

E.ON Climate and
Renewables UK
Developments Limited

**Portbury Dock
Renewable Energy
Plant**

Sustainability Statement

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This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

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Appendix A

Portbury Dock Renewable Energy Plant Sustainability Framework

Abbreviations

BAT	Best Available Techniques
DECC	Department of Energy and Climate Change
DPD	Development Plan Document
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ES	Environmental Statement
FRA	Flood Risk Assessment
HGV	Heavy Good Vehicle
HSE	Health and Safety Executive
LDF	Local Development Framework
RSS	Regional Spatial Strategy
SA	Sustainability Appraisal
SPeAR®	Sustainable Project Appraisal Routine
SUDS	Sustainable Drainage Systems

Executive Summary

Introduction

This Sustainability Statement has been prepared by Ove Arup and Partners Ltd (Arup) for E.ON Climate and Renewables Developments Ltd. (E.ON), and accompanies Section 36 Application for the development of a Renewable Energy Plant at the Royal Portbury Dock within the Port of Bristol. The Statement outlines the commitments made by E.ON to ensure that the project is developed based on sound sustainability principles, and appraises the scheme's alignment with local sustainability drivers.

The Proposed Development

The proposed development is for a biomass fuelled Renewable Energy Plant; built within the Royal Portbury Dock. The Renewable Energy Plant will produce around 150MW of electricity, sufficient to fulfil the needs of around 250,000 homes. .

The proposed Renewable Energy Plant will be fuelled by a mix of waste wood sourced from the local area and mainly the by-products of forestry operations sourced from overseas. An overall fuel supply of approximately 1,200,000 tonnes per year will be required, though this will depend on the technical specification of the woodchip.

The Renewable Energy Plant will take approximately four years to construct and will create up to 35 full time permanent jobs during operation and more than 300 short-term jobs during construction.

Methodology

A sustainability framework has been developed for the Renewable Energy Plant to ensure that sustainability considerations were built into the project from the outset. The framework is based upon four key elements of sustainability:

- Social;
- Environment;
- Natural Resources; and
- Economy.

For each of the four key elements, the framework provides a series of sustainability principles. Each of these principles has a series of associated objectives and targets to be applied at different phases of the project life cycle: design; construction; and operation.

This Sustainability Statement assesses the performance of the scheme against the established sustainability principles. The Statement goes on to consider the extent to which the scheme is aligned with the key sustainability drivers of North Somerset Council.

Social

The proposed development offers a number of social benefits, including employment opportunities during construction and operation, and investment in local community initiatives. E.ON has committed to the creation of a £50,000 Community Investment Fund which will be available each year that the plant is operational. The Community Investment Fund is intended to provide support for local community projects.

Potentially negative impacts arising from the scheme, particularly during construction, such as noise and traffic movement, will be carefully managed. Key project stakeholders, including the local community, will be consulted at appropriate stages of the development process.

Environment

An Environmental Impact Assessment (EIA) has been undertaken as part of the scheme development. The process has not identified any significant negative environmental impacts that are likely to arise from the proposed Renewable Energy Plant. An Appropriate Assessment is required to appraise the potential impacts and proposed mitigation on the nearby European designated sites. Where potential environmental impacts do exist, for example with respect to atmospheric emissions, water quality and flood risk, appropriate mitigating measures will be implemented.¹

Adoption of Best Available Techniques for plant design and a comprehensive Environmental Management System will help to manage operational phase environmental effects.

E.ON has also committed to achieving a BREEAM² Very Good standard in the design and construction of the Renewable Energy Plant. The actual BREEAM framework and approach to the assessment will be discussed with the BRE as the designs for the scheme progress.

A Carbon Footprinting Study has been undertaken to consider the carbon dioxide implications of the fuel supply chain and the proposed Renewable Energy Plant, in comparison with the UK national grid. The study has considered the life cycle carbon emissions of the proposed plant. The study has demonstrated that the proposed plant compares favourably with the delivery of the same generated capacity from the national grid, reducing the equivalent carbon dioxide emissions by approximately 500,000 tonnes/year. Further information is provided in the Carbon Footprinting Study which accompanies the outline planning application.

Natural Resources

During construction, the proposed Renewable Energy Plant will, where possible, reuse and recycle material to reduce the overall waste produced on site. In order to achieve a BREEAM Very Good standard, due consideration will need to be paid to a range of construction related consumption issues including use of energy and water and generation of waste. E.ON will work with the contractors to minimise resource use during construction.

During operation, the proposed plant will use approximately 360,000 tonnes of local waste wood and 840,000 tonnes of forestry by-products as a fuel. The main waste streams generated include Furnace Bottom Ash (21, 600 tonnes/ year) and Fly Ash (86, 400 tonnes/ year).

The use of these fuels, particularly the waste wood, will result in this waste stream being diverted from alternate disposal routes, including landfill. Even considering the generation and disposal of waste streams, the proposed scheme will have a net reduction in the volume of waste reaching UK landfill of 284,400 tonnes a year.

The use of Best Available Techniques across the development will ensure minimal use of water and high levels of energy efficiency.

Economic

During peak construction, the proposed plant will support over 300 jobs on site and a further 35 positions will be required during operation. These figures do not include the potential jobs that may be created in the establishment of the biomass fuel supply chain.

¹ The findings of the EIA process, including mitigation measures, are presented in detail in the Environmental Statement for the scheme which accompanies the outline planning application.

² The Building Research Establishment Environmental Assessment Method (BREEAM) is a framework for assessing the environmental sustainability of buildings. The framework is managed in the UK by the BRE. Further information is available at: www.breeam.org

The scheme will contribute to regional, national and international targets to reduce greenhouse gas emissions and increase the proportion of energy derived from renewable sources by displacing more carbon intensive forms of generation. The proposed plant is expected to provide sufficient renewable energy to power 250,000 homes.

The Renewable Energy Plant may be highly dependent on the surrounding road network during construction and operation. Traffic generated by the proposed plant during construction and operation has been assessed through the EIA process. The transport assessment has concluded that increases in traffic can be absorbed by the existing road networks and no adverse transport related impacts are anticipated. The project will seek to maximise the use of the ship and barge deliveries during the construction phase and during operation, with over 70% of the fuel supply delivered by ship from overseas.

Performance against Local Sustainability Objectives

The scheme has also been quantitatively assessed against the North Somerset Core Strategy Draft Sustainability Appraisal (SA) Objectives.

The overall finding of Arup's sustainability assessment suggests a positive outcome when comparing the proposed plant against the Sustainability Appraisal (SA) Objectives. In summary the proposed Renewable Energy Plant:

Performed positively against 18 of the 36 objectives	✓
Performed neutrally against 8 of the 36 objectives	○
Performed negatively against 0 of the 36 objectives	✗
Not applicable (10 objectives)	-

Next Steps

The Sustainability Statement identifies a number of key strengths and areas of opportunity under each headline sustainability theme. These will inform the ongoing development of site design plans. The continued application of the Sustainability Framework for the scheme will help to ensure the integration of sustainability considerations into project delivery, under the oversight of the E.ON Project Manager and with the guidance of a Sustainability Consultant within the project team.

E.ON intends to undertake a full sustainability appraisal of detailed designs for the site using the Arup SPeAR[®] framework. This will help to measure performance against sustainability objectives and will identify areas to focus additional improvements for sustainable performance.

Both measures will ensure that sustainability considerations continue to be addressed throughout the design and operation of the project.

1 Introduction

1.1 Introduction

This Sustainability Statement has been prepared by Ove Arup and Partners Ltd (Arup) to accompany the planning application for the Portbury Dock Renewable Energy Plant (the 'Renewable Energy Plant'). The Section 36 Application is to be submitted by E.ON Climate and Renewables UK Developments Ltd. (E.ON) to the Department of Energy and Climate Change (DECC) under Section 36 of the Electricity Act 1989.

This Sustainability Statement outlines the key sustainability challenges and opportunities facing the scheme and documents the commitments that E.ON has made to ensure that the proposed Renewable Energy Plant is developed based on sound sustainability principles.

This report considers each of the key themes of sustainability: society; environment; economics; and natural resources, and where appropriate makes distinctions between the design, construction and operational phases.

This Sustainability Statement is presented as follows:

- Section 1:** Description of the site and proposed development;
- Section 2:** Methodology adopted in compiling this sustainability statement;
- Section 3:** Social sustainability credentials of the proposed Renewable Energy Plant;
- Section 4:** Environmental sustainability credentials of the proposed Renewable Energy Plant;
- Section 5:** Natural resource sustainability credentials of the proposed Renewable Energy Plant;
- Section 6:** Economic sustainability credentials of the proposed Renewable Energy Plant;
- Section 7:** Compatibility of the Renewable Energy Plant with local sustainability objectives; and
- Section 8:** Summary and next steps.

1.2 Site Description

E.ON is proposing to develop a 5 hectare (12 acre) site within the Royal Portbury Dock estate. The Dock is located within the Port of Bristol which is owned and managed by The Bristol Port Company. The Port is an expansive 1,025 hectare (2,600 acre) site comprising of commercial docks and industrial units. All construction and construction related activities associated with the proposed Renewable Energy Plant will be accommodated entirely within the existing Bristol Port Company's landholdings.

The proposed site (Figure 1.1) is within an area of reclaimed land recovered from the River Severn during the mid 1990s. The site is currently an area of hardstanding which is being used as an imported car store.

The site is bounded by the Severn Estuary to the north and the River Avon to the west, with Bristol Dock land to the south and east. The Severn Estuary is protected under international law due to its high ecological value and has been designated a Special Area of Conservation (SAC). Due to the potential to impact on this designated area, E.ON is required to undertake an Appropriate Assessment under the EU Habitats Directive (92/43/EEC).

Vehicles will access the site via the M5, which is approximately 2.5km east of site. From the M5, construction and operational traffic will pass along the Portbury Dock Road, St. Georges Road and finally River Road.



Image produced from the Ordnance Survey Get-a-map service. Image reproduced with kind permission of Ordnance Survey and Ordnance Survey of Northern Ireland

Figure 1.1 Site Location Map

1.3 Overview of Proposed Development

The proposed development is for a biomass fuelled renewable energy plant. The proposed Renewable Energy Plant will produce around 150MW³ of electricity, sufficient to provide the needs of around 250,000 homes. Biomass power plants burn plant-derived organic material to heat water and generate steam. This steam is then used to turn turbines and generate electrical energy. The proposed plant could also supply heat as hot water, steam or a combination of both to neighbouring industrial and/or residential establishments. Investigations into this combined power and heat scenario are ongoing.

The principal biomass fuel to be burnt by the Renewable Energy Plant will be wood based material. It is proposed that the majority of the fuel (approximately 70%) will be sourced from overseas and delivered to the site by ship. The majority of wood fuel will be the by-product of forestry operations from the country of source. The source of this fuel has not yet been determined. The remainder of the fuel (approximately 30%) will be woodchips derived from waste wood and will be sourced from the surrounding region. These waste woodchips will be delivered to the site by road or rail. An overall fuel supply of approximately 1,200,000 tonnes per year will be required, though this will depend on the technical specification of the woodchip.

The proposed Renewable Energy Plant construction programme will last approximately 40 months from placing of contracts to full commercial operation. The traffic generation at the peak construction will be approximately 300 vehicles per day, consisting mainly of construction personnel vehicles but including some HGVs. Deliveries of major plant components are likely to be by ship or barge.

³ The anticipated generating capacity for the Renewable Energy Plant is 150MW, plus or minus 10%. As a result, environmental and carbon footprinting assessments undertaken for this scheme are based on a maximum generating capacity of 165MW (i.e. 150MW plus 10%).

The proposed Renewable Energy Plant is expected to create up to 35 full time permanent jobs and more than 300 short-term jobs during construction. Additional staff may be appointed to supervise fuel deliveries and to undertake routine checks and housekeeping duties local to the proposed plant.

2 Approach

This Sustainability Statement outlines the commitments made by E.ON to ensure that sustainability principles have been incorporated into the development of outline proposals for the Portbury Dock Renewable Energy Plant.

2.1 Project Sustainability Framework

To ensure that sustainability considerations were built into the project from the outset, a sustainability framework has been developed for the proposed Renewable Energy Plant (reproduced in part in Appendix A). The framework is based on four key elements of sustainability:

- Social;
- Environment;
- Natural Resources; and
- Economy.

For each of the four key elements, the framework provides a series of sustainability principles. Each of these principles has a series of associated objectives and targets to be applied at the different phases of the life cycle: design; construction; and operation. The development of the sustainability principles within each of these areas is outlined below.

The purpose of the sustainability framework is to provide E.ON with a structured approach to delivering their sustainability agenda and to improve the sustainable performance of the proposed Renewable Energy Plant. The sustainability framework draws on principles from Arup's Sustainable Project Appraisal Routine (SPeAR[®]), which is an accepted format for producing sustainability assessments and sustainability statements for local planning applications in the UK. To ensure that the scheme continues to develop with a strong sustainability agenda beyond the outline planning stage, E.ON is intending to undertake a full SPeAR[®] appraisal of the detailed design as the project progresses.

2.1.1 Social Sustainability

Social sustainability involves improving quality of life for all people by:

- Facilitating social inclusion;
- Enhancing amenity value and accessibility;
- Optimising built form and space;
- Maximising user comfort and satisfaction; and
- Considering health and welfare.

Considering these issues, four social sustainability principles have been incorporated into the Sustainability Framework:

Social Sustainability Principles	<ol style="list-style-type: none"> 1. Ensure involvement in local communities. 2. Secure amenity of local area and ensure appropriate accessibility. 3. Engage stakeholders in site design, delivery and operation. 4. Manage health and safety of all staff and stakeholders.
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The social sustainability credentials of the proposed development are considered against each of these sustainability principles and presented in Section 3.

2.1.2 Environmental Sustainability

Environmental sustainability concerns maintaining the quality of the environment through an understanding of environmental sensitivities, impacts and effects. Opportunities to enhance the environment in areas of operation should be developed. Within the scope of environmental sustainability, consideration should be given to:

- Protecting and improving air quality;
- Ensuring sustainable land use;
- Protecting and improving water quality;
- Protecting and enhancing ecology and cultural heritage;
- Ensuring sustainable design and operations; and
- Promoting sustainable transport options.

Considering these issues, five environmental sustainability principles have been incorporated into the Sustainability Framework:

Environmental Sustainability Principles	<ol style="list-style-type: none"> 1. Reduce greenhouse gas emissions. 2. Make appropriate use of land resources. 3. Preserve local environmental quality through pollution control. 4. Design and manage buildings to optimise sustainability in operation. 5. Conserve and enhance biodiversity and green landscapes.
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The environmental sustainability credentials of the development are considered against each of these sustainability principles and presented in Section 4.

2.1.3 Natural Resources

Sustainable development involves using non-renewable resources more efficiently, increasing their productivity to ensure sustainable economic and societal development without depleting stocks for future generations. Concurrently there must be a drive to develop alternatives that will replace their use. Sustainable resource use considers:

- Materials;
- Water;
- Energy; and
- Waste.

Considering these issues, four natural resource sustainability principles have been developed and incorporated into the Sustainability Framework:

Natural Resource Sustainability Principles	<ol style="list-style-type: none"> 1. Ensure sustainable sourcing of materials. 2. Ensure efficient use of water resources. 3. Make efficient use of energy supplies. 4. Reduce waste arising and minimise disposal to landfill.
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The Natural Resource sustainability credentials of the development are considered against each of these sustainability principles and presented in Section 5.

2.1.4 Economic Sustainability

Economic sustainability addresses the issue of financial viability and wealth creation and its distribution within and among communities. Within the scope of economic sustainability, consideration should be given to:

- Securing financial viability;
- Maximising competition effects;
- Increasing employment/skills base;
- Promoting public transport systems; and
- Optimising social benefits.

Considering the issues, five sustainability principles have been developed and incorporated into the proposed Portbury Dock Renewable Energy Plant Sustainability Framework:

Economic Sustainability Principles	<ol style="list-style-type: none"> 1. Control volumes of traffic associated with the site. 2. Support local economic vitality. 3. Ensure accessibility of employment opportunities. 4. Invest in staff development and welfare. 5. Encourage innovation and development of clean energy technologies.
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The economic sustainability credentials of the development are considered against each of these sustainability principles and presented in Section 6.

2.2 Performance Against Local Sustainability Objectives

E.ON is committed to delivering the proposed scheme in line with the overarching principles of sustainable development. To achieve this, it is vital that the scheme is aligned with the sustainability goals and objectives of the local Area and Region.

Under the Planning and Compulsory Purchase Act 2004, structure plans, local plans and supplementary planning guidance have been replaced by new Regional Spatial Strategies (RSS) and a series of local planning documents, which together form Local Development Frameworks (LDFs). The North Somerset Council is in the process of finalising its Core Strategy, which is the first of the main Development Plan Documents (DPDs) being produced and which will form the backbone of the LDF.

The Planning and Compulsory Purchase Act 2004 also requires Local Authorities to undertake Sustainability Appraisals (SAs) of the DPDs. In completing a SA, the undertaker must identify key sustainability issues and corresponding sustainability objectives.

As a result, the North Somerset Draft Core Strategy SA objectives present the key sustainability issues facing the district and the Council’s corresponding sustainability objectives. In the context of the current scheme, this set of objectives represents guidance as to the key drivers for the area and potential objectives for new development.

Presented in Section 7 is a review of how the proposed Renewable Energy Plant performs against these objectives. This review provides an indication of the compatibility of the proposed plant against local SA objectives.⁴

⁴ It should be noted that this review does not constitute a statutory sustainability appraisal as set out in the Planning and Compulsory Purchase Act (2004). The Planning and Compulsory Purchase Act (2004) requires local planning authorities to carry out Sustainability Appraisal of Development Plan Documents (DPD) and Supplementary Planning Documents (SPD) produced as part of Local Development Frameworks (LDF). SA is a process through which the sustainability of any plan under preparation is assessed.

The North Somerset Core Strategy Draft SA contains 36 sustainability objectives across three topic areas, namely;

- **Environment:** Protecting and managing the natural/cultural resource base of economic and social development;
- **Economic:** Promoting more sustainable patterns of production and consumption; and,
- **Social:** Widening opportunities for all individuals and communities.

2.3 Sources of Information

In compiling this statement, the following documents have been considered:

- Portbury Dock Renewable Energy Plant - Environmental Impact Assessment Scoping Statement (August, 2008);
- Portbury Dock Renewable Energy Plant - Environmental Statement (2009);
- Regional Sustainable Development Framework for the South West;
- Draft Regional Spatial Strategy for the South West 2006 – 2026;
- Draft Regional Spatial Strategy for the South West 2006 – 2026 Strategic Sustainability Assessment;
- North Somerset Council Local Development Framework Core Strategy Pre-production Brief;
- North Somerset Council Local Development Framework Core Strategy Sustainability Appraisal Template; and
- UK Renewable Energy Strategy Consultation Document (BERR, June 2008).

3 Social

This section considers E.ON's commitments and intentions for delivering positive social outcomes in relation to the proposed Renewable Energy Plant. Within this section, the report considers E.ON's commitments within the four key social sustainability principles developed as part of the sustainability framework:

1. Ensure involvement in local communities;
2. Secure Amenity of Local Area and Ensure Appropriate Accessibility;
3. Engage stakeholders in site design, delivery and operation; and
4. Manage health and safety of all staff and stakeholders.

E.ON has a long standing commitment to deliver social enhancement when developing new sites and operating existing ones. As a corporate entity, E.ON is a member of the UN Global Compact Network and operates a Responsible Procurement Policy specifying the minimum standard of Corporate Social Responsibility (CSR) performance expected of suppliers, subcontractors and business partners.

E.ON's corporate commitment to social responsibility is reported annually via a Corporate and Social Responsibility report, which follows the Global Reporting Initiative's G3 guidelines.

3.1 Ensure Involvement in Local Communities

The development at the Royal Portbury Dock estate will build on E.ON's strong corporate record for investment in the community. As part of the proposed scheme, E.ON is committed to establishing a project specific Community Investment Fund which will be available to local residents. The Community Investment Fund will be £50,000 a year for the duration of the plant's operational life. The purpose of the Fund will be to provide support for effective projects that support genuine community needs.

As a business, E.ON places emphasis on delivering community projects with direct relevance to their core business and expertise. To date these have included:

- Projects with Age Concern, Social Services and Carers' Associations to deliver support for older people during the winter months and in emergencies;
- Creation of a web resource and associated fund to support development of efficient and sustainable energy measures for community organisations; and,
- The Central Networks Safer Environment Fund which supports community projects which have a positive and lasting impact on the local environment.

E.ON also works closely with organisations such as the National Trust, Business in the Community, Education Business Partnerships and Sharing the Caring. In addition E.ON has long-term relationships with local schools in the areas in which they operate to directly support curriculum-based learning, sporting initiatives and awareness of safety issues associated with energy generation and supply. It is likely that E.ON will encourage similar relationships with stakeholders local to the proposed Royal Portbury Dock area.

3.2 Secure Amenity of Local Area and Ensure Appropriate Accessibility

3.2.1 Design Phase

The overall objective for the design of the proposed Renewable Energy Plant will be to create a clean industrial character consistent with its role in the use of sustainable energy generation technology, its location and context. The overall image of the site is intended to

be of a modern and functional industrial facility creating a positive and recognisable presence.

A Landscape and Visual Impact Assessment, undertaken as part of the EIA, concluded that the development will be in keeping with the Portbury Settled Coastal Edge character area with a low to negligible effect on the landscape character in the long term. The proposed development is considered to be in keeping with the requirements of the relevant planning policies. The development is assessed to be in Character with the existing industrial port as required by the Joint Replacement Structure Plan and North Somerset Replacement Local Plan. The proposed site itself will be fenced and not accessible to the public for security and safety reasons. However, there are plans for visitor facilities for organised visits from schools and the general public. Access to the core of the site will be controlled by a gatehouse to maintain security. On-site security personnel will be present 24 hours per day, 7 days per week, and will be supported by CCTV surveillance.

Whilst the site will be inaccessible to the general public, this is already the case within its existing port function and as such should have no impact on community cohesion or amenity value.

E.ON demonstrates sensitivity to the varying needs of its staff, suppliers and customers throughout its business policies and activities; from the provision of specialised customer services for those with disabilities to a commitment to equal opportunities and diversity within the staff body. At the Renewable Energy Plant, disabled visitor and staff parking will be provided in appropriate locations close to the main administration building. There will be disabled access to and throughout the administration building. Regulations do not require disabled access within the proposed plant itself and for reasons of practicality and safety this will not be provided.

3.2.2 Construction Phase

The construction phase has the potential to impact on the amenity of the site through noise, visual impact and increased traffic volumes. The construction programme will be approximately 40 months from placing of contracts to full commercial operation. Noise arising from construction will be managed under the Control of Pollution Act Section 61 Prior Consent Process. A minimum initial requirement to control noise during the construction phase of the project will also be placed upon the contractors, particularly during the evening hours.

The potential impacts arising from increased traffic volumes are presented in Section 6.2

3.2.3 Operation Phase

As with the construction phase, the operational phase has the potential to impact on the amenity of the site and surrounding area through noise, visual impact and increased traffic volumes.

The proposed Renewable Energy Plant will operate 24 hours per day, 7 days per week for approximately 90% of the year. Noise levels arising from the proposed plant will be carefully controlled. Best Available Techniques (BAT) will be used in the design, and layout of the proposed plant will seek to minimise noise.

As the noise climate in the vicinity of the proposed plant is already affected by traffic and industrial activity, it is E.ON's expectation that the effect of continuous operational noise from the Renewable Energy Plant will be 'negligible' (noise level change dB(A) of 0) or the low range of 'Slight' (noise level change dB(A) of 0.1-2.9). The initial findings of the noise assessment undertaken as part of the EIA support this.

E.ON's Environmental Management System (EMS) for power only and also for heat and power plants includes a specified procedure for logging and responding to public complaints regarding noise and acting to prevent reoccurrence. The proposed Renewable Energy

Plant will have its own specific EMS certified to ISO14001 to cover the environmental aspects and impacts associated with the operation of the proposed plant.

It is expected that, once operational, levels of traffic generated will be reduced significantly compared with the construction phase. The majority of wood fuel (over 70%) will be delivered by sea in ocean going vessels. The remaining material up to a maximum of 30% may be delivered by road and the intention is that this fuel supply will be drawn from the local area (within a 75 mile radius). It is likely that approximately 60 deliveries per day, 6 days a week, will be required to deliver the locally sourced fuel. An additional 14 HGV and tanker movements are estimated to be required to remove the remaining ash and associated by-products each day.

Results of the transport assessment undertaken for the scheme are summarised in Section 6.2.

3.3 Engage Stakeholders in Site Design, Delivery and Operation

3.3.1 Design Phase

A Scoping Statement has been produced as part of the EIA process and has been circulated to key consultees. E.ON referred to the scoping guidelines in order to identify potential stakeholders, which included statutory consultees and Non Government Organisations (NGOs). These scoping consultations have helped E.ON understand and address key issues throughout the Environmental Impact Assessment process.

A full list of consultees is provided within the Environmental Statement (ES) but include:

- Environmental Protection and Planning Officers at North Somerset Council;
- The Bristol Port Company
- RSPB;
- Environment Agency;
- Natural England;
- Highways Agency;
- English Heritage;
- Severn Estuary Coastal Group; and
- Avon Wildlife Trust.

Issues arising during public consultation have been considered. E.ON will ensure that the impacts on local residents arising from the design, construction and operation of the proposed plant are reduced to a practical and acceptable minimum.

Local communities and businesses are important stakeholders and were informed of E.ON's plans through press releases and information available on the E.ON website. E.ON is committed to working with local communities during the design phase, through consultation and public engagement. During the design phase E.ON held three public exhibitions over the course of three days at the following locations;

- Portbury Social Club, High Street, Portbury;
- Somerset Hall, High Street, Portishead; and
- St George's Hall, Priory Road, Easton-in-Gordano.

The dates of the public exhibitions were advertised in local papers and through leaflet drops to raise awareness.

In addition, E.ON has provided updated project information on the Portbury Dock Renewable Energy Plant website (www.eon-uk.com/portburydock), and stakeholders are able to visit other E.ON facilities that are in operation on request.

E.ON will be producing a Statement of Community Involvement to accompany the planning application.

3.3.2 Construction Phase

During construction, E.ON will nominate a site representative to liaise with the local authority and local stakeholder groups as required. This consultation process will be coordinated in line with a communication plan developed to cover the construction phase. Local stakeholders are also encouraged to provide feedback and comment through the E.ON website (<http://www.eon-uk.com/contactforms/contactus.aspx>).

3.3.3 Operation Phase

During operation, E.ON's nominated site representative will continue to liaise with the local authority and local stakeholder groups. This consultation process will be coordinated in line with a communication plan produced as part of the site's Environmental Management System.

Local stakeholders will also be encouraged to provide feedback and comment through the E.ON website (<http://www.eon-uk.com/contactforms/contactus.aspx>).

E.ON has a public commitment to reduce the number of complaints lodged by customers with the consumer watchdog, Energywatch. At the end of 2006 E.ON was placed second in Energywatch's league table, recognising E.ON's low number of customer complaints.

3.4 Manage Health and Safety of all Staff and Stakeholders

The design of the proposed plant will incorporate features that ensure satisfaction of E.ON's statutory responsibilities under Acts of Parliament such as the Health and Safety at Work Act 1974. Where appropriate, the Health and Safety Executive (HSE) will be consulted about safety issues associated with the development. Planning and management throughout the design and construction of the proposed plant will comply with the Construction (Design and Management) Regulations 2007.

E.ON offers a comprehensive package of benefits to ensure the health and wellbeing of employees, including:

- Employment policies regularly reviewed to ensure that they support flexible and family-friendly working;
- Provision of an Employee Assistance Programme providing free and confidential advice for all employees, as well as an Occupational Health helpline; and
- An Active Energy programme providing voluntary health assessments, including advice and follow-up care on stress, lifestyle and diet.

4 Environment

E.ON is committed to minimising the environmental impact of all of its operations including the development of new energy generation sites. As part of the planning application, E.ON has commissioned an EIA that identifies potential environmental impacts, mitigation measures and enhancement opportunities associated with the development of the proposed Portbury Dock Renewable Energy Plant.

4.1 Reduce Greenhouse Gas Emissions

Through the UK Climate Change Act⁵, the UK Government has set the target to reduce total UK greenhouse gas emissions by at least 80% by 2050 on 1990 levels and by at least 26% by 2020. Guidance from the Climate Change Committee suggests that the figure of 26% should in fact be set at 40%, pending international agreement. In addition, under the Kyoto Protocol the UK has a legally binding commitment to reduce emissions of six greenhouse gases by 12.5% below 1990 levels over the period 2008-12.

In 2007, the UK Government published the UK Biomass Strategy⁶. The strategy outlines the role that biomass can play in helping to meet the UK's future energy needs in a more sustainable way. This involves decreasing the UK's reliance on non-renewable fossil fuels and seeking to improve security of fuel supplies. The strategy suggests that the use of biomass as a fuel for energy generation has a role to play in this. In addition, the use of biomass offers clear benefits in contributing to a reduction of overall greenhouse gas emissions arising as a result of power generation in the UK.

Biomass fuels are generally classed as carbon neutral because the carbon dioxide released by the burning of the fuel is equal to the carbon dioxide (CO₂) absorbed during the growth of trees supplying the biomass. However, other energy inputs required over the life cycle of the fuel such as processing, transport and disposal all give rise to CO₂ emissions and as a result, affect this carbon neutrality. These can include emissions associated with harvesting, mechanical processing, transport and waste disposal. A CO₂ footprinting study has been undertaken to attempt to quantify some of the CO₂ emissions implications associated with the development of the proposed Renewable Energy Plant.

By supplying the national grid with energy sourced from biomass, the operation of the proposed plant will theoretically offset the requirement to supply the national grid with energy generated from other (non-renewable) sources. The alternative non-renewable sources would have greater greenhouse gas emissions associated with their use and as a result, the Portbury Dock Renewable Energy Plant will contribute to the overall reduction of the greenhouse gas intensity of the national grid. The proposed plant has the potential to displace more than 500,000 tonnes of CO₂ emissions annually in comparison with the emissions associated with the supply of an equivalent amount of energy from the UK national grid.

Further information on the CO₂ emissions arising from the proposed development can be found in the Carbon footprinting study undertaken for the scheme⁷.

4.1.1 Other Emissions to Air

Atmospheric emissions from the proposed plant will pass through a flue gas duct into a stack. Best Available Techniques (BAT) will be utilised in the design phase of the Renewable Energy Plant to ensure that emissions are minimised and harmful particulates are filtered before release into the atmosphere. Mitigation measures have also been proposed to limit the environmental impact of traffic generated by the proposed plant.

⁵ UK Climate Change Act, November 2008. Available at <http://www.defra.gov.uk/environment/climatechange/uk/legislation/provisions.htm>.

⁶ Defra/ DTI/ DfT (May 2007), UK Biomass Strategy.

⁷ Portbury Dock Carbon Footprint Study (Arup) August March 2009.

4.2 Make Appropriate Use of Land Resources

The proposed Renewable Energy Plant is to be located on a site currently used as an imported car store and is within an existing area of hardstanding. The area was originally reclaimed during the mid 1990s from the River Severn.

The proposed site is effectively a Brownfield site and will therefore not result in the loss of any Greenfield land or destruction of natural habitat. Construction related laydown will be contained within the Port of Bristol administrative area and therefore will use existing hardstanding and industrial areas.

4.2.1 Ground Contamination

As part of the EIA, a site investigation has been undertaken to establish ground conditions. Ground investigations observed the following underlying strata:

- Made Ground (1.3m – 6.0m);
- Alluvium (7.8m – 11.8m); and
- Mercia Mudstone Group (0.6m – 2.0m).

Ground investigations have also assessed the land quality at the site. Studies have found limited levels of contamination within the soil profile and isolated pockets of elevated hydrocarbons. Soil Leachate levels show elevated levels of some organic and inorganic material but contaminant levels are low and in keeping with the surrounding reclaimed industrial area.

The construction of hardstanding and isolation of drainage channels will detach the connection between rainfall and groundwater, reducing the potential for contaminants to pass into the water table and local watercourses. Runoff from areas with potential hydrocarbon spillage will pass through an oil interceptor to prevent surface water pollution.

Further detail is available within the Environmental Statement which accompanies the outline planning application.

4.2.2 Flood Risk

In response to the EIA Scoping Statement (August 2008), the Environment Agency (EA) requested that the planning application be accompanied by a Flood Risk Assessment (FRA) and that the development passes the Sequential Test. In addition, the EA specified the site should be flood resilient to a 1 in 1000 year flood event and that a flood emergency plan should be devised to demonstrate that safe access/egress to and from the site can be achieved under flood conditions.

As part of the EIA process, a comprehensive FRA has been undertaken for the Renewable Energy Plant in support of the planning application. Environment Agency Flood Zone maps for the area suggest that the majority of the proposed development area is located in Flood Zone 2 and therefore at moderate risk from flooding. Topographic data from the site has subsequently demonstrated that the existing ground level at the site is above the peak 1 in 1000 year tidal flood level and therefore should be re-designated as Flood Zone 1. The FRA found that a county-wide review of alternative sites demonstrated that there are no other suitable development sites at lower risk of flooding. When considered in addition to the observation that the site should be re-designated as Flood Zone 1, the FRA concluded that the Sequential Test was passed.

Further detail is available within the Flood Risk Assessment⁸ which accompanies the outline planning application.

⁸ Flood Risk Assessment (S M Foster Associates Limited for E.ON Engineering) March 2009

4.2.3 Land associated with Biomass production

The proposed Renewable Energy Plant will be fuelled by up to 1.2 million tonnes of wood based material annually, over 70% of which is likely to be sourced from overseas. It is currently anticipated that the majority of this wood will be the by-product of forestry operations in the country of source. Limited information is currently available regarding the specific source or supplier of the biomass.

However, during carbon footprinting studies for the scheme, the following assumptions have been made:

- The source of the biomass is from sustainable forestry practices, i.e. there is no net depletion of forest in order to supply biomass for energy, as replanting is carried out to replace removed trees.
- Old growth forests, such as tropical rainforest and ancient woodland, are not cleared to make way for commercial forestry operations even if these operations are managed sustainably. To this end, and in accordance with the British Standard PAS 2050:2008 – Specification for the assessment of the lifecycle greenhouse gas emissions of goods and services (PAS 2050), it has been assumed that there are no greenhouse gas emissions arising as a result of the land use change, provided no such land use change has occurred since 1st January 2008.
- E.ON retains strong commitments towards sound corporate citizenship and their existing policies on responsible procurement will seek to ensure that land managed for the production of forestry materials and biomass is done so ethically and in accordance with the above principles.

4.3 Preserve Local Environmental Quality through Pollution Control

Local environmental quality has the potential to be affected by the proposed development from impacts on air quality, water quality and ecology. Potential impacts have been assessed through the EIA process and actions for mitigation and management have been proposed. Further information is available within the Environmental Statement which accompanies the outline planning application.

4.3.1 Air Quality

An Air Quality Impact Assessment of the proposed development has been undertaken using an atmospheric dispersion model as part of the EIA. The assessment has been undertaken to estimate the potential impacts of the development on human health and also on nearby designated conservation sites. Impacts resulting from construction operations were also considered.

Operational impacts on climate change and the photochemical ozone creation potential of the proposed plant are also commented on within the assessment.

Construction Phase

An assessment of the air quality impacts of construction traffic show that the predicted local impacts are of minor significance and are unlikely to cause a breach of air quality objectives.

During the construction of the proposed Renewable Energy Plant there is potential for dust to be generated from various activities such as;

- Construction of buildings;
- Access road construction;
- Transportation of materials to and from site; and
- Soil stripping and earthworks.

E.ON is committed to minimising the potential adverse impact on local air quality and human health and will ensure that nominated contractors adhere to best practice for minimising dust from construction activities. This may include:

- Sheeting of HGVs carrying loose materials;
- Use of water sprays during hot dry periods to dampen down work areas and roadways;
- Frequent washing of roads and surfaces; and
- Wheel washing of vehicles leaving the site when this likely to otherwise lead to airborne dust.

An assessment of the possible impacts of odour arising from the construction site has revealed that the construction process would not involve any activities particularly associated with odour.

Operation Phase

The primary releases from the proposed plant during operation will be nitrogen oxides (NO_x), sulphur dioxide (SO₂), particulates (PM₁₀ and PM_{2.5}), carbon dioxide and monoxide (CO₂ and CO), Hydrogen Chloride (HCl), and dioxins and furans. Due to the nature of the operations on site, the proposed plant must meet the requirements of the Waste Incineration Directive (WID).⁹ An atmospheric dispersion model has been used to calculate the contribution of emission from the proposed Renewable Energy Plant to ground level concentrations of the released substances. With the exception of the PM_{2.5}, emission concentrations correspond to the limits specified in the WID. The WID specifies an emission limit for total particulates rather than for PM₁₀ or PM_{2.5}. The atmospheric dispersion model assumed that 100% of total dust emissions fall within both the PM₁₀ and PM_{2.5} size fractions in turn. This considers the worst case and in practice only a proportion of dust emissions will fall into each fraction.

The Air Quality Assessment has concluded that concentrations of the main substances released comply with relevant air quality standards and as a result, emissions to air from the Renewable Energy Plant are not expected to have a significant adverse effect on human health or on the Natura 2000 or SSSI sites within the vicinity. Further information is available in the Environmental Statement

The chosen stack height of the Renewable Energy Plant is 120m and exceeds the minimum stack height of 102m¹⁰. The selected stack height of 120m has been chosen on the basis of dispersion modelling and is considered to represent a height at which the impact of the proposed plant on air quality is acceptable and will not lead to exceedences in air quality at ground level.

4.3.2 Water Quality and Drainage

A Water Quality Impact Assessment has been undertaken as part of the EIA.

Construction Phase

The presence of construction activities in the vicinity of water bodies will give rise to potential water contamination risks during the construction phase. Potential risks to local water quality include run-off of suspended solids and chemical or oil spillages reaching the drains or contaminating groundwater. These risks will be managed through an environmental management plan which will outline the pollution prevention and control measures required of the contractors.

⁹ Waste Incineration Directive (European Commission, 2000)

¹⁰ Calculated using Technical Guidance Note D1 (HMIP, 1993)

Operation Phase

Surface water from the development will be discharged via a best practice Sustainable Drainage System (SUDS) to prevent pollution to the River Avon, Severn Estuary and the Royal Portbury Dock.

A review of site practices will be undertaken to determine pollution prevention measures and ensure that risks are managed appropriately. On-site storage facilities for processed biomass fuel and ash will be enclosed to avoid contamination of surface water through dissolution or from suspended solids from these stores.

Foul drainage water will be discharged into the existing sewer network. There should therefore be no contamination of groundwater or surface water resulting from the proposed development.

During operation, water required for cooling will be abstracted from and discharged into the Royal Portbury Dock. A re-circulating cooling water system will be employed, using hybrid cooling towers. This will greatly reduce the volume of water abstracted and returned to the dock compared with a direct cooled system. However, the water will be slightly modified as it passes through the proposed Renewable Energy Plant, for example through increases in temperature and solutes. Modelling undertaken as part of the EIA shows that the proposed plant will have no adverse effects on the water quality of the dock and there will be a minimal impact on water passing through the lock to the estuary. Water entering the estuary via the lock will meet the temperature thresholds for impact of thermal discharges on designated Special Area of Conservation (SAC, as designated under the EU Habitats Directive, 1992) and Special Protection Area (SPA, designated under the EU Wild Birds Directive, 1979) sites. Both current magnitudes and temperatures have been assessed and have found to have a minimal impact on the local surroundings.

4.4 Design and Manage Buildings to Operate Sustainably in Operation

4.4.1 Design

The BRE Environmental Assessment Method (BREEAM)¹¹ for Industrial Buildings will be used to inform design standards for the proposed plant and BAT as required. E.ON has committed that the finalised Renewable Energy Plant will be designed and constructed to BREEAM 'Very Good' Standard. Achieving this standard will require ongoing commitment, during design and construction, to managing the following issues:

- Management of environmental issues;
- Energy;
- Transport;
- Material use and waste;
- Pollution;
- Health and wellbeing;
- Land Use and Ecology; and
- Water use.

4.4.2 Operation

E.ON operates Environmental Management Systems, certified to ISO14001, for all its sites. These systems are used to manage environmental risks and impacts arising from their

¹¹ The Building Research Establishment Environmental Assessment Method (BREEAM) is a framework for assessing the environmental sustainability of buildings. The framework is managed in the UK by the BRE. Further information is available at: www.breeam.org

operation and to drive continuous improvement. E.ON's staff are trained in methods of environmental management and generally exhibit high levels of environmental awareness.

E.ON is currently considering implementing a Green Travel Scheme for the Royal Portbury Dock site, similar to those adopted at other E.ON sites. If adopted the Green Travel Scheme will reward those who travel by bicycle, motorbike and those that car share.

4.5 Conserve and Enhance Biodiversity and Green Landscapes

The proposed site is adjacent to the Severn Estuary that is protected under international law as a Special Area of Conservation (SAC).¹² Due to the potential to impact upon the designated area, especially during construction, E.ON is obliged to undertake Appropriate Assessment (AA) under the Habitats Directive (92/43/EEC).

In addition, E.ON has commissioned a wintering bird survey to consider the potential impacts of the proposal.

Further information is available in the Ecology chapter of the Environmental Statement¹³ for the scheme.

Since the proposed Renewable Energy Plant is on a Brownfield site it is unlikely that indigenous soil profiles remain and as such the potential impact on soil profiles is negligible.

¹² Special Area of Conservation (SAC) are protected sites designated under the EC Habitats Directive

¹³ Portbury Dock Environmental Statement (E.ON) March 2009

5 Natural Resources

The appropriate use of natural resources and energy is a central theme in delivering sustainable development. By minimising use of non-renewable resources during construction and operation, the development will minimise its impact on resource depletion and environmental degradation. Producing electricity and heat from renewable resources also reduces the wider impact of energy generation on resource depletion and supports the reduction of greenhouse gas emissions.

5.1 Ensure Sustainable Sourcing of Materials

E.ON operates a responsible procurement policy at a corporate level. This policy commits E.ON to give due consideration to:

- Respecting Human Rights and securing appropriate working conditions of employees;
- Minimising environmental impact; and
- Maintaining high standards of ethics and business integrity.

Of particular relevance to materials sourcing for this Renewable Energy Plant are E.ON's commitments to the following:

- Suppliers should recognise the environmental impact of their business and ensure that they act in a responsible manner and continually work to lessen their impact on the environment.
- Suppliers are expected to have developed and implemented an environmental policy and operate in compliance with all applicable laws and regulations addressing environmental protection.

E.ON is continuing to develop its procurement policies specifically relating to the procurement of biomass. These policies are likely to cover management of issues such as:

- Greenhouse gas emission reduction;
- Contribution to economic development and social wellbeing;
- Maximising local sourcing;
- Avoiding the use of genetically modified crops; and
- Managing land use impacts and changes.

5.1.1 Construction Phase

Building materials will be sourced in accordance with E.ON's responsible procurement policy. Achieving a 'Very Good' rating within the BREEAM framework will require a commitment to responsible sourcing of materials. This will be developed during the detailed design phase.

Material excavated from the site as part of the plant construction will be re-used on-site where possible. This re-use of materials will help to minimise the number of construction traffic movements to and from the site.

5.1.2 Operation Phase

The biomass fuel to be burnt by the proposed plant will be a mix of wood based material (70%) and recycled waste wood (30%).

The 360,000 tonnes per year of recycled waste wood is likely to be sourced within the local area (within a 75 mile radius). At this stage, it is not anticipated that other UK sourced biomass fuels will be used as fuel supply.

Overseas sourced wood will be mostly the by-product of existing forestry operations. It is intended that wood will be sourced from sustainable forestry practices where there has been no net depletion of forest in order to supply biomass, as replanting is carried out to replace removed trees.

In addition, E.ON will make every effort to ensure that biomass is not purchased from sources where old growth forests may have been cleared to make way for commercial forestry operations, even where these operations are subsequently managed sustainably.

5.2 Ensure Efficient Use of Water Resources

5.2.1 Construction Phase

During construction of the proposed Renewable Energy Plant there is a possibility of some water being required for chemical cleaning. Such processes will be controlled closely by formal method statements and agreed with the Environment Agency. In addition, the application of the BREEAM framework to the scheme development will drive consideration of water use minimisation during construction and operation.

5.2.2 Operation Phase

During operation, the Renewable Energy Plant will require water for cooling and will be abstracted from the Royal Portbury Dock. The proposed plant will adopt a re-circulating cooling water system that will reduce the volume of water abstracted and returned to the dock compared with a direct cooled system. The re-circulating system will require a water flow of approximately 6.5m³/s. Approximately 1% of the water within the re-circulating system will be lost through evaporation and a further 1% of re-circulating water will be needed to purge the build-up of salts in the cooling water system. The total purged water will vary seasonally between 190m³/hr to 255m³/hr, with corresponding make-up flow rates, that will be taken from the dock, in the range of 380m³/hr to 510m³/hr.

The purge water will need to be discharged back into the dock to help maintain water levels with the dock itself. As the process abstracts more water than is discharged, the water in the dock will need to be replaced by pumping water from the estuary. The amount of water lost per day is anticipated to constitute a depth of 0.01-0.02m across the whole dock.

During detailed design, rainwater harvesting opportunities will be considered as a supplementary water supply for plant facilities and will be adopted where technical and financially feasible.

5.3 Make Efficient Use of Energy

The proposed development will be delivered in accordance with best practice energy efficiency principles.

During the construction phase, the contractor will be encouraged to consider energy efficiency of site operations and actively try to reduce energy consumption.

As outlined in Section 4.4.1, E.ON has committed to bring forward the scheme with a view to achieving a BREEAM Very Good rating. This will require consideration of the energy efficiency of the design and operation of the facility. The buildings will have to demonstrate a reduction in CO₂ emissions relative to current building regulations. Energy efficient fixtures and fittings will be specified throughout the development and a commitment will be made to monitoring energy consumption during operation. BAT will be used across the site to ensure energy use during operation is minimised.

In addition, E.ON is currently investigating opportunities to use heat arising from the proposed Renewable Energy Plant for off-site applications. Industrial and residential applications are currently being considered and the technical feasibility and economic viability of these schemes will continue to be investigated.

5.4 Reduce Waste Arisings and Disposal to Landfill

5.4.1 Construction Phase

Waste produced during the construction of the site will be managed by the contractor in accordance with a Site Waste Management Plan. Modern methods of construction will be employed to minimise the quantity of waste arising on site, and due attention will be paid to the principles of the waste hierarchy: prioritising avoidance and recycling of waste.

The construction of the Renewable Energy Plant will require ground excavation work on site, producing spoil that may be re-used around the site to aid landscaping. This will assist in minimising the number of construction traffic movements to and from the site.

5.4.2 Operation Phase

The proposed plant will meet the requirements of the Waste Incineration Directive, making it possible to utilise wood waste from construction and demolition industries which usually contain contaminants unsuitable for recycling and re-use. It is therefore assumed that the use of this waste wood as a fuel is effectively diverting material away from landfill.

During operation, waste will arise from the following streams:

- Oversized and off-spec woodchip particles;
- Waste metals;
- Furnace Bottom Ash;
- Fly ash;
- Liquid and solid waste from wastewater treatment; and
- General office/site waste.

A table outlining the waste arising and intended disposal route is provided below.

Waste Stream	Intended Disposal Route
Oversized particles	Recycling
Waste metals	Recycling
Furnace Bottom Ash	Recycling opportunities to be sought. (initially landfill)
Fly Ash	Landfill (Hazardous Waste)
Waste from water treatment	To be confirmed
General office and site waste	Recycling and Landfill as appropriate.

Furnace Bottom Ash (FBA) is primarily an inorganic material resulting from combustion of biomass. It is anticipated that the proposed Renewable Energy Plant will generate approximately 21,600 tonnes of FBA per annum (a conservative figure). E.ON will be seeking to sell the FBA produced during operation, as there is significant demand for this type of ash within the construction industry. E.ON has successfully sold an average of over 85% of ash produced from existing units during the period 2001 to 2005. Any FBA that has not been sold will be treated as a waste product and disposed in accordance with the List of Wastes (England) Regulations 2005 (SI/895).

Fly Ash is formed by inorganic material with a small proportion of carbon resulting from combustion of biomass. The proposed Renewable Energy Plant will create approximately 86,400 tonnes of fly ash per annum (a conservative figure). Due to the enrichment of heavy metals in Fly Ash, it is likely to be classified as hazardous waste and will need to be

disposed of in a suitability licensed site in accordance with the List of Wastes (England) Regulations 2005 (SI/895).

Solid wastes produced during the water treatment process will be concentrated and dewatered if necessary, and finally disposed of to landfill or other such route as identified in accordance with local environmental and pollution control legislation.

As part of the environmental management system for the site, waste arising from general site functions, including office functions, will be managed in accordance with the principles of the waste hierarchy.

The use of construction and demolition wood waste is anticipated to divert up to 360,000 tonnes of waste away from landfill annually. If it is assumed that the FBA is recycled, then the scheme will result in a net reduction of waste to landfill of 284,000 tonnes per year.

Further detail is available in the Environmental Statement which accompanies the outline planning application.

6 Economic

Overall E.ON expects that the development of the proposed site will be beneficial to the local area and associated supply chains. The construction of the proposed Portbury Dock Renewable Energy Plant will create new jobs during construction and operation which, as far as possible, will be filled locally.

6.1 Viability

Through the UK Climate Change Act (2008), the UK Government has set the target to reduce total UK greenhouse gas emissions by at least 80% by 2050 and by at least 26% by 2020. Strengthening this drive towards low carbon development are issues associated with natural resource depletion and the need to diversify away from fossil fuel based energy generation. In order to ensure ongoing security of energy supplies and stable fuel prices, energy demand must be reduced through more efficient patterns of consumption; the efficiency of energy supplies must be increased; and a range of energy sources must be adopted. This includes both traditional forms and renewable technologies.

The electricity sector is responsible for around 37% of the country's carbon dioxide emissions. According to figures from the Department for Trade and Industry, in 2005 power stations alone were responsible for around 31.5% of carbon emissions. However, biomass-fuelled stations are regarded as effectively carbon neutral. Although the facility will release carbon dioxide during the combustion of biomass, this carbon comes from biogenic sources which consume carbon dioxide from the atmosphere during growth. This avoids the need to supply the national grid with power from more carbon intensive forms of energy generation. Such power stations therefore play a fundamental role in meeting national greenhouse gas emission reduction targets.

Continued growth in the demand for power means the UK needs long-term investment in new generating capacity. Around 18GWe of generating plant will close by 2020 and this capacity will need to be replaced by lower carbon alternatives.

UK Government recognises the benefits of renewable energy and is actively supporting the growth of renewable generation to tackle climate change. It has set a target for 15.4% of electricity supplied in the UK to come from renewable sources by 2015, and a further target of 20% by 2020. The Renewables Obligation has been put in place to support delivery of this objective. This obliges electricity retailers in Britain to obtain an increasing proportion of the energy they supply from renewable sources. The requirement to meet this obligation makes the proposed Portbury Dock Renewable Energy Plant development viable under prevailing market conditions.¹⁴

6.2 Control Volumes of Traffic Associated with the Site

6.2.1 Design

During detailed design, construction phasing and programming will be considered to minimise the number of deliveries made by road and maximise the opportunities to deliver plant components via ship.

6.2.2 Construction

During construction it is expected that the majority of the construction workforce will arrive by road. E.ON is considering opportunities for a park and ride scheme during the construction period, which will need to be agreed with local authorities.

The peak construction workforce is forecast to occur between months 19 and 29, when there will be approximately 300 workers on site each day. At the peak of construction, traffic generation will be approximately 220 to 250 car and vans per day and approximately 60

¹⁴ Portbury Dock Renewable Energy Plant Environmental Scoping Report (2008)

HGV movements. All HGVs will arrive and leave the site using the M5 motorway. Based on a morning peak traffic survey (undertaken in 2006), it is estimated that 30% of HGVs will arrive and leave using the M5 southbound with the remaining 70% leaving using the M5 northbound. HGV deliveries will be spread evenly across the working day.

Every opportunity to reduce construction traffic will be considered and, where possible, large and abnormal loads will be delivered by sea, reducing the use of the strategic road network. In addition, in accordance with recommendations made by the traffic assessment, deliveries will be timed sensitively to avoid peak traffic flows.

A traffic and transport assessment has been undertaken to establish the impact of the development on the strategic road network during construction and operation. Computer modelling software TRANSYT has been used to inform the analysis of the impacts of transport on the M5, Junction 19. The study considered the construction period and an operational scenario where 30% of the fuel requirements were delivered by road. The results of the transport study show that even with predicted increases in traffic during both construction and operation, there will be no detrimental impact on the motorway junction.

Mitigation measures have been proposed to manage potential transport related impacts, including:

- A Traffic management scheme for the construction period; and
- A Site Travel Plan during operation.

Further information on the Transport Assessment is available within the Environmental Statement.

6.2.3 Operation

Once the proposed Renewable Energy Plant is operational, freight traffic will be reduced compared to the construction phase. The operational staff numbers will be significantly lower than that required for construction and personnel traffic will be minimal in terms of the local road network.

The delivery of a significant proportion of the fuel will be via the sea, from overseas fuel sources. Locally sourced waste wood woodchips will be delivered by HGVs. It is expected that approximately 60 HGVs per day, six days a week will be required to transport the locally sourced fuel. Additional HGV movements will be required to remove waste ash and the remaining by-products plus additional deliveries of process inputs.

6.3 Support Local Economic Vitality

E.ON proposes that up to a maximum of 30% (360,000 tonnes) of the fuel supplies will be delivered by road. This reflects the intention to source waste wood material from within the region.

The net reduction in waste to landfill arising from the scheme will divert the government and landfill operator's income to producers of waste wood and is expected to have a positive knock on effect on employment in the local area

In addition, the demand for construction and demolition waste as a fuel for the proposed plant will create the need for wood processing plants within the region.

6.4 Ensure Accessibility of Employment Opportunities

The construction of the proposed Renewable Energy Plant will create job opportunities during both construction and operation. E.ON is committed to working with North Somerset Council and the Bristol City Council to explore the potential to maximise the access of local people to construction and permanent jobs at the site. Jobs with E.ON will be advertised in the local area following the existing E.ON training programmes for Apprentices and Graduates.

Employment opportunities at the proposed plant will comply with the E.ON Group framework for equality and diversity that promotes diversity in the workplace and across the business.

6.4.1 Construction

The number of construction workers required to support the assembly of the proposed Renewable Energy Plant will vary throughout the build process. At its peak there will be a need for approximately 300 workers on site. It is expected that the construction workforce will be drawn from the local area wherever possible.

6.4.2 Operation

Once fully operational, the proposed plant is expected to employ around 35 full time personnel. This will comprise a range of employment types including engineering, administrative and managerial staff. Opportunities will be available for flexible, part-time and shift working. It is anticipated that a third of employment opportunities will be at graduate level.

Additional contract personnel are likely to be employed to undertake routine and annual maintenance. Catering, cleaning and maintenance contractors will be drawn from the local area wherever possible, and indirect employment will be created in support industries for the biomass supply infrastructure.

Official labour market statistics show that for North Somerset and Bristol, 5,700 and 9,500 people respectively work in processing plants and as machine operatives. These figures include power plant operatives. This represents a total of 5.4% and 4.5% of people in employment for each administrative area respectively, less than the average for Great Britain of 7.2%. The creation of 35 new roles within this employment category will therefore have a small, but positive impact on the local area.

6.5 Invest in Staff Development and Welfare

E.ON will provide appropriate training, learning and development opportunities for staff on site and be supportive of personal development within the available roles. E.ON is an accredited Investor in People and the 2005 Employee Opinion Survey showed that staff had a sense of pride and shared identity through being part of the E.ON Group.

The administration building located on site will incorporate welfare facilities for staff during operation.

6.6 Encourage Innovation and Development of Clean Energy Technologies

Continued growth in the demand for power, coupled with concerns over climate change, means the UK needs long-term investment in renewable power generating capacity. Around 18GWe of generating plant will close by 2020. This capacity will need to be replaced by lower carbon alternatives. Recognising this need, the South West Draft Regional Spatial Strategy establishes targets for renewable energy generation, including a target for Somerset of at least 61-81MWe by 2010 from onshore renewable electricity technologies. The proposed Portbury Dock Renewable Energy Plant will help to satisfy such goals, producing sufficient electricity to meet the needs of approximately 250,000 homes. By diversifying and securing energy supply, the growth of the renewable energy sector will improve price stability and supply certainty.

7 Local Sustainability Objectives

The following section reviews the extent to which the proposed scheme is aligned with the sustainability objectives of the local Area and Region. The Sustainability Statement considers the scheme in response to the North Somerset District Council Sustainability Appraisal objectives. These objectives are considered to be a representative guide to the key drivers for the area and potential objectives for new development.

7.1 Local Planning Policy

The Core Strategy is the first of the main Development Plan Documents (DPDs) being produced by North Somerset Council for inclusion in the Local Development Framework (LDF) under the new planning system. The core strategy will set out the future objectives and strategies for the conservation and development of North Somerset up to 2026.

Under the Planning and Compulsory Purchase Act 2004 all DPDs are subject to a Sustainability Appraisal (SA). A SA is a process that, by identifying key sustainability issues and defining sustainability objectives, ensures that plans, policies and programmes are inherently sustainable. The finalised Core Strategy has not yet been published by North Somerset Council. However the Draft Core Strategy SA Objectives have. The SA objectives are separated into three themes, namely;

- **Environment:** Protecting and managing the natural/cultural resource base of economic and social development;
- **Economic:** Promoting more sustainable patterns of production and consumption; and
- **Social:** Widening opportunities for all individuals and communities.

7.2 Performance Against North Somerset Sustainability Objectives

To ensure that the proposed Portbury Dock Renewable Energy Plant is in line with the sustainability objectives outlined in the North Somerset Council LDF, a qualitative review of the Renewable Energy Plant proposed at the planning application has been undertaken against the Draft Core Strategy SA objectives.

The scheme has been reviewed against each of the objectives and an observation has been made as to whether the scheme is aligned, neutral or conflicting with each objective.

Due to the nature of the proposed development that some of the SA objectives will not be applicable and therefore the proposed plant will neither contribute positively or negatively.

This assessment is undertaken as a means of demonstrating the compatibility of the scheme with local sustainability objectives and to identify potential conflicts. It does not constitute a formal or legislative requirement to undertake a Sustainability Appraisal. Rather the purpose of the following is to demonstrate E.ON's commitment to good practice and delivering a development which meets the sustainability objectives of the local Area and Region.

7.3 Performance Summary

Table 7.1 below provides a summary of how the proposed Portbury Dock Renewable Energy Plant performs against local sustainability objectives.

Indicates the proposed plant performs well against the sustainability objective	✓
indicates neither a negative or positive performance against the sustainability objective	○
Indicates the proposed plan performs poorly against the sustainability objective	✗
Not applicable	-

Table 7.1 Summary Assessment of the Portbury Dock Renewable Energy Plant against the Draft Core Strategy SA Objectives

OBJECTIVE		
Social		
SC1	Meet local needs locally	✓
SC2	Improve accessibility to service, retail, educational, leisure and social provision	○
SC3	Increase opportunities for active lifestyles and sustainable outdoor leisure pursuits	○
SC4	Develop a positive sense of place both physically and socially	-
SC5	Promote positive wellbeing	-
SC6	Reduce health inequalities	-
SC7	Reduce crime and fear of crime, likewise anti-social behaviour	-
SC8	Minimise risk to health and safety	✓
SC9	Avoid exposure to pollution or noise	✓
SC10	Meet housing requirement.	-
SC11	Narrow the gap between income and house prices/rents	-
SC12	Improve the life chances of those living in areas of concentrated disadvantage	-
Environmental		
EN1	Maximise self-containment of the urban areas	-
EN2	Minimise average travel-to-work distance	○
EN3	Limit rural development to that meeting local needs, or infrastructure needs unavoidably requiring a rural location	-

EN4	Minimise loss of productive land, especially best and most versatile farmland	✓
EN5	Minimise development in floodplain	0
EN6	Promote sustainable drainage and protect existing permeable surfaces	✓
EN7	Enable design to minimise resource used and contribution to greenhouse gas emissions	✓
EN8	Enable design to take account of higher temperatures and more extreme weather conditions	✓
EN9	Increase the life expectancy of buildings	✓
EN10	Achieve a net gain in cultural, heritage and landscape features and biodiversity of North Somerset	0
EN11	Avoid major development in the most environmentally sensitive areas	0
EN12	Avoid damage to irreplaceable valued features	✓
Economic		
EC1	Meet economic development needs, including sufficient new jobs to at least match the increase in homes	✓
EC2	Harness the particular economic opportunities of North Somerset	✓
EC3	Protect and expand opportunities for local businesses to utilise local resources, especially sustainable resources	✓
EC4	Maximise opportunities for regeneration and renewal within the Strategically Significant Cities & Towns, ahead of new development, especially ahead of major new housing	-
EC5	Avoid prejudicing, by phasing or otherwise, the achievement of other sustainable development objectives for regeneration and quality of life	✓
EC6	Increase prosperity, especially in areas of concentrated disadvantage	✓
EC7	Make fuller use of urban spaces and promote a balanced night-time economy in town centres	0
EC8	Diversify employment structure, improve choice of employment and produce greater opportunities to participate in society, paid or unpaid	✓
EC9	Increase ability to work from home	0
EC10	Protect and expand genuine opportunities for small businesses	✓
EC11	Reduce queuing and over-crowding on the road and rail networks	✓
EC12	Locate new development on sites – and access them in ways – that will not add to traffic congestion	✓

7.4 Social

Evidence of how the proposed Portbury Dock Renewable Energy Plant performs against each of the Daft Core Strategy Social SA objectives is presented in Table 7.2.

In assessing the merits of the proposed plant against the social SA objectives no conflicting issues were identified.

The commitments made by E.ON in the development of the proposed plant have aligned the proposal with a number of the local social sustainability objectives by creating jobs locally (SC1). Furthermore E.ON's commitments to health and safety are aligned with the local objective to minimise risk to health and safety (SC8) and the adoption of BAT and construction controls will minimise noise and pollution exposure (SC9).

Due to the nature of the proposal, E.ON can only have a limited impact on the following objectives:

- Improving accessibility to service, retail, educational, leisure and social provision (SC2);
- Increasing opportunities for active lifestyles and sustainable outdoor leisure pursuits (SC3);
- Developing a positive sense of place both physically and socially (SC4);
- Promoting positive wellbeing (SC5);
- Reducing health inequalities (SC6);
- Reducing crime and fear of crime, and anti-social behaviour (SC7);
- Meeting housing requirements (SC10);
- Narrowing the gap between income and house prices/rents (SC11); and
- Improving the life chances of those living in areas of concentrated disadvantage (SC12).

Table 7.2: Assessment of the Portbury Dock Renewable Energy Plant Against the Draft Core Strategy Social SA Objectives

	SA Objective	✓	0	x	-	Evidence	Section
SC1	Meet local needs locally	✓				The project will create a sustainable source of energy locally providing electricity for up to 250,000 homes.	1.3
						The scheme will help generate local employment opportunities.	1.3
SC2	Improve accessibility to service, retail, educational, leisure and social provision		0			E.ON plans to provide visitor facilities for organised visits from schools and the general public.	3.2.1
						Disabled visitor and staff parking will be provided in locations close to the administration building. Disabled access will also be provided through the administration building.	3.3
						E.ON is committed to the establishment of a £50k Community Investment Fund. This fund can be used to improve accessibility to service, retail, education, leisure and social provision.	3.1
SC3	Increase opportunities for active lifestyles and sustainable outdoor leisure pursuits		0			E.ON is committed to the establishment of a £50k Community Investment Fund. This fund can be used to promote sustainable outdoor leisure activities and leisure pursuits.	3.1
						E.ON's existing initiatives to promote sports at all levels.	3.4
SC4	Develop a positive sense of place both physically and socially				-	Not applicable	-
SC5	Promote positive wellbeing				-	Not applicable	-
SC6	Reduce health inequalities				-	Not applicable	-
SC7	Reduce crime and fear of crime, likewise anti-social behaviour				-	Not applicable	-
SC8	Minimise risk to health and safety	✓				The site will be fenced and not accessible to the public for reasons of security and safety.	3.2.1
						The site will have onsite security 24 hours a day 7 days a week supplemented by CCTV.	3.3
						The site will implement the Safety Management Standard OHSAS 18001.	3.4

SC9	Avoid exposure to pollution or noise	✓				Noise arising from construction will be managed under the Control of Pollution Act Section 61 Prior Consent Process. A noise impact assessment has been undertaken as part of the EIA.	3.2.2
						The proposed development will adopt Best Available Technology in order to reduce exposure to pollution and noise during construction and operation.	3.2.3
SC10	Meet housing requirement.				-	Not applicable	-
SC11	Narrow the gap between income and house prices/rents				-	Not applicable	-
SC12	Improve the life chances of those living in areas of concentrated disadvantage				-	Not applicable	-

7.5 Environmental

Evidence of how the proposed Renewable Energy Plant performs against each of the Daft Core Strategy Environmental SA objectives is presented in Table 7.3.

The commitments made by E.ON in the development of the proposed plant have aligned the proposal with a number of the local environmental sustainability objectives. The site selection will minimise loss of productive land, especially the best and most versatile farmland (EN4) and avoid damage to irreplaceable valued features (EN12). The commitment to achieve a BREEAM Very Good rating also ensures the proposed scheme is aligned with the objectives to enable the design to minimise resource use and contribution to greenhouse gas emissions (EN7), increase the life expectancy of buildings (EN9) and ensure the design takes account of higher temperatures and more extreme weather conditions (EN8). The scheme will also promote sustainable drainage and protect existing permeable surfaces (EN6) through the adoption of sustainable drainage systems.

Due to the nature and location of the proposal E.ON can only have a limited impact influence on the following objectives:

- Limiting rural development to that meeting local needs, or infrastructure needs unavoidably requiring a rural location (EN3);
- Avoiding major development in the most environmentally sensitive areas (EN11);
- Achieving a net gain in cultural, heritage, landscape features and biodiversity of North Somerset (EN10);
- Maximising self-containment of the urban areas (EN1); and
- Minimising average travel-to-work distance (EN2).

Table 7.3: Assessment of the Portbury Dock Renewable Energy Plant Against the Draft Core Strategy Environmental SA Objectives

	SA Objective	✓	0	✗	-	Evidence	Section
EN1	Maximise self-containment of the urban areas				-	Not applicable	-
EN2	Minimise average travel-to-work distance		0			Whilst E.ON intends to source jobs locally it is unable to make a commitment to reducing travel times for staff.	-
EN3	Limit rural development to that meeting local needs, or infrastructure needs unavoidably requiring a rural location				-	Not applicable	-
EN4	Minimise loss of productive land, especially best and most versatile farmland	✓				The proposed energy plant is with an existing industrial area on a Brownfield site and consequently will not result in the loss of productive land.	4.2
EN5	Minimise development in floodplain		0			Environment Agency Flood Zone maps for the area suggest that the majority of the proposed development area is located in Flood Zone 2 and therefore at moderate risk from flooding. Topographic data from the site has subsequently demonstrated that the existing ground level at the site is above the peak 1 in 1000 year tidal flood level and therefore should be re-designated as Flood Zone 1.	4.2
EN6	Promote sustainable drainage and protect existing permeable surfaces	✓				Surface water from the development will be discharged via a best practice Sustainable Urban Drainage System.	
EN7	Enable design to minimise resource used and contribution to greenhouse gas emissions	✓				Biomass-fuelled energy plants are regarded as effectively 'Carbon Neutral'. Consequently the proposed Portbury Dock Renewable Energy Plant will displace other sources of energy with greater climate change impacts.	4.1.1
						The plant design will incorporate energy savings measures by considering layout and process. The energy plant will use the energy it generates from the biomass effectively sourcing energy from a renewable source and reducing CO ₂ emissions.	5.3
EN8	Enable design to take account of higher temperatures and more	✓				E.ON has committed to achieving a BREEAM Very Good rating. In order to achieve this the design will consider proofing the building against the impacts of climate change	4.4

	extreme weather conditions					including the impacts of more extreme weather conditions.	
EN9	Increase the life expectancy of buildings	✓				E.ON has committed to achieving a BREEAM Very Good Rating. In order to achieve this the design will consider using materials that maximise the life of the plant and the life expectancy of the buildings.	4.4
EN10	Achieve a net gain in cultural, heritage and landscape features and biodiversity of North Somerset		0			The proposed scheme will not adversely impact cultural heritage, landscape features or biodiversity of North Somerset nor will it provide a net gain. The impact of the proposed scheme is therefore considered neutral.	-
EN11	Avoid major development in the most environmentally sensitive areas		0			The proposed site is outside of the internationally designated Special Area of Protection however due to the proximity of the site E.ON is undertaking an appropriate assessment in line with the Habitats Directive (92/43/EEC). Mitigation will be proposed to ensure an overall neutral impact.	4.5
EN12	Avoid damage to irreplaceable valued features	✓				The proposed development is not expected to damage irreplaceable valued features.	4

7.6 Economic

Evidence of how the proposed Renewable Energy Plant performs against each of the Daft Core Strategy Economic SA objectives is presented in Table 7.4.

In assessing the merits of the proposed plant against the economic SA objectives no conflicting issues were identified. As such the proposed plant can be delivered without adversely affecting local economic sustainability objectives.

The commitments made by E.ON in the development of the proposed plant have aligned the proposal with a number of the local economic sustainability objectives. In the first instance job creation will contribute to diversify employment structure, improve choice of employment and produce greater opportunities to participate in society, paid or unpaid (EC8) and meeting economic development needs, including sufficient new jobs to at least match the increase in homes (EC1). The establishment of the social development fund will contribute to increasing prosperity, especially in areas of concentrated disadvantage (EC6). Effective transport management that harnesses the particular economic opportunities of North Somerset (EC2) will help reduce queuing and over-crowding on the road and rail networks (EC11) and the location of the site will not add to traffic congestion (EC12). E.ON intends to adopt a sustainable procurement approach that will maximise the potential, when feasible, to protect and expand opportunities for local businesses, to utilise local resources, especially sustainable resources (EC3) and protect and expand genuine opportunities for small businesses (EC10). Taken as a whole, the proposed scheme is not expected to prejudice, by phasing or otherwise, the achievement of other sustainable development objectives for regeneration and quality of life (EC5).

Due to the nature and location of the proposal E.ON can only have a limited impact on maximising opportunities for regeneration and renewal within the Strategically Significant Cities & Towns, ahead of new development, especially ahead of major new housing (EC4), making fuller use of urban spaces and promote a balanced night-time economy in town centres (EC7), and increasing the ability to work from home (EC9).

Table 7.4: Assessment of the Portbury Dock Renewable Energy Plant Against the Draft Core Strategy Economic SA Objectives

	SA Objective	✓	0	x	-	Evidence	Section
EC1	Meet economic development needs, including sufficient new jobs to at least match the increase in homes	✓				During construction the proposed energy plant will create approximately 200 jobs and a further 35 during operation. Additional employment benefits are also expected through the woodchip supply chain.	6.3
EC2	Harness the particular economic opportunities of North Somerset	✓				The Portbury Dock renewable energy plant will benefit during both construction and operation from its proximity to the Severn Estuary and use of the sea to deliver plant components and woodchip.	6.4
						The Renewable Energy Plant will utilise local sources of woodchip and help develop a local waste wood market.	
EC3	Protect and expand opportunities for local businesses to utilise local resources, especially sustainable resources	✓				When procuring building materials, contractors and permanent staff E.ON will consider a range of indicators and will endeavour, where feasible, to utilise local businesses.	6.2
EC4	Maximise opportunities for regeneration and renewal within the Strategically Significant Cities & Towns, ahead of new development, especially ahead of major new housing				-	Not applicable	-
EC5	Avoid prejudicing, by phasing or otherwise, the achievement of other sustainable development objectives for regeneration and quality of life	✓				The proposed scheme will not prejudice other sustainable development objectives and through the provision of renewable energy will enable local business towards reducing overall CO ₂ emissions.	1.3
EC6	Increase prosperity, especially in areas of concentrated disadvantage	✓				The establishment of the community fund will contribute positively to improving the prosperity of the local area and will focus on areas of concentrated disadvantage.	3.1
EC7	Make fuller use of urban spaces and promote a balanced night-time economy in town centres		0			The site under consideration is within an existing industrial area and therefore will have limited impact on sensitive receptors in urban spaces and town centres.	-
EC8	Diversify employment structure,	✓				The Portbury Dock Renewable Energy Plant will create approximately 200 jobs during	6.3

	improve choice of employment and produce greater opportunities to participate in society, paid or unpaid					construction and an additional 35 during operation.	
EC9	Increase ability to work from home		0			Whilst E.ON will support flexible working arrangements within the limits imposed by the operational requirements of the energy plant it is unlikely that due to the nature of the development and employment opportunities that working from home will not be realised.	-
EC10	Protect and expand genuine opportunities for small businesses	✓				E.ON will select materials, contractors and workers based on a range of indicators including locality. Where feasible E.ON will make every effort to use local businesses.	6.2
EC11	Reduce queuing and over-crowding on the road and rail networks	✓				The effective management of traffic by controlling delivery times, utilising rail connection and the proximity to the sea will minimise the impact of increased traffic and the impact is expected to be indiscernible from existing levels.	6.1
EC12	Locate new development on sites – and access them in ways – that will not add to traffic congestion	✓				Whilst the construction and operation of the plant will add to existing road journeys the location of the site will minimise the impact on the local road network due to the proximity of the site to the M5. In addition every effort during construction and operation to divert road journeys on to rail and sea will reduce the impact significantly.	6.1

8 Summary and Next Steps

This Sustainability Statement has analysed the sustainability credentials of outline proposals for a new Biomass Renewable Energy Plant to be sited at the Royal Portbury Dock estate, Bristol. The analysis has identified a number key strengths and area of opportunity, which are summarised below.

8.1 Key Strengths

A key attribute of the proposed Portbury Dock Renewable Energy Plant development proposals is their overall consistency and alignment with local sustainability objectives, as set out in the Sustainability Appraisal of the Core Strategy. The planning proposals are considered to have positive or neutral impacts for all relevant objectives (see chapter 7).

Particular strengths demonstrated through the proposals include the following features:

1. Social

- E.ON has committed to establish a Community Investment Fund of £50,000 for the duration of the plant's operational life, which will support projects that deliver genuine community needs.
- The development is in keeping with the Portbury Settled Coastal Edge character area, with a low to negligible effect on long-term landscape character. The proposed development is considered consistent with the requirements of relevant planning policies, and is assessed to be in character with the Portbury Settled Coastal Edge character area and the existing industrial port.
- The Scoping Statement produced as part of the EIA process has been circulated to key consultees, including statutory consultees and Non Government Organisations (NGOs), with feedback used to help address key issues through the EIA process.
- Consultation activities have included public exhibitions, maintenance of a project website, and invitations for stakeholders to visit existing E.ON facilities operating elsewhere.

2. Environment

- Biomass energy generation are generally classed as carbon neutral due to the carbon sequestration characteristics of tree growth, which counteract the emissions of burning fuel. Biomass Energy Plant can therefore contribute to the overall reduction of the greenhouse gas intensity of the national grid. The proposed plant is estimated to displace more than 500,000 tonnes of carbon emissions annually.
- The proposed site is Brownfield and will therefore not result in the loss of any Green field land. Construction related lay down will also utilised existing hardstanding and industrial areas.
- The Flood Risk Assessment for the site found that a country-wide review of alternative sites demonstrated no other suitable development sites at lower risk of flooding. It was also observed that the proposed site should be re-designated as Flood Zone 1, on the basis of which the EA Sequential Test was passed.
- BREEAM for Industrial Buildings will be used to inform design standards for the proposed plant, and Best Available Technologies implemented as required. A target of BREEAM Very Good will be pursued.

3. Natural Resources

- E.ON operates a responsible procurement policy giving due consideration to human rights, minimising environmental impacts, and maintaining high standards of ethics.

Criteria are particularly salient to the sourcing of materials and expectations of supplier performance.

- 360,000 tonnes per year of recycled waste wood is likely to be sourced within a 75 mile radius, diverting a substantial waste stream from landfill. The proposed plant will meet the requirements of the Waste Incineration Directive, making it possible to utilise waste wood from construction and demolition industries which usually contain contaminants unsuitable for recycling and re-use.
- The majority of waste generated by the proposed plant will be suitable for recycling via a number of industry routes.
- Water required for cooling during operation of the proposed plant will be abstracted from the Royal Portbury Dock using a re-circulating cooling water system, which will greatly reduce the volume of water abstracted compared with a direct cooled system.

4. Economic

- Continued growth in the demand for power requires long-term investment in new generating capacity, to be met by low carbon supply options. Biomass energy generation represents a key technology to help meet this demand. By diversifying and securing energy supply, the growth of the renewable energy sector will improve price stability and supply certainty.
- 360,000 tonnes of wood chip required to supply the proposed plant is proposed to be sourced within 75 miles of the proposed plant. The impact of this newly created demand is anticipated to be the growth in markets for waste wood in south west England.
- E.ON is committed to working with North Somerset Council and Bristol City Council to maximise access to construction and permanent jobs at the site for local people. During operation, a range of employment types is anticipated.

8.2 Areas of Opportunity

Ongoing areas of opportunity have also been highlighted during analysis of the development proposals, which could contribute to improving the sustainable performance of the proposed plant. These have included the following:

1. Social

- E.ON has a reputation for cultivating long-term relationships with local schools in the areas in which they operate, to support curriculum-based learning, sporting initiatives and awareness of safety issues related to power generation and supply. E.ON would be encouraged to establish similar relationships with stakeholders around the Royal Portbury Dock area.
- Stakeholder consultation should be continued throughout the course of the project to allay concerns and ensure the incorporation of relevant issues into scheme delivery. A transparent feedback process should be instituted to ensure appropriate response to stakeholder comments.

2. Environment

- Local environmental quality has the potential to be affected by the proposed scheme due to impacts on air quality, water quality, and ecology. Potential impacts and mitigation measures have been proposed through the EIA process, which should be taken forwards into implementation during detailed design, construction and operation by means of an Environmental Management Plan and Environmental Management System for the site.

- E.ON would be encouraged to implement a Green Travel Scheme for the site, as is currently under consideration and as adopted at other E.ON sites.
- Recognising the location of the site in proximity to the Severn Estuary – a Special Area of Conservation under the EU Habitats Directive – Appropriate Assessment must be undertaken to ensure the protection of the area from detrimental impacts connected with the development.
- E.ON should continue to consider opportunities for incorporating living roofs and areas of ecological enhancement into the development where it is technical feasible and economically viable to do so.

3. Natural Resources

- A project-specific purchasing policy could be established to control the procurement criteria surrounding acquisition of materials during both construction and operation of the proposed plant. This should pay particular attention to the issues associated with imports of wood fuel supplies from overseas sources, especially in light of current uncertainties as to the specific source or supplier of biomass fuel.
- Further work should be undertaken to develop and refine E.ON's biomass purchasing policy to ensure biomass fuel sources are from sustainable managed forests that have not arrived as a result of land use changes.
- All efforts should be made to maximise the use of locally sourced wood waste and biomass to minimise transport related carbon dioxide emissions and impacts of fuel deliveries on the surrounding road network.
- During design and construction, the BRE Green Guide to materials specification should be used to drive material choices with consideration of their life cycle environmental impacts.
- During detailed design, opportunities should be investigated to maximise resource efficiency at the site, particularly with respect to water and energy consumption. Rainwater harvesting opportunities have already been cited for further consideration.
- Opportunities should be explored to channel waste heat arising from the proposed plant for off-site applications, including residential and industrial uses subject to viability.

4. Economic

- Impacts of the project on local road infrastructure should be optimised. The option of a park and ride scheme to be implemented during the construction phase is positively encouraged.
- The development of a project-specific purchasing policy should stipulate conditions for local sourcing of materials to ensure positive impacts on local the local economy and to support the development of the waste wood supply sector in the region.
- Ongoing discussion with local authorities should seek to maximise the potential advantages of the development for local employment and supporting the local skill base.

8.3 Next Steps

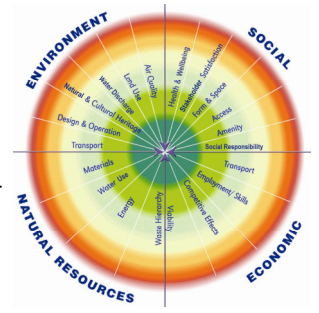
Through the development and implementation of a Sustainability Framework from an early stage in planning and design, E.ON has committed to ongoing monitoring and delivery of sustainability objectives throughout the course of the project. E.ON's Project Manager is responsible for the implementation of the Framework and will be accountable for the

monitoring, reporting and updating of actions as the scheme unfolds, thereby seeking to maximise sustainability performance.

During upcoming stages of the project, a Sustainability Consultant will continue to advise the project team on the integration of sustainability considerations into project planning and delivery. A commitment has also been made to undertake a sustainability appraisal of detailed designs to summarise sustainability performance and highlight areas of particular strength or weakness to inform ongoing work. The appraisal will utilise the Arup Sustainable Project Appraisal Routine (SPeAR[®]) and will assess the site design against objectives identified in the scheme Sustainability Framework. This approach will be used to drive continued consideration of sustainability issues throughout the project lifecycle.


Appendix A

**Portbury Dock
Renewable Energy
Plant Sustainability
Framework**




The sustainability framework for Portbury Docks renewable energy plant outlines the project-specific sustainability principles which should govern the design, construction and operation of the new development. It displays a series of key objectives to be achieved to ensure that the development fulfils these principles. The principles and objectives will be jointly agreed by the design team, with individuals taking ownership of particular objectives. Action plans will be prepared to ensure their delivery.


ENVIRONMENT

 Principles	Phase	Objectives
Env.1 Reduce greenhouse gas emissions.	Design	Env.1.1 Design the Portbury Docks renewable energy plant and associated buildings and industrial processes for maximum energy efficiency— addressing both energy supply and consumption.
	Construction	Env.1.2 Optimise energy use on site and control direct emissions of greenhouse gases to atmosphere using best available technologies.
	Design	
	Operation	
	Design	Env.1.3 Quantify the contribution of the Portbury Docks renewable energy plant to national and South West greenhouse gas reduction targets.
Operation		
Env.2 Make appropriate use of land resources.	Design	Env.2.1 Avoid development of greenfield land.
	Design	Env.2.2 Avoid development within 1 in 100 year flood plain.
	Design	Env.2.3 Ensure neutral impact on surface water drainage potential of site adopting sustainable drainage systems where possible
Env.3 Preserve local environmental quality through pollution control.	Design	Env.3.1 Control levels of daytime/night time noise exposure (dB) in line with planning requirements.
	Construction	
	Operation	
	Design	Env.3.2 Control emissions of NO _x ; SO _x ; and PM ₁₀ to maintain air quality in line with guidance, including the Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Defra, 2007); the EU Waste Incineration Directive (2006/12/EC) ; plus Bristol Docks' & Environmental Permitting regulations.
	Construction	
	Operation	
Design	Env.3.3 Control discharge of effluent water to maintain the water quality of the River Avon, Seven Estuary and Royal Portbury Docks in line with Environment Agency and Environmental Permitting limits (salinity; temperature; BOD).	
Construction		
Operation		
Env.4 Design and manage buildings to optimise sustainability in operation.	Design	Env.4.1 Design and construct the Portbury Docks renewable energy plant and associated buildings and infrastructure for maximum longevity.
	Construction	Env.4.2 Design, construct and manage buildings to achieve sustainable performance equivalent to BREEAM level 'Very Good'.
	Design	
	Operation	
	Design	Env.4.3 Whole life cycle environmental impact of construction materials to be minimised where possible, informed by the <i>Green Guide to Specification</i> .
Construction		
Construction	Env.4.4 Adopt site-wide accredited Environmental Management Systems / Code of Construction Practice.	
Operation		
Env.5 Conserve and enhance biodiversity and green landscapes.	Design	Env.5.1 Consider green space (inc. green or brown roofs) in site design, utilising native plant species where possible to improve local biodiversity.
	Construction	Env.5.2 Implement appropriate management plans to avoid negative impacts on surrounding habitats. Incorporate measures to enhance where possible.
	Operation	


SOCIAL

 Principles	Phase	Objectives
Soc.1 Ensure involvement in local communities.	Operation	Soc.1.1 Invest in appropriate local community initiatives throughout North Somerset and Bristol.
Soc.2 Enhance amenity of local area and appropriate accessibility.	Design	Soc.2.1 Ensure site layout and design maximises access to site and buildings for those with disabilities.
	Design	Soc.2.2 Ensure safe and convenient access to and from the site using a range of transport modes.
	Construction	
	Design	Soc.2.3 Ensure safety and security of the site through appropriate CCTV surveillance and gated access.
Construction		
Operation		
Soc.3 Engage stakeholders in site design, delivery and operation.	Design	Soc.3.1 As far as possible consult local communities and staff to ensure the satisfactory design, construction and operation of the site, e.g. through newsletters, websites, public consultation events.
	Construction	
	Operation	Soc.3.2 Establish a procedure to receive, manage and respond to public complaints.
	Construction	
Soc.4 Manage health and safety of all staff and stakeholders.	Construction	Soc.4.1 Implement rigorous Health and Safety Management Systems to cover all staff and contractors on-site.
	Operation	
	Construction	Soc.4.2 Train staff and contractors in health and safety practices in line with legal requirements.
	Operation	



NATURAL RESOURCES

 Principles	Phase	Objectives
NR.1 Ensure sustainable sourcing of materials.	Construction	NR.1.1 Procure construction timber from certified sustainable sources (e.g. FSC) where possible.
	Design	NR.1.2 As far as possible, utilise recycled or recovered building materials sourced from within 100km of site.
	Construction	
	Operation	NR.1.3 Procure virgin wood fuel from certified sustainable sources.
	Construction Operation	NR.1.4 Develop a sustainable procurement policy which encourages procurement from suppliers with a certified Environmental Management System.
NR.2 Ensure efficient use of water resources.	Design	NR.2.1 Design the Portbury Docks renewable energy plant, associated buildings and industrial processes to reduce water consumption.
	Design	NR.2.2 As far as possible, design water recycling and rainwater harvesting systems to maximise use of non-potable water in operation.
	Operation	
	Construction	NR.2.3 Plan construction practices to optimise water consumption.
	Operation	NR.2.4 Implement programme to reduce water use during operation; incorporating water meters, monitoring and target setting.
NR.3 Make efficient use of energy supplies.	Design	NR.3.1 Design Portbury Docks renewable energy plant, associated buildings and industrial processes to minimise use of grid electricity and gas.
	Construction	
	Operation	NR.3.2 Implement programme to reduce energy use during operation.
	Construction	NR.3.3 Raise staff awareness of energy efficient practices.
	Operation	
NR.4 Reduce waste arisings and disposal to landfill.	Design	NR.4.1 Minimise production of hazardous waste streams. Implement management plans to control disposal.
	Construction	
	Operation	
	Design	NR.4.2 Minimise generation of waste in all streams (organics, plastics, paper, metals, glass, other).
	Construction	
	Operation	
	Construction	NR.4.3 Develop a Waste Management Plan to identify opportunities for reuse, recovery (inc. for energy) and recycling of all waste types.
	Operation	
	Construction	NR.4.4 Raise staff awareness of the waste hierarchy including waste avoidance, reduction, reuse, recycling and appropriate disposal.
	Operation	
Operation	NR.4.5 Divert waste wood from landfill for energy generation.	




ECONOMIC

 Principles	Phase	Objectives
Ec.1 Control volumes of traffic associated with the site.	Design	Ec.1.1 Provide welfare and other essential facilities to reduce number of car journeys and daily traffic volumes associated with the site
	Operation	
	Construction	Ec.1.2 Encourage public transport for daily commute to and from the site.
	Operation	
Ec.2 Support local economic vitality.	Construction	Ec.2.1 Procure goods and services from local suppliers (within 50km radius) where possible and practicable.
	Operation	
	Construction	Ec.2.2 Provide on-site employment opportunities for local people and advertise employment opportunities in local forums.
	Operation	
Ec.3 Ensure accessibility of employment opportunities.	Operation	Ec.2.3 Aspire to participate in local business partnerships and initiatives to support local economic development in North Somerset and Bristol.
	Construction	Ec.3.1 Provide varying conditions of employment to suite a range of lifestyle needs, including shift work; full-time and part time employment; and flexible working hours where appropriate.
	Operation	Ec.3.2 Encourage applications for employment from under-represented groups.
Ec.4 Invest in staff development and welfare.	Construction	Ec.4.1 Provide on-site trainee/apprenticeship opportunities and regular training opportunities for all employees.
	Operation	
	Operation	Ec.4.2 Provide a comprehensive welfare package for all employees, inc. opportunities for private healthcare, pension etc.
Ec.5 Encourage innovation and development of clean energy technologies.	Design	Ec.5.1 Encourage annual investment in research and development.
	Operation	
	Design	Ec.5.2 Ensure employment of best available technologies.
	Operation	
	Operation	Ec.5.3 Deliver a quality assured service through achievement of ISO accredited quality, environmental and health & safety management systems.

Key

	Actions to be controlled directly by E.ON
	Actions for which E.ON to influence other parties

Progress against the framework actions will be monitored regularly throughout the development process using a red/amber/green measurement system:

	No plans for action to be taken.
	Plans/policies in place for action.
	Action taken and fulfilled.