Optimizing Heating and Cooling Planning for Buildings and Districts

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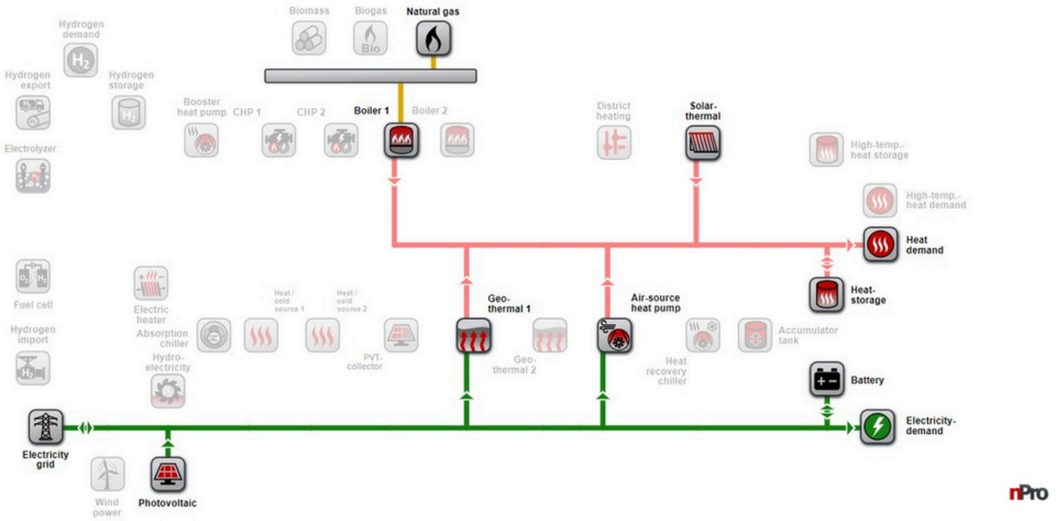
nPro Software
Introduced by
Sustainable Heating

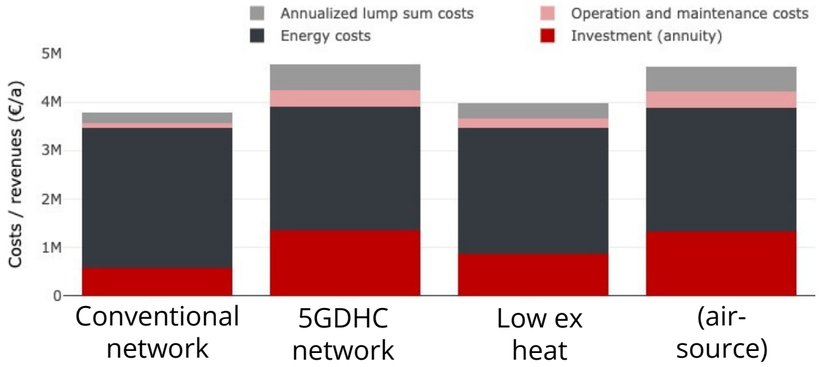
What do we do?

① Building and network simulations

② Dimensioning of generation technologies

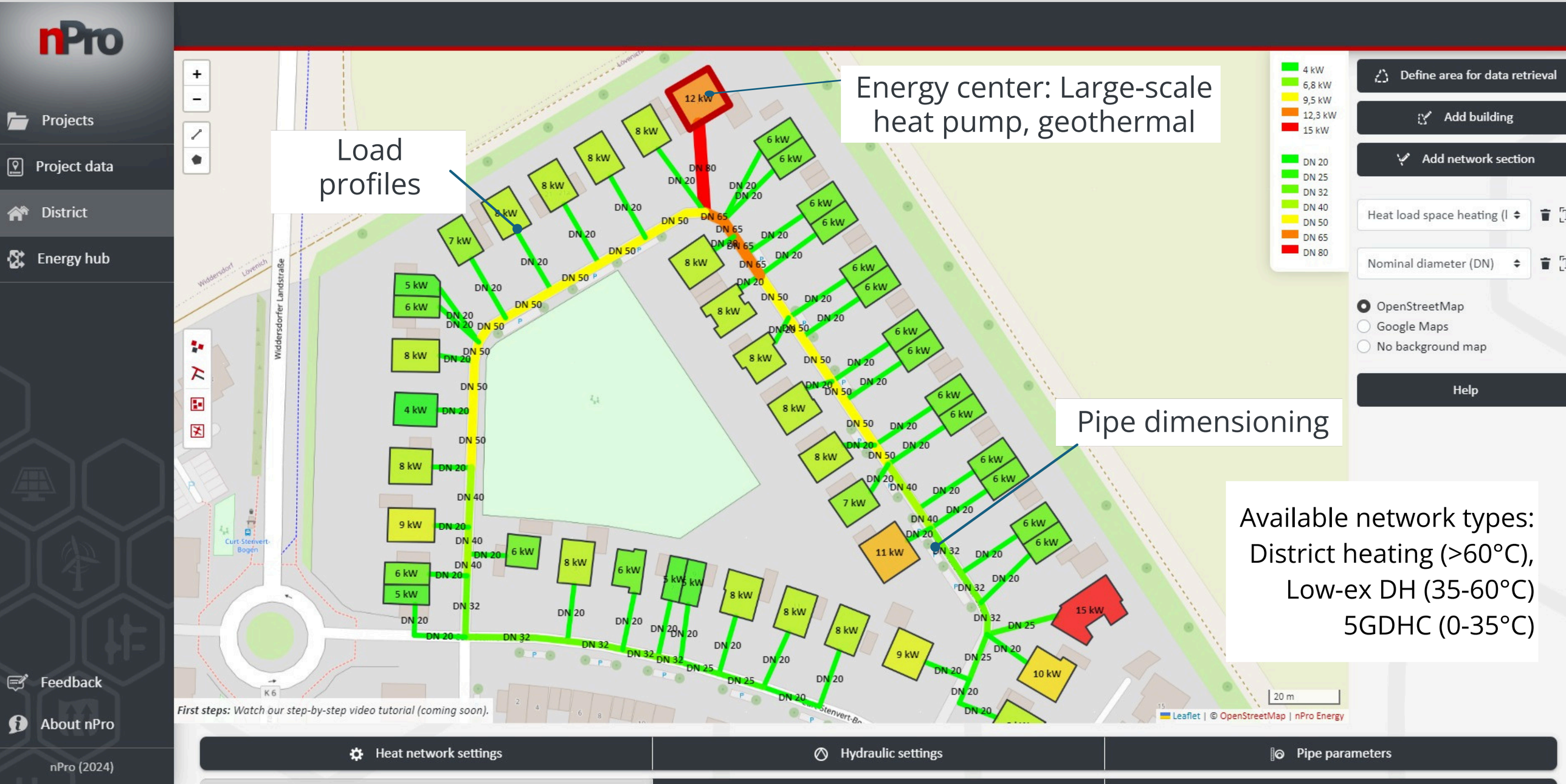


③ Fast scenario comparisons & costs

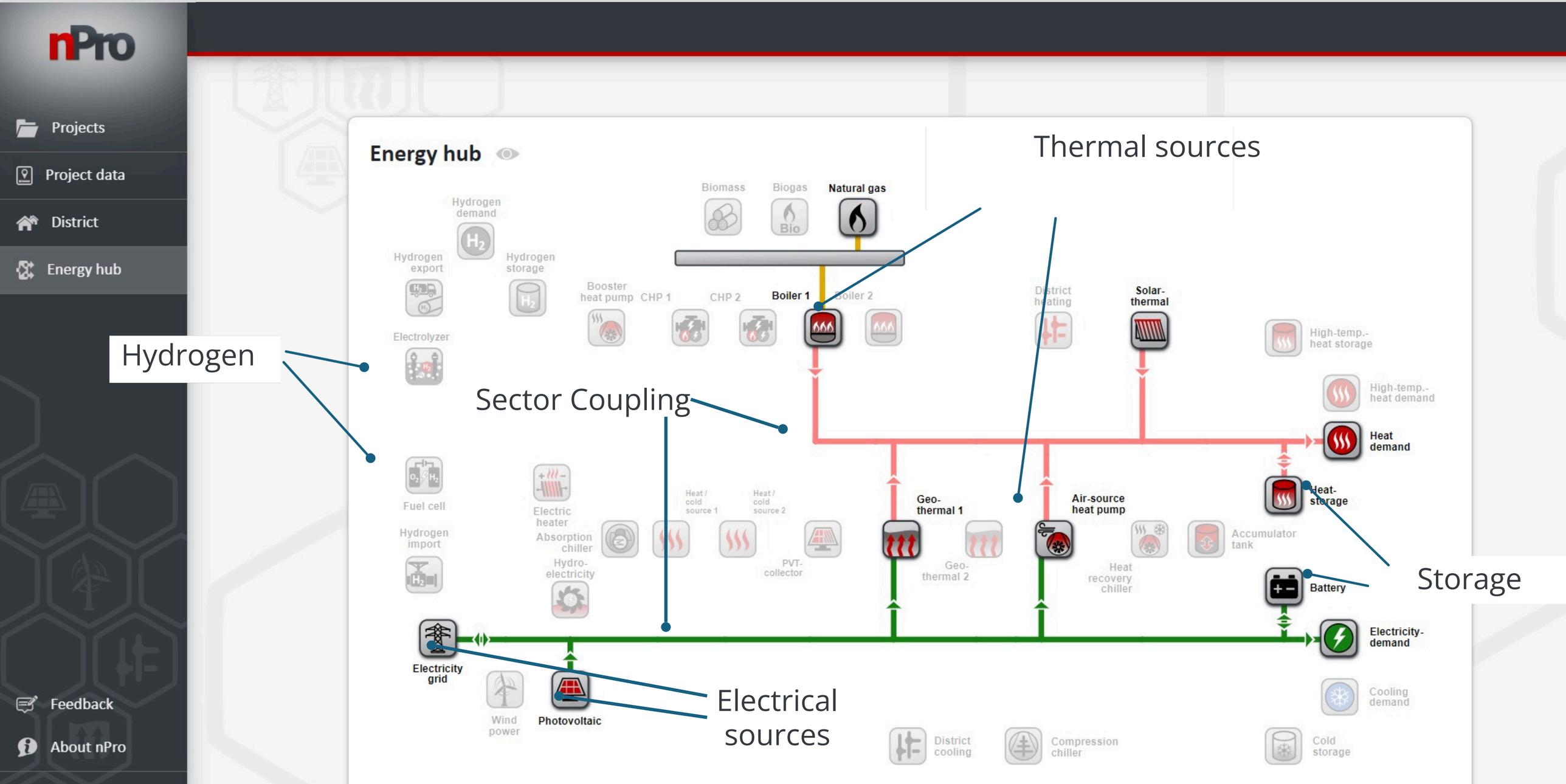


④ Reporting

① Building and energy network simulation in high-spatial resolution



② Dimensioning and simulation of energy sources



③ Fast scenario comparisons and financial feasibility

Scenario comparisons:

- District heating
- 5GDHC network
- Low-ex heat network
- Decentral heat pumps

Economic results

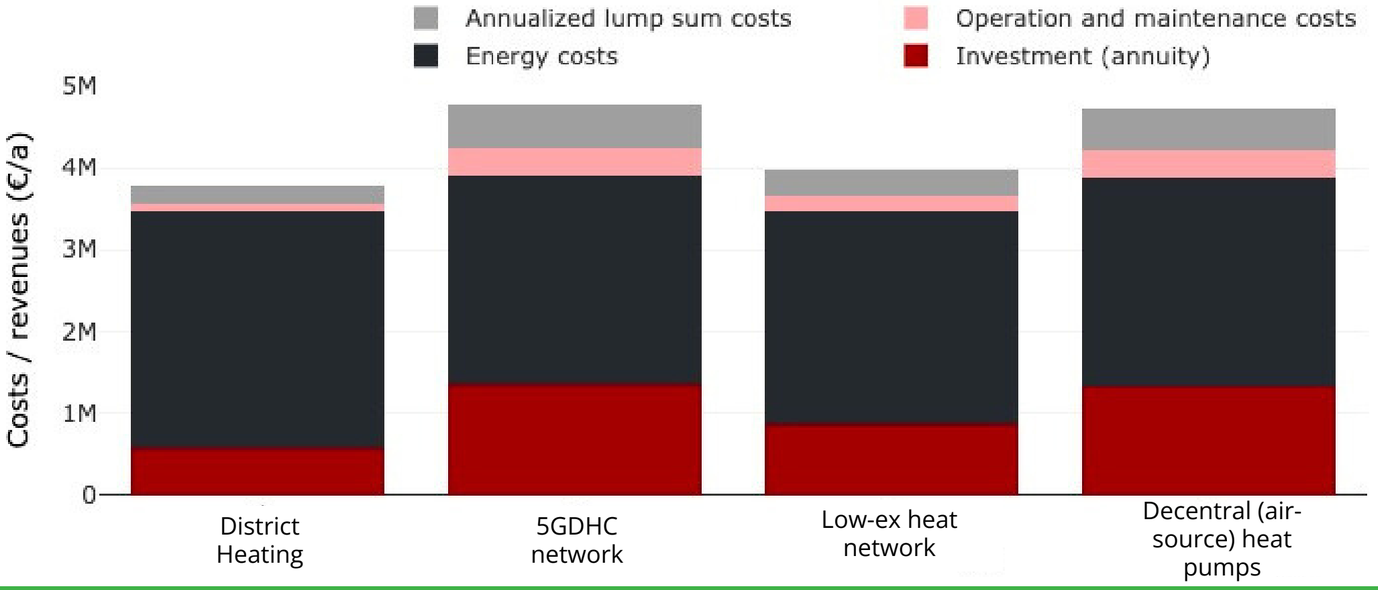
Annual balance

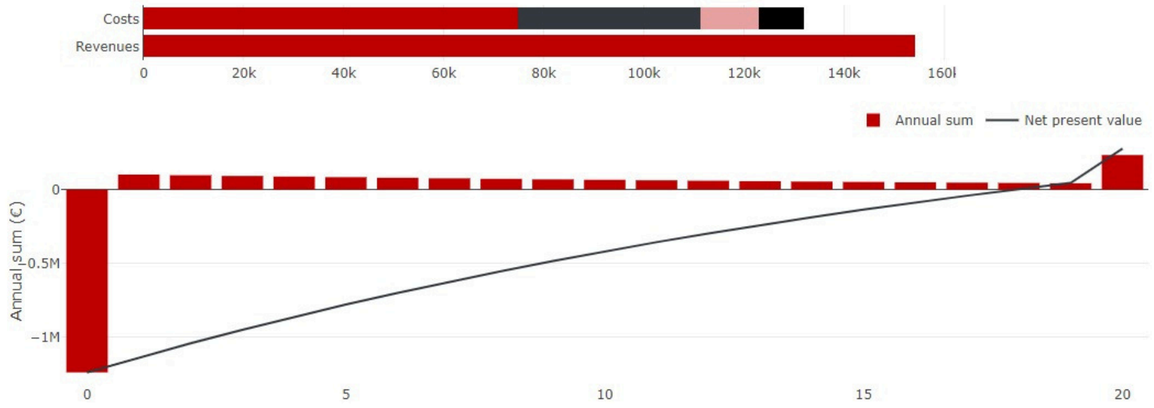
	Cash flow
Investment (annuity)	– 74.917 €/a
Energy costs	– 36.440 €/a
Maintenance costs	– 11.630 €/a
Lump sum costs (annuity)	– 9.042 €/a
Revenues	+ 154.285 €/a
Annual net profit	**+ 22.257 €/a**

Economic metrics

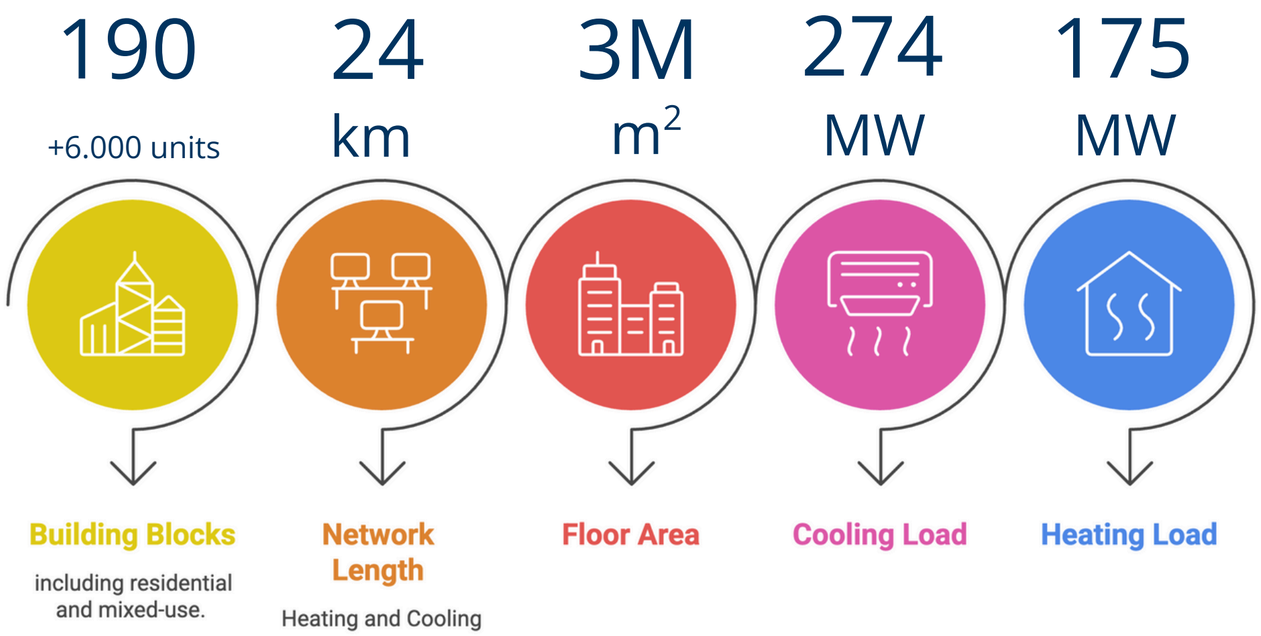
New

Net present value	+ 277.364 €
Amortization period	18 years
Levelized costs of heat	0,171 €/kWh
Levelized costs of energy	0,171 €/kWh
Heating cost per floor area	20,81 €/m²
Monthly heating cost per floor area	1,73 €/m²

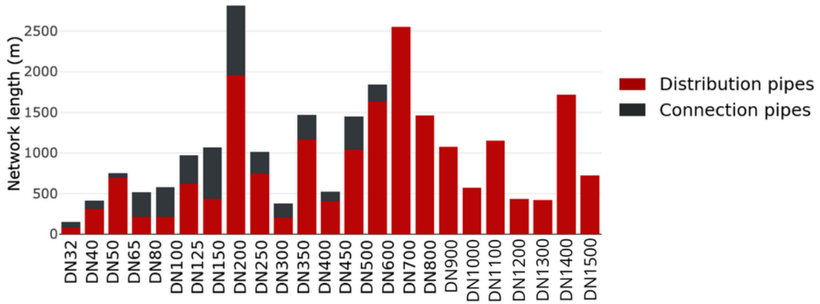




Case Study: A District Heating and Cooling System in Greece



Network Distribution



Energy concepts tested:

- Conventional District Heating. Seawater-based central source
- 5GDHC network
- Decentral (air-source) heat pumps

KPIs evaluated:

- CAPEX, OPEX, LCOE, IRR, payback period
- CO_2 emissions
- Business model proposal: energy pricing (€/kWh), capacity pricing (€/kW), connection costs (€/building)

Our Integrated Solutions Ecosystem

Advanced District Energy Planning

- High-fidelity simulations comparing 4G and 5G district energy systems against traditional standalone scenarios
- Sensitivity analyses to determine the most efficient thermal strategy

Strategic Infrastructure & Financial Planning

- Modular simulation approach to forecast CAPEX, NPV, and IRR
- Piping dimensioning optimization to balance initial investment costs with the capacity for future network expansion into additional project phases

Global Education

- A growing portfolio of digital materials focused on advanced energy modeling and energy transition.
- Global education bridging the gap between engineering theory and professional practice.

enerhack udemy

In partnership with

References: Companies using nPro

Energy

Municipal

Engineering

Consulting

Why working with us

INNOVATION | RWTH AACHEN UNIVERSITY

Supported by:
Federal Ministry for Economic Affairs and Climate Action
on the basis of a decision by the German Bundestag

Spin-Off Award
Presented by RWTH

nPro

SUSTAINABLE HEATING CONSULTING

nPro is a specialized tool for heating and cooling planning

Areas of application

- District planning
- Energy concepts
- Feasibility studies

Expert support

Fast and efficient planning

Flexible Scenario Analysis

High-impact, data-driven solutions

AI-powered

Companies that use nPro

VEOLIA, ENGIE, E.ON, EWE, ferrovial, sinnogy, GOODMEN ENERGY, WW Westfalen Weser, thüga Energie, FC-Gruppe FG, Leipziger Stadtwerke, Stadtwerke Münster, Trianel, SWM Stadtwerke München, Berliner Stadtwerke

What our clients say

“The nPro tool has a very intuitive design and saves a lot of time and work when creating concept studies.”

Stephan Eichler (Eichler Company for Technical Planning of Residential and Industrial Facilities

“It's a pleasure for us to work with you...we needed more solid and simplified answers to basic questions for a project that is already a complex technical issue”

Ioannis Vitzilaios (Technical Director, LAMDA Development S.A.)

SUSTAINABLE HEATING CONSULTING

Let’s discuss your energy network project!

More information about the software at: nPro

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Book an introductory call