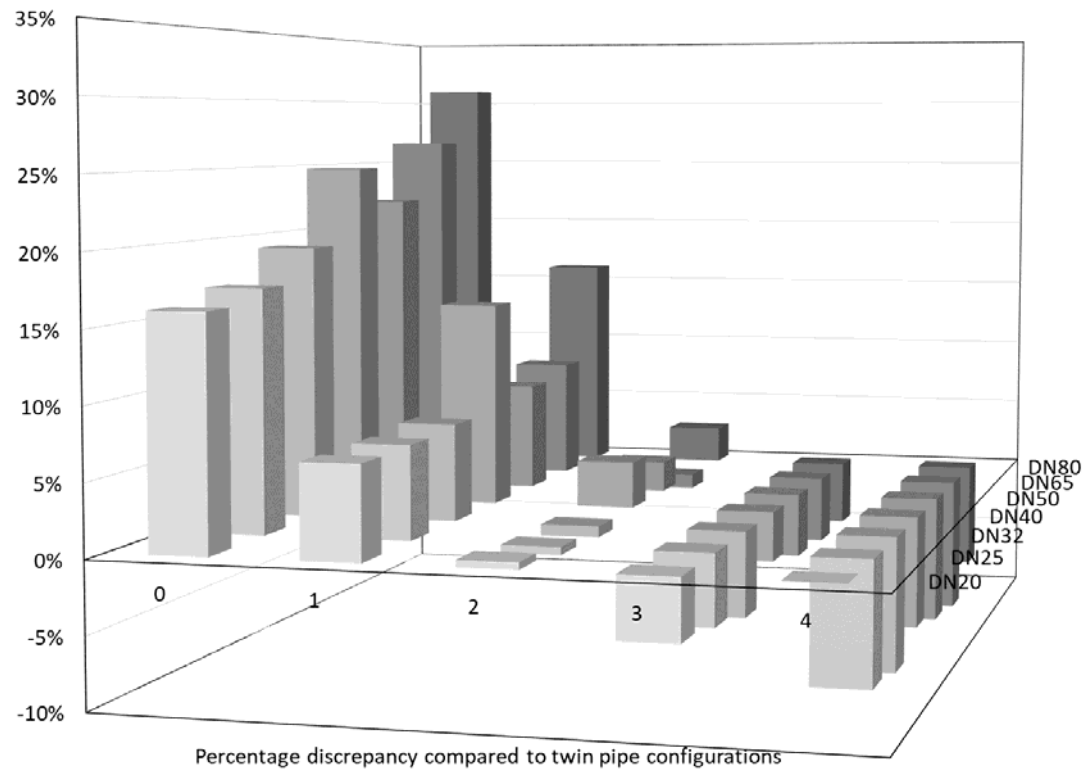
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Preliminary results – Heat transfer rate (Series 3)



Conclusions

- Recirculation pipe can be 2 or 3 standard DN pipe sizes smaller
- Heat transfer rates for triple pipes with 2-3 displacements appears to be equivalent to that of ordinary twin pipes

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