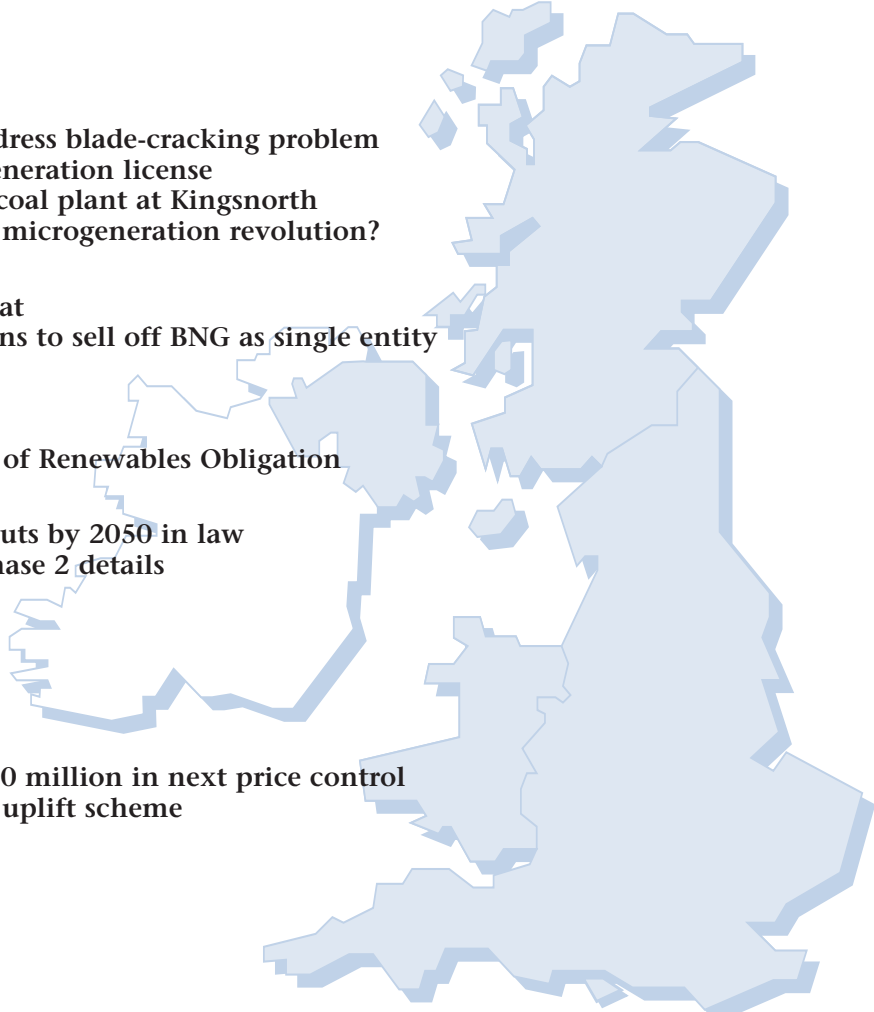


Power UK

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Biomass can be as cheap as coal

Cheap forms of biomass can possibly be as economic as burning coal in power stations, if carbon costs are factored in, says a new report*.

The authors say that if the costs of carbon are included there have been times over the last year when the costs of coal generation have been broadly equivalent to the costs of generating using some of the cheaper biomass fuel sources.

The current support required to incentivise co-firing at the current market prices for an average biomass cost is around £18/MWh(e) the report says. If it were assumed that there was no support from Renewable Obligation Certificates (ROCs) the carbon price would need to rise from its current level of €18.40/tCO₂ to €47.65/tCO₂ to make this form of co-firing economic, for an average biomass fuel price.

The current support required to incentivise co-firing at the current market prices is around £17/MWh(e) for wood chips and around £35/MWh(e) for baled straw. If it were assumed that there was no support from ROCs the carbon price would need to rise from its current level of €18.40/tCO₂ to €46/tCO₂ to make co-firing of wood chips economic and to €75.30/tCO₂ to make co-firing of baled straw economic.

Co-firing with energy crops

The authors say that to enable investment in developing the cultivation of energy crops a reasonable degree of certainty over the level and duration of any support mechanism is required. Agricultural support varies the levels of support required, they note.

The required level of support to incentivise relatively low level volume co-firing varies between energy crops at different levels of agricultural support by around £10/MWh(e) - lower than the uncertainty in the level of support due to the volatility in the market price of coal and carbon (~£15/MWh(e)).

The current support required to incentivise co-firing at the current market prices is around £16/MWh(e) for Miscanthus with a £500/ha grant and around £26/MWh(e) for short rotation coppice (SRC) without any grants. The authors say that, assuming no ROC support, the carbon price would need to rise from its current level of €18.40/tCO₂ to €44.40/tCO₂ to make co-firing of Miscanthus with a £500/ha grant economic and to €60.65/tCO₂ to make cofiring of SRC without any grants economic.

The costs go up if to enable high volume, direct co-firing operations because plant investment is needed. The current support required to incentivise co-firing at the current market prices is around £18/MWh(e) for Miscanthus with a £500/ha grant and around £28/MWh(e) for SRC without any grants, assuming a ten year investment recovery timeframe.

Increasing the investment recovery timeframe to 20 years reduces the required support to £15/MWh(e) for Miscanthus with a £500/ha grant and around £17/MWh(e) for SRC without any grants. If it were assumed that there was no support from ROCs, and with an investment recovery timeframe of 10 years, the carbon price would need to rise from its current level of €18.40/tCO₂ to €47.70/tCO₂ to make co-firing of Miscanthus with a £500/ha grant economic and to €63.90/tCO₂ to make co-firing of SRC without any grants economic. Increasing the investment recovery timeframe to 20 years reduces the required carbon prices to €42.80/tCO₂ and €47.65/tCO₂ respectively.

*The Economics of Co-Firing: a report to Department of Trade and Industry July 2006 by IPA Energy Consulting and Mitsui Babcock

Support levels required to incentivize co-firing

| Option | Fuel | Support required (£/MWh (e)) | Equivalent carbon price (euro/tCO ₂) |
|--|--|------------------------------|--|
| Co-milling | Imported biomasses | 18 | 47.65 |
| Co-milling | Wood chips | 17 | 46.00 |
| Direct injection (10 year timeframe) | Baled straw | 35 | 75.3 |
| Co-milling | Miscanthus Pellets with £1000/ha grant | 16 | 44.4 |
| Co-milling | SRC pellets no grant | 26 | 60.65 |
| Direct injection (10 year investment recovery timeframe) | Miscanthus pellets £1000/ha grant | 18 | 47.7 |
| Direct injection (10 year investment recovery timeframe) | SRC pellets no grant | 28 | 63.9 |
| Direct injection (20 year investment recovery timeframe) | Miscanthus pellets £1,000/ha grant | 15 | 42.8 |
| Direct injection (20 year investment recovery timeframe) | SRC pellets no grant | 17 | 46.0 |

Source: IPA Energy Consulting and Mitsui Babcock