PEEL ENERGY

Councillor Cordingley
Trafford Town Hall
Talbot Road
Stretford
Manchester
M32 0TH

24th September 2010

Dear Councillor Cordingley

Barton Renewable Energy Plant (BREP)

We would like to thank you for your interest in our proposals for the Barton Renewable Energy Plant located adjacent to the Barton High Level Bridge and the Manchester Ship Canal. Your correspondence raises a number of interesting points to which we are happy to respond as follows:

1. **What reassurance can be provided as to the effectiveness of the filtering systems harmful emissions from the burning of waste wood.**

The technology installed in this development will be capable of cleaning the emissions to the same level regardless of whether the fuel is virgin timber or reclaimed wood. The emissions that remain are at very low concentrations. The impact of these emissions has been assessed by comparing the contribution to human intake with health standards set to protect human health both through European Legislation and Local Authority Standards. The contributions at source are much less than 10% of these standards. The standards which are set for dioxins in particular are based on a Tolerable Daily Intake, which is the intake which a human could receive every day without adverse health effects. This allows for the continuous exposure to very low levels of chemicals, such as the human body is exposed to every day anyway. Standards for metals are also based on a daily dose. This will be referenced and explained in the planning application when submitted.

This plant will be continually monitored by the Environment Agency (EA) and by failsafe computer systems on site which would regulate the plant ahead of reaching the prescribed limits. Emissions of key pollutants are monitored with 99.99% compliance across all UK plants according to EA. Monitoring of the plants shows 99.99% removal efficiency for very small particles.

To assist you further we attach a copy of a schematic plan of the operation of a biomass facility.

2. **Can we provide examples of operational sites burning recovered waste wood and report on the impact on air quality in the period of operation.**

During the last 10 years, around 350 biomass power plants with a capacity of more than 3,000 MW came into operation in the European Union. The UK are seriously lagging behind the rest of Europe with this technology currently having only several operating plants whilst countries like Sweden are currently generating around 32% of their electricity from biomass fuelled power plants.

The main plants in the UK are:

- Slough Heat and Power with a capacity of 101MW
- Steven's Croft, Lockerbie at 44 MW
- Other operational plants include Ely, Cambridgeshire and Thetford, Norfolk
- There is planning permission at Markinch in Fife for a 45 MW plant
- In England and Wales a range of Section 36 consents have been granted in various locations.

Listed below are quotes from a number of government departments and agencies that reference the possibility of health impacts from plants such as BREP.

Studies into the health of communities living near to incinerators have not found any convincing links between incinerator emissions and adverse effects on public health. The Environment Agency work with health authorities and the Health Protection Agency to investigate local concerns and regulate all waste facilities, including energy from waste incinerators, to prevent or minimise any risks to the environment or health. Cuts in emissions over the past decade have greatly reduced any potential health risks.

(Environment Agency, 2009)

Incinerators emit pollutants into the environment but provided they comply with modern regulatory requirements, such as the Waste Incineration Directive (of which the Barton Renewable Energy Plant will), they should contribute little to the concentrations of monitored pollutants in ambient air. Epidemiological studies, and risk estimates based on estimated exposures, indicate that the emissions from such incinerators have little effect on health.

(Health Protection Agency, 2005)

There is a body of scientific evidence strongly indicating that contemporary waste management practices including incineration, have at most, a minor effect on human health and the environment, there are no grounds for adopting the 'precautionary principle' to restrict the introduction of new incinerators.

(Response to the British Society for Ecological Medicine report The Health Effects of Waste Incinerators. Health Protection Agency, 2006)

The Health Protection Agency has reviewed research undertaken to examine the suggested links between emissions from municipal waste incinerators and effects on health. While it is not possible to rule out adverse health effects from modern, well regulated municipal waste incinerators with complete certainty, any potential damage to the health of those living close-by is likely to be very small, if detectable. This view is based on detailed assessments of the effects of air pollutants on health and on the fact that modern and well managed municipal waste incinerators make only a very small contribution to local concentrations of air pollutants. The Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment has reviewed recent data and has concluded that there is no need to change its previous advice, namely that any potential risk of cancer due to residency near to municipal waste incinerators is exceedingly low and probably not measurable by the most modern techniques. Since any possible health effects are likely to be very small, if detectable, studies of public health around modern, well managed municipal waste incinerators are not recommended.

(Health Protection Agency, "The Impact on Health of Emissions to Air from Municipal Waste Incinerators", 2009)

A further growth of up to 2,000 MWe can be expected across Europe in the next five years. The EU member states have to drastically increase the proportion of electricity from renewable energies – due to the specifications of the Kyoto protocol and the EU Renewable Energy Directive.

In contrast to tidal, wind and solar, biomass is currently the only viable renewable energy source which does not depend on the weather and is capable of delivering a stable energy production on demand.

3. Are rural/coastal locations not better suited to this form of development?

The suitability of a location for such a proposal is not determined purely on rural or coastal position but a number of criteria.

There are a number of site specific benefits associated with the location of the proposed development of a renewable energy biomass scheme on land adjacent to the Barton high level bridge and the Manchester Ship Canal.

- The urban nature of the surrounding areas ensures that local direct and indirect employment opportunities exist for local companies and individuals during construction and operation.
- Its location is in close proximity to the principal aggregators and processors of reclaimed wood which in the North West area which predominantly goes to landfill currently.
- The site's proximity to existing infrastructure and development means that renewable electricity and renewable heat are capable of use for local homes and businesses in an area of high energy demand. Electricity generation close to where the centre of demand also means there are reduced losses in transmission.
- The site is located away from residential properties.
- The site enjoys direct access from the motorway network (and future WGIS scheme) and the Ship Canal without passing residential properties. The application will include for the provision of fuel offloading and ash removal directly via the Manchester Ship Canal.
- The development provides an opportunity to enhance local ecology by strengthening the wildlife corridor which follows the Manchester Ship Canal.

The air quality assessment which will accompany the planning application will demonstrate that the scheme will accord with the strict emission standards specified in both European Legislation and Local Authority Standards. As such the site demonstrates key sustainable development criteria.

Finally, you indicated a concern that the Government seems to recognize that there are adverse impacts on air quality from such developments. This stems from a report published in 2008/9 by DEFRA which recognised that installing lots of small biomass burners without emissions controls in cities could have an adverse effect on air quality. This comment specifically referred to the anticipated unregulated replacement of domestic and small scale commercial boilers with biomass, and did not relate to the highly efficient, regulated and controlled development of larger scale plants such as proposed by ourselves at Barton.

As you will be aware the UK government remains highly committed to the use of biomass for the generation of heat, power and transportation. This is clearly stated in the UK Renewable Energy Strategy and was reinforced by Chris Hulne in the Annual Energy Statement to the House of Commons in July 2010. Furthermore the government has set targets for the diversion of bio-degradeable material from landfill with reclaimed wood being identified as a key priority material (Waste Strategy for England).

We trust you will find this information useful and look forward to your further input in the consultation process.

Yours sincerely

Jonathan England.

Jonathan England
Development Director

RENEWABLE ENERGY PLANT

1. Combustion Control

Controled addition of primary and secondary air supply ensures that there is complete combustion which minimises the production of carbon monoxide.

Careful control of combustion temperatures minimises the production of nitrogen monoxide and nitrogen dioxide (NOx).

Gas temperature is maintained above 850 degrees C for at least 2 seconds to destroy dioxins and furans, PCBs, PAHs and other harmful organic compounds.

2. Nitrogen Dioxide Reduction

A chemical reagent is injected into the flue gas stream which reacts with NOx converting it into nitrogen and water.

3. Dioxin Control

The boiler is designed to ensure rapid cooling of the flue gas which prevents dioxins forming.

4. Powdered Activated Carbon Addition

Powdered activated carbon is added to remove:
Mercury
Dioxins and Furans
PCBs
PAHs
Other organic compounds

These pollutants are absorbed onto the powdered carbon which can then be removed from the flue gas by the filter system.

5. Lime Addition

Powdered lime is blown into the flue gas stream and into the fabric filter. Lime is highly alkaline and reacts with acidic gases such as hydrogen chloride and sulphur dioxide, removing them from the flue gas stream.

6. Particulates Removal

A sophisticated filter system is used to remove any particulates including:
Fly ash from the boiler including trace heavy metals
Powdered lime
Powdered activated carbon

The filter is a multi compartment bag filter designed to operate at high temperatures and remove particulates including PM10s and PM2.5s.

The pollutants such as mercury, dioxins and other organics that were absorbed onto the powdered activated carbon are removed here as part of the particulate matter.

The build up of particles is removed from the filter by pulses of compressed air and this residue is collected in a silo ready for disposal.

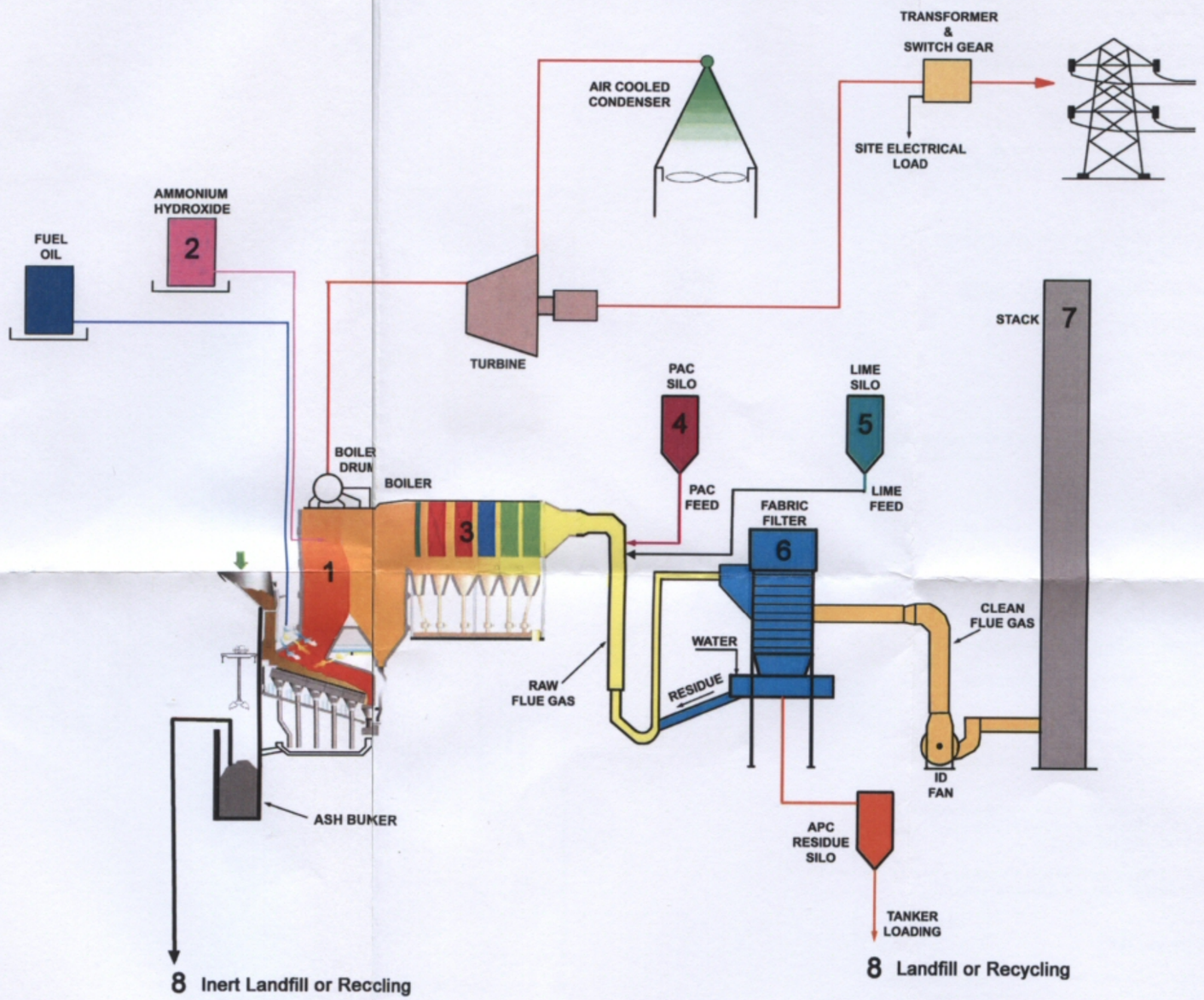
7. Flue Gas Dispersion

The Environment Agency requires that the operator monitors the level of pollutants from the stack and controls them below the limits set by European legislation.

A plume may be visible at certain times of the year due to water vapour in the flue gas condensing in the cold air.

The stack is designed based on extensive computer modelling and air quality assessment. The computer model predicts how the flue gas disperses in the atmosphere. The model uses worst case emissions and every hour is modelled for the last 5 years of weather data.

Air Quality Standards are set by the government and medical experts to prevent impact to human health.



The air quality assessment also considers any existing industr nearby and also the existing background concentrations of pollutants. The assesment is submitted for assessment as part of the planning application ad to the Environment Agency for the Environmental Permit application.

8. Residue Disposal

The ash from the bottom of the boiler is classified as an inert waste and can be disposed of in a non hazardous landfill. It can also be recycled into aggregate for road construction or cement manufacture.

The particulate residues (Air Pollution Control residues) from the bag filter contain a high concentration of lime which is an irritant and is therefore classed as a hazardous waste. The APC residue is loaded into a container lorry via a fully sealed loading system for transport to a landfill. At the landfill the APC residue is pre-treated to aid handling and is then sealed in water tight underground cells for final disposal.