

1 Renewable energy supply relies on coupled, flexible energy systems.

2 Changing the energy system is a national challenge.

MODEL-BASED PLANNING OF ENERGY SYSTEMS

WITH ESYOPT® TO SUSTAINABLE SUPPLY

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The energy transition is changing the energy supply. New energy systems engineering such as heat pumps, PV systems and batteries offer the opportunity to design and operate sustainable energy systems – also and especially in neighborhoods. For the operators of such energy systems various questions arise:

- Which systems are to be selected, how are they to be dimensioned and, if necessary, interconnected?
- Which site is best suited for the systems?
- How are the plants to be operated?

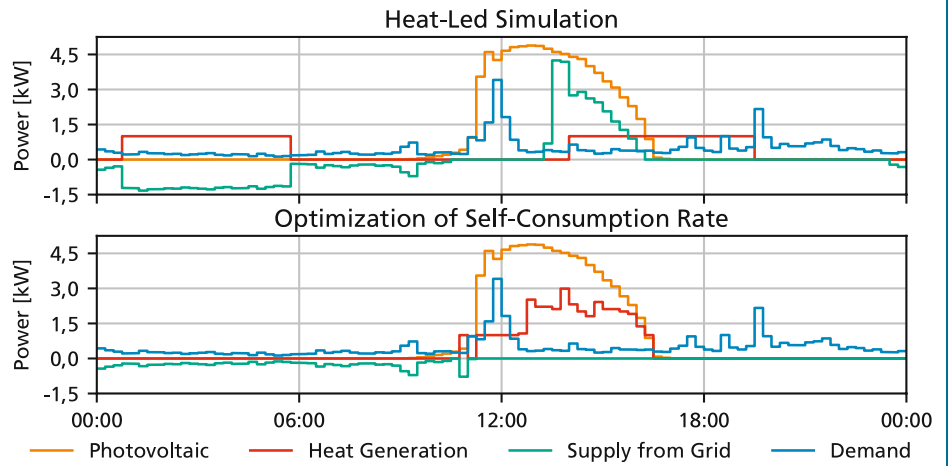
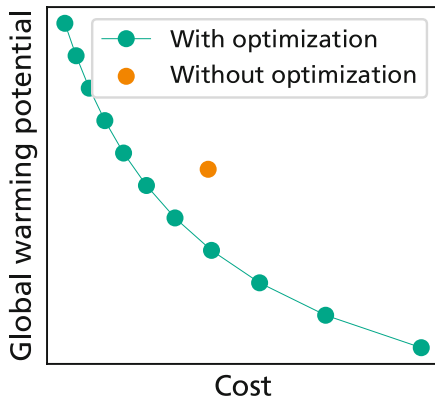
In order to answer these questions in the best possible way from an economic and ecological point of view, we offer you ESYOpt®, a scientifically based approach based on mathematical optimization.

Keywords

- Renewable Energies
- Power plant scheduling
- Energy systems

Industrial sectors

- Energy supply
- Neighborhood planning
- Commercial and industrial enterprises



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- 1 Multi-criteria optimization provides a basis for decisions on complex problems, by uncovering trade-offs between the selected targets.
- 2 We use mathematical models to determine dynamic schedules for optimization the target values you want to achieve, for example maximizing your own consumption of a PV system.

Scope and functionality of ESyOpT®

ESyOpT® is our in-house software tool for the design, scheduling and evaluation of energy systems.

From our library of plant models, we technically map the desired energy system with the conceivable plant options. Individual development work is of course possible.

Using an optimization algorithm, we analyze with ESyOpT® individually according to your needs:

- The optimal system configuration
- Optimal plant operation

Our expertise includes the planning of new systems as well as the expansion or improvement of existing systems. In the planning of energy systems, we are also happy to support you in a pre-selection of technologies and sites within the framework of a potential analysis.

The results of ESyOpT® are determined against the background of your desired objectives. Examples are:

- Minimum system costs
- Self-Consumption maximization
- Maximization of revenue when participating in the electricity market
- Minimal CO₂ emissions

Since target variables are often in opposite directions, ESyOpT® is designed for multi-criteria optimization to enable well-founded decisions.

We visualize the results of the optimization for you according to scientific standards, especially with focus on:

- System topology
- Plant schedules
- Use of storages

Our service/your benefit

We support you in the conceptual design of your energy supply systems. In doing so, we support you throughout the entire planning process up to the decision:

- Data acquisition and preparation
- Potential analysis and pre-selection
- Development of suitable target values
- Determination of the optimal system configuration
- Determination of the optimal operating mode
- Visualization of the results for decision-making

In addition to our modeling expertise, you will also benefit from our many years of project experience in the analysis of local energy systems in the residential, commercial and industrial sectors.