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Energy Flow Chart 1989

United Kingdom

DEPARTMENT OF ENERGY

JULY 1990

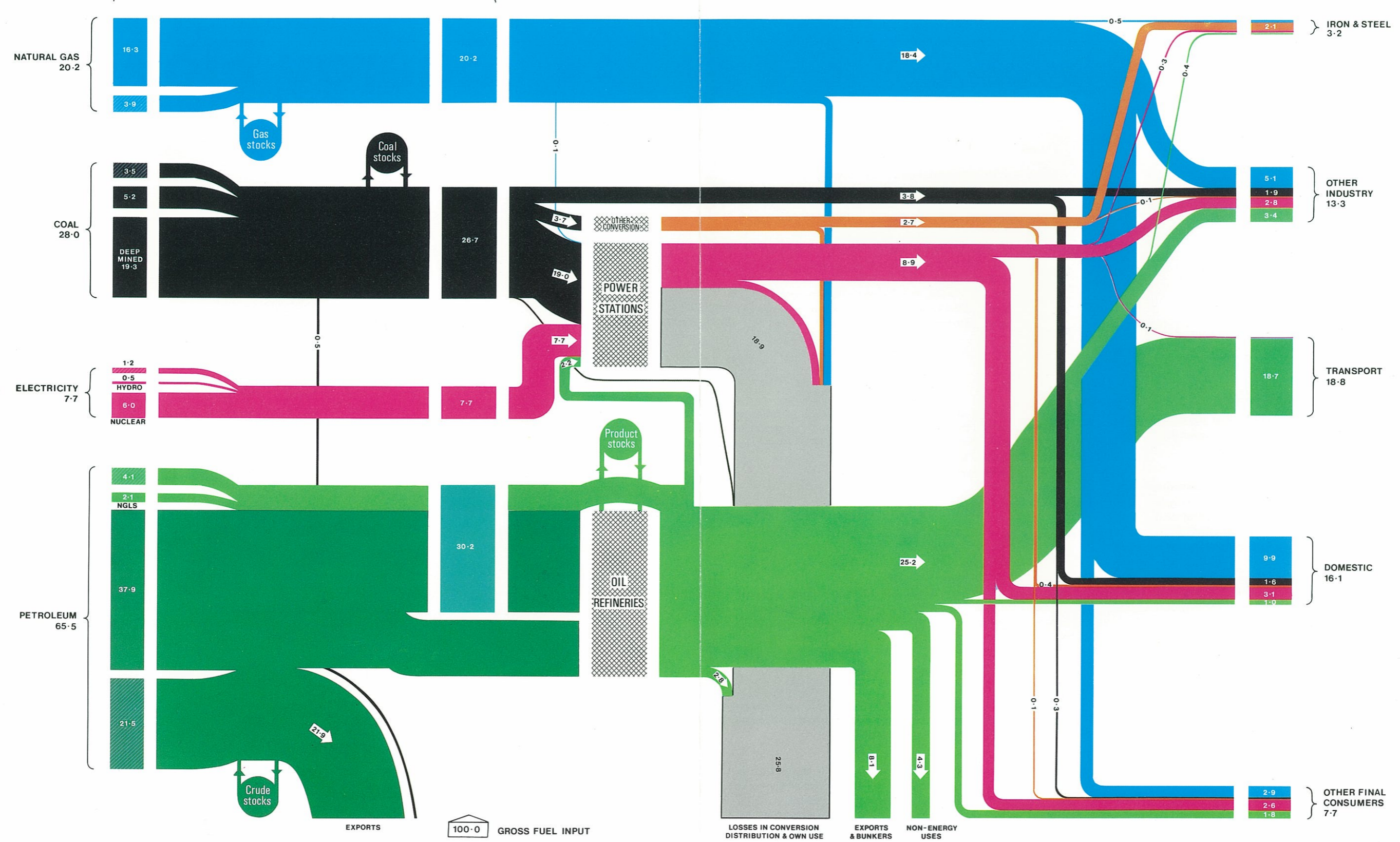
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UK ENERGY FLOWS 1989 (THOUSAND MILLION THERMS)



PRIMARY FUELS AND EQUIVALENTS



Energy Flow Chart 1989

United Kingdom

The chart, which is similar to the previous issue relating to 1986, illustrates the flow of primary fuels from the point at which they become available from (on the left) home production or imports to their eventual final uses (on the right), either in their original state or after being converted into different kinds of energy by the secondary fuel industries.

All flows are measured in thousands of millions of therms and the widths of the bands on the charts are roughly proportional to the absolute sizes of the flows they represent. Stocks of natural gas, coal and petroleum are represented by circles. (The circles are not related to the size of the stocks — and they do not show whether there has been a stock rise or stock fall.)

Primary fuels and equivalents

Primary fuels are natural gas, coal (deep-mined and opencast) and crude oil. "Equivalents" refers to the crude oil equivalent of natural gas liquids (NGLs) and imports of petroleum products.

Nuclear and hydro electricity are often referred to as primary electricity to distinguish them from that generated at conventional power stations burning fossil fuels, ie coal, petroleum or natural gas. There are many ways in which the output of nuclear and hydro electricity can be measured. In the chart and in all related statistics the electricity generated by these means is expressed in terms of the notional amount of fossil fuels that would have been needed to generate the same amount of electricity at contemporary conventional steam power stations. Electricity imported into the United Kingdom is treated in the same way as nuclear and hydro electricity.

Gross fuel input indicates the total amount of home produced and imported fuel available for use, and comprises the input of primary fuels and equivalents for conversion, together with petroleum products for export and international marine bunkers, petroleum products which are used for non-fuel purposes (eg feedstock for petrochemical works, bitumen for road making) and refinery fuel and refinery losses.

As can be seen, most of our primary fuel supply is not finally consumed in the original state in which it is produced or imported. Crude petroleum is refined to produce petroleum products (eg petrol, fuel oil, gas/diesel oil, jet fuel etc). The largest proportion of coal flows to power stations where it is transformed into electricity.

Secondary fuels

The principal secondary fuels are petroleum products, electricity and coke (which in the chart includes other manufactured solid fuels). Secondary fuels are in the main required for specific purposes for which the use of primary fuels is inappropriate. For many uses there is no practical alternative to electricity as a fuel and coke is an essential material for the iron and steel industry.

Losses

This large flow (in dotted grey) shows those losses that occur between primary supplies and deliveries to final users. Each fuel industry consumes energy in the course of its operations and some is lost during its subsequent distribution. Electricity generation in particular involves large losses in converting primary fuels to electricity. The chart does not show the further losses of energy which occur after energy is supplied to final consumers which result principally from the inefficiencies in the multitude of energy using appliances, eg domestic fires and boilers, cars, lorries, aircraft, central heating plant etc. It is estimated that these latter losses could in total amount to almost half of the energy supplied to final consumers.

Final uses

This section of the chart illustrates how energy consumption is distributed between the main final consuming sectors and how the different kinds of primary and secondary fuels are shared between the sectors. The figures for coal and petroleum are deliveries as actual consumption data are not available.

Statistics

The chart has been prepared by the Economics and Statistics Division of the Department of Energy and is based on statistics taken from the "Digest of United Kingdom Energy Statistics 1990". (Table 5) 'Energy balance for the United Kingdom'. The flow chart is a simplification of these figures and some of the terms used in the chart are not used in the Table. Table 2 of "Energy Trends" (Supply and Use of Fuels) is an abbreviated version of the energy balance table. Due to rounding the sum of constituent items may not equal totals.

The "Digest of United Kingdom Energy Statistics 1990" is prepared by the Economics and Statistics Division of the Department of Energy and published by Her Majesty's Stationery Office.

"Energy Trends", a Statistical Bulletin, which is also prepared by the Economics and Statistics Division of the Department of Energy, is published monthly and is available on annual subscription. Details about subscriptions may be obtained from Economics and Statistics Division, Department of Energy, Room 3.3.26, 1 Palace Street, London SW1E 5HE.