

Carbon Dinosaurs

**A Report highlighting the
role of coal-fired power
stations in UK climate and
energy policy**



**Friends of
the Earth**



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The Carbon Dinosaurs Report

Executive Summary

Friends of the Earth is calling for the emissions of carbon dioxide from coal fired power stations to be halved by the end of the decade by halving the amount of electricity produced in these stations. To keep us on track with long term emission reduction targets output should be further reduced to just 20% of today's levels by 2020.

We believe that closures of coal fired stations can be accommodated as we currently have more capacity than we need and will actually help to improve long term security of supply by incentivising investment in newer cleaner technologies.

All bar one of our fleet of sixteen coal fired stations is over 30 years old and yet they still account for 35% of our electricity generation.¹ Power stations are still the largest single source of carbon dioxide in the UK² and the UK is the second largest consumer of coal in Europe³. These facts make us the second largest emitter of greenhouse gases in Europe.

The loss of these stations could be compensated for by increased use of renewables and gas, reducing demand through improved efficiency and on-site generation and investment in a limited number of well-sited coal gasification plant.

This shift away from coal fired stations to new generation and a reduced demand for energy need not harm the economy. Approximately 250,000 additional jobs⁴ could be created. UK coal interests also need not suffer if coal gasification technologies are introduced.

Government has the opportunity to bring about closures through its implementation of the Large Combustion Plant Directive and the EU Emissions Trading Directive. Decisions will be made over the next few months.



1. Introduction

Our demand for energy has an impact on the environment.

Not all sources of energy have an equal impact however. Burning coal for example is far more damaging than natural gas. Generating energy in a new combined heat and power plant is more efficient and therefore less damaging than in a traditional combustion plant.

Climate change is probably the most serious environmental problem facing humanity. In this report we aim to expose the power stations in the UK which are having the greatest impact on it.

Climate change is caused by emissions of a variety of gases known collectively as greenhouse gases. The most significant of these gases is carbon dioxide which is responsible for 60% of global warming and remains in the atmosphere for up to 200 years.

The energy supply industry is currently responsible for a third of our annual total of greenhouse gas emissions. Power stations account for 27% of emissions of carbon dioxide⁵ – still the single biggest source. Emissions from the power sector reached their lowest point in 1999 but have been rising since. If we are to meet our international and national climate change commitments we need to continue the trend started in the 1990's when emissions from the power sector fell due to a switch from coal to gas and the building of newer more efficient power stations.

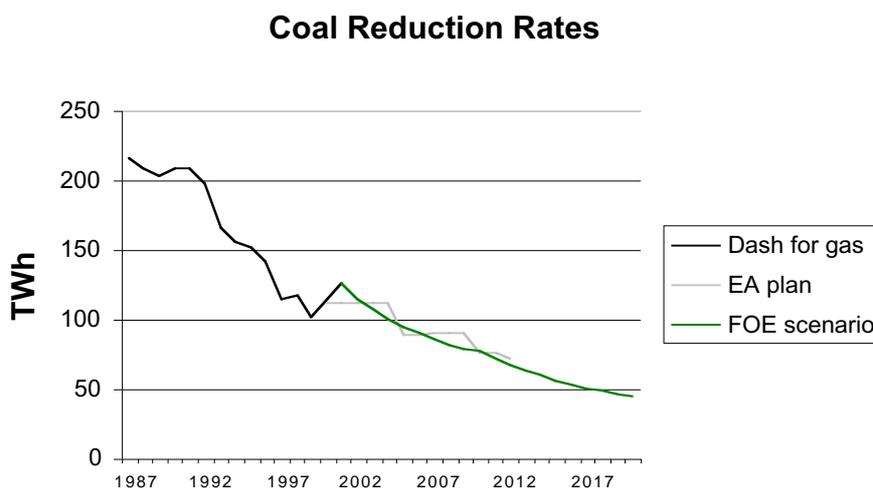


2. The Carbon Dinosaurs campaign

2.1 What are we calling for?

Friends of the Earth believes that by the end of this decade output from Britain's sixteen existing coal fired stations should be reduced to less than half of what it is today. By 2020 our reliance on these stations should be even further reduced to less than 20% of today's levels. These figures are consistent with an energy scenario that we developed in 2002, described in the Friends of the Earth report 'Tackling Climate Change Without Nuclear Power'⁶.

The chart below illustrates the rate of reduction in electricity from coal to date compared to what it could be in the future. In 2000 the Government and the Environment Agency predicted a similar fall to the one set out in our energy scenario⁷.





2.2 Why?

1. Coal fired power stations emit up to three times as much CO₂ per unit of output as the most modern gas plant⁸. Coal contains far more carbon than gas and produces more carbon dioxide as a result. There is no way of extracting the carbon dioxide from these stations⁹ – the only way to reduce emissions is to burn less coal.
2. All bar one of our remaining 16 coal fired stations is over 30 years old¹⁰. This means that the technology they use is old and out of date and they should be replaced by newer more efficient designs
3. Closing existing inefficient coal-fired power stations will cut Britain's surplus of power capacity, making it easier for newer, more efficient stations and renewable generators to enter the market.
4. Coal stations also emit other pollutants including acid-rain forming sulphur dioxide and nitrogen oxides (NO_x) and health damaging dust. 9 out of the 16 are unlikely to ever be fitted with equipment to reduce these emissions because it is too expensive. This means they could be forced to reduce their output when new EU controls come in to force in 2008.¹¹
5. At least half of the 16 stations fall do not meet efficiency standards set by the EU. We have signed up to a Directive that calls on us to improve our efficiency – closing these stations would achieve that objective.¹²
6. Existing coal fired stations do not have to meet the same air quality standards as other installations for example waste incinerators and have a damaging effect on air quality.
7. Closing these stations need not have a damaging impact on the UK coal industry. 50% of the fuel being burnt in these stations is imported from overseas¹³ and this percentage is rising. Newer cleaner stations could actually reinvigorate the UK coal market if, for example, they use coal gasification technologies¹⁴ (enabling the dirtier UK coal to be burnt more cleanly) and if they are situated on or close to deep mine coal fields.



3. The Dinosaurs

3.1 Who they are

The league table below ranks our remaining sixteen coal fired stations according to their impact on climate change which is measured by calculating the amount of carbon dioxide emitted per unit of electricity produced. The stations appearing at the top of the table are the least efficient. The table does not reflect the overall capacity of each station.

Data used was for Jan-Dec 2002 and was provided by the Environment Agency, Campbell Carr, SEPA and Scottish Power.

Dinosaur	Location	Fossil factor*	Owning company
Cockenzie	East Lothian	9.9	Scottish Power
Ferrybridge	West Yorkshire	9.8	AEP
Longannet	Clackmannshire	9.8	Scottish Power
Fiddler's Ferry	Cheshire	9.7	AEP
Kilroot	Northern Ireland	9.7	AES
Ironbridge	Shropshire	9.4	Powergen
West Burton	Nottinghamshire	9.4	London Energy
Tilbury	Essex	9.3	Innogy
Didcot A	Oxfordshire	9.3	Innogy
Kingsnorth	Kent	9.3	Powergen
Eggborough	North Humberside	9.2	British Energy
Rugeley B	Staffordshire	9.1	International Power
Cottam	Nottingham	9	London Energy
Ratcliffe	Nottingham	9	Powergen
Aberthaw	South Glamorgan	9	Innogy
Drax	North Yorkshire	8.8	AES
<i>Gas powered station (av.)</i>		5.4	-

*The fossil factor is the station's carbon emissions divided by the amount of electricity it produced, then multiplied by 10 to give an understandable number.
I.e. $6683500 / 6801348.27 = 0.982672808$.
Multiplied by 10 and rounded to one decimal place = 9.8

The difference between the top and bottom of the table is illustrated by the fact that if Cockenzie produces 9 tonnes of CO₂, for the same amount of electricity produced Drax would produce 8 tCO₂.

This league table and more information about individual stations and the companies who own them is available on the Friends of the Earth website:

www.foe.co.uk/campaigns/climate/press_for_change/carbon_dinosaurs



4. How can closures be delivered?

The Government's Energy White Paper, of February 2003, made reducing environmental impact a clear goal of energy policy, alongside more traditional concerns about maintaining the supply of energy to businesses and homes.

The White Paper set out an ambitious vision of a low carbon future – where carbon dioxide emissions fall by 60 per cent from 1990 levels by 2050. Getting there will not be easy, however, and the Government needs to intervene in the electricity market to reduce demand and create space for cleaner technologies such as more efficient power stations and renewables.

There are two very important pieces of legislation that will help to create that space by reducing the economic viability of coal fired stations – the Large Combustion Plant Directive, beginning in 2008 and the EU Green House Gas Emissions Trading Directive, beginning in 2005. The first places strict limits on emissions of pollutants such as sulphur dioxide to reduce acid rain. The second places a price on emissions of carbon dioxide making more polluting operations less economic.¹⁵

The Government has yet to decide how these Directives will be implemented in the UK. Decisions made in the next twelve months will set the market framework for the remainder of the decade and have a huge impact on investment decisions and whether we meet our climate commitments. Government has a window of opportunity where it can influence whether plant closes and when¹⁶. Friends of the Earth is calling on Government to place strict limits on these plant with a view to seeing them close.

Another crucial factor will be whether or not coal stations will continue to be allowed to claim renewable subsidies for burning a portion of biomass alongside coal (known as co-firing). At present this is allowed and many stations have taken advantage of the large subsidy available to help boost the profitability of their stations. Co-firing looks likely to phase out after 2006¹⁷ but station owners have been putting pressure on Government to change the rules. If Government gives in then the chances of securing closures will be reduced¹⁸.



What the Government should do:

- Introduce a tough cap on emissions of carbon dioxide from all point sources when it implements the EU Directive on Greenhouse Gas Emissions Trading due to start in 2005. The cap should be set in line with our domestic emissions reduction target of a cut in CO₂ emissions of 20% by 2010 compared to a 1990 baseline.
- The cap should be based on future projections of emissions and should take into account recent increases in emissions between 1999 and the present day so as not to hand out credits unnecessarily. It should also make sure that credits are available for new players wishing to enter the market – especially those investing in Combined Heat and Power plants¹⁹.
- Ensure that the Large Combustion Plant Directive is implemented correctly so that our emissions of sulphur dioxide, NO_x and dust are significantly reduced.
- Resist industry's calls for a relaxing of the co-firing rules in the Renewable Obligation so that subsidies to existing stations are phased out by 2006.



5. Consequences of Closure

5.1 Timing of Closures

At present we have more capacity to generate electricity than we need to meet our demand²⁰. Closures in this decade can be relatively easily absorbed. Closures would reduce the current oversupply of electricity in the market and average wholesale prices will rise. This will incentivise investment in new capacity which will be cleaner and more efficient than the capacity it replaces.

From 2010 -2020 most of our large nuclear power stations will close. This will further raise the price of wholesale electricity. Lost nuclear capacity is likely to be replaced by gas and some renewable capacity. However there will be a net increase in emissions if coal plant have not already closed creating emission savings from the switch from coal to gas/renewables.

It would not be wise to allow a significant number of coal and nuclear power station closures to occur at the same time. For this reason Government should take action to precipitate coal closures as soon as possible to allow new capacity to be built in good time.

5.2 What will replace our coal stations?

In 2002 Friends of the Earth produced a report 'Tackling Climate Change Without Nuclear Power' which outlined a future energy scenario to 2020 where nuclear power and coal are phased out and our emissions reduction targets are met. Closed plant are replaced by a combination of increasing use of gas, reducing demand for centralised electricity generation, increasing investment in Combined Heat and Power (CHP) and renewables. We also anticipated the introduction of a limited amount of coal gasification.



5.2.1 Increased use of renewables (including renewable gas)

Renewable power has the potential to more than meet all of our energy needs. The recurring sources of natural energy, which include wind, wave, tidal, geothermal, hydro and biomass, can be harnessed to replace our use of fossil fuels. The Government has a target of generating 10% of our electricity by 2010 and the recently agreed Biofuels Directive requires us to source 5% of our transport fuels from renewables by 2010. Scotland has set itself a target of 40% of electricity from renewables by 2020.

Measures are in place to incentivise renewable electricity and estimates that by 2010 these subsidies will be worth a billion pounds a year²¹. So far the measures it's introduced are working and renewable electricity is expanding.

The Government should now set targets for **renewable heat** which would incentivise investment in renewable gas and biomass.

A more challenging **longer term target for renewable electricity** should be set when the Renewable Obligation is reviewed in 2005. Friends of the Earth is calling for a UK-wide target of at least 25% by 2020.

“The UK’s second round of off-shore wind farms is expected to deliver 6GW of wind power – the equivalent of shutting down at least two large coal fired stations.”

5.2.2 Reducing demand

The other major source of emission savings is through reducing the amount of energy we need to generate centrally. Our national grid, which connects homes and businesses to large power stations up and down the country has provided reliable and relatively cheap electricity. Emissions from these stations, however, have contributed to local air pollution and climate change. The next generation of power stations will almost certainly be smaller and distributed more widely across the country. Distributing generation in



this way will reduce the losses that occur from having to transport electricity long distances.²²

Homes and businesses can reduce their demand for energy by improving the efficiency with which they use it – eg preventing heat losses from draughty windows and roofs and buying energy efficient appliances. To reduce demand further they can install their own generating technologies – small scale boilers that generate heat and electricity in the same process will soon be on the market; solar power and micro wind and hydro power schemes are already available and the Government has introduced grants to help cover capital costs.

“If every household in Britain fitted four low energy light bulbs it would completely remove the need for one of our large coal fired power stations.”

For self generation and energy efficiency to really take off Government needs to use carrots and sticks to transform traditional energy supply companies into **energy service companies**, where profits are made by helping customers to meet their needs for energy in the most efficient and environmentally friendly way rather than by increasing the units of energy sold to a customer.

5.2.3 Increased use of Combined Heat and Power (CHP)

The use of fuel to provide both heat and electricity at the same time is the most cost effective way of reducing our emissions of greenhouse gases. CHP technology can be applied to all fuels including biomass (ie energy from crops and plant waste). The Government has a target that 10 GW of CHP capacity should be installed by 2010. Because there is already so much overcapacity in electricity supply this will only be met if some plants close.



If closures do occur then the Government will have to consider how it can make sure the new plants that are built use CHP technology. More information and analysis of the market for heat would help to determine whether an economic instrument could be developed to incentivise investment in CHP.

5.2.4 Introduction of coal gasification

Energy from coal can be extracted in a number of different ways. Our existing plant use traditional combustion techniques that are no longer considered to be the best available technology. Emissions to air can be greatly reduced if coal is first transformed into a gas and that gas burnt to create electricity. This is similar to the use of town gas in the 1900's, which was derived from coal. Emissions of local pollutants from modern coal gasification plant are very low - carbon dioxide emissions are also reduced due to the increased efficiency of the plant. Developing new clean ways of burning indigenous supplies of deep-mined coal could be an important way of helping to maintain security of supply.

“ We are not anti all types of coal we’re anti-carbon dioxide – if a gasification plant can demonstrate life-cycle emissions as low as gas then it will have a role to play in taking us into the low carbon economy.”

5.2.5 Increased use of gas

We used proportionately more gas in 1999 than we do today. There is spare capacity in some of our gas stations and one station has been recently mothballed (temporarily closed). Therefore fuel switching from coal to gas is possible in the short term without requiring considerable capital investment.



New gas stations have already been planned and a number of new stations have received permission to be built²³. Once there is a sufficient incentive for these projects to be commissioned (ie less capacity and a higher wholesale price for electricity) they can become operational in approximately two years.

At least 7 GW of new gas powered stations already have consents from the Government and could be on stream by the end of the decade.

Some people argue that becoming more reliant on gas exposes us to the risk that our supply of electricity fails because of interruptions in gas supply. It is true that our North Sea oil and gas reserves are being depleted and within 10 years we will begin to rely on imported gas. However, many countries currently successfully manage their systems whilst being up to 100% reliant on imports. Our reliance on oil in the transport sector is arguably far more of a concern, especially as current estimates of global reserves indicate that oil will become scarce well before gas.

Investment in our gas network infrastructure will be needed to provide a robust fuel supply chain. Government should consider whether it will need to intervene in the market to guarantee this investment takes place in good time to guarantee security of supply.

5.3 What about the need for ‘flexible’ sources of power?

Our demand for electricity is constantly changing and our electricity system has to be carefully managed to ensure there is the correct quantity and quality of power available to meet people’s needs. The system needs to be flexible and adaptable – different ways of generating electricity are more or less flexible and perform different functions.

The power generated by centralised power stations can be categorised in three ways:



Baseload – providing a continuous supply of electricity more or less 24 hours a day, seven days a week. This is currently provided by coal and nuclear stations although gas is also used for this in the UK.

Load following – our demand for energy fluctuates between the seasons and according to weather conditions – a source of electricity is needed that can be reliably turned on and off according to need – in the UK this is provided by both coal and gas.

Peaking – Our demand for electricity sometimes ‘spikes’ meaning we need a large amount of power over a short period of time – a classic example is after or during a popular television broadcast when everyone switches on the kettle at the same time. This is catered for by pumped storage hydro, some gas and coal.

Fluctuations in demand are managed by the National Grid. They are also able to enter into contracts with large users of electricity to interrupt their demand if sufficient supply is not available.

Some argue that, because some sources of renewable energy are intermittent (wind) and outputs can vary from month to month (hydro), renewable energy will never be able to fully replace fossil fuels. This leads some to claim that holding on to our carbon dinosaurs is the only way to ensure electricity is supplied when and where it is needed. It is true that our old fashioned coal stations are amongst the most flexible but this is no reason to hold on to them. Equally flexible alternatives can replace them and reduce emissions – biomass, for example (see below) and modern gas plant.

In some scenarios, for example where we use a large amount of wind generation there may be a need for back-up capacity and this could be provided by coal or gas. If coal is used then it must be in the most modern and clean coal stations available not the old, inefficient plant we use today.

Two new interconnectors (undersea electricity cables) are planned for construction this decade which will join our grid to mainland Europe. By 2006 we will be able to import up to 1.3GW of power from Norway and in 2007 1.3 GW will be available from Holland²⁴. This will strengthen the security of our electricity supply and help to smooth our transition to new capacity.



5.4 Can biomass deliver?

The market for biomass is only just emerging in this country – however it has been used in large quantities in some countries for many years. Biomass can be burned in exactly the same way as coal or turned into a gas. Once it has been turned into a storable commodity (eg pellets or gas) it can be used whenever it is needed. Biomass can be used as flexibly as coal as long as sufficient volumes of the fuel can be sourced. There are many sources of biomass (from dedicated crops and biodegradable waste) many of which are only just beginning to be identified.

Many people cite the failure of the ‘Arbre’ project (a biomass gasification plant) as evidence that biomass cannot deliver. This is misleading. Arbre suffered because it was trying to develop innovative technology, which proved difficult and costly, rather than relying on tried and tested technologies which have been used in countries like Sweden for many years.

“Olive residues from the Mediterranean are already being used as a substitute fuel in British power stations – this source of renewable power did not feature in any of the DTI’s assessments of the potential for renewable power.”

5.4 What about nuclear?

An increase in the wholesale price of electricity will benefit indirectly existing nuclear power stations. However, without a specific market mechanism to support the building of new nuclear power stations, it is extremely unlikely that private investors will choose to build them in the future - they are incredibly capital intensive, have long pay back periods and expose investors to considerable risks. Quite apart from the poor economics of nuclear power, it is also unpopular with the public because of routine emissions of radioactive pollution, the large volumes of radioactive waste that are created and the potential for accidents. For this reason a plan to build new reactors would be met with vociferous public opposition.

“I don’t believe we should be thinking about a new generation of nuclear power stations if we are not making money on the ones we have got.”

Mike Alexander

CEO British Energy, 8/6/2003



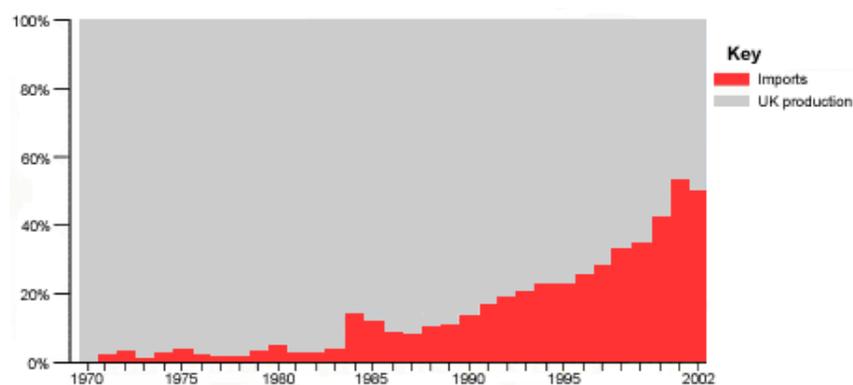
5.5 What about jobs?

Jobs in individual stations could be lost. However, the demand for labour in the energy sector will not be substantially reduced as replacement capacity will be required. Some of this replacement capacity could be sensibly located on or near the sites of existing power stations to take advantage of existing infrastructure and skilled labour forces. Demand for labour in the construction industry will increase as new power projects are commissioned. Reducing demand for centralised energy generation will result in more jobs in energy services and the manufacturing of energy demand reduction technologies - for example, insulation products or solar panels.

“A report commissioned by Friends of the Earth in 1998 found that the meeting of the Government’s 20% cut in CO2 target by 2010 would create approximately 250,000 additional jobs.”

5.6 What about the UK coal industry?

The UK coal industry has been on a steady decline for many years. UK coal deposits are relatively expensive to extract and many fields have a high sulphur content. As the majority of our coal power stations do not have sulphur abatement equipment, emission limits have been met by increasing imports of low-sulphur coal which now account for over half our total coal burn, as the table below illustrates.²⁵





The closure of these unabated plant could increase the market for UK coal. In the short term, by increasing production in those stations which have fitted sulphur abatement equipment and are therefore able to burn UK coal; and in the longer term, if lost capacity is replaced with coal gasification plant. Emissions of local air pollutants are virtually eliminated in the gasification process. Emissions of carbon dioxide are also reduced thanks to improved efficiencies. Friends of the Earth would support the development of a limited number of coal gasification plant, close to deep-mine collieries, if emission levels can be demonstrated to be as low as emissions from existing gas fired stations.

6. Putting the campaign in context

6.1 What would the effect be in Scotland?

Scotland is falling behind the rest of the UK in reducing its greenhouse gas emissions. Since 1990 Scotland has achieved a carbon dioxide reduction of only 2.6% whilst emissions in England have been reduced by 10.1%. Energy industries are the largest source of carbon dioxide emissions in Scotland and emissions from fossil fuel generation have increased by 27% since 1990 as compared to a fall of 22% in UK emissions. This discrepancy is largely the result of Scotland being home to some of the UK's most inefficient coal fired power stations.

The Scottish Executive's Partnership Agreement includes a target to produce 40% of its electricity from renewables by 2020 and a number of energy efficiency commitments. However without considerable efficiency improvements or the closure of its fossil fuel power station plants Scotland will continue to lag behind in achieving 'equitable' climate change emission reductions.

The existence of a relatively large amount of hydro power in Scotland means that it is possible to absorb greater volumes of intermittent sources of renewable power. The interconnector between Scotland and England also offers the potential, depending on market conditions, to develop an export market for renewable electricity as capacity in Scotland is expanded. To date the interconnector has primarily facilitated the export of electricity produced from polluting coal or nuclear sources in Scotland.



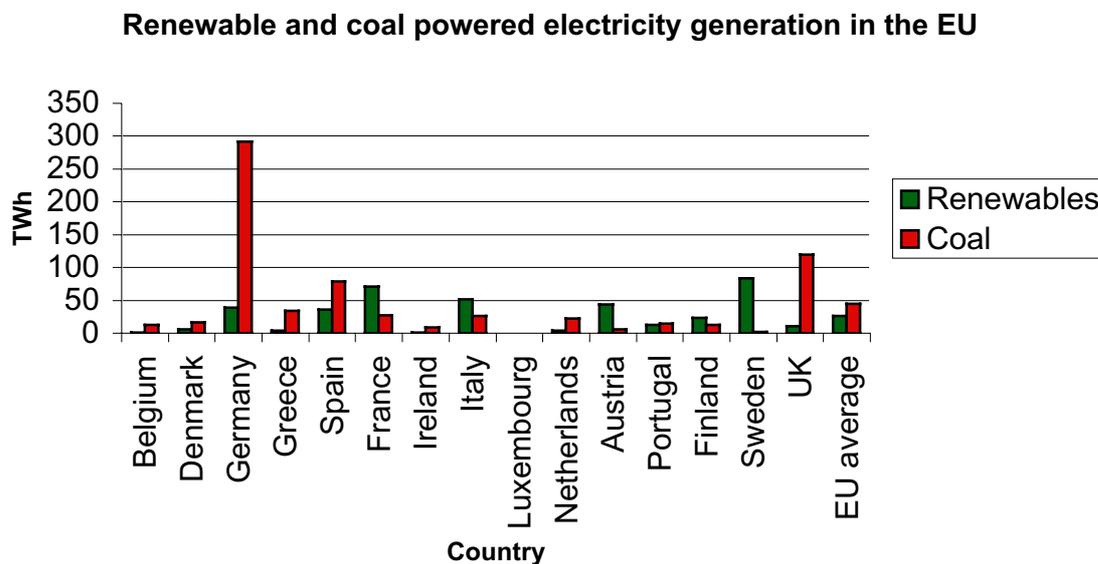
6.2 What would the effect be in Northern Ireland?

Northern Ireland has only one 520MW coal-fired power station which could be replaced with a flexible gas-fired station on the same site. Also Northern Ireland has considerable untapped potential for renewable energy - a recent study into the capacity for renewable energy from tidal streams in Northern Ireland found that there was to develop 750MW, 110MW of which could be available by 2010.²⁶

6.3 How do we compare to the rest of Europe?

The UK is the second largest emitter of greenhouse gases in Europe, Germany is first, Italy third. The 'dash for gas' in the 1990's delivered us our Kyoto target but since then emissions have been rising due to increased coal burn.

We are also the second largest user of coal in electricity generation (again after Germany). However unlike Germany we have made little progress in developing renewables and our ratio of coal use to renewables is amongst the worst in Europe.





6.4 What about the rest of the world?

Globally emissions of greenhouse gases need to peak and start to decline in the next twenty years if we are to avoid dangerous levels of climate change. They are currently increasing at the rate of 17 tonnes of CO₂ per second or 2% per annum.

The UK is a highly developed country and our demand for energy is enormous compared to many countries around the world. We currently represent only 1% of the world's population but are responsible for 2% of global emissions. Some of our power stations emit the same amount of carbon dioxide as entire countries in the developing world.

The UK and the rest of Europe have to take action to pay back the carbon debt they owe the rest of the world and to prevent dangerous levels of climate change. We can only do this by drastically reducing our emissions over the next 10 to 20 years. Ridding ourselves of our carbon dinosaurs is an important step along that path.

“Emissions from three of our carbon dinosaurs equal the emissions of the whole of Bangladesh – which has a population of 140 million and will be one of the countries worst hit by climate change”

7. Conclusion

Friends of the Earth has launched this campaign to highlight the often ignored fact that our climate change targets are heavily affected by whether, and how, we burn coal. We are calling for a steep decline in the operation of our remaining coal fired stations as we believe this is the least cost and most easily delivered way to reduce our emissions. The Government must implement both the Large Combustion Plant Directive and the Greenhouse Gas Emissions Trading Directive in a way that is consistent with the aims set out in the recently published Energy White Paper and that means resisting the lobbying of those industries who have vested interests and introducing tough controls.



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- ¹ DTI Energy Trends, 2003
- ² DEFRA Third National Communication Plan, November 2000
- ³ Eurostat data
- ⁴ Cutting CO₂- Creating Jobs, FOE, June 1998
- ⁵ DEFRA Third National Communication Plan, November 2000
- ⁶ Tackling Climate Change without Nuclear Power, FOE, September 2002;
www.foe.co.uk/resource/reports/climate_chnge_without_nuke.pdf
- ⁷ From documents used by DETR during negotiation of Large Combustion Plant Directive
- ⁸ CO₂ emitted per unit of electricity sold for gas is 0.3, for coal stations it is 0.9
- ⁹ There is considerable talk of the possibility of capturing CO₂ from point sources and storing it, however new coal plants would need to be built to enable the CO₂ to be captured as the flue gas of existing stations is too impure.
- ¹⁰ Digest of UK Energy Statistics 2002
- ¹¹ The Large Combustion Plant Directive constrains emissions of sulphur dioxide, NO_x and dust – to comply stations must either fit abatement equipment or constrain their operating hours. To meet sulphur limits they can also use imported supplies of very low sulphur coal.
- ¹² The IPPC Directive sets Best Available Technology Standards for Large Combustion Plant and existing stations are expected to be retrofitted with new equipment to bring them up to minimum efficiency standards. There is unfortunately a lack of enforcement measures for this requirement however.
- ¹³ DTI energy statistics, 2002
- ¹⁴ Coal can be turned into a gas and then burnt more cleanly and efficiently in Integrated Gasification Combined Cycle stations – several applications for stations in the UK have already been made totalling 2.4GW of potential new capacity
- ¹⁵ The EU Greenhouse Gas Emissions Trading Directive introduces a European wide carbon trading market. It covers between 40-50% of total emissions of carbon dioxide and applies to large point sources including power stations, oil refineries and heavy industry. From 2005 participants will need to hold an allowance for every unit of carbon dioxide they emit. In the scheme Member States decide on the allocation of allowances up to a certain level (the cap). Those reducing their emissions below the cap can sell spare credits to companies who emit beyond their allocation. The cost of reducing emissions and/or purchasing credits makes fossil fuels less competitive with cleaner technologies and disadvantages coal over gas.
- ¹⁶ The implementation plan for the LCPD is currently out for consultation and Government has to submit its plans by November 27th 2003. The National Allocation Plan for the EU Emissions Trading Scheme must be submitted to the Commission by March 31st 2004.
- ¹⁷ This is because the legislation requires 75% of the biomass burnt to be derived from energy crops which will be expensive to buy and hard to locate. At present most biomass being used in co-firing is from biological waste.
- ¹⁸ A consultation is due out in August on potential changes to the regulation. Friends of the Earth is calling for restrictions on co-firing to be tightened up not relaxed.
- ¹⁹ Credits for emissions up to a predetermined level (the cap) will be handed out to existing installations free of charge. New entrants would however have to purchase them putting them at a disadvantage and acting as a further disincentive to invest in CHP.
- ²⁰ National Grid, Seven Year Statement, 2002
- ²¹ DTI Energy White Paper, February 2003
- ²² Losses from transmission of electricity across the grid account for approximately 10% of electricity generated.
- ²³ National Grid, Seven Year Statement, 2002
- ²⁴ as above
- ²⁵ DTI Energy Statistics
- ²⁶ Network Study and Tidal stream report, DETI Northern Ireland, June 2003