Dear Mr Matthews,

RE: Planning application no. 0759/12 for Construction of a Biomass Renewable Energy Plant

I am writing on behalf of Biofuelwatch. We submitted an objection to ECO2's application for a 40 MWe biomass power plant on 16th May 2012. We have carefully studied ECO2's recent additional submissions, i.e. their Response to a Direction under Regulation 22 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011, their Supplementary Information and related Appendices.

We wish to confirm that nothing contained in the new documents addresses our serious concerns about this planning application and that we therefore maintain our previous objection. However, we would like to submit further comments and observations related to those new documents.

We confine our comments to issues around the sustainability of the proposal (including sourcing and efficiency) and the feedstock requirement assumptions which affect many different aspects of the Environmental Impact Assessment. This is solely due to the fact that those are the issues which we feel best qualified to comment on – it is not a reflection on the validity of other grounds for objection put forward by local groups and individuals, which indeed seem very convincing to us.

1) Feedstock requirements

In our objection letter of May 2012, we argued that ECO2's claims that they could run a 40 MWe largely straw-powered plant on 240,000 tonnes of feedstock did not appear to be credible. ECO2 have provided no additional information to verify their claims regarding tonnage. Their new documents make no reference at all to annual amounts of feedstock. To calculate the figure with any certainty, one would need to know both the calorific value of the fuel and the conversion efficiency of the plant. ECO2's new documents state that straw has a net calorific value of 14 GJ/tonne. This is higher than the figure cited by the Biomass Energy Centre, which is run by Forest Research, the research agency of the Forestry Commission and gives technical advice to industry, local authorities and government department. According to the Biomass Energy Centre, the net calorific value of straw is on average 13 GJ/tonne (http://www.biomassenergycentre.org.uk/portal/page?_pageid=75,17972&_dad=portal&_schema=PORTAL). Most crucially, however, ECO2 give no information about the expected conversion efficiency of the plant. We understand that both 30 and 35% efficiency figures have been cited informally by the developers, however we could find no relevant figure in the planning documents.

We have, however, found information about feedstock requirements by the Elean power station in Ely, which we understand has a similar design to that proposed at Mendlesham and which is almost entirely run on straw (with a small addition of miscanthus). According to data submitted to Ofgem, the Elean power station burned 173,506 tonnes of straw and 13,068 tonnes of miscanthus in 2011/12 but only ran at 58.4% of its installed 40 MWe capacity (see www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=366&refer=Sustainability/Environment/RenewablObl/FuelledStations/ro-sustainability and www.ref.org.uk/roc-generators/index.php. Based on those figures, the efficiency level reached by the Elean power station is well below 30% and the feedstock requirement for running it at its full 40 MWe capacity for 8000 hours a year is significantly more than 240,000 tonnes annually.

As we pointed out in our objection letter before, a significant underestimate of feedstock requirements renders many aspects of the Environmental Impact Assessment unreliable.

This includes the Air Quality Assessment (since process emissions have been underestimated), the traffic assessment and the sustainability and greenhouse gas assessment.

Power station efficiency:

None of the planning documents contain information about projected efficiency levels and we have shown above that those can be expected to be well below 30% given that the power station design would be similar to that of the Elean Power Station. However, we understand that ECO2 have been speaking about the potential for adapting their proposed plant to become a combined heat and power (CHP) one. Their original planning documents state:

"*As well as supplying renewable electricity to the local distribution network, the REP proposals can be adapted to provide CHP supply to the surrounding area. The CHP application of the proposed development may provide significant benefits to local businesses and residents, magnifying the credentials of the proposal in environmental and economic terms. However, heat supply contracts can only be negotiated between local residents, businesses and the supplier post planning consent. The designs therefore allow for subsequent connections to heat networks should suitable heat loads emerge.*"

While it is correct that formal heat supply contracts cannot be negotiated without planning consent, Government policy strongly supports detailed CHP Feasibility Studies being carried out at the early planning stages. The Government's Overarching National Policy Statement for Energy says:

"*4.6.7 - In developing proposals for new thermal generating stations, developers should consider the opportunities for CHP from the very earliest point and it should be adopted as a criterion when considering locations for a project. Given how important liaison with potential customers for heat is, applicants should not only consult those potential customers they have identified themselves but also bodies such as the Homes and Communities Agency (HCA), Local Enterprise Partnerships (LEPs) and Local Authorities and obtain their advice on opportunities for CHP. Further advice is contained in the 2006 DECC guidelines and applicants should also consider relevant information in regional and local energy and heat demand mapping*."
(https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf)

Although the National Planning Policy Statements apply directly to major infrastructure developments, Section 1.2.1 states:

"*This NPS, and in particular the policy and guidance on generic impacts in Part 5, may be helpful to local planning authorities (LPAs) in preparing their local impact reports. In England and Wales this NPS is likely to be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended). Whether, and to what extent, this NPS is a material consideration will be judged on a case by case basis.*"

This means that the Government guidance about CHP Feasibility Studies should not simply have been ignored. This is particularly the case since the UK Bioenergy Strategy 2012 also states that combined heat and power should be strongly promoted for biomass power plants (of all sizes). It states for example: "*Combined heat and power generation offers more efficient use of the biomass resources and should be promoted where possible.*" It also highlights that electricity-only biomass power stations are significantly less desirable than combined heat and power stations in terms of carbon emissions/impacts.

(https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48337/5142-bioenergy-strategy-.pdf).

Without a CHP Feasibility Study, we cannot comment on the practical feasibility of the proposed power stations supplying heat to customers, however it is costly and extremely rare for electricity-only power stations to be retrofitted to supply heat.

Furthermore, if ECO2 were to nonetheless decide to do so in future, i.e. to supply heat whilst maintaining the plant at 40 MWe capacity, this would have consequences for feedstock requirements. Heat supply, though it raises overall efficiency, reduces the electrical capacity per tonne of feedstock. This can be illustrated by Forth Energy's biomass power station applications in Scotland. Forth Energy has submitted applications for three power stations which would have 100 MWe capacity each. They claim that one of those has the potential to also supply 200 MW of heat but state that to do so, that power station would need to burn 500,000 tonnes more biomass than the others (see www.forthenergy.co.uk).

Feedstock availability, sustainability and greenhouse gas impacts:

All of the points raised in our previous objection remain valid.

The supposed availability of large quantities of straw forms the basis of ECO2's claims regarding site selection. Yet, as we have shown before and as other objectors have demonstrated, the evidence shows that sufficient straw is unlikely to be available (even based on ECO2's feedstock requirement forecasts which we argue are not credible).

The only new information submitted by ECO2 is that they state no more than 22% of the fuel (by energy content) would be wood and that the rest would be straw. We would point out that feedstock intentions included in planning applications are not legally binding and that, should this application be approved in its current form, there would be no means of preventing ECO2 from burning primarily wood or other types of solid biomass (except that for some types of waste biomass a separate Environment Agency permit would be needed).

ECO2 claim that electricity generation from straw would result in significant greenhouse gas savings. However, those claims are contradicted by the UK Government. The 2012 UK Bioenergy Strategy (Figure 14) shows that average CO_2 emissions from dedicated straw-fired biomass power stations are on average 400 kg per MWh, although with good practice they can be 380 kg per MWh. These figures reflect the low energy density and related high transport emissions for straw. They are significantly higher than the expected carbon intensity of the grid for 2030. Crucially, they are much higher than the maximum carbon intensity which the Government has stated biomass power stations need to achieve in order to be eligible for Renewable Obligation Certificates (ROCs) from October 2013. The Government has announced that ROCs will not be paid for biomass power stations with a carbon intensity of 285.12kg per MWh, a figure which they state may be lowered further (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42852/5936-renewables-obligation-consultation-the-government.pdf). Although the detailed methodology for calculating the carbon intensity of different types of biomass is still to be published, nothing has been published to suggest that the figures for carbon intensity of electricity from straw that are contained in the 2012 UK Bioenergy Strategy would be revisited. Although DECC has announced a review of the methodology for calculating carbon emissions related to wood-based bioenergy, this does not extend to other types of biomass such as straw. It therefore appears a reasonable assumption that electricity from straw-fired power stations would not be eligible for ROCs from October this year.

Although we appreciate that the economic viability of a proposal is not a material planning consideration in itself, the implication of the ROCs requirements is that ECO2 may well be forced to change their feedstock sourcing and to turn to biomass other than straw, namely wood. This conflicts entirely with ECO2's claims about the choice of the site, a site which appears highly unsuitable for a wood-burning power station, given the very low availability of wood locally and the high costs and carbon emissions required for transporting wood (as we showed in our previous objection letter, very possibly imported wood that would need to be transported by lorry from ports) to the site.

Best regards,

Almuth Ernsting
Co-director, Biofuelwatch