

THERMOS



Thermal energy planning software





**For faster and more cost-effective building
or upgrading of low-carbon district
heating and cooling systems**

What is THERMOS?

THERMOS (thermal energy resource modelling and optimisation system) is an open-source software designed to optimise local district energy network planning processes and to support sustainable energy master planning.

In offering instant high-resolution address-level mapping and built-in energy demand estimations, the software provides the methods, data, and tools to enable public authorities and other stakeholders to undertake more sophisticated thermal energy system planning far more rapidly and cheaply.

THERMOS is free to use, and built with and for local energy planners to support in particular:

-  Local and regional authorities;
-  Energy utilities;
-  Energy planners, consultants and agencies;
-  Investors and real estate developers.

Whether you are upgrading existing systems, planning a new one, or assessing the performance of specific network options, THERMOS easily and quickly identifies optimal network solutions according to each of your pre-defined financial and environmental conditions.

Get started now:

1. Go to the THERMOS website: www.thermos-project.eu
2. Watch the demonstration video: www.youtube.com/watch?v=r14L63Bf2t0
3. Explore the THERMOS tool: <http://tool.thermos-project.eu>

"The THERMOS tool provides us with the data and knowhow needed to further develop our climate and energy efficiency policy, and to build up our internal skill sets. In light of a very complex energy sector, we find both the capacity building and the data THERMOS provides to be crucial components of a successful low-emission energy policy implementation in Cascais."

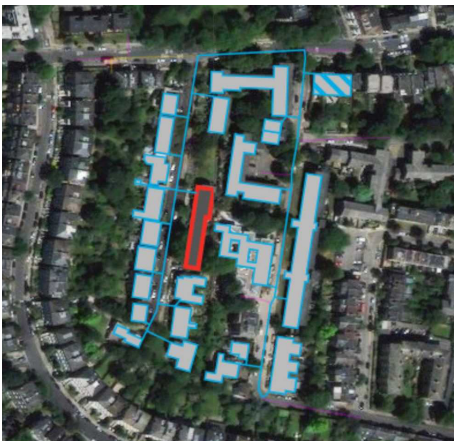
Joana Balsemão,
Executive Councillor at Cascais Municipality

"The tool delivers everything local energy planners are looking for. It is easy to use, and can help Islington and other towns and cities build up their internal expertise of modelling heat networks. For us, conducting thermal modelling in-house instead of via external consultants will significantly bring down costs for energy planning."

James Wilson,
Energy Projects & Programmes Team Leader Islington Borough Council

THERMOS is designed around four main scenarios of thermal network planning:

1. Where you are seeking to expand an existing district heating and cooling network and want to find the best buildings, streets or neighbourhoods to bring into the network.
2. Where there is an existing energy source, and you want to identify local heat demand and find the best route for the pipework.
3. Where an optimal network solution is sought that matches up available energy sources and demand.
4. Where you wish to compare the performance assessment of potential DHC networks and non-DHC solutions.



"I found the THERMOS platform very intuitive and easy to use. Its use makes it easy to obtain economic results of investment, exploitation and calculation of emissions, which at the same time facilitates the choice of different network options. In short, it allows significant time savings in calculations."

Carme Nadal,
Technical and Commercial office
of the district energy operator
TubVerd

"With THERMOS we are supporting Warsaw and other cities in Poland to reduce their heating costs and air pollution levels. THERMOS simplifies the process of analysing different options with its sophisticated mapping processes. With its intuitive visual layout, THERMOS allows users to navigate easily through the different steps, irrespective of their level of expertise."

Wojciech Stańczyk,
Specialist Research and Projects
Department of the Polish National
Energy Conservation Agency (KAPE)

What makes THERMOS special?

THERMOS is an open-source software using OpenStreetMap or your own local energy demand data and accessed via secure login. Because it is web-based, updates with the latest improvements will be done automatically.

The software offers a rapid generation of local heat density maps and has a team option so that different users can work on the same project at the same time in different locations. In combination with its intuitive set-up the use of THERMOS substantially reduces planning time.

THERMOS is particularly good for conducting in-house pre-feasibility analyses thereby saving on expense

consultancy costs, and has been successfully trialed with local authorities and validated with industry experts.

And it's flexible. THERMOS's network optimisation model can be adapted to user-specific network criteria. It can find cost-optimal solutions in which capital costs for plant, pipes and connection is set against revenues from heat sales and monetised greenhouse gases (GHG) emissions.

THERMOS helps local authorities to identify climate mitigation actions by providing valuable information on district energy solutions which can reduce local GHG emissions and support cities in meeting their energy and climate reduction targets.

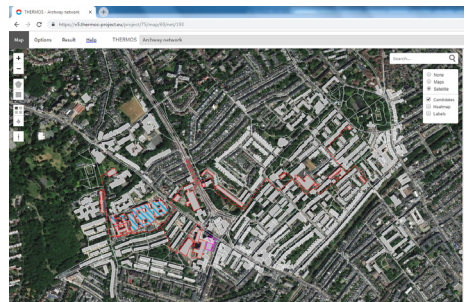
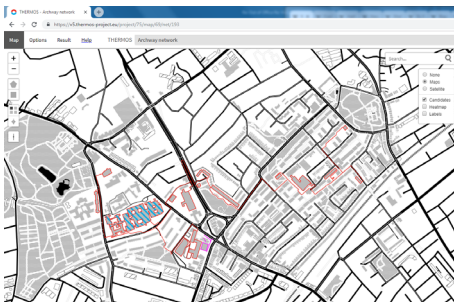
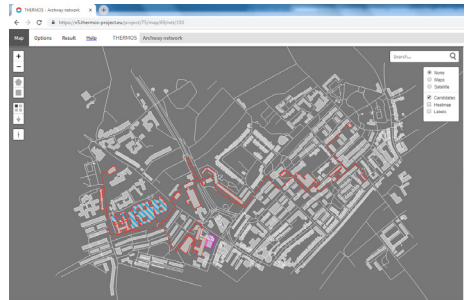


Image: Istock / Mbbirdy

Additional functionality includes:

- Heat demand estimation on address-level where access to local demand data is limited.
- Optional in-map editing of infrastructure or heat demands.
- GIS data upload functionality to introduce local data.
- Representation of variable construction costs, and network heat losses to the ground.

THERMOS will further include a cooling system and supply model (profile generation and plant optimization), as well as a non-diversified industrial demand in network model.



Visualization of an optimal network solution for the Archway neighbourhood of Islington, UK in THERMOS. The Islington Borough Council in London is using the THERMOS tool to verify an existing feasibility study for a new heat network in the area.

Explore THERMOS!

Because it's free and open-source, the thermos software is accessible and ready for use online.

Go to:

<https://tool.thermos-project.eu> and take a look. All you need is a standard web browser (Chrome or Firefox preferred) and internet connection. The EU funded THERMOS software source code will be available for download even after the THERMOS project ends.

We have built THERMOS with an optimised energy consumption model trained with more than 30,000 buildings. If you have your own GIS database with energy demand data, get it ready for uploading.

Our THERMOS support package (video tutorial, manual, online help) is available to help you. Get in touch with our network of public and private energy planning practitioners and trainers ready to give you extra practical support, if you need it.



Image: Granollers Mercat EPE

Granollers, Spain: *The municipality is conducting a pre-feasibility study with THERMOS to supply selected buildings in the EcoCongost industrial park with energy from local biogas production.*



Image: City of Jelgava

Jelgava, Latvia: *In Jelgava, THERMOS is used by the city and a regional energy agency to identify heat network opportunities in the residential and tertiary sectors across the city.*



Image: Flickr / Guillaume Speurt

Warsaw, Poland: *The city of Warsaw applies THERMOS to connect excess heat sources to the city's existing district heat network.*

THERMOS Users



MAYOR OF LONDON



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THERMOS Ambassadors



THERMOS

THERMOS (Thermal Energy Resource Modelling and Optimisation System) is to provide the methods, data, and tools to enable public authorities and other stakeholders to undertake more sophisticated thermal energy system planning far more rapidly and cheaply.

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Istock / Georgeclerk

THERMOS Trainers



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