# Optimized district heating demand

## Smart heat control for the tourism regions of tomorrow

Alpine regions with high tourism activity face particular challenges in district heating supply: fluctuating visitor numbers, unpredictable weather conditions, and seasonal peak loads make efficient planning difficult. The “Optimized District Heating Demand” best practice, developed within the framework of the Green Data Hub together with various partners, impressively demonstrates how an intelligent data ecosystem can manage this complexity. By securely linking a wide range of data sources – from mobile network activity and weather forecasts to tourism calendar data – a predictive model for optimizing heating demand is created. The result: a more sustainable, cost-efficient, and stable heat supply for regions with dynamic demand.

### Quick Facts

- Solution area: **Quality assurance and certification, Technological innovation**
- Administrative level: **State, Federation**
- Solution process: **Energy, Environment and sustainability, Tourism and leisure**
- Technology: **Artificial Intelligence**

### How it works

The use case is based on a data-driven prediction model that intelligently combines various previously isolated information sources: mobile network data provide insights into visitor movements, weather forecasts deliver short-term climate trends, and calendar data and tourism statistics support seasonal demand estimation.

All of this information flows into a sovereign data service ecosystem, which makes it possible to link these data sources and use artificial intelligence to generate accurate forecasts of future district heating demand. Thanks to this intelligent forecasting, energy providers and municipal operators can plan their production and delivery schedules more efficiently. Biomass plants are operated based on actual demand, avoiding overproduction and conserving resources. The system operates in real time, enabling a rapid response to changing conditions.

The pilot application demonstrated a 3% increase in operational efficiency at the power plant — a remarkable figure given the typically high base loads in the heating sector. At the same time, the solution contributes to $CO_2$ reduction by enabling better planning of biomass use and avoiding fossil-based backup measures.

### The Big Picture

Optimizing district heating demand is more than just a technical upgrade – it is a strategic lever for sustainable energy policy in tourism regions. Energy providers benefit from lower operating costs and improved planning reliability; municipal utilities gain more stable supply management. Local and regional authorities also receive valuable data for strategic environmental planning and reporting.

Tourism businesses and residents benefit indirectly as well: they enjoy a reliable, eco-friendly, and cost-effective energy supply that meets both environmental and economic standards. This best practice is a compelling example of how data intelligence can form the basis for sustainable decision-making and resilient infrastructure.



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