

Annex 3F

Regional and local use of energy in the industrial / commercial sector

Introduction

3F.1 The aim of this article is to show some of the key trends in the industrial/commercial use of energy at local authority (NUTS4) and regional (NUTS1) levels.

3F.2 The key driver for making local and regional energy consumption statistics available has been the Government's Energy White Paper "Our Energy Future: Creating a Low Carbon Economy", which was issued in February 2003. The White Paper emphasised the importance of decision making at local and regional level for energy policy. As part of this process, DTI has released a series of local authority and regional energy consumption datasets to assist local authorities and RDAs to develop and monitor their own energy strategies.

Regional Energy Indicators

3F.3 The indicators which are experimental are based around the energy consumption data that DTI collected and compiled for different fuel sources in 2003. Using the local and regional energy data and additional data on Gross Value Added (GVA) and employment, a set of experimental regional energy indicators at local authority (NUTS4) and regional (NUTS1) levels was released in 2006. The only exception are the indicators based on GVA, which are only disaggregated to NUTS3 level by the ONS. The key trends in these indicators form the basis of this article.

3F.4 The indicators at both local authority (NUTS4) and regional (NUTS1) levels are:

- Total industrial and commercial energy consumption per employee.
- Total industrial and commercial gas consumption per meter point.
- Total industrial and commercial gas consumption per employee.
- Total industrial and commercial electricity consumption per meter point.
- Total industrial and commercial electricity consumption per employee.

The indicator available at only NUTS3 and regional (NUTS1) levels is:

- Total industrial and commercial energy consumption per £GVA.

3F.5 The reader should note that the indicators cover all local authority areas in Great Britain, though not all industrial/commercial consumption of gas and electricity is covered in this analysis. See the sections on electricity and gas for further details.

Natural Gas

3F.6 The two indicators relating to gas show that at a regional level, Wales had both the highest total industrial/commercial gas consumption per meter point (1,313,100 kWh) and total industrial/commercial gas consumption per employee (19,000 kWh) in 2003. Further examination of the figures show that only four regions in Great Britain, the South West, South East, London and the East of England were lower than the GB national average of 729,000 kWh and 12,000 kWh for both indicators respectively. Further investigation of ONS's regional GVA data for 2003 show that these regions had relatively low proportions of GVA based on manufacturing, particularly in London and the South East. This suggests that there tends to be proportionally fewer energy intensive industrial installations in these regions.

3F.7 At the local authority level, North East Lincolnshire (4,189,300 kWh) and Selby (3,616,600 kWh) had the highest total industrial/commercial gas consumption per meter reflecting the location of a number of energy intensive industrial sites. Industry in North East Lincolnshire is dominated by the food, chemicals, ports and distribution sectors, whilst Selby contains a high concentration of food and drink manufacturers. Also final consumption data based on the DTI's Digest of UK Energy Statistics for the UK shows that the chemicals and food and drink sectors were the largest industrial consuming sectors of gas in 2003. This contrasts with Penwith (217,800 kWh) and Elmbridge (231,400 kWh), which had the lowest total industrial/commercial gas consumption per consumer.

3F.8 For the indicator, total industrial/commercial gas consumption per employee, North Ayrshire (68,500 kWh) and North East Lincolnshire (54,400 kWh) (both these authorities contain a number of chemical sector installations, which are major consumers of natural gas) were the highest, whilst the mainly rural authority Penwith (1,000 kWh) was the lowest. The GB national average was just 12,000 kWh. Note that the Shetland, Orkney and Scilly Isles have no access to the mainland gas network and have therefore been excluded from this analysis. See table 3F.1 below for further information on this indicator.

Table 3F.1 Total industrial/commercial gas consumption per employee kWh

Highest consuming local authorities	Total industrial and commercial gas consumption/employee kWh	Lowest consuming local authorities¹	Total industrial and commercial gas consumption/employee kWh
North Ayrshire	68,500	Caradon	3,900
North East	54,400	Argyll and Bute	3,800
Lincolnshire			
Thurrock	49,200	Southend-on-Sea	3,800
Selby	47,800	West Oxfordshire	3,700
Moray	39,400	Rushmoor	3,300
Slough	38,900	Mid Sussex	2,800
Monmouthshire	38,500	Bournemouth	2,400
Corby	38,400	East Dorset	2,300
St Helens	37,700	Weymouth and Portland	2,300
Clackmannanshire	37,600	Penwith	1,000

¹ There is no gas supply in the Isles of Scilly, Shetland and Orkney, which are excluded here.

Source: DTI

3F.9 The data user should note that the two indicators here are not based on all industrial/commercial consumption of gas in 2003. DTI's gas consumption estimates are based on the National Grid's published data set and exclude consumption in Northern Ireland, a number of power stations and some very large industrial consumers due to confidentiality constraints. This may inevitably have a significant impact in reducing the value of the indicators in some local authorities where large industrial sites have been excluded.

Electricity

3F.10 Again at a regional level, Wales had the highest total industrial/commercial electricity consumption per meter point (100,500 kWh) and total industrial/commercial electricity consumption per employee (9,000 kWh). Further examination of the figures showed that four regions Wales, North East, East Midlands and North West were higher than the GB average for the first indicator and the first three of these regions for the second indicator. In contrast the South West (56,800 kWh) was the region with the lowest total industrial/commercial electricity consumption per meter point, whilst the West Midlands had significantly lower total industrial/commercial electricity consumption per employee (4,800 kWh), than any other region in Great Britain.

3F.11 At the local authority level Neath Port Talbot had both the highest total industrial/commercial electricity consumption per meter point and per employee (see table 3F.2 below for further detail on the later). This is likely to be due to the location of the large steel plant within the authority. Other authorities with high

total industrial/commercial electricity consumption per meter are also shown here with the dominant industrial/commercial activity in the area; the City of London (financial services), Newport (metal manufacturing and finishing plants) and Knowsley (automotive sector). A similar breakdown for the total industrial/commercial electricity consumption per employee showed that Rutland (contains a large cement works), North Ayrshire (chemicals) and Gravesham (paper, cement and engineering) were the next highest.

Table 3F.2 Total industrial/commercial electricity consumption per employee kWh

Highest consuming local authorities	Total industrial and commercial electricity consumption/employee kWh	Lowest consuming local authorities	Total industrial and commercial electricity consumption/employee kWh
Neath Port Talbot	28,500	North Dorset	3,300
Rutland	25,900	Bromsgrove	3,200
North Ayrshire	22,500	Solihull	2,800
Gravesham	21,600	Mid Sussex	2,800
Pembrokeshire	18,700	East Dorset	2,300
Staffordshire Moorlands	18,500	Stroud	2,300
High Peak	18,400	Weymouth and Portland	2,300
Swale	17,900	Bournemouth	2,100
Wrexham	17,300	Penwith	1,700
South Derbyshire	16,900	Isles of Scilly	300

Source: DTI

3F.12 The DTI's 2003 local and regional estimates do not include all industrial/commercial electricity consumption. Not included in the figures are estimates for Northern Ireland and some large industrial consumers of electricity (central volume allocation users) who are connected via the high voltage transmission system rather than the public distribution network. Again at the local authority level where these large industrial sites are excluded from local and regional electricity consumption estimates, this may have a significant impact in reducing the indicator.

Total Energy

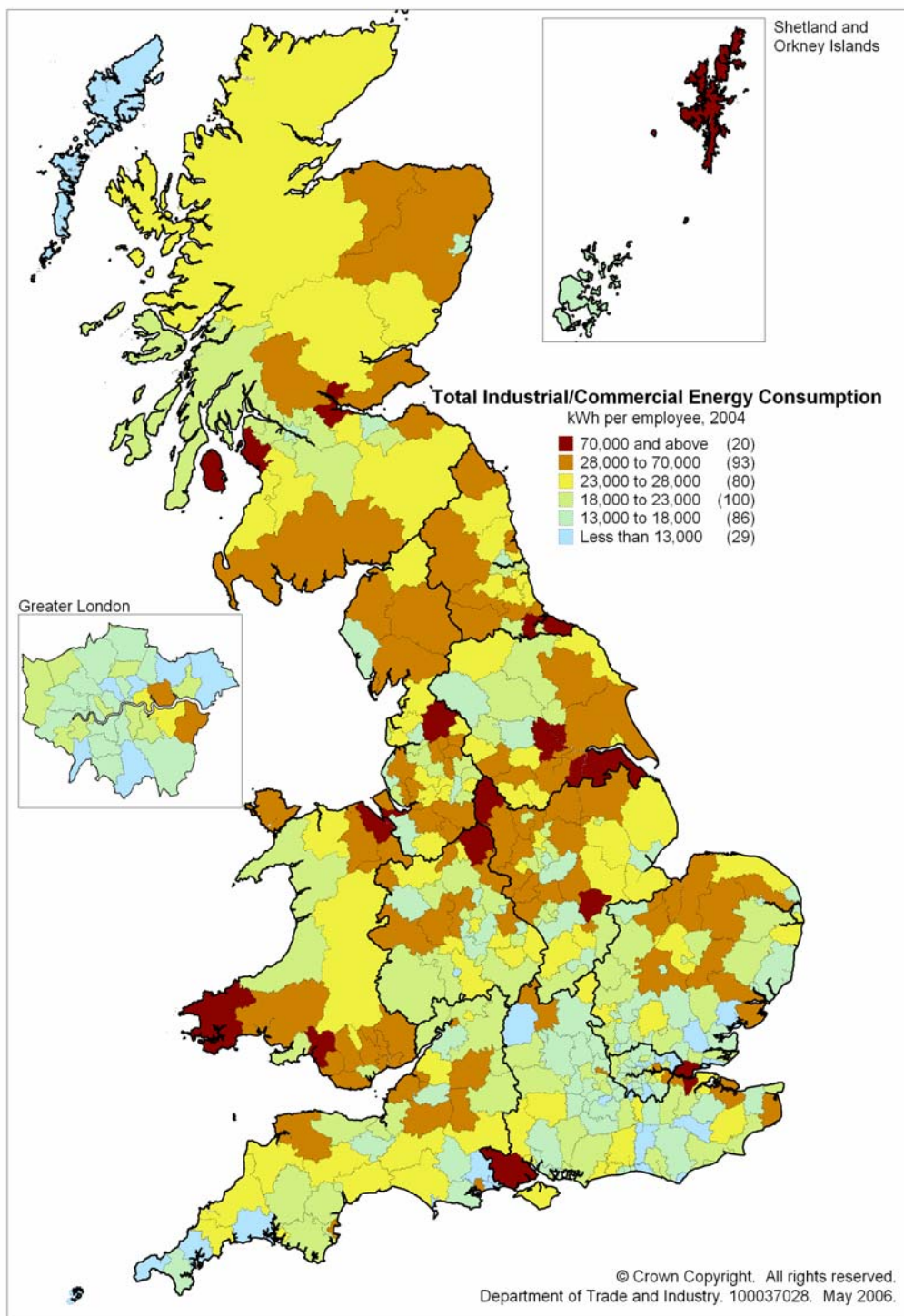
3F.13 At the regional level Wales again had the highest total industrial/commercial energy consumption per employee with 51,000 kWh, followed by Yorkshire and Humberside (38,500 kWh) and the North East (37,300 kWh). Regions of the country that were below the GB national average were the East of England, South East, West Midlands, South West and London. There was a similar pattern for total industrial/commercial energy consumption per £GVA, where Wales (1.5 kWh) and Yorkshire and Humberside (1.2 kWh) were again the highest whilst London (0.3 kWh), South East (0.6 kWh) and South West (0.6 kWh) the lowest.

3F.14 At the local authority level there was much more variability between the authorities with Pembrokeshire (421,000 kWh) and North Lincolnshire (365,500 kWh) having the highest total industrial/commercial energy consumption per employee. This was mainly influenced by the location of the large oil refinery within the former and the steel and food & drink sectors in the latter authority. In contrast Isles of Scilly (400 kWh) and Penwith (3,800 kWh) were the lowest, partly due to a lack of access to mainline gas supplies and their dependency on the farming and fishing industries. The national average for Great Britain was 26,400 kWh. Map 3F.1 below shows a local authority map of total industrial/commercial energy consumption per employee broken down into six classification bands. This shows that the highest authorities were scattered across several regions of the country, whilst the lowest authorities were generally located in parts of the South East, South West, East of England and London.

3F.15 Investigation of the data at NUTS3 level showed that North and North East Lincolnshire (6.6 kWh), Thurrock (5.4 kWh), Falkirk (5.3 kWh), Shetland (5.1 kWh) and South West Wales (4.8 kWh) had considerably higher total industrial/commercial energy consumption per £GVA than other areas of Great Britain. In contrast the four lowest NUTS3's were Surrey, Outer London – South, Brighton and Hove and Inner London – East (all with 0.3 kWh).

3F.16 The reader should note that not all final energy consumption was used in the calculation of these indicators. As referred to earlier, some industrial/commercial gas and electricity consumption is excluded from the local and regional consumption estimates where some large industrial consumers are located. Total energy consumption here also excludes heat sold data, which is currently already heavily modelled from survey data at the national level, and cannot be further disaggregated to local and regional areas.

Map 3F.1 Total industrial/commercial energy consumption per employee in 2003



Source: DTI

Sources/further reading:

Guidance note for 2003 high level energy indicators:

<http://www.dti.gov.uk/files/file27541.pdf>

Local and regional high level energy indicator 2003 data sets:

<http://www.dti.gov.uk/files/file27540.xls>

DTI quarterly publication 'Energy Trends':

<http://www.dti.gov.uk/energy/statistics/publications/trends/index.html>

ONS regional GVA data:

<http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=7359>

Useful Websites:

DTI:

<http://www.dti.gov.uk/>

ONS:

<http://www.statistics.gov.uk/>