

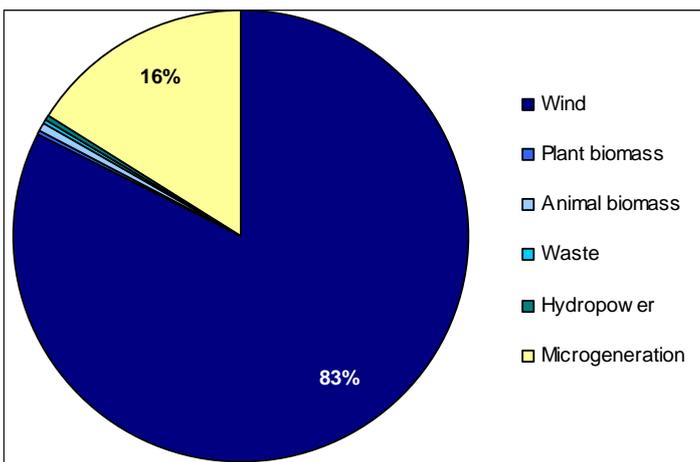
West Midlands Renewable Energy Capacity Study IMPLICATIONS FOR STAFFORD

This two-page data dashboard provides an overview of the 2030 renewable energy capacity potential for Stafford. It is based on the findings from the SQW, Maslen Environmental and CO2Sense work for Telford & Wrekin Council, on behalf of the West Midlands local authorities. The overall assessment of renewable energy capacity was undertaken within the framework of the national methodology developed for the Department of Energy and Climate Change by SQW in 2010. The purpose of the study was to develop the evidence base for renewable energy capacity within the West Midlands authorities at 2030 and provide advice on how this should be interpreted and taken forward in planning policy. This is in order to help the local authorities maximise their contribution towards the UK target of generating 15% of its energy from renewable sources by 2020 (UK Renewable Energy Strategy 2009, DECC).

This data dashboard is supported by the overarching West Midlands Renewable Energy Capacity Report and a tailored planning guide providing advice on the development of planning policy guidance for specific renewable energy technologies which can both be accessed from www.telford.gov.uk. In addition, a package of maps has been provided for each local authority which can be accessed from the same location.

These results provide an overview of *potential* (although not necessarily *deployable*) renewable energy capacity and further work will be required taking into consideration economic, environmental, financial and social constraints in order to identify the best locations for renewable energy deployment within the district.

Stafford's resource mix . . .

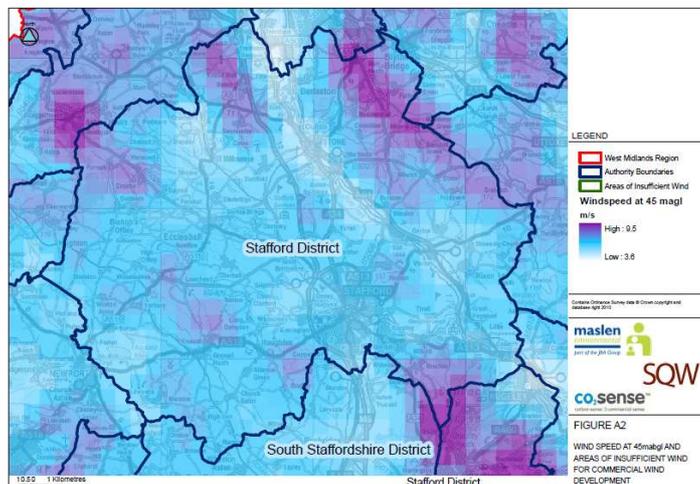


The resource assessment reveals that Stafford has a potential renewable energy capacity of **2300MW**, which is around 4% of the total capacity identified for the West Midlands.

The resource assessment results reveal considerable potential for renewable energy generation from wind reflecting Stafford's rural characteristics. There is also potential for micro-generation and plant biomass in the area.

Other technologies, such as waste offer more modest potential due to the area's low population density. The lowest potential is offered by hydropower generating less than 1% of the area's potential renewable energy.

Capacity from onshore wind. . .



The resource assessment results revealed **1901MW** potential capacity of commercial wind within Stafford, and a further 40MW identified for small scale wind.

Key constraints have been taken into account. These include urban areas and communications links; areas designated for landscape, nature or heritage purposes and areas subject to aviation and military constraints. Whilst the capacity has been constrained by these factors, it is important to note that only 27% of the potential capacity is likely to generate electricity due to the "load factor" for this technology that takes account of varying wind speed.

Within the identified area, it is assumed that 9MW of capacity per km² can be installed. The DECC methodology considers that all areas with average wind speeds above 5 m/s at 45m above ground level (agl) are suitable; although local stakeholders consider a wind speed above 6m/s at 45m agl more realistic which would reduce the capacity further.

In order to take forward and encourage deployment of this resource, further work would need to be undertaken with regard to landscape sensitivity, cumulative impact and overall environmental impact.

The amount of resource is unlikely to change materially by 2050.

Capacity from biomass including waste...

Plant biomass (MW)			
Managed woodland	Energy crops	Waste wood	Agricultural arisings
2	0	1	2
Animal biomass (MW)			
Wet organic waste		Poultry litter	
15		0	
Waste (MW)			
MSW	C&I Waste	Landfill gas	Sewage gas
4	4	0.3	1
Total biomass & waste			29

Stafford is likely to realise significant renewable energy capacity from animal biomass sources.

Wet organic waste provides the greatest opportunity for the area to capitalize upon. Stafford has almost 9% of the region's wet organic waste energy potential. The local authority area also has potential for municipal solid and commercial and industrial waste

Waste generation potential (other than landfill due to EU waste regulations) is likely to increase to 2050 in line with household and economic growth.

Capacity from hydropower...

A small potential of hydropower capacity has been identified for Stafford – around **2MW**.

Hydropower capacity has been assessed by using a previous study undertaken by the Environment Agency and scrutinising the opportunities within this which has reduced the previously identified capacity considerably. The majority of the regional resource lies in the larger local authorities in the west and south of the region.

Stafford accounts for around **2%** of the region's total capacity for hydropower.

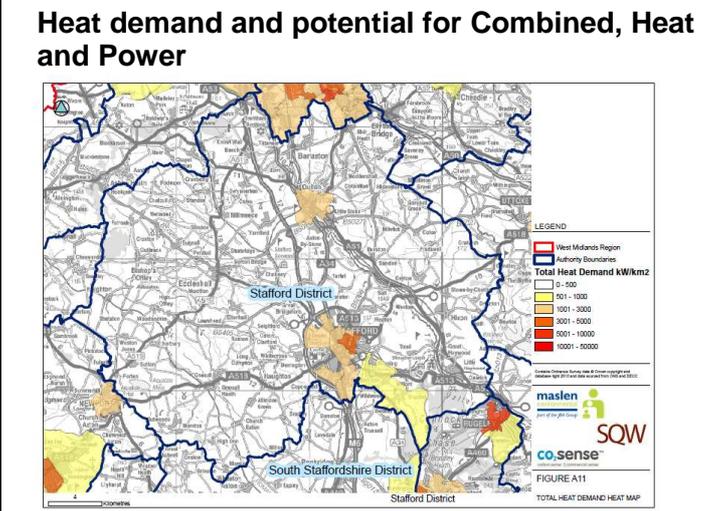
Further advice on the generation of energy from hydropower can be obtained from British Waterways and the Environment Agency.

Capacity from microgeneration...

Technology	Capacity (MW)
Solar Photovoltaics	40 (11%)
Solar Water Heating	34 (9%)
Ground Source Heat Pumps	59 (16%)
Air Source Heat Pumps	237 (64%)
TOTAL	371*

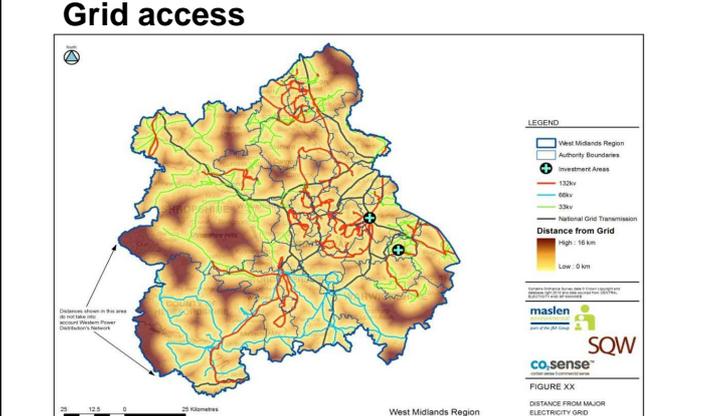
*Number does not sum due to rounding

Micro-generation also provides a significant opportunity for renewable energy generation (**371MW**). The key sources are building integrated. Deployment of solar technology depends on aspect and orientation. Most heat pump deployment potential on residential properties is likely to be largely restricted to properties that are located off the gas grid – this would reduce the capacity significantly to 223MW. The capacity has not been restrained on the basis of designated landscapes/areas which may also impact on viable deployment. Capacity to 2050 is likely to increase in line with household and economic growth.



Low carbon energy is defined for the purposes of the DECC methodology as Combined Heat and Power (CHP) or tri-generation (to include cooling), and district heating schemes. Both district heating and CHP plants can be fuelled by a number of sources, including biomass. The choice of fuels can affect the overall carbon savings for a plant.

The heat map shows those areas with greatest heat demand (from industrial/commercial and residential sources). Stafford accounts for 0.4% of the West Midlands total heat demand (15 GWhr/yr) and a more detailed assessment of the candidate sites with economic and engineering surveys would be essential to estimate the likely deployable potential. Overall, CHP potential is likely to increase to 2050 in line with household growth.



Stafford has reasonable access to the grid.

There are planned extensions in the future. However, the capacity of the mid/low voltage network in some parts of the area is limiting for future development; additional generation from sustainable sources may help to ease these problems.

The cost of connecting to the grid is driven by distance from energy source to connection and current load at a particular site. Central Network West covers the majority of the West Midlands.