Energy in the UK

Putting our consumption in perspective

Sheet 3

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10p (where sold)

As well as looking at energy consumption within the UK it's also important to look at how the UK compares to other states – in order to give some scale to the situation in the UK. This sheet looks at energy trends in the UK compared to other states, and how energy use in the UK has changed in the past, and how it might change in the future.

Energy and carbon per capita

Although we can look at how much energy a country uses, to provide some clear comparison we have to scale these absolute figures by some standard value. The simplest way to do this is to look at the energy consumption, or the carbon dioxide emitted, per person each year (see fig.1).

The UK is clearly not the worst in Europe. Germany, which many people regard as "greener" than the UK, actually consumes more energy per person, and emits more carbon dioxide per person. France consumes more, but its reliance on nuclear power means that its carbon emissions are lower. The most curious European state is Belgium (and Luxembourg, since that is how these figures were produced) – the Belgians are not usually public enemy no.1 in the energy debate, but they use three-quarters more energy, and emit one-third more CO_2, than UK citizens.

Although the Belgians are almost as bad, the average US citizen consumes more than twice the energy, and emits twice the CO_2, compared to the UK. Energy consumption in Canada is even greater, but their large hydro-electric capacity means that their emissions are lower than the USA. Australia is also a large energy user because, like Canada, they have a large mining industry that consumes energy as well as emits large quantities of carbon dioxide.

If we look at the less developed world we see a different picture. Although it's often stated that China's large and growing use of coal makes the UK's emissions insignificant, the energy used per person in China is about a third of that in the UK – and of course, because much of that consumption is for export industries, the Chinese people never reap the material benefits of that consumption. The same is true of Brazil and India (30% and 10% of UK consumption respectively). Those who use the growth of emissions in Brazil, China and India, usually oppose any arguments for change in the UK – it is a disingenuous point since nationally-based values do not reflect the differing populations in these states.

What distorts the global comparison of energy and carbon are exports. If a TV is made in China and sold in the UK the energy/carbon go on China's bill, not ours. We must factor in the export and import of "embodied" energy and carbon or we will never be able to have a truly equitable policy for carbon reduction.

Britain, the importer

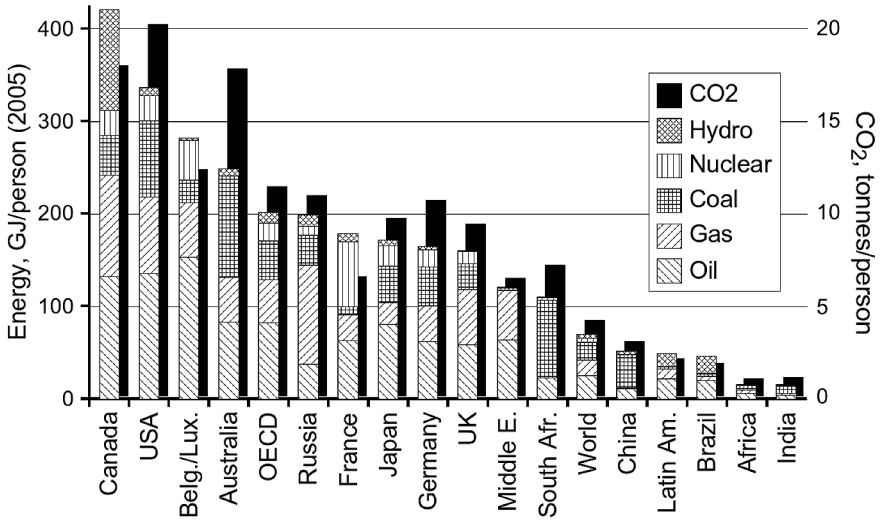
It could be a legacy of our colonial past, but Britain has always imported its needs. We have been important grain and other staple food items for 200 years. Today, it is our use of energy, as North Sea output declines, that's beginning to dominate our imports.

Figure 2 (overleaf) is based upon the data available from the government committee on energy security – the JESS Committee (but the JESS committee do not "stack" the results for each fuel source to give an overall picture of how the balance of indigenous energy production to energy imports will change over the next 12 to 15 years). These projections are in many respects optimistic, and already some of their early projections are not borne out by the recent production/import statistics.

Today Britain imports less than a fifth of its energy, but as North Sea depletion takes hold over the next decade this situation will reverse. On the back of the growth in energy consumption, and the sharp drop-off in gas production, we will import almost four-fifths of the energy we use by around 2020 to 2025.

The *Joint Energy Security of Sup-*

Fig. 1. Per-capita comparison with other States/Regions



Source: BP and IEA

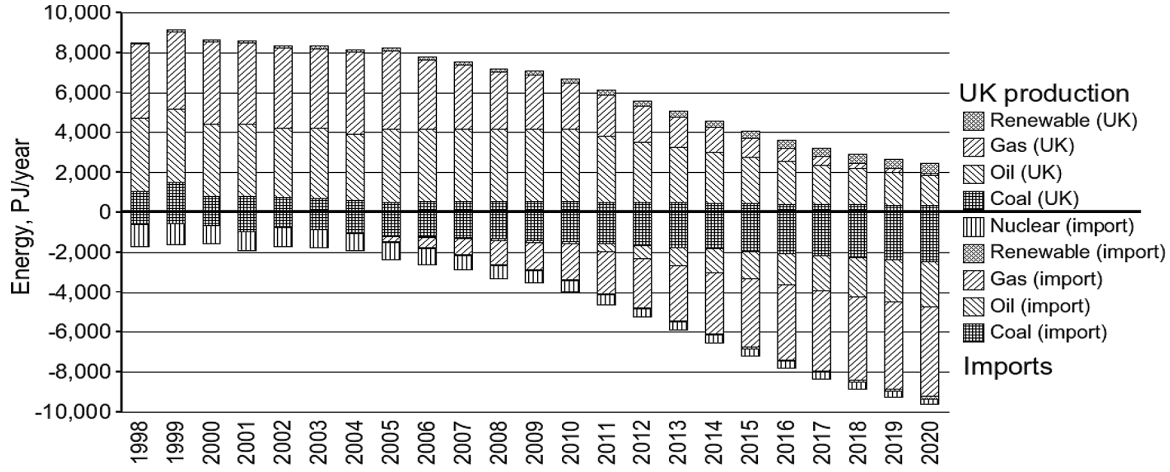


Fig.2. UK Projected Imports *This graph adapts the JESS Committee's 2006 report on energy security: it "stacks" their data – this shows the switch from the UK being an energy producer to major importer over the next 12 to 14 years.*

ply (JESS) Committee was established by the government to study "energy security" – ensuring that the lights stay on and the heating boilers stay lit. But replacing falling production with imports gives only the semblance of "security". Other developed states will be competing for the same pool of global oil, gas and coal resource (uranium supply too could become problematic within 10 to 15 years).

If the JESS Committee were serious about security they would tackle the scale of energy use, not just its source. A state that imports 80% of its energy can never be truly secure! If energy depletion can make such a change in the UK energy economy in a decade, what will global Peak Energy do to the global economy, and our imports of energy?

Energy in the UK

Figure 3 is a scale flow chart of energy use in the UK. Energy production/imports enter from the left. Energy exports/losses leave at the bottom. Energy consumption is on the right and carbon emissions leave from the top. The two dashed lines denote where the primary and final energy supply are measured.

Although our homes do use a lot of energy, in terms of the whole system they are only a small part. We waste more energy from our power stations, energy transmissions system and refineries than is consumed by the UK's homes! Consequently if we really want a policy that controls energy, and carbon emissions, it must reflect energy use, and wastage, in the whole system, not just our homes.

Fig. 3. UK Energy Flowchart, 2005