



**PROPOSED NEW RENEWABLE ENERGY PLANT  
AT BLACKBURN MEADOWS  
SHEFFIELD**

**ENVIRONMENTAL IMPACT ASSESSMENT  
SCOPING STATEMENT**

**July 2007**



## PREFACE

The UK faces the combined challenges of maintaining security of energy supplies and reducing greenhouse gas emissions to address climate change. E.ON UK plc believes a broad range of technologies need to be deployed to address these challenges and is proposing to construct a biomass-fired Renewable Energy Plant at Blackburn Meadows in the Lower Don Valley area in Sheffield. The proposed Renewable Energy Plant is to be located within the existing E.ON UK site and will generate around 25MW of electricity. The Renewable Energy Plant is well sited and it is intended to be able to provide heat, as hot water or steam, to the neighbouring commercial and industrial establishments. This renewable energy development will contribute towards the planning and regeneration Objectives of the City and the strategic regeneration of the wider area.

E.ON UK intends to submit a planning application to Sheffield City Council under the Town and Country Planning Act 1990 for the proposed development. This Environmental Impact Assessment Scoping Statement has been prepared to initiate this process and describes the key issues which will be covered in the Environmental Statement to accompany the application.

In addition to this statutory consultation E.ON UK intends to consult widely with the local community and other stakeholders on the proposed development. The planning application will be the subject of a public pre-application consultation exercise leading to the preparation of a Statement of Community Involvement. The approach to public consultation will be agreed with Sheffield City Council. The consultation process will provide the opportunity for the local community to input into the emerging development proposals.

The proposed Blackburn Meadows Renewable Energy Plant is planned for commissioning in 2011 at the earliest, subject to the grant of all necessary planning and environmental consents and permits.

This scoping statement has been produced in accordance with the requirements of The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. It presents the proposed activities to be undertaken for the production of the Environmental Statement to construct and operate a biomass-fired Renewable Energy Plant. This Environmental Impact Assessment Scoping Statement is presented in three main sections:

- Section 1: Introduction:** the background to the project is presented.
- Section 2: The Site and the Project:** considers aspects of the plant design and the site for the proposed plant.
- Section 3: Environmental Impact Assessment:** details the proposed activities to be undertaken to establish the effects of the proposed plant on the environment in terms of emissions, visual aspects, traffic, noise, ecology, water quality and the socio-economic implications for the local community.
- Section 4: Summary:** provides a list of potential significant impacts.

The proposed plant will be referred to as 'Blackburn Meadows Renewable Energy Plant' or 'the biomass plant' throughout this document.

This Environmental Impact Assessment Scoping Statement has been issued to Sheffield City Council at the following address:-

City Development Division  
Development Services  
Sheffield City Council  
Howden House  
1 Union Street  
Sheffield  
S1 2SH

Copies of Environmental Impact Assessment Scoping Statement have been issued to the following bodies:-

Darnall Ward  
Town Hall  
Sheffield  
S1 2HH

English Heritage  
Customer Services Department  
PO Box 569  
Swindon  
SN2 2YP

English Nature - Natural England  
Natural England  
South Yorkshire Team  
Bullring House  
Northgate  
Wakefield  
WF1 3BJ

Environment Agency  
Development Planning Team  
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Global Avenue  
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LS11 8PG

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Highways Agency  
Alan Ellison  
Development Control Team  
City House  
New Station Street  
Leeds LS1 4UR

Rotherham MBC  
Department of Planning  
Norfolk House  
Walker Place  
Rotherham  
S60 1QT

Sheffield Wildlife Trust HQ  
37 Stafford Road  
Sheffield  
S2 2SF

South Yorkshire Forest Partnership  
4 Park Square  
Newton Chambers Road  
Sheffield  
S35 2PH

Tinsley Forum  
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Tinsley  
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Victoria Place  
Leeds  
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Copies of the Environmental Impact Assessment Scoping Statement may be obtained by writing to E.ON UK at the following address:-

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Renewables  
Development and Construction  
E.ON UK  
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Westwood Business Park  
Coventry  
CV4 8LG

Any requests for further information on the proposed plant or information relating to E.ON UK Renewables in general should be made to Dr Nilton Chan at the above address.

## CONTENTS

<b>PREFACE</b>	<b>2</b>
<b>SECTION ONE: INTRODUCTION</b>	<b>10</b>
1.1 E.ON - The Company	10
1.2 The Need for New Low Carbon Generating Capacity	10
1.2 Figure 1: Projected UK Power Supply and Demand Gap	11
1.3 E.ON UK Actions to Address these Challenges	11
1.4 Development of Renewable Generation at Blackburn Meadows	12
<b>SECTION TWO: THE SITE AND THE PROJECT</b>	<b>14</b>
2.1 Introduction	14
2.1 Figure 2: Site Location Map	14
2.2 Description of Proposed Plant and Processes	15
2.2 Figure 3: A Schematic Diagram of the Proposed Development.	15
2.3 Main Plant Components	18
2.4 Biomass Fuel	19
2.5 Plant Integration	19
2.6 Construction	19
2.7 Operation	20
2.8 Health and Safety	20
<b>SECTION THREE: ENVIRONMENTAL IMPACT ASSESSMENT</b>	<b>21</b>
3.1 Introduction	21
3.2 Proposed Scope of Environmental Impact Assessment	22
3.2.1 Site and its Planning Context	22
3.2.2 Air Quality	23
3.2.3 Water Quality	24
3.2.4 Flood Risk	24
3.2.5 Ecology	25
3.2.6 Transport	25
3.2.7 Solid Waste	26
3.2.8 Noise	26
3.2.9 Landscape and Visual	26
3.2.10 Socio-economic Effects	27
3.2.11 Cultural Heritage	27
3.2.12 Land Contamination	28
3.2.13 Health and Safety	28
3.2.14 Sustainability	28
<b>SECTION FOUR: SUMMARY</b>	<b>29</b>

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## SECTION ONE: INTRODUCTION

### 1.1 E.ON - The Company

E.ON is the world's largest investor-owned energy company. Electricity and gas are the core business of the company with leading positions in Europe and the US Midwest. E.ON UK plc's holding company, E.ON AG, is based in Düsseldorf and is responsible for managing the E.ON group as a whole. E.ON UK plc was formed following E.ON's purchase of Powergen UK plc in 2002. Powergen UK plc was formed in 1989 from the Central Electricity Generating Board (CEGB), as part of the privatisation of the electricity industry in the United Kingdom.

E.ON UK is one of the largest operators and developers of power stations in the UK employing some of the most advanced technologies available today. E.ON UK has a leading position supplying energy to over 6 million domestic customers and to many companies in British Industry. Through its Central Networks business, E.ON UK also distributes electricity to 4.9 million homes in the East and West Midlands.

### 1.2 The Need for New Low Carbon Generating Capacity

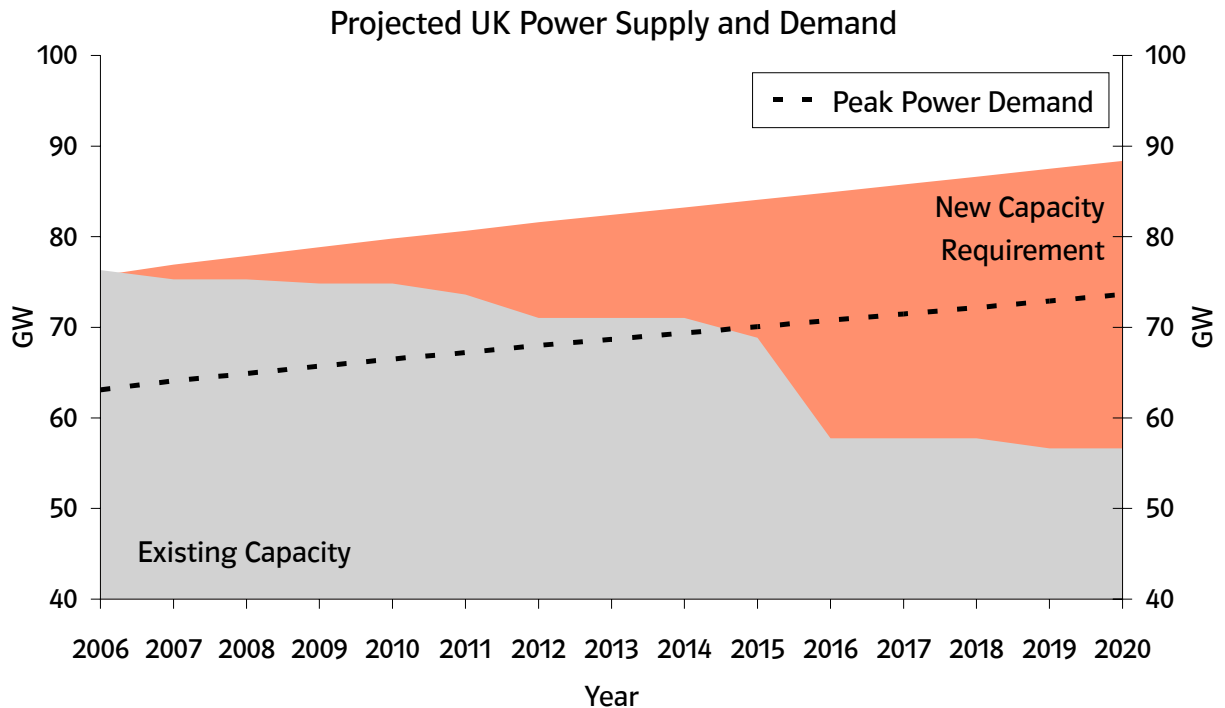
#### *The Challenge of Climate Change*

E.ON UK recognises that climate change is an important issue for the Government and for the wider community. It is committed to reduce the carbon intensity of its electricity generation by 10% by 2012, compared with 2005, having already achieved 20% reduction since 1990. E.ON UK's renewables business is playing a key part in delivery of its low carbon agenda and the Government's targets for reducing climate changing emissions.

#### *Increasing Demand for Electricity*

Despite improved energy efficiency, it is anticipated that there will be a continued growth in electricity demand (see Figure 1) which, combined with the expected closure of around 16GW of plant (equivalent to the needs of around 12 million homes), means that work must start on planning and developing the next generation of power stations today.

**Figure 1: Projected UK Power Supply and Demand Gap**



*Diversity of Fuel Supplies*

There is no one answer to bridging the supply gap in electricity supplies. With the UK forecast to become more reliant on imported natural gas in the future, a diverse range of energy sources available for power generation will be increasingly important. E.ON UK believes that there is an important role for coal, gas, renewables and other innovative technologies in the generation portfolio for the UK.

**1.3 E.ON UK Actions to Address these Challenges**

E.ON UK believes that in order to address the challenges of climate change and security of supply the latest technologies must be deployed now, and have set out to achieve this on many fronts:

*Renewable Generation*

E.ON UK is one of the UK’s leading renewable generators and is undertaking a large construction programme across the UK. Currently E.ON UK operates 197MW of wind, 50MW of hydro and is co-firing biomass at two of its three coal-fired stations. Additionally the company is building a 44MW dedicated biomass plant at Lockerbie in Scotland which is due to be commissioned in the fourth quarter of 2007. This carbon neutral power plant will burn forestry residue like sawdust and specially-grown willow from the local area.

E.ON UK also has proposals for a further 235MW of renewable energy projects in the UK for which planning consents have been submitted. In November 2006 the company began construction of its nineteenth onshore wind farm, Stag's Holt with 18MW capacity in Cambridgeshire. E.ON UK has also begun construction on Robin Rigg, a 180MW offshore wind farm located in the Solway Firth. It is part of the consortium (London Array Ltd) which is planning to build a 1,000MW offshore wind farm in the Thames Estuary which, when constructed, will be the UK's largest operating wind farm.

#### *New Supercritical Coal-fired Power Generation*

E.ON UK has already applied for consent to build two 800MW modern high efficiency supercritical coal-fired units to replace the four existing 485MW sub-critical coal fired units at Kingsnorth in Kent.

#### *New Gas-fired Power Generation*

E.ON UK has commenced construction of a new gas-fired 1200MW power station at Grain on the site of the existing oil-fired station. It is also seeking planning consent for a similar plant at Drakelow in the Midlands on the site of a former coal-fired power station which has recently been demolished.

#### *Research and Development in New Technologies*

E.ON UK is investigating marine renewable technologies such as tidal and wave. The company is developing one of the UK's first wave energy projects off the North Coast of Cornwall and a tidal stream power project of up to 8MW in the sea off the west coast.

New technologies also include integrated gasification combined cycle technology and carbon capture and storage, show great potential in the future. The large scale deployment of these technologies is dependent on overcoming some technical hurdles, together with the creation of a sustainable long-term framework.

## **1.4 Development of Renewable Generation at Blackburn Meadows**

E.ON UK believes the development of biomass-fired renewable energy plants, together with other forms of renewable developments, is vital to help achieve the Government's carbon dioxide (CO<sub>2</sub>) reduction targets as well as providing security of energy supply.

E.ON UK is actively seeking to develop biomass-fired renewable energy plants in the UK. The proposed Blackburn Meadows Renewable Energy Plant will produce around 25MW of electricity from biomass, sufficient to provide the needs of approximately 40,000 homes and will reduce emissions of CO<sub>2</sub> by at least 80,000 tonnes annually (equivalent of taking around 20,000 cars off Britain's roads every year). It is intended to be able to supply heat to neighbouring commercial

and industrial establishments. If consent is given then construction could commence early in 2009 and the plant could be operational as early as 2011.

This renewable energy development will make a significant contribution towards the planning and regeneration Objectives of the City and the strategic regeneration of the wider area. It will contribute to the Yorkshire and the Humber region's commitment in achieving its sustainable development targets and the target of reducing greenhouse gas emissions by at least 20% by 2010.

This Environmental Scoping Statement has been produced to describe the issues to be covered by an Environmental Impact Assessment (EIA). The results of the EIA will be described in the Environmental Statement that will accompany an application by E.ON UK to Sheffield City Council for Planning Permission for construction of the Blackburn Meadows Renewable Energy Plant. The issues covered by this Scoping Statement will provide a starting point for consultation with all parties having an interest in the biomass plant proposal, enabling comment and agreement on the scope of the EIA.

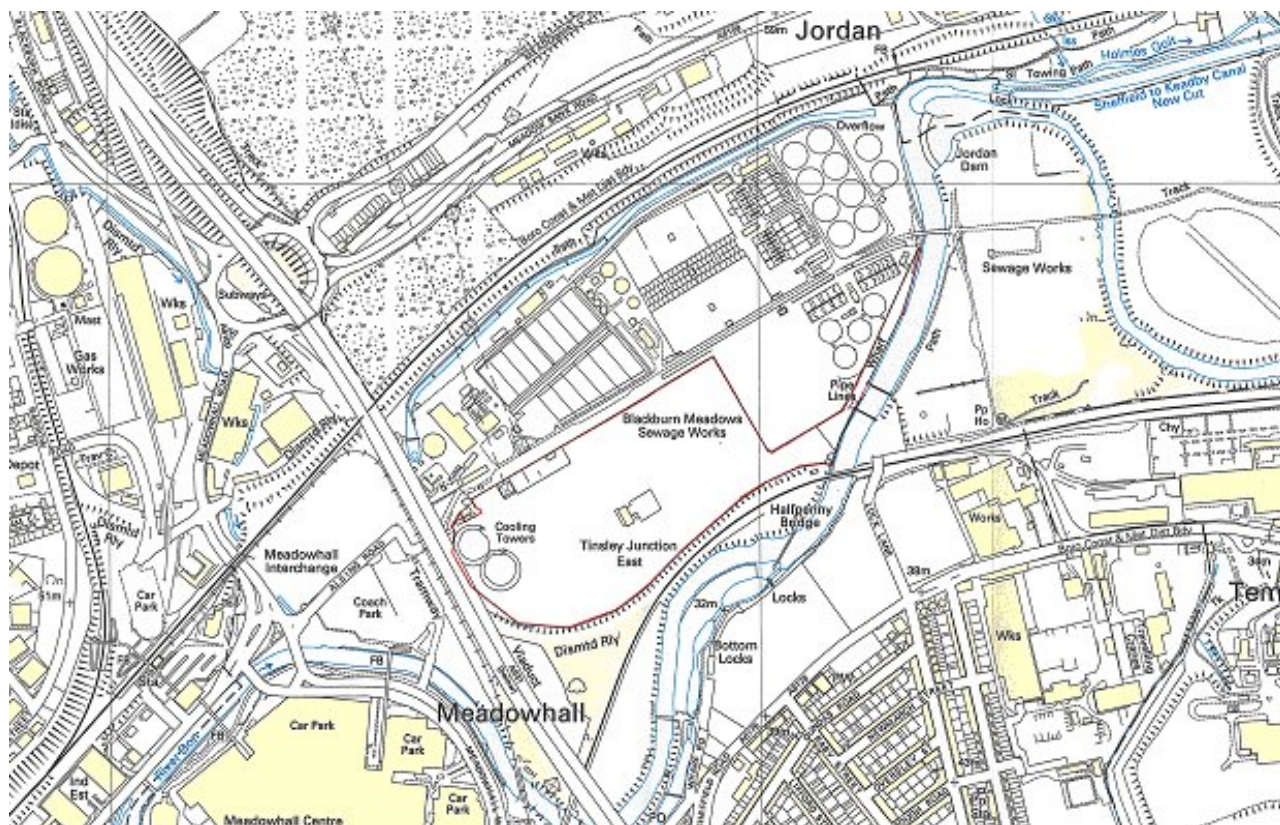
## SECTION TWO: THE SITE AND THE PROJECT

### 2.1 Introduction

The proposed site for the Blackburn Meadows Renewable Energy Plant is located within E.ON's existing land holdings, previously known as the Blackburn Meadows Power Station. The total area of the site is approximately 12.5 hectares (31 acres). Due to the shape of the site and the existing uses, only approximately 9 hectares (22 acres) is available for future development. The site is largely flat. The structures of the former power station have been removed and vegetation has colonised much of the site.

The site area indicated by the red boundary is shown in Figure 2. A description of the plant is given in Section 2.2.

**Figure 2: Site Location Map**



The site is approximately 5.5 km to the north west of Sheffield City Centre, to the east of the M1. The site is within the Don Valley and is bounded on its southern side by the River Don. To the north and north west of the site is an operational Yorkshire Water Sewage Treatment Works, comprising a sewage sludge incinerator. The landform rises to the north and south to form the

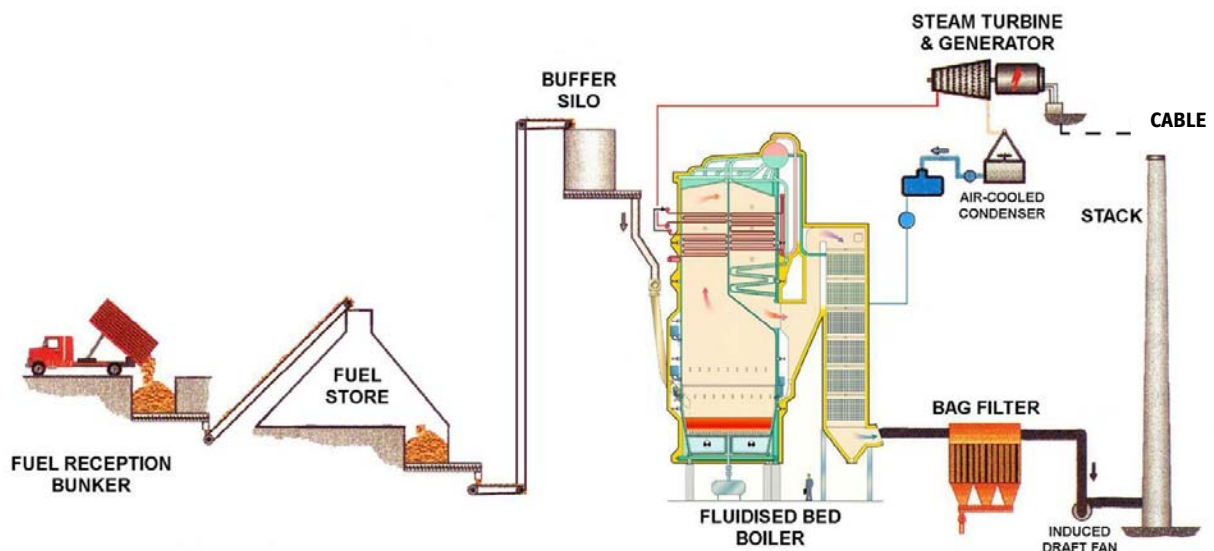
floor of the Don Valley. The settlement of Tinsley lies around 300 metres to the south. The Masbrough and Holmes areas of Rotherham Borough are around 600 metres to the north east.

The site is accessed via Alsing Road which links to the Meadowhall Way and thereby to the A6109 and M1's Junction 34 and the City Centre. All of the land required for temporary construction activities for the proposed biomass plant will be accommodated within the E.ON UK land holding.

## 2.2 Description of Proposed Plant and Processes

The principal biomass fuel to be burnt by the plant will be primarily clean recycled waste wood, although other biomass fuels such as energy crops, forest/sawmill residues and solid recovered fuel may be considered, dependent upon price and availability, to supplement the recycled waste wood. The design capacity of the plant has not yet been determined precisely as it will depend on the completion of a fuel supply study and discussions with key stakeholders. However, the plant is likely to have a net electrical output of about 25MW which would require a fuel supply of about 180,000 tonnes per year. The biomass plant is technically capable of supplying renewable heat to neighbouring commercial and industrial establishments. The amount of renewable heat and the quality distributed will be determined by potential customers' requirement and commercial terms. The technology which will be used in the proposed development is shown schematically in Figure 3. The individual items are described below.

**Figure 3: A Schematic Diagram of the Proposed Development.**



*Note- the diagram above shows a fluidised bed combustor. The process will be similar if a moving grate combustor is used.*

### *Fuel Preparation and Delivery*

Detailed discussions will need to be held with the waste wood recycling contractors before a final decision can be made regarding the extent of fuel handling and processing on the site. The intention however, if at all possible, is to have all of the fuel transported to the site in a chipped and processed form such that it can be transferred directly into the automatic fuel store with a minimum of fuel handling. In this case, the fuel would be tipped into a receiving hopper and conveyed to a screen for the removal of any oversize particles followed by magnetic and eddy current devices to remove any metal. The fuel would then be conveyed to the fuel store and the rejects disposed of to licensed facilities off-site.

If some of the fuel has to be received in an un-processed form, this would first be delivered to the reception building for inspection and the manual removal of any obvious unsuitable material. The fuel would then be transferred into a receiving hopper from which it would be conveyed through a magnetic separator to remove ferrous metals, a chipping machine for size reduction and further magnetic and eddy current devices to remove any remaining metal before being conveyed to the fuel store.

### *Fuel Storage and Buffer Silo*

The processed fuel store will consist of either two or more circular section silos or a single 'A' frame storage building. In either case, the fuel will be stacked and reclaimed by automatic conveyors. The capacity of the store will be equivalent to at least five days operation at full output such that the plant can continue to operate over weekends and bank holidays when no new deliveries to the plant are made. From this store the fuel will be conveyed to small buffer silos in the boiler house. The buffer silos will have a limited capacity of around one hour and will be used to meter the flow of biomass to the boiler.

### *Combustion Device and Boiler*

The boiler will be integral with the combustion device which is likely to be either a moving grate or a fluidised bed combustor. Both devices have been used extensively throughout the world in this type of application and the choice of technology is dependent upon the choice of boiler supplier.

In fluidised bed combustors, the air velocity is sufficient to 'fluidise' the bed to the point where it resembles a rapidly boiling liquid. The combustion chamber typically contains sand as bed material, which is fluidised by blowing air up through it. The bed maintains an even temperature due to the heat retaining capacity of the sand.

In moving grate combustors the fuel is moved mechanically by means of reciprocating or rotating grate elements from the feed end, through a drying zone, a main combustion zone and, finally, a

burn out zone. The functions of the grate are to move and mix the fuel and to distribute primary combustion air evenly across the bed of material.

Heat recovery will be provided by a water-tube boiler, which recovers the heat produced by the combustion of the fuel. This heat will be used to generate superheated steam for power generation.

#### *Auxiliary Burner and Fuel*

The biomass plant is likely to have an auxiliary burner, which has two purposes:

- Start-up: the burner is used to bring the combustor to the required temperature prior to the introduction of wood chips and sawdust,
- Combustion Support: the burner is used to maintain the combustion temperature at the required minimum in the event of insufficient heat release in the combustor. This ensures that complete combustion occurs under all operating conditions.

The burner may be fired on gas oil and, if this is the case, a bulk fuel storage feed system will be provided. This will include a bunded storage tank, pipework and feed pumps. Under normal operation of the biomass plant the burner should not fire, the wood being of suitable quality to support combustion at appropriate temperatures.

#### *Steam Turbines*

The hot combustion gases produce high pressure and temperature steam that is piped to the steam turbine. The steam turbine is connected to the electricity generator, and the exhaust steam, having been reduced in temperature and pressure in passing through the turbine, is condensed and pumped through the condensate and feed heating system back to the boiler in a closed cycle.

#### *Air-cooled Condenser*

An air-cooled condenser (ACC) is needed to condense steam that has been expanded through the steam turbine. This water can then be returned to the boiler for re-use. The ACC will consist of a cooling matrix, through which steam passes, and large cooling fans. These large cooling fans will blow air through the matrix to assist with the cooling effect. There is no visible plume from such a cooling system, which works like a large car radiator.

#### *Emissions control*

The plant will utilise flue gas cleaning equipment, employing the Best Available Technology (BAT) to reduce air emissions to as low a level as possible and in compliance with the requirements of the Pollution Prevention and Control Act 1999.

#### *Dust Control*

The cooled combustion gases are drawn through a highly efficient fabric filter unit by a fan before being discharged to atmosphere through the stack. The filter unit consists of a large number of filter bags stretched over wire frames. The gases pass from the outside to the centre of the bags with the fly ash (dust) being captured on the outside surface. The fly ash is periodically automatically removed to hoppers below by injecting a jet of compressed air down the centre of each bag.

#### *NOx Control*

Reagents such as hydrated lime and activated carbon are injected into the exhaust gases upstream of the fabric filter to neutralise emissions to atmosphere. The release of Nitrogen Oxides (NOx) is minimised by good combustion control, the controlled injection of combustion air and if necessary, the boiler will be equipped with dilute ammonia injection into the secondary combustion chamber. The ammonia reacts with the oxides of nitrogen and converts a proportion back to nitrogen and water. This process is known as Selective Non-Catalytic Reduction (SNCR).

## 2.3 Main Plant Components

The overall area taken up by the plant will be about 20,000 sq m (~5 acres). The estimated dimensions of the main components are as follows:

Component	Length (m)	Width (m)	Height (m)
Fuel Reception Building	50	30	25
Processed Fuel Store	50	30	25
Boiler House	40	25	50
Fabric Filter Unit	20	15	25
Air Cooled Condenser	40	26	25
Turbine Hall	30	20	30
Stack		3 (maximum)	80 (approximately and subject to air quality assessment)

The building dimensions are estimates only based on the 44MW biomass plant currently being constructed for E.ON at Lockerbie. The stack height will be determined by calculation and the results of the air quality assessment. The building dimensions will be subject to variation dependent upon the main plant contractor ultimately chosen, but are proposed as the maximum dimensions.

## 2.4 Biomass Fuel

The principal biomass fuel burnt by the plant will be clean recycled waste wood although other biomass fuels such as energy crops, forest/sawmill residues and solid recovered fuel may be considered, dependent upon price and availability, to supplement the recycled waste wood. In order to meet the definition of biomass that has been included in the 2006 revision of the Renewables Obligation Order (ROO), the fuel must be at least 90% pure biomass by energy. This will require the fuel to be selected at source to avoid wood that has significant levels of preservative or other contaminants.

A detailed fuel supply study is currently being undertaken to determine the realistic sources and volumes of recycled waste wood that might be available at an economic price. Until this study is complete, it is not possible to firmly predict from where the biomass will be sourced. However, transportation distances need to be minimised and it is therefore likely that the fuel will be sourced within a 50 mile journey distance of the plant.

The design capacity of the plant cannot be determined precisely until the fuel supply study is complete, but the maximum capacity of the plant is likely to be about 25MWe (net electrical output). Based on a plant availability of 90%, this would equate to about 180,000 tonnes/year of fuel burnt. It is anticipated that deliveries of biomass would be on a six days per week basis which equates to 643te/day. Assuming that the capacity of each lorry is 20 tonnes, this would require up to 4 lorry deliveries per hour over a 10 hour day (approximately 33 lorries per day).

## 2.5 Plant Integration

It is intended to use some of the existing infrastructure such as disconnected site services and, if technically practical, the plant will be electrically connected into the existing substation (Tinsley Junction East) on the site.

## 2.6 Construction

The plant construction programme will be up to 30 months from placing of contracts to full commercial operation. The traffic generation at the peak of construction will be about 325 vehicles per day including Heavy Goods Vehicle (HGV). Once operational, the levels of generation will reduce significantly. Construction of the biomass plant is scheduled to begin in the first quarter of 2009 and it is currently estimated that it would be operational in 2011.

## 2.7 Operation

The proposed biomass plant is expected to employ circa 20 full time personnel with a further 20 full time equivalent contract personnel undertaking routine and annual maintenance. Additional staff may be appointed to supervise fuel deliveries and to undertake routine checks and housekeeping duties local to the plant. Additional personnel will be employed indirectly to support the biomass supply infrastructure.

## 2.8 Health and Safety

E.ON's statutory responsibilities include the safe design and construction of plant and apparatus and the provision and maintenance of safe and healthy working conditions, equipment and systems of work for all of its employees as well as for the health and safety of other people who may be affected by its activities. This responsibility arises from the requirements of various Acts of Parliament, principally the Health and Safety at Work Act 1974.

The design of the proposed plant will incorporate features that will ensure that these responsibilities are met. Where appropriate, the Health and Safety Executive (HSE) will be consulted about safety issues associated with the development.

The planning and management throughout the design and construction of the plant will comply with the Construction (Design and Management) Regulation 2007 (CDM2007), as well as other relevant health and safety regulations.

## SECTION THREE: ENVIRONMENTAL IMPACT ASSESSMENT

### 3.1 Introduction

The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 require that certain information is provided by the Environmental Statement ("the specified information"), which is as shown below:

- (a) A description of the development proposed, comprising information about the site, the design and size or scale of the development;
- (b) The data necessary to identify and assess the main effects which the development is likely to have on the environment;
- (c) A description of the likely significant impacts, direct and indirect, on the environment, explained by reference to its possible impact on –
  - . human beings;
  - . flora;
  - . fauna;
  - . soil;
  - . water;
  - . air;
  - . climate;
  - . the landscape;
  - . the inter-action between any of the foregoing;
  - . material assets;
  - . the cultural heritage;
- (d) Where significant effects are identified with respect to any of the foregoing, a description of the measure envisaged in order to avoid, reduce or remedy those effects; and
- (e) A summary in non-technical language of the information specified above.

## 3.2 Proposed Scope of Environmental Impact Assessment

Following is a list of proposed activities to be undertaken as part of the Environmental Impact Assessment for the proposed Blackburn Meadows Renewable Energy Plant.

### 3.2.1 Site and its Planning Context

The proposed development will be considered in the light of the relevant national, regional and local planning context. The following documents will be reviewed and the proposal assessed against relevant policies:

- Planning Policy Statement 22 : Renewable Energy
- Planning Policy Statement 22 : Renewable Energy – Companion Guide
- Planning Policy Statement 23 : Planning and Pollution Control
- Planning Policy Statement 23 : Planning and Pollution Control – Annex 1 – Pollution control Air Quality and Water
- Planning Policy Statement 25 : Development and Flood Risk
- Planning Policy Statement 10 : Planning for Sustainable Waste Management
- Planning for Waste Management Facilities : A Research Study
- Regional Spatial Strategy for Yorkshire and Humberside
- Sheffield City Council UDP
- Emerging Sheffield Development Framework
- Renewable Energy Scoping and Feasibility Study for Sheffield, 2006

Regional planning policy identifies the need for renewable energy facilities in the Draft Regional Spatial Strategy (RSS) which sets a target for Sheffield of 10.6MW of renewable energy generation by 2010, and a sub regional target for South Yorkshire of 160MW by 2021. The indicative share of this 2021 target for Sheffield is 52.1MW. Planning policies reviewed identify the following key issues to be considered in the planning of biomass renewable energy plants:

- Location may be influenced by proximity to fuel source to reduce travel distance, connections to the electricity grid and potential use of heat generated may influence location. The facility should be located close to the source of fuel under the proximity principle.
- The impact of traffic generation on road infrastructure should be considered.
- Noise from traffic and plant operations should be considered.
- There is a need to consider the positive benefit of the proposals to the local economy.
- The plant is an industrial feature with a chimney and in certain weather conditions a plume may be evident, therefore the impact of visual intrusion will need to be considered.

- The effects on health, local ecology or conservation from airborne and waterborne emissions should be considered.
- The facility should not cause residents or visitors in any hotel, hostel, residential institution or housing to suffer from unacceptable living conditions.
- Waste hierarchy holds a preference for waste minimisation, reuse and recycling above incineration and energy recovery. Incineration and energy recovery, however, is preferred to waste to landfill.
- Regions should aim for regional self sufficiency for all waste streams.

With regard to the suitability of the site for a biomass renewable energy plant, the following policies have been identified:

- UDP designates the proposed site for "Proposed Industrial and Business Site". The site is within the "Fringe Industry and Business Area".
- Adjacent to the site, across the A631, a large amount of land has been designated Air Action zones. However, the Scoping and Feasibility Study on Renewable Energy in Sheffield considers that this should not be a major problem and identifies the Blackburn Meadows site as a potentially suitable location for a biomass generator.
- The site has been identified by the Environment Agency as being in Flood Zone 3a. Planning Policy Statement 25: Development and Flood Risk. PPS25 outlines that a sequential test should be taken whereby development should only take place in Flood Zone 2 or 3 if there are no suitable sites in Flood Zone 1. Under circumstances where no suitable sites are available in Flood Zone 1, the Exception Test should be applied. This will require a Flood Risk Assessment.

### 3.2.2 Air Quality

Under Integrated Pollution Prevention and Control legislation (IPPC), pollution control in the UK is achieved by eliminating or reducing unwanted emissions from industrial processes at source. Any remaining emissions to the atmosphere are then released in such a way as to render them inoffensive and harmless. The proposed Blackburn Meadows Renewable Energy Plant will be operated to IPPC standards. The IPPC objectives are attained by the principles of Best Available Techniques (BAT).

Atmospheric emissions from the proposed biomass plant will be through a flue gas duct into a stack which will be approximately 80m in height. The main source of impacts on local air quality is likely to be in the form of emissions of oxides of nitrogen and sulphur dioxide, which are formed as part of the combustion process. It is anticipated that there may be an increase of local dust levels during construction of the plant although measures will be undertaken to mitigate this.

An assessment of the proposed Blackburn Meadows Renewable Energy Plant on local air quality will be undertaken, with reference to the UK Air Quality Objectives. This assessment will address the emissions of nitrogen oxides, sulphur dioxide and particulates during the operation of the proposed biomass plant. An assessment will be made of climate change, regional acidification issues, effects on sensitive habitats and plume visibility and dispersion issues. Predictions of future changes to local air quality resulting from the proposed plant will be undertaken using the computer based atmospheric dispersion model ADMS.

The proposed development site is located adjacent to the Sheffield M1 Corridor Air Action Zone, declared for nitrogen dioxide (NO<sub>2</sub>) and therefore an assessment will also be made of the emissions from vehicles. This will include an assessment of the potential impacts of the plant on the local environment. In addition, potential impacts on nearby sensitive receptors arising from increased traffic flows will be assessed separately using a screening method as described in the Design Manual for Roads and Bridges (DMRB).

An odour assessment will be carried out using a source-receptor risk assessment based approach. The impact of odour on the environment is considered in terms of the offence to the human sense of smell. The assessment will include the identification of potential odorous sources on site, an evaluation of the risk of fugitive emissions, a prediction of the exposure of sensitive receptors to odour and the identification of mitigation measures.

### **3.2.3 Water Quality**

The proposed Blackburn Meadows Renewable Energy Plant will be fitted with an air cooled condenser to condense the turbine exhaust steam. As a consequence, there will be no impact on river water quality. Water discharges arising from the operation of the proposed plant will be considered. These will include site drainage, sewage treatment plant discharge and treated process water.

### **3.2.4 Flood Risk**

In accordance with Planning Policy Statement 25 (PPS25), a flood risk assessment will be undertaken to ensure the proposed development itself is not at risk from flooding and will not increase flood risk elsewhere. The flood risk assessment will aim to demonstrate the proposed development passes both the Sequential Test and Exceptional Test.

Information previously obtained from the Environment Agency indicates the site is partially located within Flood Zone 3a. This comprises land assessed as having significant chance of flooding from the River Don, with a 1 in 100 or greater (<1%) annual probability.

Updated flood data and information on catchment strategies will be obtained through consultations with the Environment Agency and Local Planning Authority. Where appropriate, the options for surface water management, attenuation, storage and disposal, incorporating the use of Sustainable Urban Drainage Systems (SUDS) shall be assessed and agreed with the Environment Agency. An assessment will also be carried out to determine the flood risks from other sources as required by PPS25, e.g. groundwater, artificial drainage systems and infrastructure failure.

### 3.2.5 Ecology

The site of the proposed development is predominately disused industrial land. It was the location of the former Blackburn Meadows coal-fired power station built between 1937 and 1942 and which was demolished in the 1970s. The concrete foundations of the former buildings are still in situ and the land is now largely overgrown with a number of silver birch trees, scattered scrub and dense continuous scrub around the perimeter. There are also a number of spoil heaps and refuse tips at various locations around the site.

An ecological assessment relating to the proposed Blackburn Meadows Renewable Energy Plant will be undertaken commencing with a desktop study to review all previous surveys carried out at the Blackburn Meadows site, where available.

An Extended Phase 1 Habitat Survey will be carried out on all land affected directly through land take, construction activities or through indirect impacts. This will classify the habitats affected and ascertain whether further species studies are necessary. Where necessary, measures will be proposed to mitigate any significant ecological impacts and to improve levels of site biodiversity.

There are no statutory designated sites within a 2km radius of the site. However, there are three Sites of Importance for Nature Conservation (SINCs) nearby, as is part of the Green Heritage Network. These are non-statutory nature conservation designations that are included in the Sheffield Unitary Development Plan. These are the Blackburn Meadows Nature Reserve, the Lower Don Valley – River Don: City Centre to Blackburn Meadows and the Lower Don Valley – River Don: Sheffield to Tinsley Canal. Additionally, the triangle immediately to the south of the site is understood to provide habitat for otters. The assessment will therefore consider the impact of the proposal on protected species near the site.

The scope for biodiversity enhancements in connection with this proposal within the green corridor will be considered and proposals for biodiversity enhancements will be included in the Environmental Statement.

### 3.2.6 Transport

A Transport Assessment will be prepared in accordance with the latest guidance notes. This will establish the highway and transportation baseline and will predict the traffic generation during

both construction and operation of the Blackburn Meadows Renewable Energy Plant. The scope of any assessment will be agreed with the local highway authority.

E.ON UK is aware of certain highway and transportation issues which will need to be considered. These include the requirement to accommodate and encourage non-car modes as a means of accessing the site, the use of Alsing Road as the site access, the inter-action at the level crossing on Alsing Road between vehicles and the Supertram, the emerging plans for the Halfpenny Link Road and the potential impact that this development could have on the motorway network. All these issued will be addressed in the Transport Assessment.

Where necessary, mitigation measures will be proposed where the impact is likely to result in adverse environmental or safety impacts.

### **3.2.7 Solid Waste**

The Environmental Impact Assessment will identify measures to be undertaken for disposal or use of all solid wastes, including spoil and waste produced during the construction phase, and the ash produced from the Blackburn Meadows Renewable Energy Plant during its operation.

The ash produced by the proposed biomass plant may be classified as a 'special waste' by the Environment Agency and will therefore need to be disposed of to an appropriate licensed landfill site.

### **3.2.8 Noise**

The methods contained in British Standard BS 4142 (1997), Method for Evaluating Industrial Noise Affecting Mixed Residential and Industrial Areas, will be used to assess the noise arising from the proposed Blackburn Meadows Renewable Energy Plant.

Assessments of construction noise, piling noise, traffic noise, intermittent and steady operational noise, and vibration will be undertaken in line with recommendations contained within British Standard BS 5228, Noise Control on Construction Sites and Open Sites. Recommendations for any mitigation required will also be put forward where required such that any residual impacts are reduced to an acceptable level. Noise monitoring locations and methodology will be agreed with the Planning Authority.

### **3.2.9 Landscape and Visual**

A landscape and visual assessment will be undertaken based on guidance from the Landscape Institute and Institute of Environmental Management and Assessment Guidelines for Landscape and Visual Impact Assessment Second Edition and Natural England and Scottish Natural Heritage (2002) Landscape Character Assessment: Guidance for England and Scotland.

Data sources will include The National Character Map of England (the Yorkshire and Southern Pennine Fringe). The assessment will consider the character of the area and consider the degree of visual intrusion that may be expected from the proposed development.

The assessment will be based on desk top and field study for a defined area around the site based on key viewing points and sensitive land uses.

Surveys will be carried out and photographic records will be taken, attending both to principal public and private viewpoints. These viewpoints will be agreed with Sheffield City Council. Existing maps and written data may also be reviewed, to accrue further information regarding the wider landscape character and condition. Photomontages will be produced to represent the anticipated impact of the proposed Blackburn Meadows Renewable Energy Plant from key viewpoints highlighted during the study.

A landscape strategy will be considered as part of the development proposals and considered in the context of the Environmental Statement. The value of structural planting to screen the development will be considered.

### **3.2.10 Socio-economic Effects**

The Environmental Impact Assessment will describe the employment structure within South Yorkshire in general and the Districts of Sheffield and Rotherham in particular. The assessment will consider the role of the project in contributing towards local and regional economic, sustainability and energy strategies. Consideration will be given to the relationship between the project and the wider programme of regeneration in the Lower Don Valley, including Housing Market Renewal Pathfinder status.

The construction of the proposed Blackburn Meadows Renewable Energy Plant will benefit the area through the construction workforce employment and expenditure with local businesses and services. It is expected that the construction work force will find accommodation in the area. Once the plant is fully operational, the required staffing level is expected to be around 25 permanent members of staff. An overall assessment of the likely impact for the region, arising from constructing and operating the Blackburn Meadows Renewable Energy Plant will be made.

### **3.2.11 Cultural Heritage**

A desk assessment will be carried out to understand the archaeological and historical features within the locality of the site. Consultation will be undertaken with English Heritage and the relevant officer in the Local Authority. Consultations will be undertaken with the relevant officer in the local authority.

### 3.2.12 Land Contamination

The site of the proposed Blackburn Meadows Renewable Energy Plant was, until the 1970s, occupied by a power station. Given the potential for land contamination as a result of the previous site use, an assessment will be made of the potential of any existing land contamination and identification of any necessary remediation and subsequent management measure to deal with unacceptable risks.

### 3.2.13 Health and Safety

E.ON UK views health and safety as its number one priority. We have a "Rule One" culture which states that "We don't hurt people". This applies in addition to the statutory responsibilities of the company, which include the health and safety of all its employees and other people who may be affected by its activities. This responsibility arises from the requirements of various Acts of Parliament. The design of the Blackburn Meadows Renewable Energy Plant will incorporate features which will ensure these responsibilities are met. Consideration of the Construction (Design and Management) Regulations will be taken in the Environmental Impact Assessment.

### 3.2.14 Sustainability

The sustainability case for the development will be assessed. This will include the reduction in carbon emissions due to the electricity generation but also the carbon emissions that will be generated from transporting the biomass from the catchment area. The sourcing of the biomass will be undertaken and the alternative sites considered in this context.

The sustainability of the scheme in terms of the design of the buildings that make up the scheme will be assessed. This will be undertaken in line with the sustainability issues identified in the Don Valley Master Plan. The Environmental Statement will describe the sustainability features to be adopted against each sustainability issue identified such as green roofs, sustainable urban drainage, rainwater recycling and so on.

## SECTION FOUR: SUMMARY

As a result of the production of this Environmental Impact Assessment Scoping Statement, the following significant potential impacts of the Blackburn Meadows Renewable Energy Plant have been indicated. Other effects will also occur which will be investigated, but these are considered the most significant.

Air quality	Emissions of greenhouse gases and other emissions; Emissions from traffic movements; Dust levels during construction;
Flood risk	Identification of any mitigation works which may be needed during the development stage of the project;
Ecology	Direct and indirect impacts on statutory and non-statutory designated sites; Scope for biodiversity enhancements;
Transport	Increase in road movements during construction and operation; Inter-action with other proposed transport schemes;
Noise	Temporary noise increases during construction; Noise during operation;
Landscape and Visual	Visual aspects of the proposed plant; Building design;
Socio-economic	Potential for job creation during construction; Potential employment at the Blackburn Meadows Renewable Energy Plant;
Energy/sustainability	Contribution to the City's sustainable energy strategy;

