Green deal impact of DHC networks: how best preforming piping systems make DHC even more attractive

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Sustainable Cities are key to EU green deal

Source: Euroheat & Power
With Low Temperature District Heating
up to 50% Savings

Annual Heat loss at various Supply/Return Temperatures in MWh

- 95°C/65°C
- 80°C/50°C
- 70°C/40°C
- 60°C/30°C

Steel pre-insulated Series 1
- 100%
- 79%
- 65%
- 50%

AustroPUR

AustroPUR Plus

AustroPEX
Life-time increase to 100 years  
acc to EN 15632

24/7 operation time

<table>
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<th>Operation-Temperature °C</th>
<th>Maximum Pressure SF 1,25 bar</th>
<th>Minimum-Life Years</th>
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There is more to save...
Eiif Study shows savings with Valve insulation equal to 20,000km with an E-Car

**NON-INSULATED VALVE**
- Size: DN 150
- Temperature: 150 °C
- Operational time: 8,760 hours/year
- Energy loss per year: 10,600 kWh

**INSULATED VALVE**
- Energy loss per year: 600 kWh
- Energy savings per year: 10,000 kWh
- Savings equal to 20,000km with E-Car

Source: Eiif Study 2021 - www.eiif.org
Key for DH Networks:
Selection of the best insulated solution

Annual Heat Loss in MWh for 1km network DN20 – DN100

- Steel pre-insulated Series 1
- AustroPUR
- AustroPUR Plus
- AustroPEX

- 95°C/65°C
- 80°C/50°C
- 70°C/40°C
- 60°C/30°C

- + 56% to steel series 3
- + 15% to steel series 3
- Equal to steel series 3
- >100% to steel series 3
38% savings with best insulated DH pipes Series 3

Annual
Heat losses of DH pipes typically used today
188,0 MWh/km (typical product mix)
38,17 t CO2 – Equivalent per km

Annual
Heat losses of best insulated DH Series 3
115,0 MWh/km
23,35 t CO2 – Equivalent per km
> 14,82 t CO2 – Savings per km (= 38%)

Based on Diameter Range DN20 – DN 100
Saving Potentials with DH pipes Series 3 in Austria & Germany

CO₂–Equivalent for new DH networks built 2021-2030
→ 2030 Austria: 40.800 t CO₂ - Equivalent
→ 2030 Germany: 408.000 t CO₂ - Equivalent

Km – Equivalent E-Car
2030 Austria: 460.000.000 km equals to 23.000 E-Cars*
2030 Germany: 4.600.000.000 km equals to 230.000 E-Cars*

*Calculated with 20.000km annual usage
Villach: Energy Island Landskron
finalized 2017/18

Customers:
217 residential units 24.000 m²

Energy sources:
Solar thermal: 970 m²
Ground water HP: 149 kW
District heating: max 2 MW

DH Network:
Trench length: 753m
Villach: Energy Island Landskron Experiences

- Apartment stations require min. 65°C
- 65% of supplied heat from Solar thermal & Geothermal

- Flow/return: 67°C / 37°C
- 750m DH network with AustroPUR Plus
- Heat loss: 5.6%
There is a lot to save......

- 50% savings with 35K lower network temperatures
- 20,000 km E-Car equivalent with 1 single valve insulation

- 38% savings with highest insulation level for DH pipes S 3
- 15 t CO2 Equivalent per km DH pipes Series 3
Let's do it!

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