

# Identifying and assessing a potential district heating area using the National Heat Map

**The aim of this exercise is to gain a better understanding of the heat demand of your area by using the Department of Energy and Climate Change's National Heat Map and so identify and assess a suitable site for a potential district heating scheme.**

The National Heat Map can be used by local authorities, community groups and individuals to identify, in greater detail, locations in England that appear suitable for renewable heat projects.

This exercise should help users to understand the functionality of the Heat Map and how to carry out a basic interpretation of the data that is produced from it.

For users that are looking at a specific local area it will also help with the initial feasibility for any proposed renewable heat project by providing a summary of heat demand of the chosen area and discussing the heat profile in greater detail amongst the group.

However, it's important to note that the exercise should only be used as a tool for prioritising areas for further action.

If it's deemed that a more detailed investigation is required, then this should be carried out by specialists before making any firm decisions or specifying technologies.

Allow **60 minutes** to complete this exercise

## Materials needed

In order to run this exercise you will require access to a projector, a computer and an internet connection.

Large 'flip chart' sized version of Tables 1 and 2 (see following pages) will be needed for the final discussion session.

## Arranging the room

For this exercise the participants will be working from a computer map that is projected onto a wall or pop up

screen, so a large white or clear wall is needed.

Depending on the number of people attending the session, split the seating arrangement into various groups.

## People needed to run the exercise

This exercise can be run with up to six people in each group. However, larger groups could be accommodated if they already knew the priority area that they wanted to look at in more detail.

It's important that quite a few of the people attending have enough local knowledge to be able to identify types of buildings from aerial-view photographs.

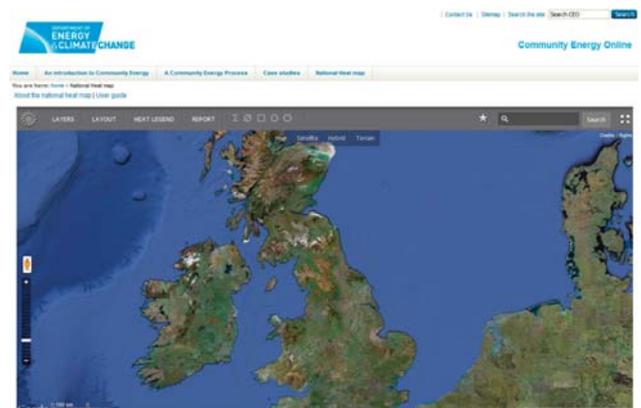
## Full instructions for running the exercise

*Preparation: gathering the information you'll need to run this exercise*

The facilitator should take some time in advance to familiarise themselves in full with the DECC National Heat Map – <http://ceo.decc.gov.uk/nationalheatmap/> (see image below).

A full user guide is available to read here – [http://ceo.decc.gov.uk/en/ceo/cms/heatmap/user\\_guide/user\\_guide.aspx](http://ceo.decc.gov.uk/en/ceo/cms/heatmap/user_guide/user_guide.aspx) – and it's important that the facilitator can confidently use the tools in the menu bar that allow the user to manipulate the map.

If possible the facilitator should test-run the heat map in the venue to make sure that it runs smoothly on the internet connection provided.



The facilitator should also be familiar with the various films on disc 1 of the PlanLoCaL resource pack, which are relevant to the heat technologies (solar hot water, biomass, heat pumps and energy from waste) as well as the individual film, 'Setting up a biomass district heating project'.

### *Stage 1) Grouping and explaining (10 minutes)*

Begin by explaining that you are going to be carrying out an initial assessment of a chosen area to look at its heat demand and to see if it could be suitable for a district heating system.

The facilitator should check the participants existing knowledge of district heating and, if necessary, help explain the basic principles behind it and how a district heating system can be powered.

One of the PlanLoCaL case study films which covers biomass district heating could be watched by the group if there is enough time left at the end of the session or, indeed, if there is a lack of knowledge of what district heating systems are.

When doing this exercise, the group should be able to pick out at least one priority area to focus their assessment on. However, it should be made clear from the start that ultimately there may not be anywhere in their area which is ideally suited to having a district heating system.

### *Stage 2) Carrying out the exercise (30 minutes)*

Make sure that the heat map overview is set to 'hybrid' so that the group can see not just the satellite image, but also the map names of areas and buildings, and that they have maximised the map by pressing the arrows next to the search bar.

They should then be able to use the search bar to find the initial area that they want to look at. This could be as large as a whole local authority, but will more likely be an area such as a town, village, parish, ward or, in a built up area, just a few streets.

Ask the group to set the layer on the heat map to 'total heat density'. It's worth noting to the group that for each layer, different levels of zoom can reveal more or less detail in terms of heat demand.

Tell the group that they can now search for a priority area, and that in doing so they should consider the following:

- **High heat demand** – these are displayed on the heat map in the 'hotter' colours and participants can zoom in and out to see the spread of these in more detail.
- **Anchor loads** – places which are likely to have heat loads which vary little through a day, a month or a year, such as heated swimming pools. Buildings owned by the public or community sector are good because they are more likely to want to get involved in this kind of project.
- **Large blocks of housing, especially social housing in need of refurbishment** – this would need to be combined with other loads though, as domestic loads are very variable throughout the day and year.

Once the group has decided on a priority area they can then look at it in more detail and begin considering the types of buildings, the overall heat demand and the heat density of that particular area.

Get the group to use the polygon selection tool to draw a loop around the area that they want to look at in more detail. To make this as easy as possible they should leave the 'total heat density' layer on so that they can follow the appropriate heat profile.

Once they have finished selecting the area that they want to find the results for they can press Esc to deactivate the polygon tool. In order to retrieve the heat data for their priority area they should select 'report' from the menu bar.

The group should then copy the report results (from the priority areas that they have looked at in the heat map), onto Table 1 so that everyone can clearly see them.

### *Stage 3) Discussion (20 minutes)*

In order to carry out a detailed discussion of the priority area that the group has chosen, it would be helpful for the heat map to show the different layers of heat density.

This can be done by selecting 'layout' from the menu bar and then choosing the option to divide the map layout into 4.

The default view at this point will show the whole of the UK. The quickest way to find your chosen area is to use the search bar in the top right of the display and to type in the location that you are looking at.

Once you are zoomed in on the location in each window

you can then display a layer in each one. This can be done relatively easily by clicking 'layers' from the menu bar and then selecting each of the maps from the drop down menu and assigning them one of the following layers:

- Public buildings heat density
- Commercial heat density
- Industrial heat density
- Residential heat density

It may be useful at this point to label each of the windows on the projector with post-it notes so that the group knows which layers are represented in each window. Clearing the polygon selection from the heat map at this point will help the groups see the different layers clearly in each window.

If the group wants to look at the area in more detail without the heat map layer, they can always switch the layer off temporarily, or adjust the transparency of the layer with the side bar in the layers dialog box.

Place a large version of Table 1 alongside Table 2 so that the group can see it.

Facilitate a discussion with the group covering the three aspects listed below for the chosen priority area.

By using the different layers, the facilitator can help aid the discussion by highlighting the mixture of buildings in the chosen area and the heat demand associated with them.

Encouraging comment from participants with a good level of local knowledge will hopefully help to fill in the gaps around possible periods of building use and whether there are any appropriate buildings for an anchor load.

1) A district heating system works best where the heat demand is fairly consistent over time. So a mix of buildings that may have heat requirements at different times (such as households, shops, sports centres or industrial buildings) is therefore desirable.

- *What does the mix of buildings look like for the site in question?*
- *How might heat demand vary over, say, 24 hours, one week or seasonally?*

2) Anchor loads (which are existing buildings with a significant heat requirement) can be useful in district heating schemes by acting as an initial customer for

the heat, i.e. a guaranteed end-user of a large amount of heat that can potentially sign-up in the early stages and help get the project off the ground.

The following types are examples of buildings that could act as an anchor load and would therefore be worth investigating further:

- *Hotels*
- *Health facilities like hospitals, health centres etc*
- *Schools, colleges (but remember that summer demand may be close to zero)*
- *Government buildings (e.g. local authority offices)*
- *Any local authority-owned public buildings with a floor area of over 1,000m<sup>2</sup> which are frequently visited by the public must have a display energy certificate (this includes leisure centres)*

3) Can the group see any opportunities in the area that would warrant further exploration? For example:

- *Are there any potential new developments or redevelopments planned in the area that could represent an opportunity for district heating? District heating in newbuild is cheaper and many local authorities have planning policies to encourage district heating in new developments.*
- *If there is a poor mix of buildings and/or no significant anchor load, could individual biomass heating systems or a small communal biomass heating distribution scheme for a residential area be more appropriate?*

### Closing comments

If there is an appropriate site in their area, then get the group to consider what their next steps might be if they wanted to investigate this further.

This could mean talking to the local authorities and speaking to the owners or tenants of the buildings which form important heat loads in order to get an idea of their interest in such a scheme.

If the group wants to pursue the project further, then it's important that they carry out a more accurate study of the proposed area in order to gather actual data on heat demand and assess the economics of such a scheme in more detail.

The next step might include carrying out exercise 8, 'Assessing the heat demand of a whole community for biomass district heating potential'.

**Table 1: Summary of local heat demand**

---

Sector	Heat demand (kWh)	Number of addresses	Heat density (kWh/m <sup>2</sup> )
Commercial offices			
Education			
Government buildings			
Health			
Hotels			
Industrial			
Other			
Postal			
Recreational			
Residential			
Retail			
Transport			
Total			

**Table 2: Discussion points**

---

What is the mixture of buildings and the likely period of heat demand over 24 hours and one week?	
Are there any suitable anchor loads?	
Further exploration?	