Pitch – IMPRO

Industrial Heat Demand Modelling

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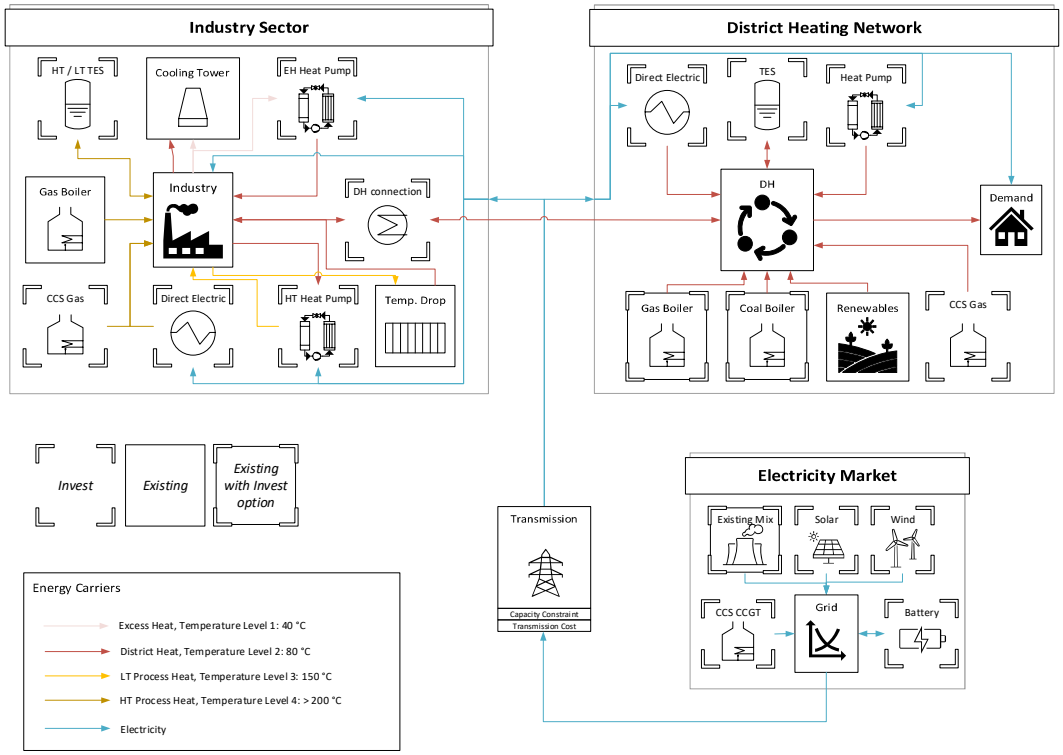
EnergyModelsX

Flexible optimization framework developed at SINTEF

- Multi-energy-carrier energy systems consisting of nodes
- Allows for easy and flexible setup of integrated energy system models
- Optimization of total system costs including investment options and operation

→ Challenge: generalized representation of industrial heat demand

Example:



IMPRO – Industrial Heat Demand Profile Generator

7 standard load profiles

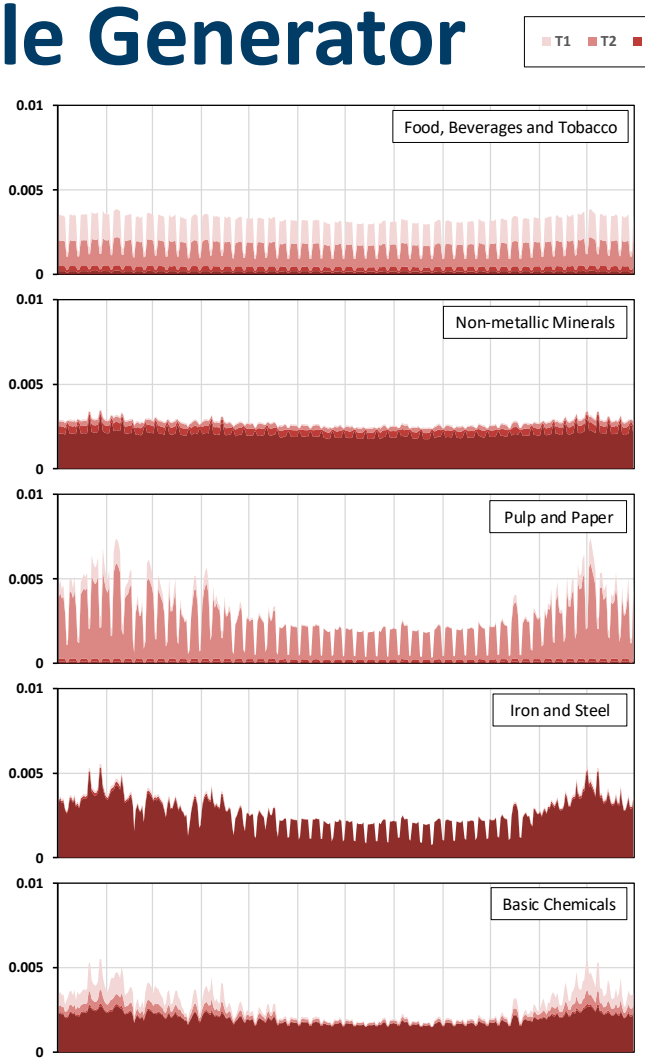
- Enables sector-specific and cross-sectoral analyses

Hourly Resolution

- Allows for energy storage analysis
- Detailed demand and supply matching

Four distinct temperature levels

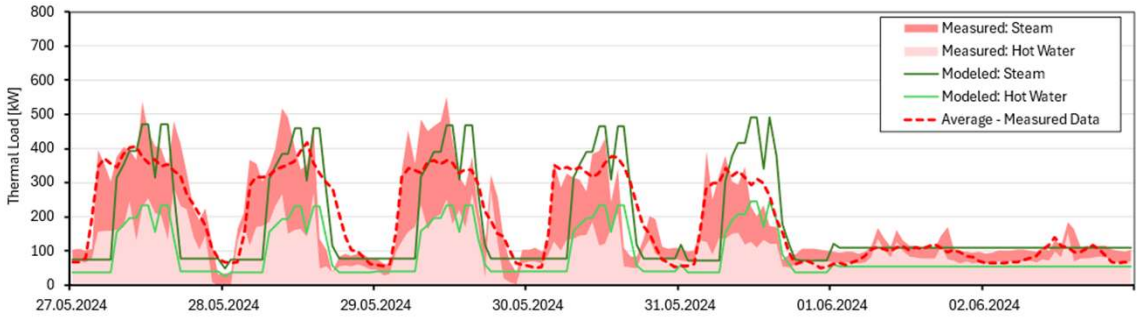
- Improved constraints for technology choices

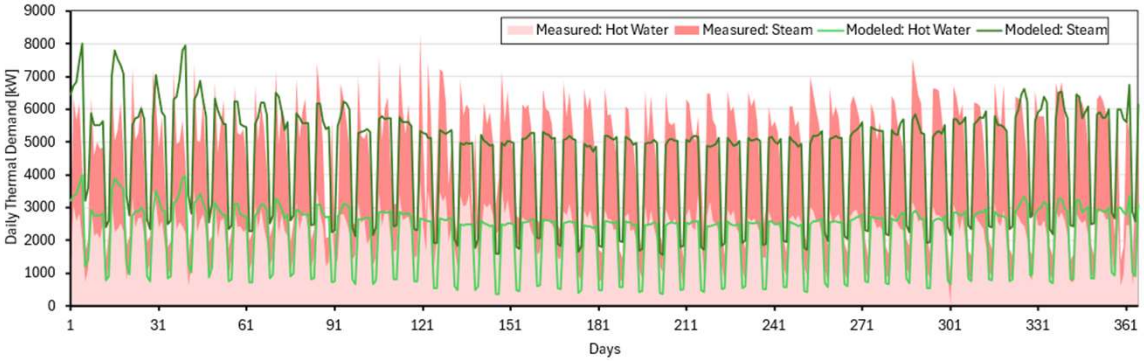


Next Steps:
Validation of Standard Load Profiles

- Improvement of weekly load curves to cover sector-specific operational patterns

- Validation of standard load profiles for all sectors





Need:
Industrial partners and energy system modelers

- IMPRO enables a more accurate representation of sector-specific heat demand in energy system models:

  → Industry partners to validate profiles

  → Research partners working with energy system models

- Work on cross-sectoral analysis of industrial heat electrification or any other topic involving industrial heat demand that is of relevance for industry partners

Potential modelling scopes/outcomes:

- Sector-specific decarbonization/electrification strategies
- Energy storage analysis
- Reserve market participation
- Electricity price arbitrage
- Excess heat utilization
- Grid load impacts
- District heating

SINTEF

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