

Briefing paper – Coal

Emma Hannigan

1. What is the current Greenhouse Gas output for this sector? Are there any expected changes?

The important fact is that its going up. The higher the price of oil and gas, the faster consumption will rise. The US India and China are planning between them over 500 new coal fired power stations. In the UK coal burn for electricity has risen over the last two years mainly because of rises in the price of gas. It's hard to predict what will happen in the UK in the medium term; much will depend on the response to industry proposals outlined below.

2. What is the sector doing about climate change?

Essentially the industry's response to climate change can be summed up in two words, 'clean coal'. Of course there's no such thing, but it's worth deconstructing what the industry means by 'clean coal'. The term is used to describe two main processes (there are lots more in the pipeline but these two are at present the key ones). First, more efficient methods of burning coal in the power station which improve the ratio of coal burnt to energy produced. The cutting edge are Integrated Gasification Combined Cycle (IGCC) power stations.

IGCC is a method of separating out the CO₂ from the hydrogen by creating syngas, which is burnt, while the CO₂ is theoretically ready to sequester. So, in other words, it's not just a more efficient burning process, it's a way of capturing CO₂.

See www.climnet.org/CTAP?techsheets/CTAP02_PreCombustion.pdf for quite a good explanation of pre-combustion technologies.

Second, the industry is tying its flag to **Carbon Capture and Storage** (CCS) technology. This is basically a method for separating out CO₂ from the waste stream and then pumping it into old oil and gas wells or saline aquifers. So what are the problems associated with these technologies?

More efficient power stations

On the surface, at least, the more efficient the power station the better. There are however three problems.

First, if improved efficiency translates to lower prices and increased demand, the reductions in emissions may be less than hoped for.

Second, these would be used to replace the current stock of UK power stations and would thus fix the current centralised model of the grid for another 50 years or so. The current model of power generation loses around two thirds of energy in heat and transmission losses, and although the new power stations would improve this slightly there would not be the necessary step change in the way power is generated. This model would likely build in the primacy of large scale generation in the form of nuclear coal and gas and wind (but note, it's hard to see how we can get close to generating enough electricity without major exploitation of centralised offshore wind. The difference is the fuel is free and doesn't produce CO₂, so transmission losses are worth the hit.).

Third, we still have to dig the coal, we still have to ship the coal. It's a very destructive process.

Carbon Capture and Storage

There are four main problems with CCS in terms of power generation.

i It's a speculative technology that has not been proven on a large industrial scale. There are plenty of other proven solutions ready to roll now. Building a whole load of power stations in the hope that CSS will eventually be workable is an extremely high risk strategy, that without demand-side management measures and the speedy developments of all other renewable forms of generation would fail to cut CO₂ by the required amount anyway.

ii CCS is often tied to the process of **Enhanced Oil Recovery, or EOR**, (pumping waste CO₂ into old oil wells to release previously unattainable oil). This process may be the only way to make CCS cost viable and will extend the life of oil wells well beyond what is currently achievable. The contradictions in terms of climate are obvious. Oil is mainly burnt in transport and it's not possible to capture the CO₂.

iii It would perpetuate the centralised model of power generation, and the substantial wastage of primary energy inherent within this approach.

iv It requires between 10 and 40% more energy to separate, compress and transport the CO₂, more than cancelling out any efficiency improvements of modern power station technology.

3. Are there any upcoming “hooks” to campaign around?

There are three hooks that might be worth looking into.

Kingsnorth power station.

The energy giant E.ON submitted a planning application to the local council and the DTI to build a new 1600MW supercritical coal-fired power station at its Kingsnorth site in North Kent. If built, this would be the first since Drax was finished in 1974. E.ON claim it will all be ok because the power station will be Carbon Capture Ready. This means the power station would be able to have this technology fitted when and if it becomes viable. They predict this would happen between 2016 and 2020, in the meantime it would just be an ordinary slightly more efficient power station.

There is no guarantee however that CCS technology will ever be fitted, as there is no obligation on the company to do so and the economic drivers (such as the level of the carbon price in the EU Emissions Trading Scheme) are hard to predict only months in the future, never mind for 2020. The Kingsnorth project embodies all the problems described above. It is a potential line in the sand. If it goes ahead it may set a precedent for this type of development, making the move toward a more decentralised model far more difficult. Conversely, if the council or Government reject the application on the grounds that it will hinder our ability to tackle climate change, the precedent would be very positive.

And then some more...

There are six other similar projects on the drawing board. Some of these projects involve CCS, some are just more ‘efficient’. The current stock of coal-fired power stations are old and most are coming to the end of their lives (too slowly for the climate and the actual end depends on the price of coal gas etc), but the industry is gearing up to replace them with a new improved version which does nothing to challenge the inherent problems with this model.

With changes being proposed to the planning system in order to speed up major planning decisions like power stations, these power stations could start being built very soon. At present the Kingsnorth application is at the most advanced stage.

It’s worth noting that the big environmental NGOs are split on this. FOE is ambivalent or supportive towards clean coal. Greenpeace is strongly opposed unless there is also a commitment to combined heat and power. This lack of common cause is definitely unhelpful and would create a more difficult climate to work in than, say, around GM or road building. There is also the possibility of looking into UK pension fund support for the massive coal-fired

power station building taking place in India and China.

The main problems are both the mixed messages from environmental NGOs and the fact that, whatever the associated problems, CCS does put CO₂ in the ground and could, if it works, be applicable to the big coal-generating countries such as India and China.

4 Are there any interconnections with other sectors?

The main connection is between the cost impact on coal of rises in either the price of oil or gas. Given that both these commodities are likely in the medium term to rise in price (possibly drastically), coal is likely to become relatively cheap and thus more attractive and viable. This is because it is far more abundant than either gas or oil.

There is also the possible connection with the oil industry should Enhanced Oil Recovery ever start being used on a commercial scale.

Finally it's also possible that, if there are constraints on oil due to a peak in supply or other factors, coal could be liquefied and used as a transport fuel.

5. How significant is the sector as a carbon emitter?

Coal burning is responsible for around 30% of all UK CO₂ emissions and generates 37% of UK electricity.

6. How strong is it as a political force?

In the UK, the actual extraction side of the equation has never recovered from the battering meted out by Maggie and her mates. The companies pushing for the next generation of 'clean coal' fired power stations are very large and powerful utilities such as RWE npower, E.ON UK, Centrica and Scottish and Southern Energy. Their power lies in both their size, importance to the economy and their invisibility.

7. How does it get its finance?

Mainly private finance, but there is growing pressure from the sector for some kind of subsidy to make some of the clean coal options financially viable.

8. How does it do its greenwash?

Clean Coal, Clean Coal, Clean Coal, Clean Coal!

However it is just possible that CCS could provide part of the answer...