Air Quality & Emissions

Lea Bank Energy Park

Some of the most frequently asked questions about the process of generating energy from waste relate to the emissions and their potential impact on air quality and the local environment. This is a very closely monitored aspect of the process and the Lea Bank Energy Park (LBEP) will have to prove to the Environment Agency that it complies with regulations from the European Industrial Emissions Directive in order to be awarded an Environmental Permit. This includes requirements on operating conditions, ongoing monitoring and emission limits.

Abatement of Emissions

The abatement plant for ensuring that emissions from an operation such as LBEP comply with the Environmental Permit involves several stages and can comprise around 30% of the facility.

Additionally, controls over the waste input and combustion process will minimise the potential release of pollutants. A range of abatement systems can be applied, primarily these will include Oxides of Nitrogen abatement through injection of a reagent into the flue gas and injection of both lime and activated carbon followed by filtration using large fabric filter systems to remove acid gases including sulphur dioxide and particulate matter.

The effectiveness of these filtering processes will be continuously monitored.

Monitoring

Before issuing an Environmental Permit, the Environment Agency will review the design of the abatement measures and require monitoring of a range of parameters to ensure effective combustion and continuous emission monitoring of pollutants to demonstrate the effectiveness of the abatement plant.

LBEP will not be allowed to operate if this equipment is offline.

Stack Height

An elevated stack is used to ensure effective dispersion of the emissions and to ensure that peak ground level impacts do not contribute significantly to pre-existing concentrations of air pollutants. Detailed atmospheric dispersion modelling will be carried out and reviewed as part of the planning application and permit application.

The stack at LBEP is not expected to be higher than 100m

The emission from the stack comprises mainly air along with carbon dioxide, water vapour and a range of pollutants from the combustion process. Typical emission values from similar facilities are shown on the right, along with their respective percent of International Emissions Directive Emission Limit Values.

Health & Enviroment

The impact of the emissions to air will be assessed as part of both the Environmental Impact Assessment (EIA) and the Environmental Permit application. As part of the process the Environment Agency will consider the potential for health effects and will not issue a permit for LBEP if they believe it will harm human health.

In September 2009 Public Health England, an independent UK organisation set up by the government in 2003 to protect the public from threats to their health from infectious diseases and environmental hazards, reviewed scientific evidence on the health effects of waste incinerators concluding that 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.

Oxides of Nitrogen	<180mg/Nm^3 which is <90% of the IED Emission Limit
Particulate Matter	<1mg/Nm^3 which is <10% of the IED Emission Limit
Total Organic Carbon	<1mg/Nm^3 which is <10% of the IED Emission Limit
Hydrogen Chloride	<7mg/Nm^3 which is <10% of the IED Emission Limit
Hydrogen Fluoride	<0.2mg/Nm^3 which is <20% of the IED Emission Limit
Sulphur Dioxide	<10mg/Nm^3 which is <20% of the IED Emission Limit
Carbon Monoxide	<10mg/Nm^3 which is <20% of the IED Emission Limit
Ammonia	<10mg/Nm^3 no est IED Emission Limit
Dioxins	<0.5ng/m^3 which is <50% of the IED Emission Limit
Group 1 metals	<0.001mg/Nm^3 which is <2% of the IED Emission Limit
Group 2 metals	<0.025mg/Nm^3 which is <50% of the IED Emission Limit
Group 3 metals	<0.02mg/Nm^3 which is <4% of the IED Emission Limit