



Renewable Energy Reform of the Renewables Obligation

A Response by Drax Power Limited

September 2007

Drax Power Limited

Drax Power Limited is the operating subsidiary of Drax Group plc, and the owner and operator of Drax Power Station in North Yorkshire. Drax Power Station is the largest, cleanest and most efficient coal-fired power station in the UK. At current output levels its coal and alternative fuel burn approaches some 10 million tonnes per annum, and its six 660MW units supply some 7% of the country's electricity needs.

Drax Power Station was commissioned in two phases: the first 1,980MW were commissioned in 1974 and the second 1,980MW were commissioned in 1986. As the newest of the country's existing coal-fired power stations, Drax intends to be operating at high load factors in 20 years' time, provided that the regulatory framework encourages and sustains the necessary investments in environmental abatement equipment and plant upgrades.

All six of the Power Station's units are fitted with flue gas desulphurisation (FGD) technology, which removes, on average, at least 90% of the sulphur dioxide (SO₂) from the flue gases. All units have been retrofitted with low NO_x (oxides of nitrogen) burners, and emissions of NO_x are being further reduced through retrofitting boosted over fire air (BOFA) technology. The BOFA technology retrofit will ensure full compliance with the 2008 requirements of the Large Combustion Plant Directive (LCPD), but large investments will be required to ensure that the plant is compliant with the 2016 requirements.

Over the last four years, Drax has developed the capability to co-fire, that is, blend and burn, renewable biomass materials with coal. Drax has achieving throughputs of biomass material of around 4% by heat, and has a plan to increase that capacity to 10% by heat, with a reduction of in its emissions of carbon dioxide (CO₂) of around two million tonnes each year. In addition, Drax is implementing a turbine upgrade project that will reduce emissions by a further one million tonnes of CO₂ per year.

EXECUTIVE SUMMARY

1. The Energy White Paper recognised that co-firing has a role to play in reducing carbon emissions, citing the technology as one of the three principal methods for reducing carbon emissions from fossil fuel-fired power stations. That there is case for continuing support for energy crops so as to promote the development of an effective domestic supply chain was also recognised in the White Paper.

2. These two tenets underpin the work that Drax has been involved in for the last four years and are a significant part of the carbon reduction measures that we are pursuing. Changes made to the co-firing regulations through the Renewables Obligation Order 2006 (Amendment) Order 2007 allowed us to formalise our challenging target to produce 10% of our output from renewables by the end of 2009, and with it save over two million tonnes of CO₂ each year.

3. Yet biomass fuel availability will be determining factor for Drax. Still more change is required if we are to meet our target and together with the rest of the sector make a valuable contribution towards tackling climate change. We believe that the proposed reform of the Renewables Obligation (RO) has a key part to play in exploiting the carbon abatement potential

of existing coal-fired power stations. It cannot, however, deliver this contribution single-handedly and so the RO should not be viewed in isolation, but as part of a package of measures which together can make a very real difference.

4. In Part A, our response to this consultation explores the key issues and identifies where synergies exist between different policies. It is recommended that these synergies are fully investigated and exploited. Part B addresses the specific questions raised in the consultation document.

5. Our main observations and conclusions are as follows:

a. Whilst we are very supportive of the Government's objectives in developing energy crops and biomass usage, our extensive efforts in trying to build a biomass programme result in the clear conclusion that policy implementation does not yet match the aspiration outlined in the RO or Biomass Strategy documentation.

b. Whilst we believe that the direction proposed by the Government in this consultation is appropriate, we anticipate a fundamental lack of perennial energy crop availability in the next 4 years and hence the suggested changes are only the first step in developing a consistent, integrated policy which builds the UK capability for energy crop biomass production in a sustainable manner.

c. The key issues for consideration as part of the reform of the RO are:

- i. banding of energy crops and non-energy crops;
- ii. definition of biofuel co-products as energy crops and integration of RO policy with the Renewable Transport Fuel Obligation (RTFO);
- iii. removal of barriers to the production of energy crops; and
- iv. recognition of short rotation forestry as energy crop.

d. The proposed 0.25 ROC per MWh for non-energy crop co-firing will correctly focus attention on the energy crop fuels but, in the short term, the banding down is likely to have a negative effect on overall levels of co-firing. It is therefore critical that any such reduction in non-energy crop throughput is counterbalanced by upgraded initiatives to develop energy crops and encourage energy crop co-firing.

e. All options to encourage the production of energy crop biomass co-firing need to be considered to obtain the maximum CO₂ reduction.

f. The levels of support and methodologies proposed within the RO and the RTFO mechanisms are appropriate to utilise the co-products of biofuel production in power generation to the maximum extent possible. In so doing, the carbon-efficiency of the overall process is optimised.

g. Even with policy support, the economics of perennial energy crops are marginal and administrative barriers are enough to prevent the planting of new crops. The policy intention should be to encourage energy crop planting rather than, as at present, to erect complex and restrictive administrative barriers which are reducing the willingness of farmers (both in the UK and abroad) to commit their crops to energy whilst there are less bureaucratic and possibly more remunerative alternatives.

h. We continue to be disappointed by the Government's lack of support for our initiatives to develop Short Rotation Forestry (SRF). All our analysis indicates that forestry in general, but SRF in particular, is a key to realising the full carbon abatement potential of co-firing in the most sustainable way.

INTRODUCTION

6. Drax has an ambition to further develop its co-firing technology and build a long term presence in the renewable energy market. Current aspirations are to generate 10% of the station's output from renewable biomass materials, principally from a wide variety of energy crops, by the end of 2009. We have committed up to £67 million in extending our biomass capability, including handling and processing of biomass materials. Much of the intended throughput of this plant will be co-product from biofuel plant, as UK energy crop plantings remain stubbornly low despite years of support. As a result, we have been active in contributing to the Government's consultations in this area and welcome the opportunity to comment on this consultation on the reform of the RO.

7. We fully understand and support the high priority afforded by the Government to CO₂ reduction from biomass. To quote from the recent Biomass Strategy:

- a. The Biomass Strategy acknowledges the importance of fuels sourced from biomass in tackling climate change.*
- b. Biomass will have a central role to play in meeting the EU target of 20% renewable energy by 2020.*
- c. We need to explore every avenue for achieving these cuts in emissions in sustainable ways over the decades ahead.*
- d. Delivery of our objectives will require a major expansion of biomass use for fuel, energy and industrial products.*

8. If we are to exploit the full carbon abatement potential of co-firing we must maximise its potential to build the biomass supply chain for the future. Whilst we are very supportive of the Government's objectives in developing energy crops and biomass usage, our extensive efforts in trying to build a biomass programme result in the clear conclusion that policy implementation does not yet match the aspiration outlined in the RO or Biomass Strategy documentation. We note in this context that the EU has set a target of 20% renewable energy by 2020. However, current indications are that the UK will find it difficult to approach this target since the Government's view is that biomass usage "is constrained by the availability of biomass products". We disagree with this pessimistic view.

9. Our view is that building a wide variety of dedicated energy crops is the way forward for Drax and other coal-fired generators because these fuels contribute towards the development of a viable UK biomass industry and allow security of long term volume. Only by widening the definition of energy crop and providing consistent support can we develop a sustainable UK energy crop industry – the alternative is to source from overseas.

10. The changes proposed to reform the RO are only the first step in developing a consistent, integrated, policy which builds the UK capability for energy crop biomass production in a sustainable manner. In particular, it must be recognised that current programmes and current market conditions are inadequate to deliver the 300,000-350,000ha energy crop objective set out in the Biomass Strategy, particularly if the focus is simply on SRC and miscanthus, worthy as these fuels are. We reiterate that we believe that many more fuels need to be able to qualify as energy crops if objectives are to be met.

11. Whilst we are supportive of the overall approach adopted by the Government in developing the market for biofuels through the RTFO with its focus on sustainability and CO₂ savings, the details of its implementation, particularly with regard to sustainability and carbon savings, will require integration with the RO.

12. Given the above, we consider that the key issues for consideration as part of the reform of the RO are:

- a. banding of energy crops and non-energy crops;

- b. definition of biofuel co-products as energy crops and integration of RO policy with the RTFO;
- c. removal of barriers to the production of energy crops; and
- d. recognition of short rotation forestry as an energy crop.

13. Part A of this response addresses what we believe to be the key issues for consideration, as listed above. Part B addresses the specific questions raised in the consultation document.

PART A

Banding of Energy Crops and Non-Energy Crops

14. We are supportive of the Government's proposals in banding the RO and of the difference in approach between energy crop and non-energy crop co-firing. Whilst the market for non-energy crops is fairly well developed, the market for energy crops is immature and will only be developed with a sufficient level of 'market pull' through the RO mechanism. Hence, co-firing with energy crops will require a stable level of support of 1 ROC per MWh in order to underwrite the necessary long term supply contracts.

15. The proposed 0.25 ROC per MWh for non-energy crop co-firing will correctly focus attention on the energy crop fuels but, in the short term, the banding down is likely to have a negative effect on overall levels of co-firing. It is, therefore, critical that any such reduction in non-energy crop throughput is counterbalanced by upgraded initiatives to develop a wider variety of energy crop and to encourage energy crop co-firing. This is fundamental to a long term, sustainable energy crop industry and, importantly, the associated and significant CO₂ emissions reductions that are achievable.

16. We welcomed the recent changes to the legislation through the 2007 Amendment Order to the RO, which removed the volume caps on energy crop co-firing, and we support the current proposals which are aimed at restoring the incentives to invest in energy crop development. The history of co-firing over the last few years indicates the difficulty of trying to set volume caps in this sector, particularly when the vertically integrated players have little incentive to develop energy crops and every incentive to drive co-fired ROC prices down. We are, therefore, supportive of the principle of removing volume caps, but recognise and support the need to manage the potential, but unlikely, 'flooding' of the RO by non-energy crop co-firing through trigger mechanisms.

Definition of Biofuel Co-products as Energy Crops

Volume Issues

17. The policy intent behind the original energy crop requirement was to stimulate sustainable supply chains of domestically-grown perennial crops for power generation. Whilst the Energy Crop Scheme for SRC/miscanthus has proven useful, it is too slow to generate the necessary 300,000-350,000ha energy crop objective. The Energy Crop Scheme has been beset with difficulties which have prevented significant planting over the past year or so. This has severely tested both farmers' patience and their long term confidence in the stability of the Scheme into the future. Given this, we expect it to prove difficult to encourage farmers to plant significant volumes of SRC/miscanthus in the current economic climate with, for example, wheat commanding a high price.

18. Given the above, it is clear to Drax that the Government needs to consider all options to encourage the production of energy crop biomass co-firing to obtain the maximum CO₂ reduction. Much more needs to be done to widen the definition of energy crops and to encourage greater farmer confidence. It is therefore disappointing that the Biomass Strategy/RO reform documentation failed to recognise the potential to use annual energy crops

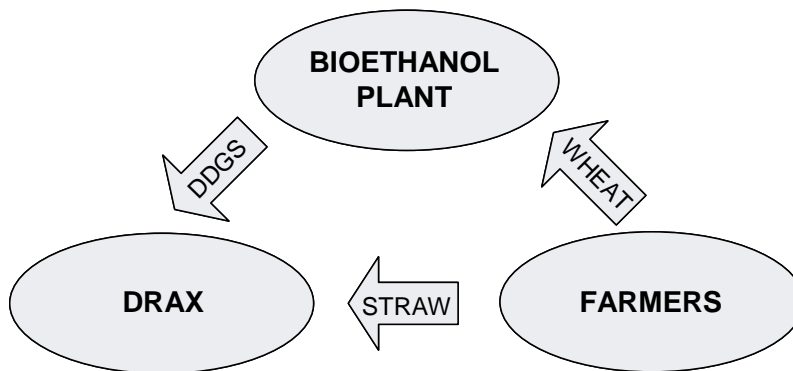
and fails to follow the RTFO logic of exploiting the synergy between the biofuel and biomass sectors through utilising co-products from the former as inputs to the latter.

19. We recognise the value of the Government's emphasis on perennials and we believe that it is sensible to place perennials on a list within the legislation, whereby no contractual evidence is required in order for them to be regarded as energy crop.

20. However, a complete focus on perennial crops, to the exclusion of annual crops utilised in partnership with a biofuel installation, would be an enormous lost opportunity. It is worth noting that both annuals and perennials can access the EU's Energy Crop payment of 45 euro/hectare payment, indicating no discrimination in Europe between annuals and perennials.

21. Arbitrarily reducing the potential portfolio of fuels would be counterproductive for both biofuel and biomass industries as well as for CO₂ reduction programmes. The embryonic energy crop biomass and biofuel industries are in urgent need of confidence in the policy as well as a 'kick-start' in order to allow companies to invest in plant, equipment and fuel contracts.

22. Ofgem's current interpretation of the definition of energy crops allows co-firers to utilise the relationship between farmers and biofuel plant allowing straw and co-products, such as Dried Distillers Grains with Solubles (DDGS), to be added to the energy crop co-firing portfolio. This needs to continue since, as shown in the figure below, there are great benefits in the overall arrangement.



23. The three key players - Drax, the bioethanol plant, and the farmers - each have economic and environmental interests in maintaining the flow of materials as shown in the figure. Drax acquires a reliable supply of energy crops; the bioethanol plant acquires a reliable source of income from the sale of its co-product (DDGS), critical to providing confidence in the investment, as well as a more consistent and economically stable farming supply chain; and the farmers are given the confidence of long term contracting for both wheat and their co-product, straw. Each of the individual material flow streams may be separately contracted but there is significant added value to each partner in the integrity and overall efficiency of the whole system. A similar arrangement will occur in the biodiesel supply chain.

24. The Biomass Strategy set out some data for the wheat and rape requirements for supplying 50% of the UK's 5% RTFO: 1,715kt of wheat and 1,680kt rape seed would produce around 510kt of DDGS and around 840kt rape meal per year. In addition, and assuming that no rape straw was collected, around 800kt wheat straw would become attractive to co-fire as energy crop. If all of this material were to be combusted, they would replace over 1.5Mt of coal, saving over 3.5Mt of CO₂.

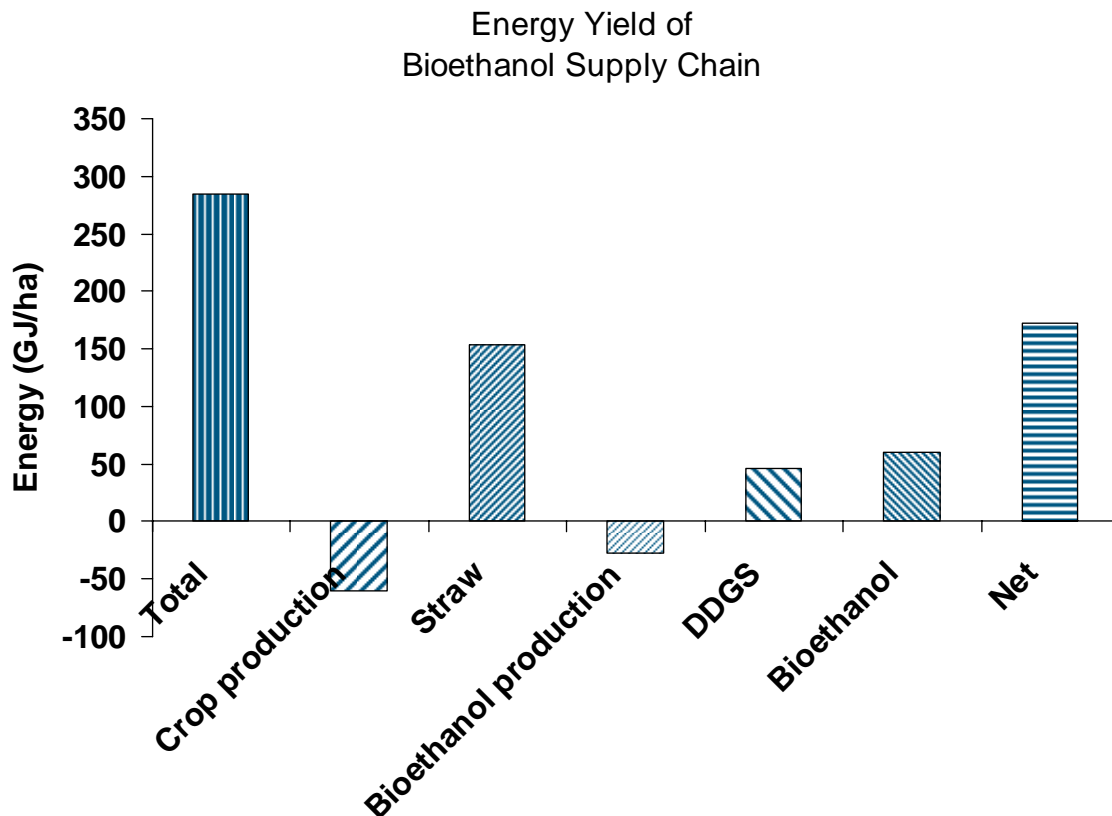
25. Since little of this biomass would be economic for use without RO support much of this material would, in the absence of a power generation route, not be used for CO₂ reduction. Much of the straw would otherwise be wasted.

26. Hence there is a good case for the Government to formally recognise the use of biofuel co-products as energy crops. Indeed, we suggest that all DDGS and rape meal originating from biofuel plant should be designated as energy crop. This would considerably simplify the current administrative burden associated with tracking the myriad of participating farmers and we propose that it would only be applicable if evidence could be provided to Ofgem that more than 75% of the input to the biofuel plant was from registered energy crop growers.

27. The existing list that appears under the interpretation of the definition of energy crops in the secondary legislation could simply be extended through an Amendment Order to come into effect on 1 April 2008. It would not have to wait for the proposed change to primary legislation necessary to implement a banded RO.

Energy Balance Issues

28. We recognise that the production of bioethanol from wheat without using co-products is an inefficient use of energy, particularly if the energy used in ploughing and fertiliser production is taken into account. The Department for Transport (DfT)'s current consultation on the carbon accounting methodology for the RFTO confirms this. However, if the co-product straw and DDGS from a bioethanol plant are utilised, then the energy efficiency of the overall process is radically transformed. The figure below indicates that a hectare of wheat (including the straw) could generate around 280GJ, of which only around 51GJ ends up in the bioethanol (and only after using an additional 26GJ in the operation of the bioethanol plant). Utilising the co-product would result in the recovery of more than half of the 'whole crop' energy through use of the straw and a further 20% through the use of DDGS.



29. The key conclusion is that, where the policy direction is already fixed on developing the UK's biofuel capacity through (*inter alia*) new wheat-to-ethanol biofuel plant, efforts must be made to encourage the greatest possible environmental sustainability of the whole chain. There needs to be an appropriate level of support through the RO and the RTFO mechanisms to utilise all co-products in power generation to the maximum extent possible in order to achieve the maximum CO₂ reduction.

30. This conclusion is completely in line with the methodologies being adopted within the RTFO since the guidance from DfT indicates that the value of a RTFO certificate will depend on the overall sustainability of the production process, including the CO₂ balance. It also clearly indicates how to take co-products into account when calculating a biofuel's carbon intensity. Hence the integration of schemes involving biofuel plant and co-firing plant can have significant CO₂ benefits which would not otherwise materialise. Indeed, the viability of UK bioethanol plant could be dependent on the use of co-product in power generation.

31. The Government noted in the reform of the RO consultation that:

“we will closely monitor the materials co-fired as energy crops to ensure that additional support levels are not leading to behaviour that does not support sustainable energy crop supply chains. If evidence were to emerge that this was happening then we would consult further on the case for actions to reduce this impact.”

However, as indicated here, the use of co-products transforms the energy efficiency of a wheat-to-ethanol biofuel plant is a major component of establishing a more sustainable supply chain than would otherwise be the case.

Sustainability and CO₂ Issues

32. The sustainability of biomass co-firing was addressed in the DTI-sponsored document published in October 2006, by Themba Technology, titled “Evaluating the Sustainability of Co-firing in the UK”. Its conclusions indicated that (*inter alia*):

- a. The net carbon balance for the production, transport and use of biomass for co-firing is positive in almost all circumstances.*
- b. From an avoided GHG emissions perspective, the co-firing of biomass with coal represents one of the most effective uses of biomass resources for energy*

33. We fully recognise that perennial energy crops can involve a lower fossil fuel input in annual ploughing and sowing compared to annual crops. However, an overall CO₂ balance of the supply chain shows similar conclusions to those drawn above. The CO₂ generated in the production of 1 tonne of bioethanol from UK wheat (using the very conservative default data in the current RTFO consultation) is 2.095 CO₂ tonne per tonne of ethanol produced. However, the use of the co-products in co-firing saves 1.88 and 6.27 tonnes of CO₂ from DDGS and straw respectively when replacing coal. Hence, even without taking into account the gasoline savings from the use of the bioethanol the overall CO₂ balance is significantly positive. This further indicates the benefits in encouraging the integration of the RTFO co-products into the RO supply chain in order to maximise land use efficiency and the carbon footprint of the overall process.

‘Overcompensation’ Issues

33. We understand that DBERR has received criticism that 1 ROC was ‘too much’ for some annual energy crops and, in particular, that some of the co-product straw is ‘overcompensated’. This is presumably on the basis of the Ernst and Young (E&Y) calculations which assumed unprocessed straw being available at £35/t or about £1.5-2.5/GJ. We note that the calorific value (NCV) of straw used in the calculations appears to be very high at 17.5GJ/t compared to a ‘normal’ delivered NCV of around 13.75-14.5GJ/t, thereby underestimating the actual cost. In addition, chopped straw, whilst acceptable in dedicated plants is totally unsuitable for co-firing at Drax and straw must be pelleted to obviate operating issues at the station. Hence the E&Y

calculations need to be modified to include the costs associated with storing, processing, pelletising and delivering an appropriate product for co-firing.

34. Such a process would optimise the logistics and thus the carbon footprint of this low density product. A dedicated facility is essential and confidence in long term ROC availability is essential for such an investment. We believe that the economic analysis needs to account for these additional processing and transport costs. A reasonable estimate may be found in the E&Y paper where a cost of around £2/GJ was estimated for processing and pelletising miscanthus

35. Recognising the additional transport requirements of an off-site processing plant and the additional 'energy crop' premium (of perhaps £5/tonne) to be paid to farmers to compensate them for the segregation of the crop and the additional administration and supply chain audit costs means that it is reasonable to assume a current cost of delivery of pelletised straw at an average of £5.1-£5.4/GJ, with some seasonal variations.

36. It is therefore totally uneconomic to co-fire at (for example) 0.25 ROC per MWh. We believe that straw is a co-product that could contribute significantly to carbon savings resulting from the biomass sector, however, without support above this level, potentially large quantities of this product are at risk

37. Finally, it is highly unlikely that the price of straw used in the E&Y paper will persist for long. It is to be anticipated that as competition for the fuel increases so the cost of energy crop straw will be significantly different from non-energy crop straw as farmers recognise the value of their product. Even 'normal' straw has reached £50/t in recent weeks after a relatively poor harvest.

'Double Subsidy' Issues

38. We understand that there are concerns in DBERR about the interaction between the RO and the RTFO if co-products are classified as energy crops. No such concerns exist in the current RTFO consultation where the use of co-product for energy is positively encouraged because of the significant carbon benefits of using materials in this way. Indeed, as noted above, specific mention is made of the methodology to be used for calculating fuel chain CO₂ savings when co-products are used for co-firing.

39. The fundamental question appears to be whether the biofuel operator shares the RTFO benefits with the power generator through a lower DDGS price, in other words, whether there is a significant discount from the price that the DDGS might command in the animal feed market. Conversely, the same effect would occur if the RO benefits flowed to the biofuel operator by virtue of a higher price for the co-product than would otherwise be achieved. It should be noted that this potential problem is not simply one of co-fired energy crops – a biofuel producer operating an in-house biomass-fired CHP using the co-products qualifies for 2 ROC per MWh and, therefore, support under both regimes.

40. Drax's view is that this issue is not a sufficiently serious obstacle to cause radical review of either the RO or RTFO. Neither option is attractive:

a. If the RO support is removed from power generators using energy crops, these co-products will not be used in co-firing or in biofuel plant and there will be a substantial reduction in overall UK CO₂ savings, Drax will be unwilling to proceed with any further biomass investment, farmers will lose a valuable source of income and prospective biofuel owners will find it more difficult to fund their investments. In addition, the methodology for allocating RTF certificates against CO₂ savings from 2010 onwards will operate in such a way as to set up an in-built barrier to UK-based biofuel plant.

b. If the RTFO support is removed by, for example, altering the allocation methodology outlined in the current RTFO consultation to prevent biofuel operators benefiting from the use of co-products in the CO₂ calculations, then the result would be a significant reduction

in the competitiveness of UK-based wheat-to-ethanol plants. It is too early to indicate whether this would significantly impair the confidence of prospective biofuel plant developers, but it would hardly add to their confidence levels.

41. It is worth questioning whether the current situation really causes any actual concerns in the market. Indications from contract discussions between Drax and some of the prospective biofuel developers are that the producers are willing to sell biofuel co-products at a price determined primarily by the RO benefits available rather than to risk the volatility of selling into the animal feed market. To the developers this has the benefit of removing such price volatility, ensuring a stable export market and aiding the bankability of the plant. (We also note that some bioethanol processes can produce DDGS with a level of antibiotics that is higher than that acceptable for animal feed, effectively requiring the DDGS to be burned in a power station).

42. We believe that the integration of the biofuel and energy sectors through use of all co-products should be a key component of the UK's future strategy and one which we believe has significant environmental benefits as well as being a vital component in the viability of biofuel plant, through providing founding contracts critical to financing development. We urge that the existing arrangements within the RO/RTFO are retained rather than modified in a way which would reduce the attractiveness of the co-firing option.

Removal of Barriers to the Production of Energy Crops

Ofgem Guidance

43. Drax has always argued that the route towards higher biomass burn is through a greater volume and diversity of energy crops, although we have also agreed with the Government's objectives of ensuring the sustainability of such crops. We consider that there is a great deal of benefit in clarifying and simplifying the guidance issued by Ofgem, particularly, but not exclusively, around annual crops. The policy intention should be to encourage energy crop planting rather than, as at present, to erect complex and restrictive administrative barriers which are reducing the willingness of farmers (both in the UK and abroad) to commit their crops to energy whilst there are less bureaucratic and possibly more remunerative alternatives. We suggest:

- a. The integration of energy crop definitions with Rural Payments Agency timescales (without the 'wrecking clause' of the letter of intent at planting) would be a significant step forward. We have in the past recommended a deadline of the January or February following planting as a RPA 'deadline' and continue to advocate this as a means of encouraging a greater level of contracting for those annual crops allocated to biofuel plant.
- b. Any letter of intent delivered prior to harvesting should be at 'farm level' rather than at 'field level' since it is unrealistic for a farmer to be able to predict the exact outputs from each field because of subsequent changes to, for example, weather and harvest volumes.
- c. As noted above, we suggest that the Government modifies the interpretation of the definition of energy crops to include the principal co-products of biofuel production (DDGS and rape meal) as energy crop, and all (straw) co-products originating from biofuel inputs. This would considerably simplify the current administrative burden associated with tracking the myriad of participating farmers and we propose that it would only be applicable if evidence could be provided to Ofgem that more than 75% of the inputs to the biofuel plant was from registered energy crop growers

Short Rotation Forestry

44. There is a need to encourage the use of more efficient energy crops as a means of reducing the amount of land used for energy. We continue to be disappointed by the

Government's lack of support for our initiatives to develop Short Rotation Forestry (SRF), and urge that the issue be raised with DEFRA at the earliest opportunity.

45. The Biomass Strategy suggests that an additional 1Mt of wood could be made available from unmanaged woodland in England. If forestry is classified as energy crop (with equivalent reinstatement) a significant fraction the 1Mt would be used by co-firers and then replanted as energy crop, which would assist considerably in meeting renewable and CO₂ reduction targets now and into the future.

46. All our analysis indicates that forestry in general, and SRF in particular, is a key to realising the full carbon abatement potential of co-firing and in the most sustainable way. We are very keen to see the Government pursue the idea of recognising all sustainable re-planted forestry as energy crop, providing certain provisions around replanting are adhered to.

PART B

Consultation Document Questions

Proposed Bands

Q1 Are there any technologies that will fall into the reference band as 'others' that should be given a different support level? Please provide evidence as to the technology and cost.

A1 No comment.

Q2 Do you agree that it is appropriate to distinguish between energy crop and regular dedicated biomass projects?

A2. Yes. It is essential to continue to develop the currently embryonic market for energy crops and the proposal to distinguish between energy crops and non-energy crops for both co-fired and dedicated projects is entirely appropriate.

Q3 Do you agree with the rationale for grouping technologies in this way?

A3 Yes.

Q4 Do you agree with the proposed banding levels? If not, please provide evidence as to why these should be changed. Views are also invited on the reports by Ernst and Young and Oxera published alongside this consultation document.

A4 Overall we are in agreement with the proposed banding levels. The costs of biomass used in the Ernst and Young report and the May 2007 DTI document on the economic analysis of biomass energy are good representations of the actual costs of supplying biomass in the necessary volumes and in the necessary physical specifications to large scale co-firing and dedicated biomass plant.

Previous studies, for example, the IPA-Mitsui report of 2006 have indicated that the volume of non-energy crop biomass available internationally will be sufficient to accommodate any reasonable expectations for the fuel requirements from UK co-firing. These studies suggested that the supply curve for non-energy crop co-firing will be relatively flat, and therefore banding may not be an effective means of controlling the volume of non-energy crop co-fired ROCs entering the market, unless the banding level is set at very low levels. (Note that for energy crop co-firing, the IPA-Mitsui study suggests that there is a much greater variation in fuel costs as volumes increase.)

If there were a sufficient quantity of lower cost non-energy crop biomass fuel available then the only constraint on co-firing volumes would be the technical and fuel-handling capabilities of the coal-fired plant and hence there would be a potential for large volumes of co-firing to depress ROC prices. On the other hand, setting the band levels too low for co-firing would make it unattractive for coal-fired generators to continue co-firing and hence there could be a significant reduction in output levels.

In early 2007, Drax recommended the provision of a band for non-energy crops which would be sufficient to encourage significant volumes of non-energy crop co-firing, but at a level which encouraged co-firing of energy crops compared to non-energy crops. Drax's recommendation was for a flat band of (around) 0.5ROC per MWh for non-energy crop co-firing complemented by a band of 1ROC per MWh for energy crop co-firing. The rationale for this was that it would provide an incentive to co-fire general biomass but retain the incentive for companies with co-firing capacity to invest in the development of a sustainable energy crop industry in the UK.

Clearly the Government's proposed non-energy crop band is lower than our recommendation. This will have the effect of reducing, in the short term, the amount of co-firing but will certainly

have the beneficial effect of focusing co-firers' attention and efforts on the Government's preferred policy option of energy crops. Having said that, the generating capacity predictions given in the Ernst and Young report do not provide a great deal of confidence in the success of the Government's policy. It is suggested that the projections of 1.3TWh of energy crop co-firing and non-energy crop generation of 8.7TWh in 2015 need reviewing in the light of the banding. This target is also inconsistent with the Biomass Strategy, which indicates 300,000-350,000ha of energy crop by 2015, translating into 6.3TWh if it is all used in co-firing.

Q5 Do you agree with the proposal that Geopressure occurring in conjunction with fossil fuel should be excluded from the RO?

A5 No comment.

Setting Bands

Q6 Do you agree with the principle of providing independent advice to Ministers to help agree UK wide bands, and on who should provide that advice?

A6 Whilst we concur that Government should wish to conduct any review of banding in a professional manner, we are not certain of the rationale for outsourcing one of its key competencies and thereby losing opportunities to influence the direction of renewable energy in an effective manner. Some of the issues which are proposed to be managed by the Advisory Committee, for example, paragraph 4.4. (e) are fundamental to effective Government policy determination. In particular we are concerned that confidential pricing information would need to be divulged to potential competitors.

We would not wish to see an Advisory Body charged with the excessively bureaucratic task of reviewing the costs of each of the available renewable technologies every five years. A more logical approach would be for the Government to set out the criteria that would allow a more focussed examination of specific technologies. Indeed, the criteria given in paragraph 4.14 triggering an early review are also applicable to identifying which sectors of the RO should be reviewed.

Q7 Do you support this approach to timing of reviews?

A7 It is fundamental that there is stability in ROC banding between reviews. We therefore welcome the precise timescales that the Government has suggested in the consultation. We also support the proposal in paragraph 4.16, that this timescale is adhered to even if a partial review is triggered by one of the emergency criteria, such as 10% biomass co-firing, and that such a review is confined to the specific issue of concern rather than it being a signal for a complete banding examination.

Q8 Do you agree with the criteria set out in paragraph 4.14? Should there be any additional criteria?

A8 It would also be useful to have low rates of development under the RO as a whole acting as a trigger to review the adequacy of existing structures to deliver the necessary reductions in CO₂.

Q9 Do you agree that the proposed trigger points for grandfathered rights, including the transitional arrangements for projects consented on 1st April 2009, are appropriate?

A9 Yes.

Q10 Should the electricity generated from power stations that add additional capacity after the point at which they are grandfathered be calculated as a fraction pro rata to the installed capacities and/or be subject to separate metering at the generators' discretion?

A10 Separate metering arrangements would be the preferred solution although it has to be recognised that this might be either impracticable or else could create an unreasonable administrative burden on generators. Hence, the default should be for separate metering although generators installing additional capacity and wishing for a pro-rata assessment should be able to provide a site-specific cost case to Ofgem.

Q11 Do you agree with the proposed treatment of projects under 50 kW as set out in paragraph 4.21?

A11 Yes.

Q12 Is there any reason why RO support at the grandfathered level would need to continue after the initial investment had been paid back?

A12 There is a need for the RO to develop a stable investment framework such that investors can be confident about recovering their initial investment. However, we are very supportive of the Government statements in the consultation that it should not be the purpose of the RO to guarantee long term returns in a market economy (particularly one where renewable energy is becoming more economic into the future as a result of carbon trading rather than less economic). Hence, a clear statement on the termination of support puts renewable energy on a more equal footing with other power generation technologies.

Q13 Accepting that there will be variation between projects; is 20 years a fair proxy for project financing?

A13 No comment.

Q14 Should this provision apply to projects under NFFO 3, 4 and 5 from date of contract, date of first supply or date of commencement in RO?

A14 No comment.

RO Levels in a Banded RO

Q15 Is guaranteed headroom of 6% adequate, given the ability of suppliers to bank ROCs and our intention to also remove the risk of a ROC price crash through introducing the ski-slope?

A15 We have seen analysis that suggests that given production variability, especially from wind generators, a 6% headroom is too low to ensure that, in general, the obligation will not over supplied. Our experience of operating in competitive energy markets suggests that volatilities are high and predictions of both volumes and operating economics, even year ahead, are difficult. With this background we would suggest that a prudent stance would be to err on the side caution and work to higher headroom than 6%.

Q16 At what point in time should the level of Obligation for a given obligation period be announced?

A16 The level of the Obligation should be announced a year before the start of each obligation period.

Q17 Do you agree with the intention to take a power to introduce a ski-slope in primary legislation subject to a later need?

A17 No comment.

Co-firing and Sustainability of Biomass

Q18 Do you agree with the need for a special co-firing criterion for an emergency review of banding? Is 10% of ROCs an appropriate trigger point?

A18 Overall, we are very supportive of the principle of banding normal biomass co-firing at a level which is high enough to facilitate economic co-firing of substantial volumes of biomass yet low enough to prevent 'over-rewarding' and to prevent 'flooding' of the market with co-fired ROCs. Indeed, we recommended this approach in our responses to previous consultations on this subject. We also recognise that as the EU Emissions Trading Scheme moves into Phase II in 2008-2012, the economic viability of biomass co-firing should improve and are content that the proposed banding level will be sufficient to stabilise co-firing levels over the period to the first review implementation in 2013.

However, as noted above, there is a need to ensure that normal biomass does not occupy too high a fraction of the overall RO. A trigger of 10% of the total ROCs would be a clear signal that normal biomass was 'over-rewarded' and that a review should be introduced with the objective of reducing the level of non-energy crop RO support.

Q19 Do you agree with the Government's proposal that reducing support and reviewing the co-firing band for regular biomass if it contributes 10% of ROCs makes a cap on co-firing unnecessary? If not, please provide evidence as to what the likely impact of uncapping co-firing at the proposed level of support would be and the level of cap appropriate.

A19 Drax strongly opposes the re-introduction of volume caps. The Government has already (April 2007) lifted the cap on energy crop co-firing since it saw the constraints and lack of investment that inappropriate volume caps produced during 2005-6. The current direction of the RO is to move away from caps, since they distort the market place, and to manage renewable volumes through price.

Q20 Do you agree with the proposed treatment of energy crops set out in paragraphs 6.9–6.14?

A20 Yes, we support the proposed treatment of energy crops. The energy crop industry is currently immature and needs to be given long term financial stability and support in order to develop into an industrial sector which can supply the nation's needs in an economic manner. Specifically, growers and suppliers need to be able to access long term contracts (5-10 years) which will enable investment in new crop research, new biomass handling, drying and pelletising equipment and to enable at least a full cycle of growth of perennial crops

Q21 Do you agree that sustainability requirements should cover all biomass users?

A21 Yes.

Q22 Should those generating less than 50 kW be exempted from sustainability reporting? Should any other threshold be used?

A22 It is reasonable to exempt generators of less than 50kW from sustainability reporting requirements.

Q23 Do you agree with the criteria to address sustainability for biomass?

A23 Drax is supportive of the principles of developing the concept of sustainability in relation to biomass, particularly in order to ensure that the most sustainable forms of co-firing and biomass are incentivised. However, sustainability is not a well-defined principle and there is a need to work towards developing a clearer set of sustainability criteria upon which future judgements can be made. We are supportive of the current proposal that seeks to develop an information database before introducing specific controls but note that recent DTI-sponsored work has already indicated that replacing coal with biomass was extremely effective in reducing

UK emissions of CO₂. The Government needs to be much more specific in its long term policy goals in order to ensure that it collects the most appropriate information. Having said that, we are doubtful as to whether the current Ofgem reporting requirements will deliver the necessary focus sufficiently quickly. We would emphasise that the developments in sustainability criteria through (*inter alia*) the RTFO are highly likely to overtake the consultation proposals.

There is a need for Government to initiate a dialogue with the biomass-using industry (and not just the co-firing sector) in order to develop a concept of sustainability which is both practical, useful and able to influence long term policy on biomass use. We note that the Biomass Strategy 2007 is itself not specific on the definitions.

Q24 Do you agree that Ofgem should freeze the ROCs of operators who do not provide the necessary information on sustainability?

A24 No. This is a step too far, particularly if, as noted above, such information is required in order to inform policy making. There is a long way to go with voluntary cooperation in the first instance rather than introducing sanctions such as freezing ROCs.

It is also unrealistic to threaten sanctions without having initially identified whether such information can realistically be generated. It is for example completely impractical to attempt to identify and document land use since 2005 from each and every farmer or grower who might have contributed material to a delivery of fuel, particularly if it has originated from a variety of sources and/or been freely marketed and sold/resold. The potential to supply such information will be higher for UK energy crop fuel but the administrative overhead will be significant, especially for annual energy crops and for overseas materials.

Q25 Do you agree that deeming the fossil fuel content of waste is appropriate? Should operators be given the opportunity to present Ofgem with evidence that the fossil fuel content is lower?

A25 No comment.

Q26 Is 65% fossil fuel the right level to deem? Does the remaining 35% receiving ROCs provide a suitable incentive through the RO without compromising the Government's aspirations for increased recycling?

A26 No comment.

Q27 Do you agree that the RO should be made 'neutral to waste (SRF)' in this way? Would there be any negative consequences? Do you agree that a CEN based definition is appropriate?

A27 No comment.