

openmod **open energy modelling initiative**

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Open Power System Data 4th Workshop, DIW Berlin, 10 July 2017

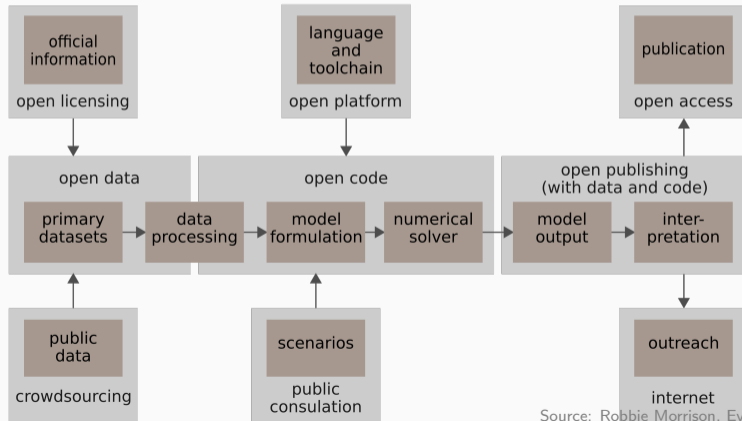
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openmod: overview

- **grass roots community** of open energy modellers from universities, research institutions and the interested public
- 370+ participants, mainly from Europe, but also from Africa, America, Asia and Australia
- first meeting Berlin 18–19 September 2014 (some founding members started OPSD)
- promoting **open code**, **open data** and **open science** in energy modelling

what is open modelling?

Open refers to model source code and energy system datasets that can be freely used, studied, improved and distributed. The **whole pipeline** should be open:



Source: Robbie Morrison, Eva Schmid, openmod contributors, CC BY 4.0

why open modelling?

openness . . .

- increases **transparency**, **reproducibility** and **credibility**, which lead to better research and policy advice (no more 'black boxes')
- *can* improve research **quality**
- reduces **duplication of effort** and frees time to develop **new ideas**
- allows easier **collaboration**
- is essential given the increasing **complexity** of the energy system

See also S. Pfenninger et al, 'The importance of open data and software: Is energy research lagging behind?,' Energy Policy, V101, p211, 2017 and

S. Pfenninger, 'Energy scientists must show their workings,' Nature, V542, p393, 2017.

what open models are there?

Since 2001: zero to **+48** projects and more coming

Electricity and energy system models:

- first wave (**3**): 2001 balmoral, 2004 deeco, 2005 GnuAE
- second wave (**+3**): 2010 OSeMOSYS, 2012 TEMOA, 2013 NEMO
- as of 2017 (**+24**): Calliope, CREST, DESSTinEE, DIETER, Dispa-SET, Einstein, EMLab-Generation, EMMA, Energy Transition Model, EnergyPATHWAYS, ETEM, ficus, GENESYS, oemof, OnSSET, pandapower, PowerMatcher, PyPSA, renpass, SIREN, StELMOD, SWITCH, URBS, WWS project

what open models are there?

Transmission and distribution grid models:

- as of 2017 (**8**): DINGO, GridKit, GridLAB-D, Hutcheon and Bialek dataset, OpenDSS, OpenGridMap, osmTGmod, SciGRID

Energy database projects:

- first wave (**4**): 2004 OpenStreetMap, 2009 OpenEI, 2011 Enipedia, 2011 reegle
- as of 2017 (**+6**): Energy Research Data Portal for South Africa, energydata.info, oedb, Open Power System Data, OpenGridMap, Renewables.ninja

what is the openmod initiative?

The openmod initiative consists of a public **mailing list** (370+ participants) ...

The screenshot shows a web browser displaying the Google Groups forum for the 'openmod initiative'. The browser's address bar shows the URL: <https://groups.google.com/forum/#!forum/openmod-initiative>. The page features a search bar at the top with the text 'Search for messages'. Below the search bar, there are navigation buttons: 'NEW TOPIC', a refresh icon, 'Mark all as read', and a 'Filters' dropdown menu. On the right side, there are icons for user profile and settings.

The main content area displays the group name 'openmod initiative' with the status 'Shared publicly'. Below the group name, it indicates '30 of 419 topics (99+ unread)' and provides a 'Join group to post' button and a 'G+' icon. An 'About' link is also visible.

The group description reads: 'Welcome to the mailing list of the openmod-initiative! Please introduce yourself to the mailing list, as well as give a short description of any open model or open data projects you may be working on. Please also register yourself on our wiki (http://wiki.openmod-initiative.org/wiki/Main_Page), and if it the case, add your open source model to it (http://wiki.openmod-initiative.org/wiki/Open_Models). As you will see every member of the mailing list is invited to share information regarding all things open source in the energy field. So feel free to do so as well from the beginning.'

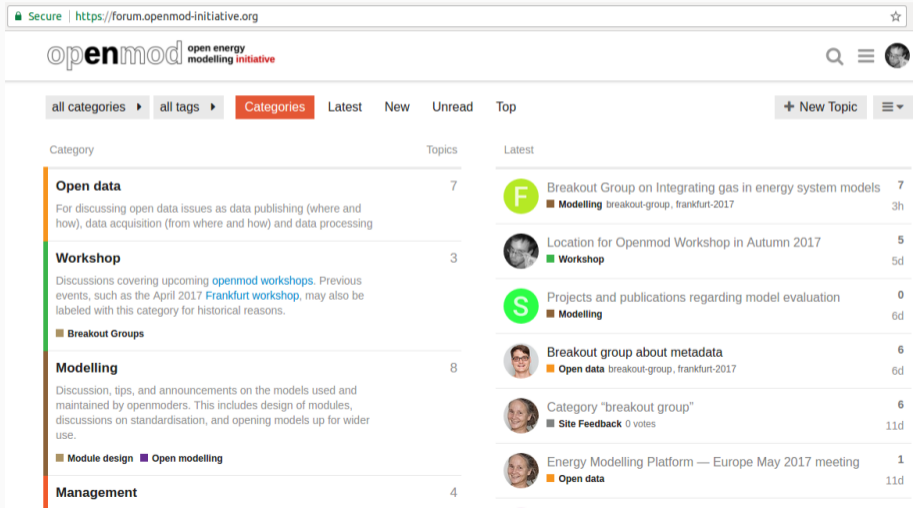
The forum lists several topics:

- Location for next Openmod Workshop in Autumn 2017 (5)**
By Tom Brown - 5 posts - 23 views
Jun 7
- PhD position on building open-source modeling tool for integrated energy systems (1)**
By Erik Delarue - 1 post - 6 views
Jun 6
- drawing simple transmission lines on a map ... (7)**
By Mark Howells - 7 posts - 18 views
Jun 4
- Open Power System Data: Workshop Invitation (1)**
By Jonathan Mühlenpfordt - 1 post - 9 views
Jun 1
- Open Energy Modelling in the News (1)**
By Mark Howells - 1 post - 6 views
May 31

The left sidebar contains navigation options: 'My groups' (Home, Starred), 'Favorites' (with a tip: 'Click on a group's star icon to add it to your favorites'), and 'Recently viewed' (listing 'pylons-discuss', 'Pyomo Forum', 'Gurobi Optimization', and 'openmod initiative'). Below this is a 'Recent searches' section with entries like 'knotenamen (in ...)', 'ENTSO-E (in stro...', 'STUM (in stromm...', and 'peter menck (in st...'.

what is the openmod initiative?

... an internet **forum** for more intense discussions, Q & A and planning ...



The screenshot shows the Openmod forum interface. At the top, the browser address bar displays "Secure | https://forum.openmod-initiative.org". The forum logo "openmod" is followed by "open energy modelling initiative". Navigation options include "all categories", "all tags", and a highlighted "Categories" button. There are also buttons for "Latest", "New", "Unread", and "Top", along with a "+ New Topic" button and a menu icon.

The main content area is divided into two columns. The left column lists categories with their respective topic counts:

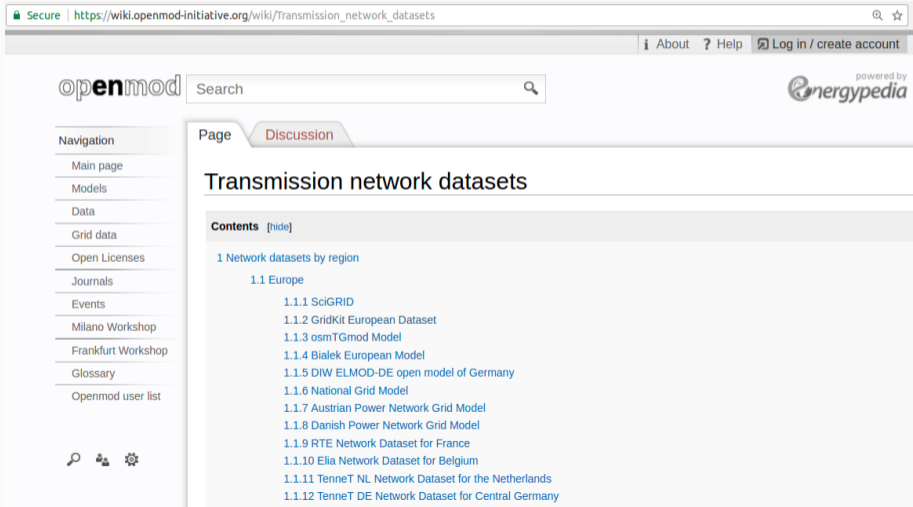
- Open data** (7 topics): For discussing open data issues as data publishing (where and how), data acquisition (from where and how) and data processing.
- Workshop** (3 topics): Discussions covering upcoming [openmod workshops](#). Previous events, such as the April 2017 [Frankfurt workshop](#), may also be labeled with this category for historical reasons.
 - Breakout Groups
- Modelling** (8 topics): Discussion, tips, and announcements on the models used and maintained by openmoders. This includes design of modules, discussions on standardisation, and opening models up for wider use.
 - Module design
 - Open modelling
- Management** (4 topics)

The right column shows a "Latest" list of topics:

- Breakout Group on Integrating gas in energy system models** (7 topics, 3h ago): Modelling breakout-group, frankfurt-2017
- Location for Openmod Workshop in Autumn 2017** (5 topics, 5d ago): Workshop
- Projects and publications regarding model evaluation** (0 topics, 6d ago): Modelling
- Breakout group about metadata** (6 topics, 6d ago): Open data breakout-group, frankfurt-2017
- Category "breakout group"** (6 topics, 11d ago): Site Feedback 0 votes
- Energy Modelling Platform — Europe May 2017 meeting** (1 topic, 11d ago): Open data

what is the openmod initiative?

... a collaborative **wiki** for collecting information on models and data ...



The screenshot shows a web browser window displaying the OpenMod Wiki page for "Transmission network datasets". The browser's address bar shows the URL https://wiki.openmod-initiative.org/wiki/Transmission_network_datasets. The page header includes the OpenMod logo, a search bar, and a navigation menu with links for "About", "Help", and "Log in / create account". The page is powered by Energypedia. The main content area has two tabs: "Page" (selected) and "Discussion". The title of the page is "Transmission network datasets". Below the title is a "Contents" section with a "[hide]" link. The contents list the following sections:

- 1 Network datasets by region
 - 1.1 Europe
 - 1.1.1 SciGRID
 - 1.1.2 GridKit European Dataset
 - 1.1.3 osmTGmod Model
 - 1.1.4 Bialek European Model
 - 1.1.5 DIW ELMOD-DE open model of Germany
 - 1.1.6 National Grid Model
 - 1.1.7 Austrian Power Network Grid Model
 - 1.1.8 Danish Power Network Grid Model
 - 1.1.9 RTE Network Dataset for France
 - 1.1.10 Elia Network Dataset for Belgium
 - 1.1.11 TenneT NL Network Dataset for the Netherlands
 - 1.1.12 TenneT DE Network Dataset for Central Germany

what is the openmod initiative?

... and finally a **workshop** every six months for two-three days.

Next Workshop: **Technical University of Munich, 11-13 October 2017**

- tutorials on open software tools and open energy models
- open model and open data presentations
- breakout groups on every possible topic

what is the openmod initiative currently doing?

The following **issues** are currently being tackled by openmod members:

- good practice in open source projects
- reducing barriers to developing open source projects
- helping data owners understand the merits of openness
- energy data and metadata standards
- energy model classification and cataloguing
- open/free/libre software and data licensing
- open access to research results and journal articles
- improved research computing skills

want to join the openmod initiative?

There is no application process or membership fee. Simply ...

- join the [mailing list](#)
- join the online [forum](#)
- contribute to the [wiki](#)
- check out the [website](#)
- come to the next [workshop](#): 11-13 October 2017, Technical University of Munich

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The LaTeX and graphics are available at:

<https://github.com/openmod-initiative/opsd-final-workshop-slides>.

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