Heat Networks 4.0
maximize renewables – minimize heat losses –
100 year life-time – faster implementation
Try to make your environment as silent as possible. While not talking... **mute your mic 🎤**

**Q&A** | If you want to ask a question, just:

a) Type your question in the **Conversation box 📩** and then select **Send 🔄**

**OR**

b) Select **Raise your hand 👋** in the meeting controls. Please unmute when asked to speak.

**Important:** If for some reason you have technical difficulties and you leave the event, you can click the event link again to re-join.
What you will get

- Heat Networks 4.0 explained
- Challenges & Advantages
- Insights on DH Piping systems
- Use Case Villach Landskron
  - From Low Temp DHC to Cold DHC
  - Temperature levels and heat losses/gains
  - Use Cases / Lessons Learned
  - Future Development
Challenges for existing DH Networks

- Flow temperature for older buildings (existing contracts)
- Non-optimised heating systems
- Transport capacity of DH networks at lower flow temperature
Challenges for New built areas

- Low heating loads in new construction areas
- Min. temperature of Hot water (Legionella prevention)
- Non-optimised heating systems in the buildings
Heat Loss reductions up to 50%

Annual Heat Loss in MWh 1km network

- Steel pre-insulated Series 1: 100%, 79%, 65%, 50%
- AustroPUR: Equal to steel series 2
- AustroPUR Plus: Equal to steel series 3
- AustroPEX: 95°C/65°C, 80°C/50°C, 70°C/40°C, 60°C/30°C

Flexible Heat Networks

Austroflex®
Overall Lower CAPEX with Plastic vs Steel

75% Installation time savings

30-40% Smaller trenches = less civil works

0-50% Additional costs for the plastic pipes (only 20-30% of the total costs)
For highest quality plastics acc to EN 15632

15-20% Overall Savings with plastic pipes
DN 20 to DN 150
Life-time increase to 100 years
acc to EN 15632 for PE-Xa – for temperatures operating 24/7

- 100 years at 65°C
- 55 years at 75°C
- 32 years at 80°C
Use Case - Energy Island Landskron, Villach AT
finalized 2017/18

217 Apartments (24,000 m²) with Apartment stations

Energy sources/Storage

Solar thermal: 970 m²
(originally planned: 1,400 m²)

Heat Storage: 68 m³

Ground water heat pump: 149 kW

District heating: max 2 MW

753m DH Network (65°C/35°C) with AustroPUR plus high flexibility & best insulation
Use Case - Energy Island Landskron, Villach AT

Project costs 20% higher compared to a Biomass DH

Actual Supply temp: 65-72°C (average 67°C)
Actual Return temp: 35-42°C (average 37°C)

Some Consumer expect lower heat prices (Solar thermal = free energy)
Use Case - Energy Island Landskron, Villach AT

2019: 20,000kWh
Solar heat supplied into DH Villach

Monitoring results
Dec 2018 - Nov 2019

Solar: 32%
Heat Pump: 11%
DH: 57%
Heat Networks 4.0 - Conclusions

Lowest Heat loss
Save add. 36% with S3

100 years life-time
with 65°C 24/7h

Fast & Cost efficient networks
Save 75% in installation time

THE highly flexible &
energy saving solution
Austroflex solutions for Landskron and HTDH

Low Temperature systems for temperatures below 95°C

Mineral wool segments for storage tanks and pipelines

Solar thermal pipe systems for underground and above ground

Flexible Heat Networks

Austroflex®
Thank you!
Questions?

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Flexible Pipes for efficient District Energy Networks
Summary

• Heat Networks 4.0 = Low temperature DH systems (65°C and below) are successfully installed
• Cold DH - a special concept that is quite different to 3rd and 4th generation DH
• Challenges in all phases – Design-Installation-Operation
• Experts from AEE-INTEC and AUSTROFLEX are happy to go deeper into your projects

Thank you for joining!