

A lesson in futility: Drax Power Station

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The Drax power station opened in Selby, Yorkshire, UK in 1973. It was designed as a coal fired power station using the abundant coal which lay beneath it in the Selby coal fields which were opened in 1967. It produced 3,000 megawatts (MW) of electricity, subsequently expanded to 4,000 MW in 1986, 7% of the country's electricity and enough to power 6 million homes. Its 6 units burned around 11 million tonnes of coal, producing an estimated 22 million tonnes of CO₂, Europe's largest industrial source. It is one of 7 remaining coal-fired power stations in UK which, between them produce 11,000 MW of electricity.

Following the Miners Strikes of the 1980's UK coal production went into decline, (the last deep coal mine in UK closed in 2015), but it was with increasing concern about carbon emissions that a Drax redesign was contemplated. In 2011 the station was still using 9.1 million tonnes of coal a year, some still from Yorkshire but the vast majority from overseas countries, including the USA, Russia and Australia. Testing for conversion to burning biomass (code for wood) had begun in 2004 and by 2012 three units had been converted, at an estimated cost of 700 million pounds (over \$1 billion Australian). A further 4th unit transition was planned for 2018, with the remaining 2 units proposed to convert (with more subsidies) to gas by 2025. Because of the cost of this subsidy, other solar energy and wind subsidies were reduced. Despite ongoing subsidies for biomass from the British Government and European Community, estimated to cost annually around 1 billion pounds, the electricity produced is still more expensive than produced by coal.

In addition to the costs of the conversion, it was necessary to build a plant in the US to convert wood to over 5 million tonnes of pellets per year, and upgrade the New Orleans export port and the British import ports of Hull and Grimsby, to cope with 50,000 tonne cargo ships.

The demand for wood for the power station in 2018 was estimated at 7 million tonnes per year, equivalent to 14 million tonnes of green trees and two thirds of Europe's biomass consumption. (Total annual UK wood production was estimated at this time to be 11 million tonnes). Wood is

imported from the US (4.5 million tonnes), Canada (1.2 million tonnes) and the Baltic States (1 million tonnes), each unit consuming 2.3 million tonnes of wood per year. Storage of vast amounts of wood has resulted in two major fires, in 2011 and 2013. It is estimated that 1.2 million hectares (12,000 square kilometres) of forest is necessary to produce a continuous supply. In theory the pelletized wood was supposed to come from non-useable forest waste timber, in practice this is not the case; loss of habitat is occurring and replanting of trees is not occurring at the prescribed rate. Even if it were, it takes 50 years for a tree to grow to recover the carbon produced by its burning. Were the US to follow Europe and convert its power stations to burning wood, its estimated 7 billion tonnes of forest would be gone in 3 months; meanwhile, American energy costs have gone down, and emissions reduced, by gas from fracking.

In March this year residents of 6 countries launched a law suit against what they see as “a fake green energy fiasco”, demanding the biomass legislation be annulled; it is easy to see why. The Drax power station, in its new format, now produces 20 million tonnes of CO₂ annually, a reduction of 10% from its original output (even this figure is in doubt as it fails to include the CO₂ produced by re-burning the residual ash); meanwhile, burning wood produces four times the particle emissions of coal. This possible small reduction in CO₂ has been achieved at enormous expense, requires massive annual subsidies because its electricity is more expensive, is resulting in vast areas of deforestation and loss of habitat, and (even if full replanting occurred) each area removed would take 50 years to reclaim the CO₂ released. The whole concept is based on the ridiculous premise that “wood is carbon neutral”, as opposed to coal (which is old wood). The whole process is rightly under threat and a law suit was lodged in the European court in March; the litigants are individuals and non-government organisations from Estonia, Ireland, France, Romania, Slovakia and the United States.

Currently, despite the enormous subsidy, renewables provide only 15% of electricity generation in Europe, with 10% from biomass, 2.4% coming from solar and wind, 1.7% from hydro, and 0.4% from geothermal. Nuclear power provides 13 %, the rest comes from coal and gas. In the UK 6% of generation comes from biomass and 6% from wind power. European coal consumption has fallen from a peak of around 330 million metric tons of oil equivalent annually to 220 million tons in 2018. The current plan is to phase out coal fired power stations between 2025 and 2030; this plan has the support of 8 countries, but many in Eastern Europe (such as Poland, Czech republic, the Balkans), are unwilling to comply and are building new coal-fired plants; France, the main protagonist for eliminating coal, has ample electricity supplies courtesy of nuclear power.

We know that burning wood in domestic stoves causes pollution which kills an estimated 4 million people annually (World Health Organization). By the simple expedient of redefining wood as “good” biomass an enormous amount of money has been wasted on pointless subsidies, without improvement in CO₂ emissions, meanwhile increasing emissions of polluting black carbon and destroying forests- this is the International Panel for Climate Change (IPCC) and European Community bureaucracy at its most incompetent.