Performance of Heat Networks

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Vattenfall Introduction

Vattenfall operate across the energy sector with the aligned vision of enabling fossil free living within a generation

• One of Europe’s largest producers of electricity and heat
• Main markets: Sweden, Germany, Netherlands, Denmark and the UK
• About 22,000 employees
• 100% owned by the Swedish state
• 1.7m connected heat customers
Topics

• Measurement of Heat network carbon performance
• Design, Install and Acceptance of Heat Networks
• Digitalisation of Heat Network
# Measuring Carbon

## Stake Holders

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Planning (Future)</th>
<th>Building Regs (Future)</th>
<th>Stakeholder Carbon Ambitions (Future)</th>
<th>ESCO Generation (Future)</th>
<th>Operational (Historical, Real Time and Future)</th>
<th>Non-Financial Report (Historical)</th>
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## Sources

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Design, install and acceptance

Design Liability

- Conservative estimates and demand curves from non UK averages, combined with contractual design liabilities of meeting network peak demand often leads to oversizing of plant rooms

Ongoing Network Extension

- Energy centre designed and commissioned to meet its full demand capabilities, this results in network performance particularly the ΔT earlier on

Project Timescales

- Identified snags not closed out at the point of handover often taking weeks/months to close out
Digitalisation

Cost Engineering
• Loss of useful data to allow finding areas of to improve performance

Hardware Performance
• Low meter read performance creating gaps in the useful operational data

Diagnostics and rectification
• Under performance of heat networks remains undetected for long periods of time
Recommendations

- Improvement in Design
- Industry wide carbon measurement and reporting methodology
- Further Digitalisation - more measurements to target performance improvement
- Improvement in the operations of heat networks
- Influence customer behaviours
Thank you!

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