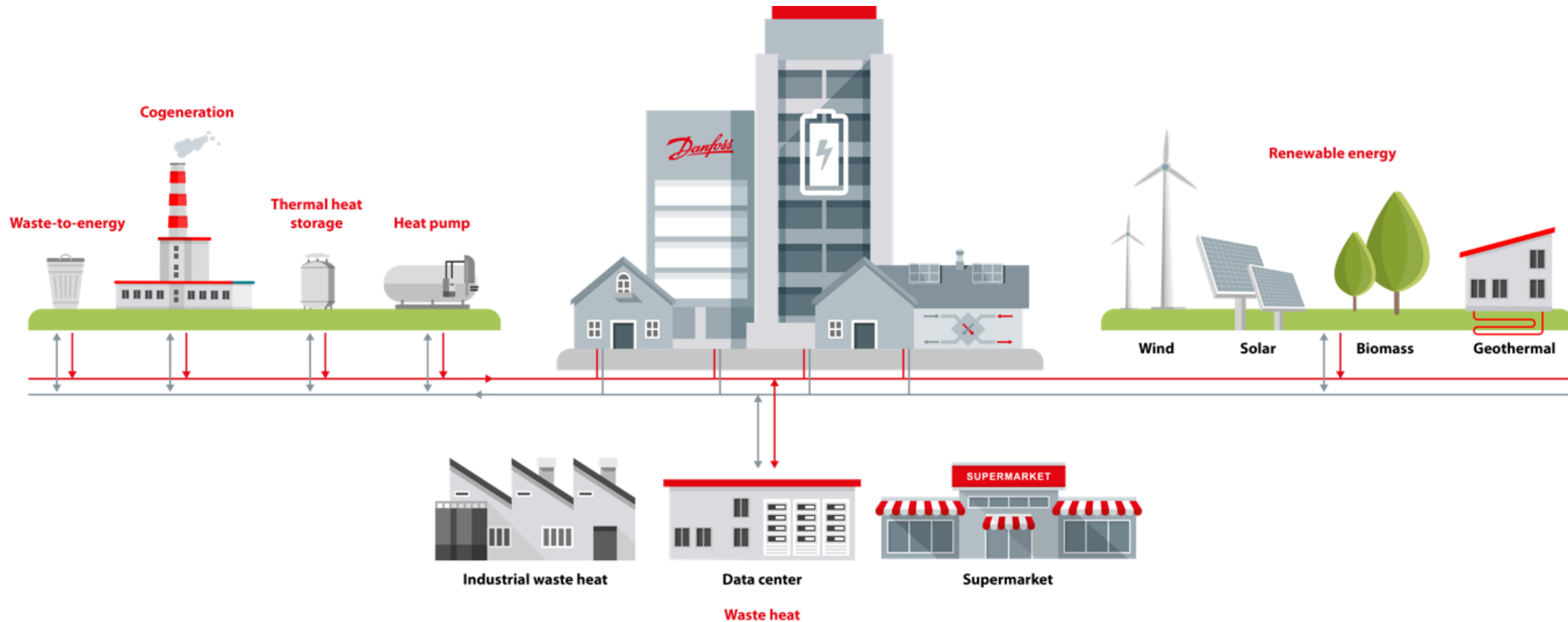


PRESENTING

Digital end-to-end optimization

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Trends driving the district energy evolution



From single source to...



MULTI-SOURCE

From fossil to...



**RENEWABLES &
SURPLUS ENERGY**

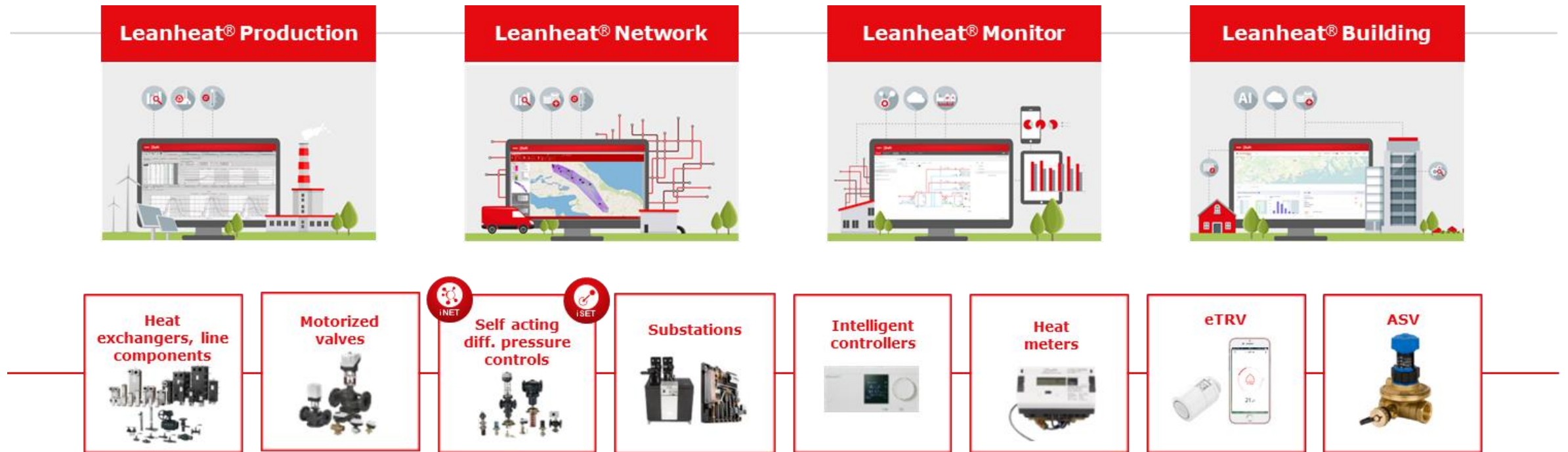
From high temperature to...



**LOW TEMPERATURE DISTRICT
HEATING**

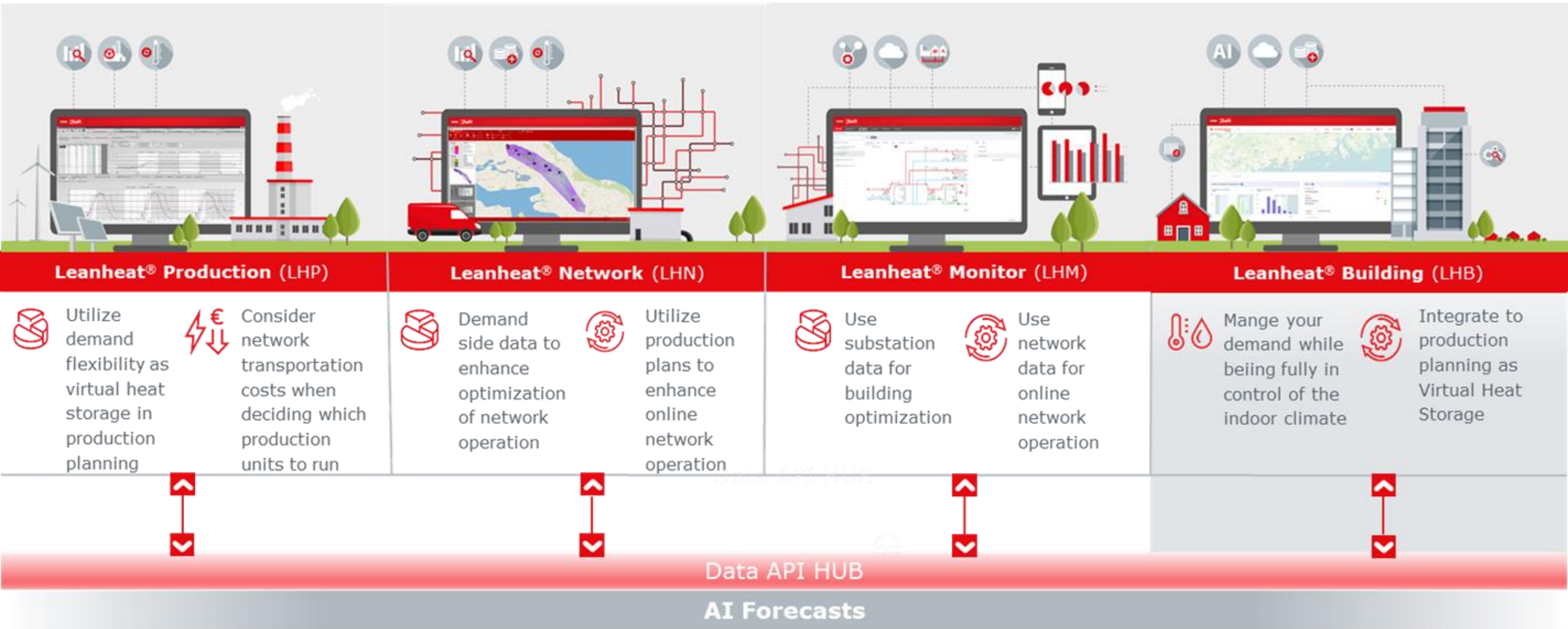
Danfoss Leanheat® is leading the green energy transformation

➤ A complete portfolio of products, components, and software for end-to-end optimization



Danfoss Leanheat[®] software suite & services

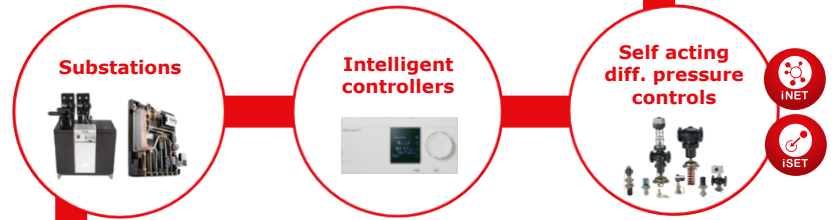
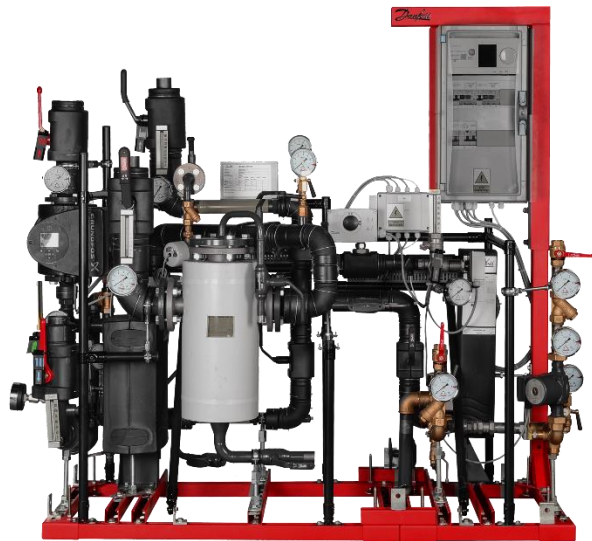
End-to-end energy optimization key values



Danfoss end-to-end district energy solutions

From components to optimization tools and services

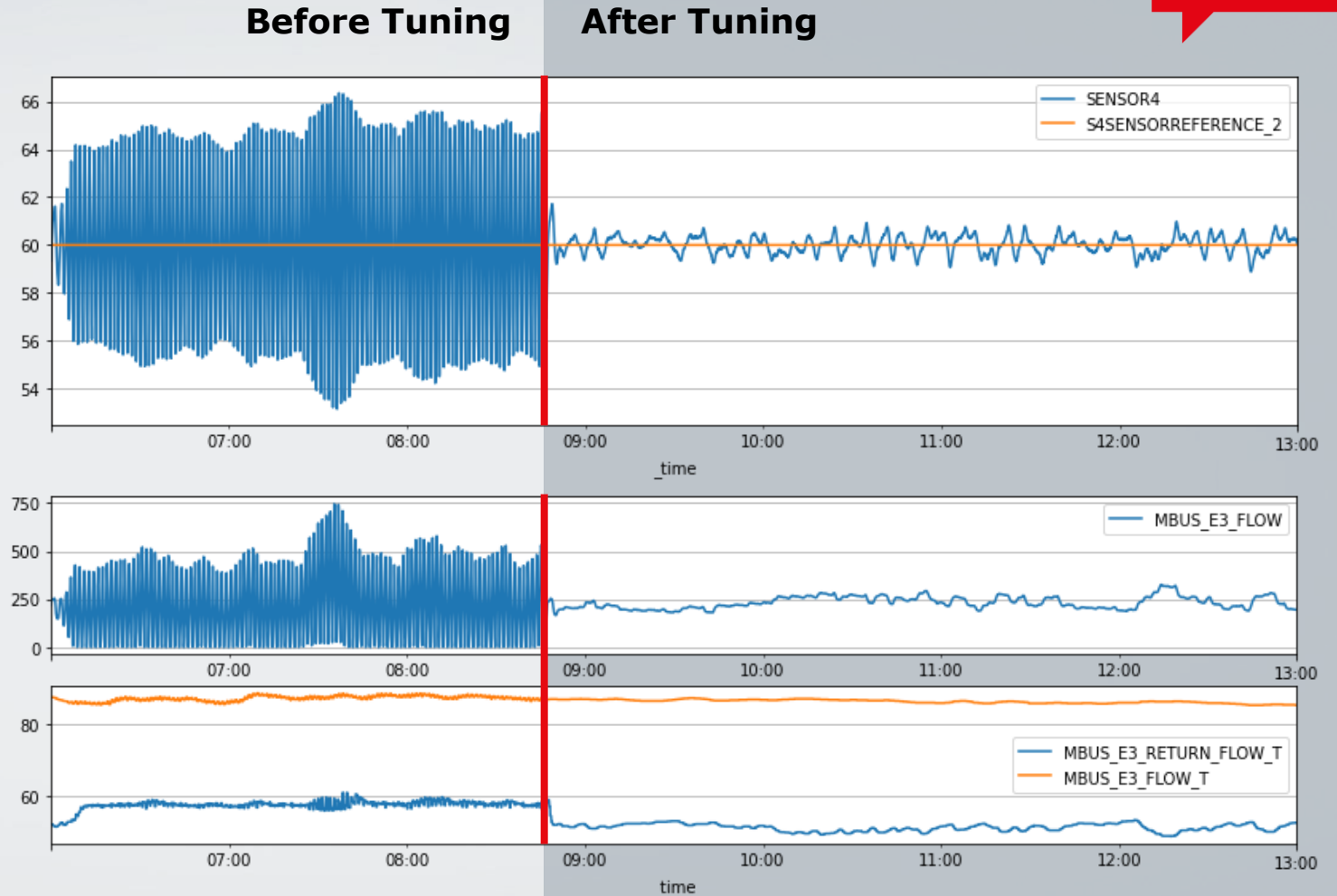
Titan™ by Danfoss



Monitor (LHM)

Data – PI tuning

- Operating point calculated from design data
- PI parameters calculated using substation model



Main challenges in District Energy

A changing world



ΔT Optimization

Economical balance between temperature and flow



Optimal Network Design

With new connections and new buildings



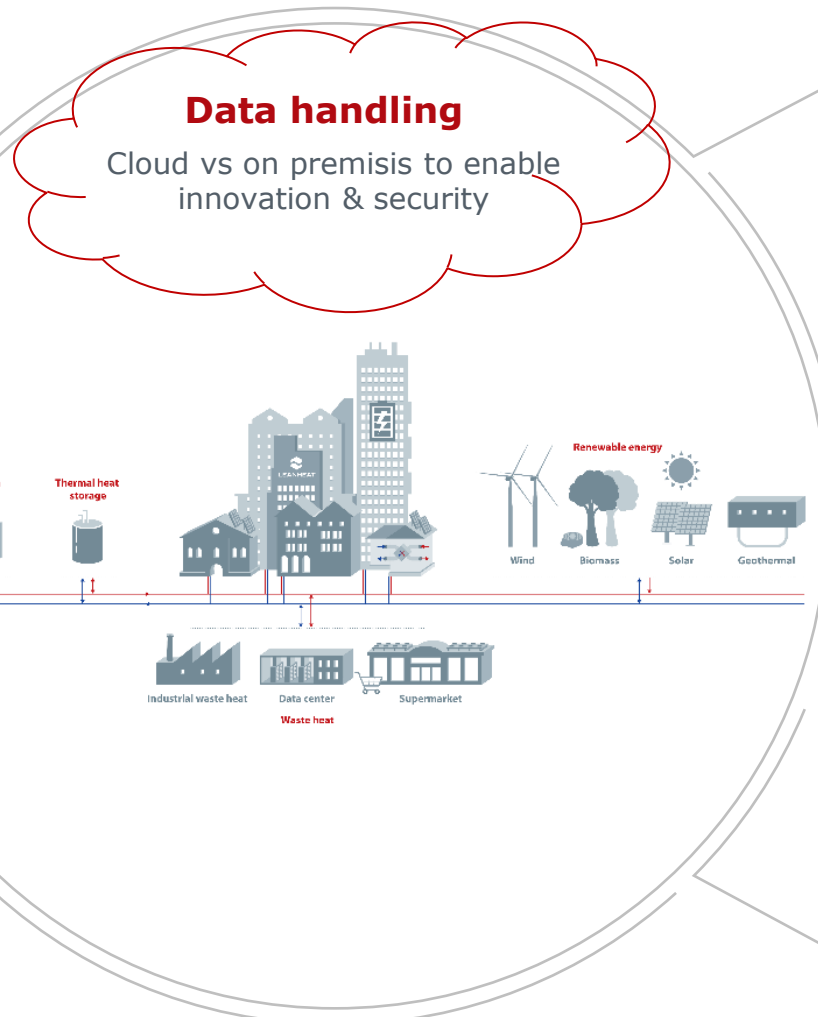
Decentralization - Increased source complexity

In production: more heat sources including renewables



Decarbonization

Legislation and environmental care / energy efficiency



Peak energy demand

Drives up overall cost (OPEX as well CAPEX)



Legacy SCADA

Make data integration less difficult and time consuming



Increase focus on business models

Create attractive business environment for future



Resilience

Secure high efficiency of operation in unexpected conditions





**ENGINEERING
TOMORROW**