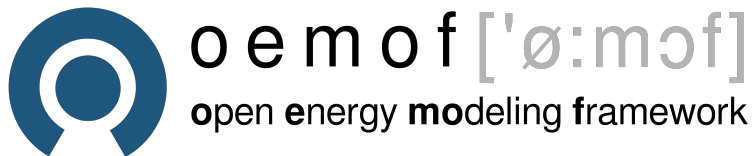

oemof

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The open energy modelling framework (oemof) refers to a collection of python libraries for energy system modelling that are open source licensed. Originally, it was developed as a single library to ease the process of creating energy system models for the heat and power sector. Today, it is distinguished into several *Packages* that each is specified for a certain task in the energy system modeling process. Sometimes, due to historical reasons, oemof gets mixed up with the most recognised oemof library *oemof-solph* which is used for building LP/MILP energy system models.

In 2014, the oemof developing group was founded by researchers from the Center for Sustainable Energy Systems (ZNES) Flensburg together with the Reiner Lemoine Institute (RLI) in Berlin. Later, researchers from other research institutions joined this loosely-organised group of people that maintain the oemof libraries. The main motivation for the initiative was to provide tools for recurring tasks in energy system modelling. Because oemof was developed in an academic context, scientific standards (transparency, repeatability, reproducibility, and scrutiny) were important. Energy system models often do not have publicly accessible source code, missing freely available data, and are poorly documented. This creates barriers for scientific progress in energy system modelling and analysis. In addition, energy system model code often cannot be re-used because of legal and practical issues. The development of oemof addresses these problems by offering a free, open and clearly documented framework for energy system modelling. The open source approach allows a collaborative development of the framework that offers several advantages:

- **Synergies** - By developing collaboratively synergies between the participating institutes can be utilized.
- **Debugging** - Through the input of a larger group of users and developers bugs are identified and fixed at an earlier stage.
- **Advancement** - The oemof-based application profits from further development of the framework.

To get an idea what's possible to do with the oemof libraries, take a look on [models](#) that are built based on oemof libraries, [publications](#) that use oemof tools for generating underlying results, and [projects](#) that are related to the development or simply use oemof tools as building blocks. Furthermore, visit the documentation of the individual oemof *Packages*.

This [repository](#) contains no code and is only used for organising the oemof community, for example

- User and developer meetings
- Webconference dates
- New packages
- Website and Mailinglist
- General communication

You can find recent topics of discussion in the [issues](#).








We're are happy about any kind of contribution. Read more about it in [Contributing](#).

[Read more](#)

1.1 Packages


Under the umbrella of oemof, several libraries for energy system modelling are collected. Each specialised for a certain task. The most recognised library [oemof-solph](#) is used to model energy system with LP/MILP. It can be fed with demand data from the [demandlib](#) and feedin timeseries from the [feedinlib](#). [TESPy](#) provides in-depth modelling of thermal energy systems. [oemof-thermal](#) extends [oemof-solph](#) components with LP/MILP modelled thermal components. [CyDeTS](#) can be used to detect storage cycles. The libraries share common principles, similar APIs, and are at least partially interoperable.

1.1.1 Projects with stable releases

Package	Description	Links
<code>oemof-solph</code>	A model generator for energy system modelling and optimisation (LP/MILP)	
<code>oemof-thermal</code>	Tools to model thermal energy components (compression heat pumps, concentrating solar plants, thermal storages and solar thermal collectors) as an extension of <code>oemof-solph</code>	
<code>CyDeTS</code>	Cycle Detection in Time Series (CyDeTS). An algorithm to detect cycles in times series along with their respective depth-of-cycle (DoC) and duration	
<code>demandlib</code>	Generate load profiles for electricity and heat demand	
<code>feedinlib</code>	Calculate feedin timeseries for fluctuating renewable energy source from Open Data weather data	
<code>TESPy</code>	Thermal Engineering Systems in Python (TESPy). Powerful simulation toolkit for thermal engineering plants such as power plants, district heating systems or heat pumps	
<code>windpowerlib</code>	Calculate the power output of wind turbines	

1.1.2 Projects in an early state

The following projects are in an early stage of development and might change frequently.

Package	Description	Links
<code>DHNx</code>	District heating system optimisation and simulation models.	

1.2 Contributing

Contributions to oemof *Packages* are very welcome! Each of the *Packages* is maintained individually, but in general community-based development is envisaged. This repository is only used for organisational purposes and spans an umbrella across the individual oemof libraries. The source code is published under the conditions of the open source [MIT license](#) making sure that the code can be used, edited, and re-distributed by others.

Twice a year (usually May and December) we organise a developer meeting. The meeting dates are announced on www.oemof.org.

If you're interested in maintaining oemof libraries more frequently, consider to join a [developing teams](#). Get in touch with us [here](#).