Tool-Overview-Energy-Planning

Release 0.0.0

oemof developer group

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CHAPTER

ONE

OVERVIEW

docs	

Overview of tools for the planning of regional and district energy systems and infrastructures

- Free software: MIT license

1.1 Documentation

Here you will find the actual list of tools for district energy planning:

https://tool-overview-energy-planning.readthedocs.io/

1.2 Contribution

You can easily contribute. If you know a tool that is missing in the overview, please open an issue and choose the *Add new tool to list* template: https://github.com/quarree100/tool-overview-energy-planning/issues

You can also directly open an PR.

1.3 Development

To run all the tests run:

```
tox
```

Note, the most important test of this package is the documentation:

```
tox -e "docs"
```

CHAPTER

TWO

COLLECTION OF TOOLS

The following tables collect software tools in the context of district and regional energy planning.

The categorization is done according to the specific tasks and individual steps in the energy planning process. If categories are missing, please write an issue or open an PR with a suggestion for improvement.

Single software tools might occur multiple times in different categories, as specific functionalities might sometimes be hidden within a package.

The aim of this overview is a topic and energy planning issue oriented overview.

2.1 0 Primary data sources

This section might contain data source, that are relevant for district energy planning. This might be specific, e.g. 3D building geometries are available for Lower Saxony …

2.2 1 Stocktaking and data acquisition

Description of subsection.

2.2.1 Data acquisition / download

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
osmnx	download of buildings footprints and street geometries from open street maps		coordinates of district	• geopandas.DataFrame with buildings footprints. Street-network graph.	open source	maintained	https://pypi.org/project/osmnx/	

2.2.2 Data processing and visualisation

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
QGIS								

2.2.3 Weather data

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
wetterdienst							https://github.com/earthobservations/wetterdienst	

2.3 2 Energy demand

2.3.1 Heat

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
demandlib								

2.3.2 Electricity

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
LoadProfileGenerator							https://github.com/FZJ-IEK3-VSA/LoadProfileGenerator	
demandlib			Annuel electricity demand	Electricity load profiles according to				

2.4 3 Renewable energy potential

2.4.1 Photovoltaic

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
pvlib								

2.4.2 Solar thermal

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
oemof.thermal								

2.4.3 Windpower

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
windpowerlib								

2.5 4 District heating network

2.5.1 Routing & Dimensioning

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
DHNx	Optimisation of district heating network topology and dimension	MILP based on oemof.solph	GIS Polygon or point layer with buildings. Heat load of buildings. Potential DHS routes (e.g. Street network). DHS Pipeline data (costs, U-value).	DHS network with pipeline dimensions (geopandas.DataFrame). Costs and losses of DHS network.	open source	early stage	https://github.com/oemof/DHNx	University Bremen

2.5.2 Thermo-hydraulic simulation

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
DHNx							https://github.com/oemof/DHNx	
pandaspipes							https://github.com/e2nIEE/pandapipes	
DiGriPy							https://github.com/lvorspel/DiGriPy	

2.6 5 Electricity network

2.6.1 Power flow calculation

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
osmnx	download of buildings footprints and street geometries from open street maps		coordinates of district	• geopandas.DataFrame with buildings footprints \ - Street-network graph	open source	maintained	https://pypi.org/project/osmnx/	

2.7 6 District energy supply

2.7.1 Technology selection & Dimensioning

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
q100opt							https://github.com/quarree100/q100opt	
mtress							https://github.com/mtress/mtress	DLR Oldenburg

2.7.2 Physical simulation

Name	Short description	Method	Input data	Output data	Availability	Status	Link	Developing organisations
modeliquarree							https://github.com/quarree100/modeliquarree	

CHAPTER

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REFERENCE

3.1 tool-overview-energy-planning

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CONTRIBUTING

Contributions are welcome, and they are greatly appreciated! Every little bit helps, and credit will always be given.

4.1 Bug reports

When reporting a bug please include:

- Your operating system name and version.
- Any details about your local setup that might be helpful in troubleshooting.
- Detailed steps to reproduce the bug.

4.2 Documentation improvements

Tool-Overview-Energy-Planning could always use more documentation, whether as part of the official Tool-Overview-Energy-Planning docs, in docstrings, or even on the web in blog posts, articles, and such.

4.3 Feature requests and feedback

The best way to send feedback is to file an issue at https://github.com/quarree100/tool-overview-energy-planning/issues.

If you are proposing a feature:

- Explain in detail how it would work.
- Keep the scope as narrow as possible, to make it easier to implement.
- Remember that this is a volunteer-driven project, and that code contributions are welcome :)

4.4 Development

To set up *tool-overview-energy-planning* for local development:

1. Fork tool-overview-energy-planning (look for the "Fork" button).
2. Clone your fork locally:

```
git clone git@github.com:YOURGITHUBNAME/tool-overview-energy-planning.git
```

3. Create a branch for local development:

```
git checkout -b name-of-your-bugfix-or-feature
```

   Now you can make your changes locally.

4. When you're done making changes run all the checks and docs builder with tox one command:

```
tox
```

5. Commit your changes and push your branch to GitHub:

```
git add .
git commit -m "Your detailed description of your changes."
git push origin name-of-your-bugfix-or-feature
```

6. Submit a pull request through the GitHub website.

4.4.1 Pull Request Guidelines

If you need some code review or feedback while you're developing the code just make the pull request.

For merging, you should:

1. Include passing tests (run `tox`).
2. Update documentation when there's new API, functionality etc.
3. Add a note to `CHANGELOG.rst` about the changes.
4. Add yourself to `AUTHORS.rst`.

4.4.2 Tips

To run a subset of tests:

```
tox -e envname -- pytest -k test_myfeature
```

To run all the test environments in *parallel*:

```
tox -p auto
```

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AUTHORS

- oemof developer group - https://oemof.org/

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CHANGELOG

6.1 0.0.0 (2022-05-17)

- First release on PyPI.

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- modindex
- search

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