kamstrup

kamstrup

Metering and Digitalization in DHC

Toward efficient heat distribution networks
Webinar, March 26, 2020

Steen Schelle Jensen
Head of Business Development, Heat/Cooling
ssj@kamstrup.com

kamstrup

District heating can decarbonise heating of buildings

Increased energy efficiency and a fully optimised system is necessary to support the green transition and the competitiveness of district heating

More sustainable

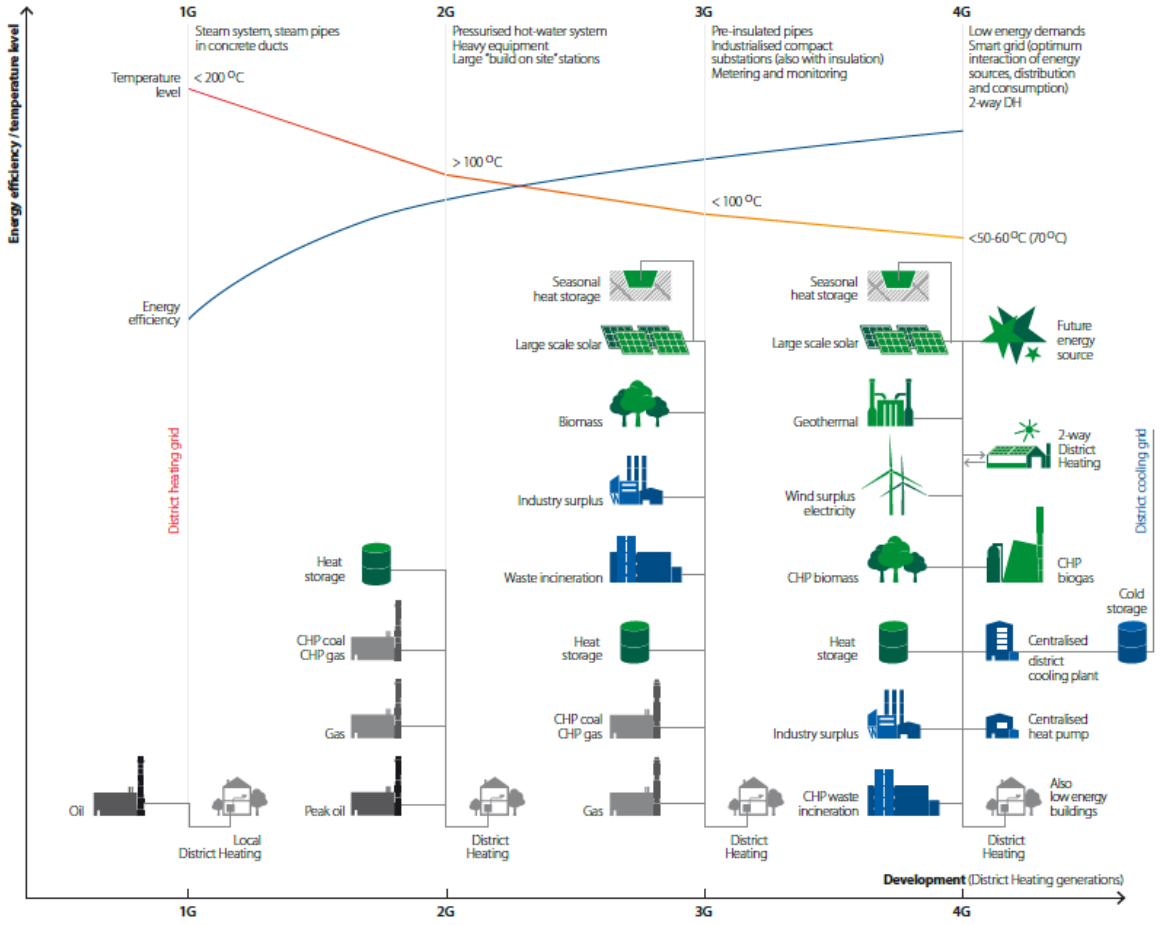
- More renewable energy and waste heat
- Sector integration

More efficient

- Lower temperatures, reduce losses, run closer to limits
- Improve heat installations and take use of building flexibility

More profitable and competitive

- Lower operational cost (OPEX)
- Improved asset management (CAPEX)
- Attractive to end-users



Navigating an increasing complex world

New demands . New possibilities

- Achieving low temperature district heating
- Target maintenance to where it makes most sense
- Document delivery quality, like sufficient supply temperature
- Identify customers with inefficient heat installation
- Selecting the right solution for metering and analytics
- Locate heat loss in distribution network
- No insight regarding capacity issues into the distribution network
- Find leakages
- Data protection

New demands New possibilities

2020

October 25, 2020
All meters installed after this date must be remotely readable.

Information to the end-users on a quarterly basis

Pay attention to the definition of *Final customers* and *Final users*

2022

January 1, 2022
Information to the end-users on a monthly basis

2027

January 1, 2027
All existing meters must be upgraded to remotely readable meters

...and New possibilities to optimise your business

Measurable results
- optimisations based on frequent data

Assens District Heating

ROI 4-5 years on investment in new meters, radio network, READy and Heat Intelligence.

> There is a paradigm shift underway throughout the whole value chain, which is supported both politically and regulatory. Digitalisation is charging ahead and will continue to do so."

- Network temeratures lowered by **6-8°C**
- A **2,5%** reduction of the annual heat production
- A **12%** reduction of pipeline losses

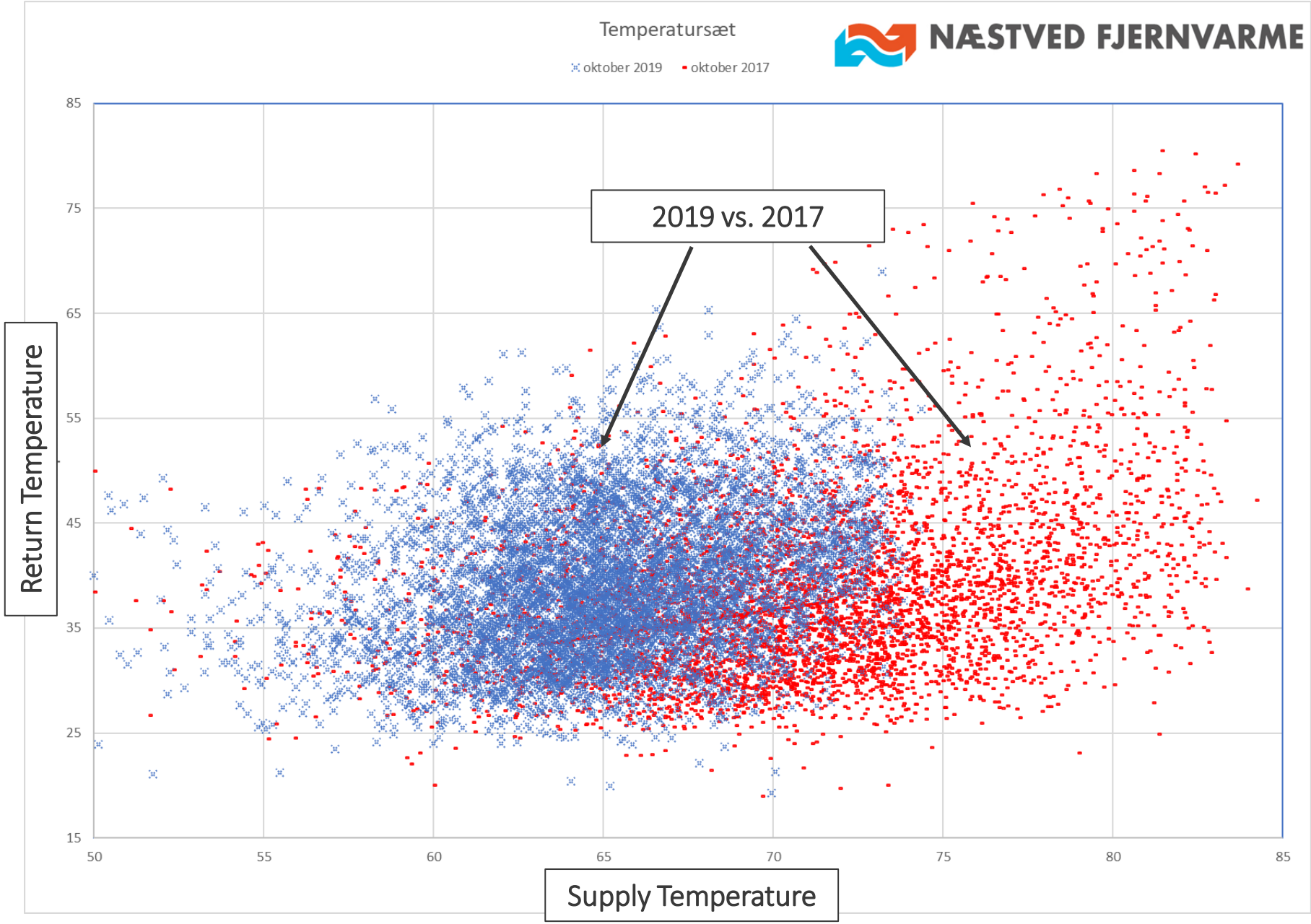
Næstved District Heating

10% less pipeline losses alone represents significant annual savings without even touching the assets underground.

> We have lowered the return temperature by 5 degrees, and, for large periods of the year, we have lowered the forward temperature by up to 10 degrees."

- Reduced return temperature by **5°C**
- Reduced flow temperature by **10°C**
- Reduced pipeline loss by **8%**
- Reduced customer heating bills up to **10%**

kamstrup


Temperatursæt
NÆSTVED FJERNVARME
oktober 2019
oktober 2017
2019 vs. 2017
Return Temperature
Supply Temperature
85
75
65
55
45
35
25
15
50
55
60
65
70
75
80
85

Kamstrup's
Thermal Energy Meters

MULTICAL®

Everything starts with the meter - the basis for getting new and critical knowledge about your network and end-users.

Secure investments

Basis for optimisation

Reduce operational costs

Delivering new technology and high quality- better basis for optimisation

Complete meter portfolio

- Clear overview and minimised unforseen costs
- High quality
- Longterm accuracy
- Long lifetime
- Low risk of breakdown

Continuous development in communication technologies more than a meter for billing.

Protect your investment in smart meters with extended warranties giving you full coverage, if a meter should malfunction.

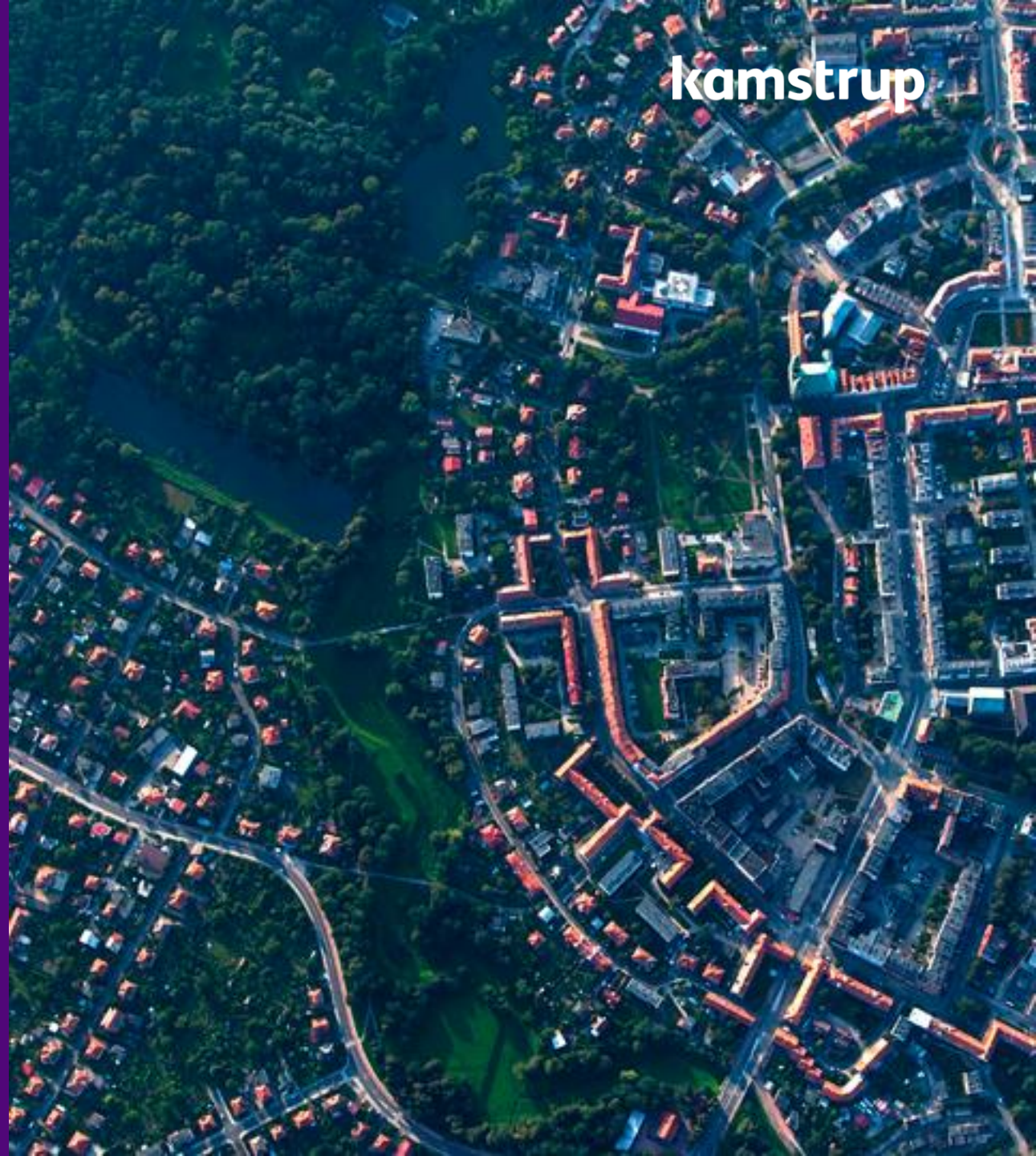
Communication

The meter’s ability to communicate is crucial for the type of data that you can retrieve. Both for the utility and inside the building.

The broadest range of communication options

Flexibility

High performance and low total cost of ownership



NB IoT – new communication option for Kamstrup heat meters

- Fully plug'n'play – 8 years subscription included
- Deep indoor coverage
- Up to 16 years battery lifetime - depending on coverage

Flexible solution

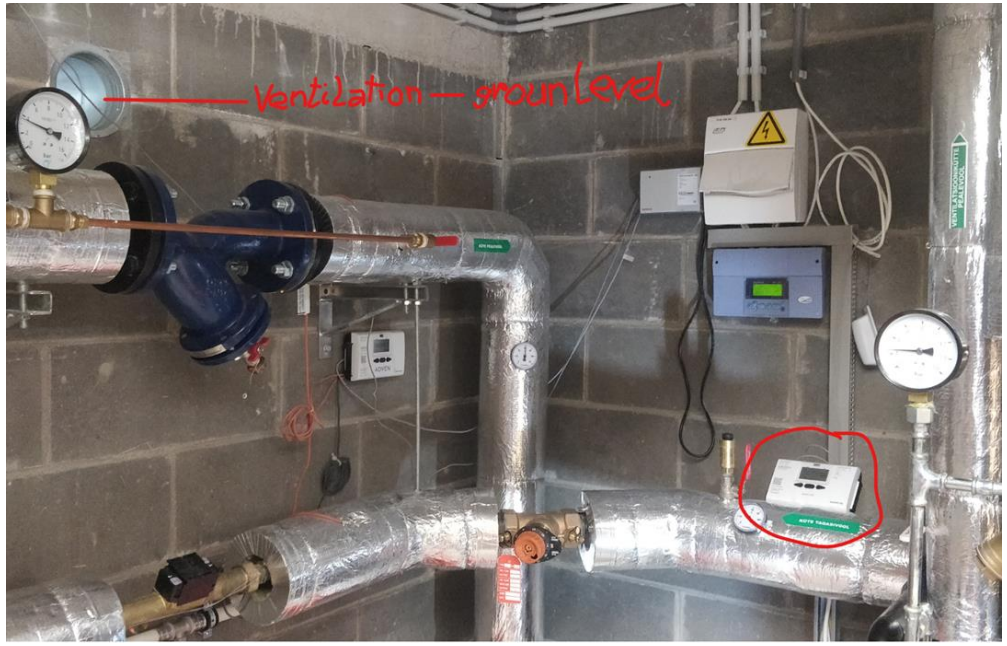
- Works with both Kamstrup and 3rd part systems
- Flexible datagrams and transmission intervals depending on your needs (15 min, hourly, daily)
- End to end encryption with individual keys

Readings

Estonia #2, Telia, Kuuseheki 52

Period: Custom Start date: 10/10/2020 End date: 20/10/2020

Reading time	Energy 1 Heat energy	Energy 3 Cooling energy	Volume 1	Consumption (V1)	Consumption (E1)
Meter: **KAM80641745** (25/09/2020 -)					
20/10/2020 15:10:00	15079 kWh	0 kWh	223.34 m3	0.04 m3	3 kWh
20/10/2020 15:05:00	15076 kWh	0 kWh	223.30 m3	0.04 m3	3 kWh
20/10/2020 15:00:00	15073 kWh	0 kWh	223.26 m3	0.04 m3	3 kWh
20/10/2020 14:55:00	15070 kWh	0 kWh	223.22 m3	0.04 m3	2 kWh
20/10/2020 14:50:00	15068 kWh	0 kWh	223.18 m3	0.04 m3	3 kWh



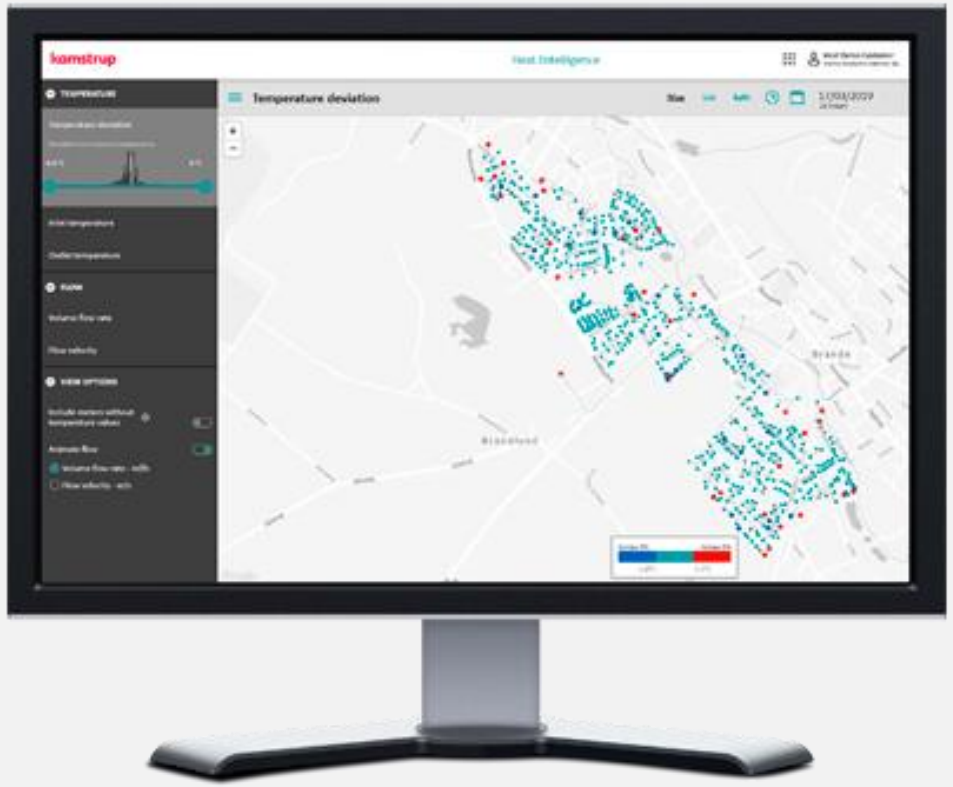
Heat Intelligence Analytics

Heat Intelligence is a cloud-based analytics platform – enabling value creation via data analytics throughout your value chain.

Analytics based on facts instead of habit or “gut-feelings”

Reduce both operational costs and long-term investments

Innovative data-driven analytics



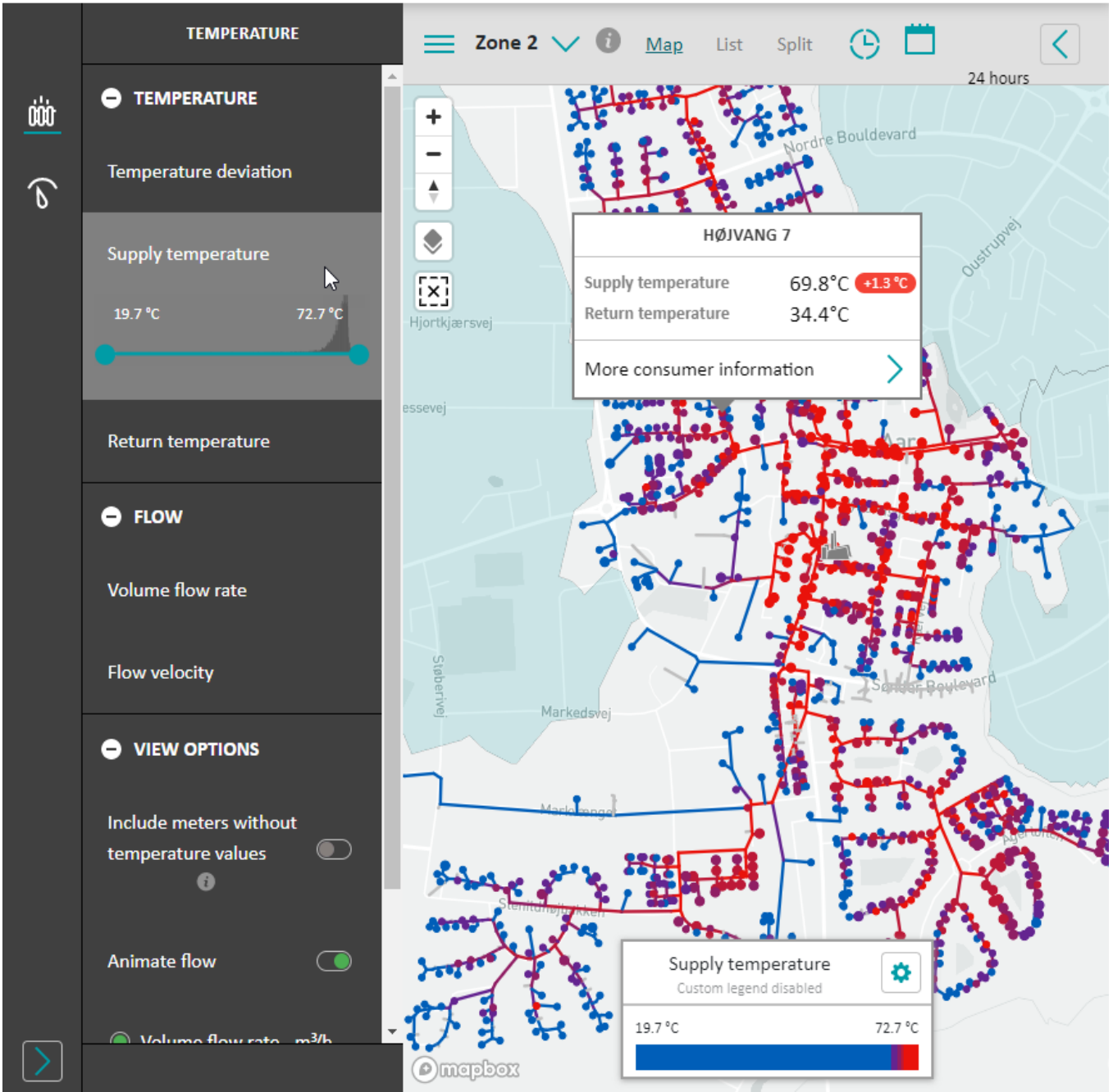
Analytics you can act on!

Developed in close collaboration with district heating utilities

New level of transparency in your distribution network, - all done without investing in additional expensive sensors in the field.

- Combining meter data with pipe characteristics
- Flow, temperature, pressure
- Determining the expected temperatures and visualizing deviations
- Multiple data sources deliver new insights
- Dynamically updated by real data

kamstrup



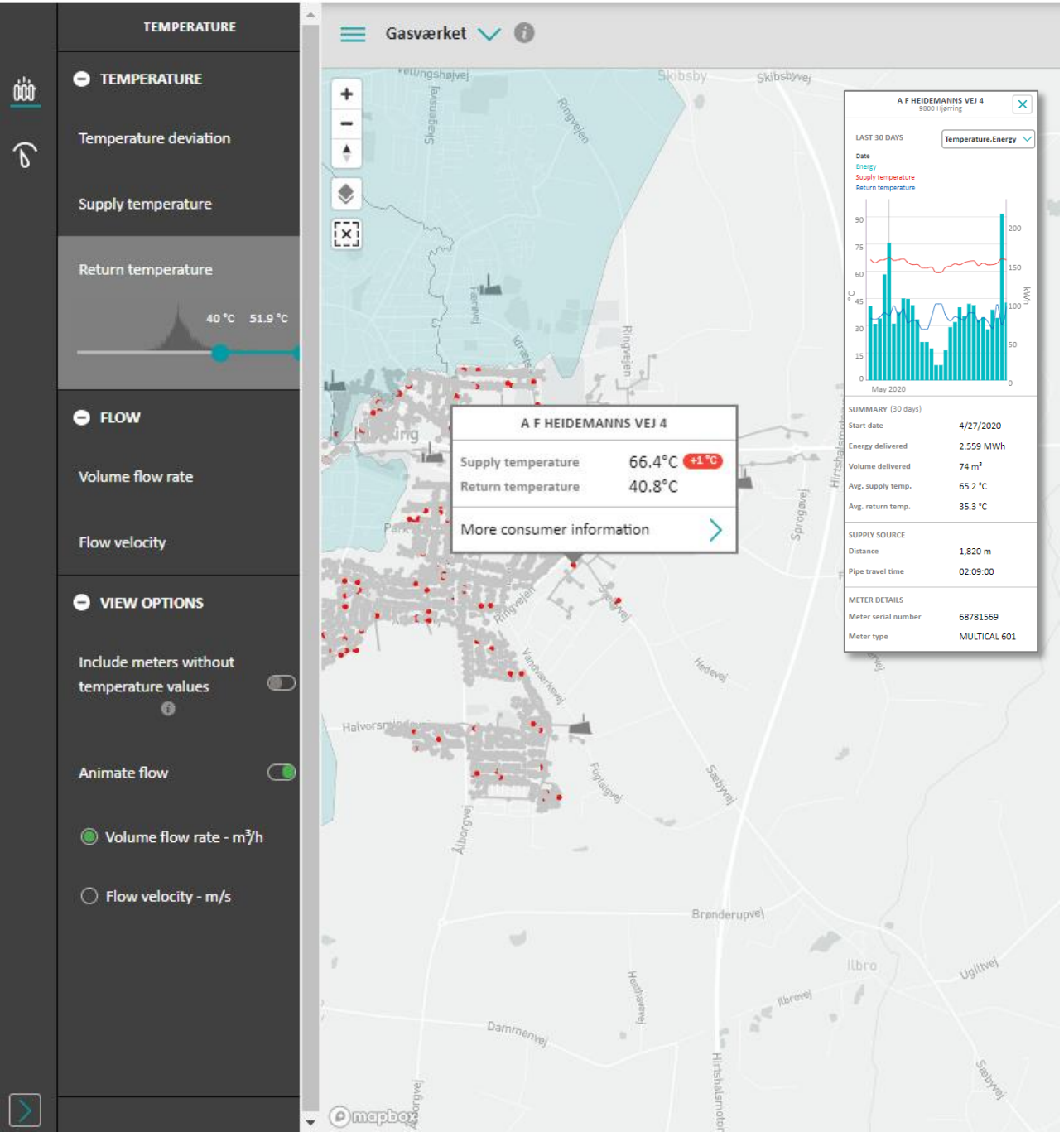
kamstrup

Easy & intuitive user interface

Heat Intelligence dynamically visualizes your entire supply area and make it possible to see immediate effects on the map when toggling between dates, filters and functionalities

Features

- Filter between different parameters, e.g. temperature, pressure, flow
- Select end points or pipe sections for more details
- Visualize results in graphs and over time
- Choose different views
- Choose date and time for analysis
- Export data



kamstrup

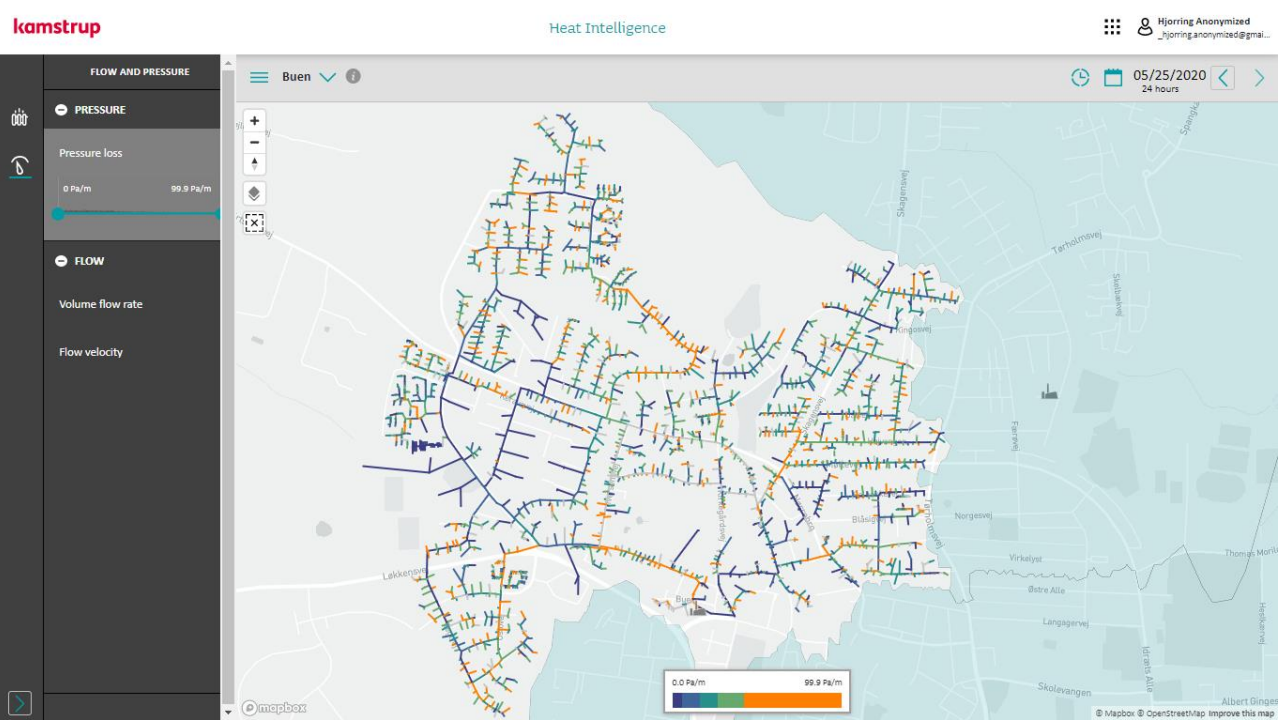
Analyze return temperatures

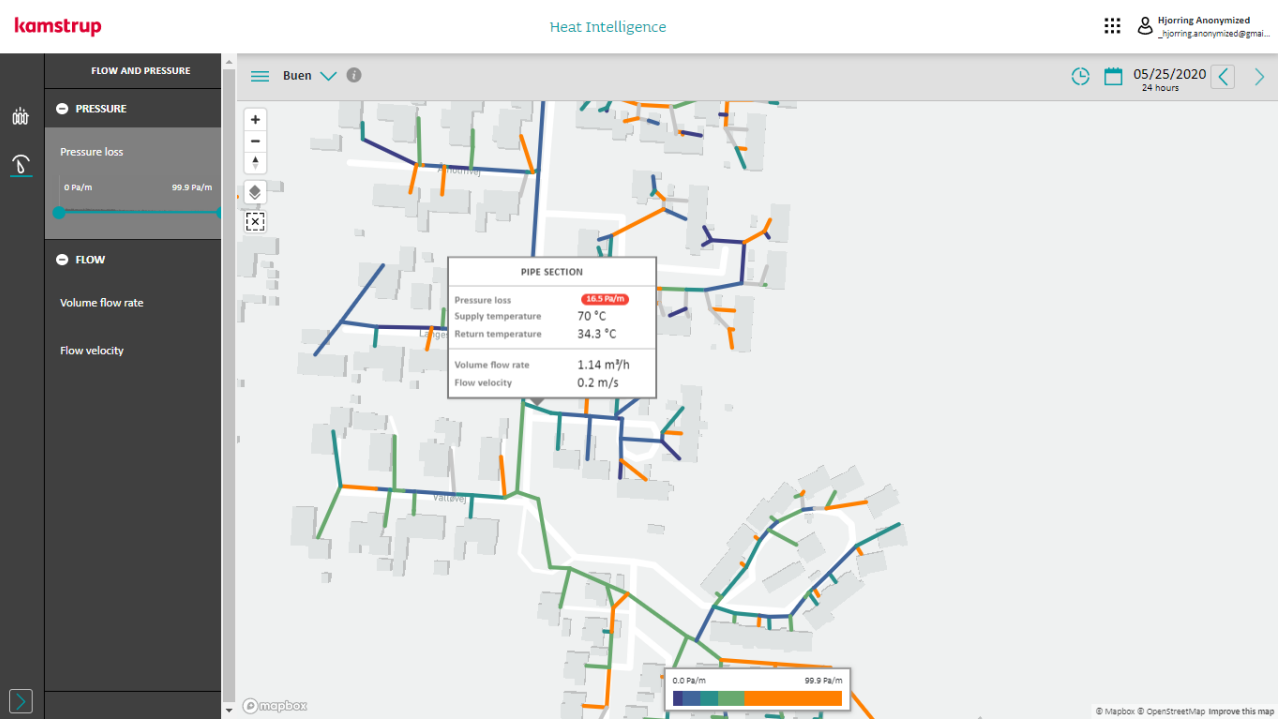
Low return temperatures reduce heat loss in the pipe network, minimize pump energy and ensure heat production can be done as efficiently as possible

Features

Filter on return temperature and find out if some end-users are sending the water back with too high temperatures

- Who are the end-users with highest negative impact on return temperature?
- Should motivational schemes be considered (cooling tariff, incentives for installation improvement, communication to initiate behavioral changes, etc.)?
- View return temperature details over time and evaluate if problems have occurred with the end-user heat installation





kamstrup

Pressure loss (gradients)

Visualizing pressure gradients per pipe section makes it possible to understand the dynamic load and capacity of the distribution grid and helps you optimize ROI of your asset management

Features

Filter on pressure loss to find out how your distribution grid is performing – in real conditions!

- How is your distribution grid performing during peak season / period?
- Do you have bottlenecks in the system which should be eliminated?
- Do you have enough capacity to extend your network?
- Where would you get most benefit (ROI) from your asset management/ renovation plan?

Measurable results
- optimisations based on data analytics

Small leakages and heat loss

Locate small leakages, poor performing transmission pipes and service pipes. Use this knowledge to optimize your asset management

> By changing 16 service pipes with wet insulation, we managed to reduce the energy need by 125 MWh”

Wet insulation

Insulation soaking wet, causing abnormal heat loss.
Diffusion from widely used pex pipes caused at drop of 10 degrees in 10 meters.

> As there was no burst or leak of water outside the pipe, other tools could not have revealed the poor performance"

kamstrup

Future:

Transparency, insights and much more data..!

In the future we will se even more value coming out of our data-driven solutions - always developed together with our customers

- Differential pressure
- Identification of specific heat loss in kWh for e.g. renovation plans
- Analysis of buildings and heat installations
- Simulations
- Supply temperature optimization
- …

kamstrup

Stay in touch

- and get access to the latest news

in linkedin.com/showcase/kamstrup-heat

Blog Kamstrup.com/blog

News Kamstrup Heat Newsletter

kamstrup

Questions?

Think forward

Steen Schelle Jensen
Head of Product Management
Phone +45 60 35 50 00
Mail: ssj@kamstrup.com
Kamstrup A/S