



# West Burton B CCGT Power Station

# ENVIRONMENTAL STATEMENT 2015



# Welcome to our second Environmental Statement for West Burton B CCGT Power Station

## 1. FROM THE STATION MANAGER

Welcome to this, our second Environmental Statement, for West Burton B Combined Cycle Gas Turbine (CCGT) Power Station. This has been prepared especially to inform our neighbours, visitors and other interested parties about our environmental performance during 2015, our second full year of operation.

We are a new power station located near Retford in Nottinghamshire adjacent to the existing West Burton coal fired power station. West Burton B CCGT has been in commercial operation since August 2013. The Power Station is operated and maintained by EDF Energy Plc. The Power Station generates approximately 1,300 megawatts (MW) of electricity, enough to meet the needs of 1.5 million homes (the equivalent of the city of Sheffield). Electricity is exported from the site via the UK national transmission system.

This is one a new generation of highly efficient, natural gas burning power stations using the latest Combined Cycle Gas Turbine (CCGT) technology. CCGT power stations are more efficient than conventional power stations as they make double use of the heat produced, first in gas turbine engines then, with the waste exhaust heat, by raising steam to subsequently power steam turbines. Both the gas and steam turbines rotate generators to produce electricity. The high efficiency achieved means less fossil fuel is consumed and lower levels of emissions are produced for every unit of electricity generated.

Gas fired power stations are also of strategic importance to the UK's electricity supply system. They will be generating electricity during a time of transition involving the planned closure of existing and ageing power stations and the proposed deployment of renewables technologies and construction of new nuclear power stations.

We are committed to the development and implementation of world-class environmental management practices.



*Chris Bebbington  
Head of Gas Operations*

At West Burton B CCGT Power Station the Environmental Management System (EMS) is a key part of our Integrated Business Management System, which is certified to internationally recognised standards. These systems provide the foundation for this Environmental Statement, which complies with the requirements of the European Union's Eco-Management and Audit Scheme (EMAS) Regulation. This information is independently verified against the requirements of the EMAS Regulation and we plan to update the data presented annually.

If you would like any further information regarding our environmental performance, or if you have any comments to make on our Environmental Statement, please contact us and we will do our best to help.

## 2. ENVIRONMENTAL POLICY

The main text of our Environmental Policy is as follows. This Policy was re-issued in March 2016 and is reviewed annually. Copies of the full policy are available to the general public on request.

*This Environmental Policy relates to the 1300MW West Burton B Combined Cycle Gas Turbine (CCGT) Power Station, operated by EDF Energy. This Policy is communicated to all staff and contractors and made available to members of the public, on request.*

*We are committed to achieving the best possible Environmental performance. This is important to everyone who works at West Burton B CCGT. Care and concern for the environment is a permanent commitment by all staff and contractors for the sake of present and future generations.*

*To achieve this we will:*

- *Comply with all applicable legal and other requirements which relate to our environmental activities;*
- *Seek effective working partnerships with relevant authorities and other interested parties;*
- *Maintain the integrated business management system to meet the requirements of the International Standard for Environmental Management Systems (ISO 14001) and for Energy Management Systems (ISO 50001) obtaining third party assurance and providing a framework for setting and reviewing objectives and targets;*
- *Prevent change wherever reasonably practicable and seek to reduce the impact of our activities on the environment by adopting appropriate environmental management practices;*
- *Pursue continual improvement of our environmental and energy performance by including environmental action plans and measurable targets in our business plan arrangements;*
- *Ensure the availability of information and of necessary resources to achieve this policy and objectives and targets set out in the business plan;*
- *Engage with staff, contractors, customers, stakeholders, neighbours and those who work with us by ensuring that we discuss matters in a transparent way and maintain relationships at various levels;*
- *Use natural resources, including energy and water efficiently and in a more sustainable way through integrating environmental, social and economic factors into business plans whenever practicable by:*
  - *Maintaining and where reasonably practicable, improving the high level of efficiency achieved by the plant;*
  - *Pursuing a detailed plan for improving energy efficiency;*
  - *Supporting the purchase of energy-efficient products, services and design for energy performance improvement;*
  - *Minimising the use of raw materials and subsequent waste arising ('waste avoidance and minimisation');*
  - *Adoption of recycling and re-use initiatives;*
  - *Undertake monitoring to facilitate the management of emissions and environmental impacts and other aspects of plant operations. The results of monitoring will be used to assess performance and will be considered in the development of annual targets for the plant.*

*This Policy will be implemented by all site personnel and reviewed on an annual basis.*

### 3. ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental management is an integral part of our business activities. It is one of eight key aspects of our business activities which also include: health and safety; people; asset management; finance and commercial; community; and quality.

The operation of West Burton B CCGT Power Station is independently certified according to the following standards:

- Occupational Health and Safety Assessment Series (OHSAS) 18001 Safety Management;
- International Standards Organisation (ISO) 14001 Environmental Management Systems;
- ISO 50001 Energy Management;
- ISO 55001 Asset Management;
- ISO 23001 Business Continuity;
- ISO 9001 Quality Management
- British Standards (BS) Publicly Available Standard (PAS) 99 for Integrated Management Systems.

Maintaining certification under these standards requires that the relevant management systems are subject to regular checking (auditing) by specialist accredited independent organisations.

Our Integrated Business Management System (IBMS) considers:

- legal and other requirements;
- the environmental aspect of all plant activities;
- the environmental characteristics of the site and surrounds;
- the views of interested parties including regulators (such as the Environment Agency and Bassetlaw District Council), of stakeholders and of local residents.

Responsibilities, accountabilities, and resources for implementing environmental policy and for improving environmental performance have been defined within the system.



*A morning planning meeting*

The IBMS includes procedures for:

- the routine operation and maintenance of the Plant;
- 'Outage' activities (when the Plant is closed-down for essential maintenance);
- Emergency situations;
- Communicating internally, with staff and contractors, and externally on all issues relating to environmental protection;
- Internal and external auditing and assessment of compliance against all identified legal and other requirements;
- Annual aspects review.

An annual environmental improvement programme provides the means for identifying objectives and targets continual environmental improvement. A meeting with the Environment Agency was requested to discuss practicalities of minor operational deviations occurring in relation to discharges to water. Suggested improvements were agreed without regulatory action.



## 4. ENVIRONMENTAL ASPECT - CONSIDERATIONS AND IMPACTS

Consideration of environmental concerns has been key during the development and life of West Burton B CCGT Power Station, as follows:

- Site selection;
- Use of latest generating technology;
- Selection of a cooling system;
- Section 36 (Planning Permission) Application;
- Identification and management of significant environmental aspects;
- Consideration of protected species and biodiversity;
- The planned decommissioning of the plant after approximately 30 years of operation.

Environmental considerations associated with the long-term operation of West Burton B CCGT Power Station are described in Section 5 of this Environmental Statement.

### 4.1. Site Selection

The Power Station is sited on 187,000 square meters (18.7 Hectares or 21.5 acres) of land previously used for the disposal of pulverised fuel ash (PFA, the residue remaining from the combustion of coal) from the operation of the adjacent coal-fired power station. As such, the development of West Burton B has enabled the re-use and redevelopment of a so-called 'brown field' site thus preserving green-field (undeveloped) land and it has been possible to make use of the existing infrastructure for the export of electricity. This has avoided the need to construct new overhead transmission lines.

Gas is delivered by a new, buried gas pipeline connection, approximately 19 km in length, which is owned and operated by the Station.

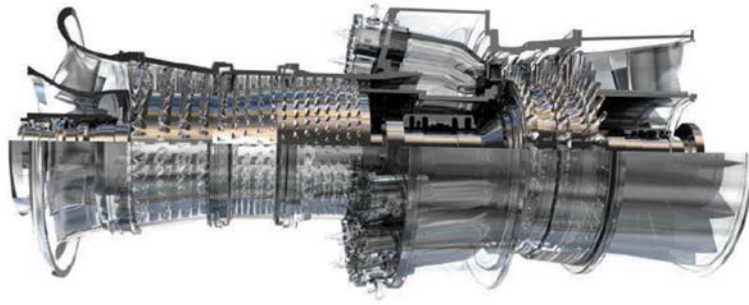
By locating the Power Station adjacent to the River Trent, it is possible to use this resource for satisfying all process water needs of the plant including cooling purposes and closed loop boiler systems.



*Site pre-development*

### 4.2. Use of Latest Generating Technology

The Power Station comprises three electricity generating units of identical design. The principle feature of each of the three generating units is the latest technology gas turbine supplied by General Electric (GE). The '9FB' gas turbines are controlled by a computerised Dry Low NOx system which ensures that fuel gas combustion is very efficient and the emissions of oxides of nitrogen (NOx) and carbon monoxide are minimised.



*A Gas Turbine Engine*

The heat from the gas turbine exhausts is recovered by individual Heat Recovery Steam Generators (HRSG). These are used to drive steam turbine generators. To drive the Steam Turbine, spent steam leaving the steam turbines is condensed under vacuum in a condenser and the water is recycled back to the Heat Recovery Steam Generators (HRSGs) to produce more steam. The HRSG has three water-steam circuits – Low Pressure (LP) at 9 bar(g) and 180 °C Intermediate Pressure (IP) at 27bar(g) 231°C and High Pressure (HP) at 143 bar(g) 339°C. An Auxiliary boiler is installed to provide start-up steam on the rare occasions that no other source is available for warming through the main systems.

#### **4.3. Selection of a Cooling System**

Condenser cooling systems are essential for efficient generation of electricity by the CCGT power plant. Potential cooling options include:

- Once-through or direct cooling;
- Indirect cooling involving the use of mechanical draught or hybrid cooling towers;
- Air cooled condenser.

The choice of cooling system has a significant impact on process efficiency and the environmental impact associated with the long-term operation of a power station. A hybrid cooling tower was selected due to the relatively high efficiency of the process and the significantly smaller quantity of water abstracted

and discharged compared with a once-through system.



*Views of the Cooling Towers*

#### **4.4. Planning Application and Consents (Section 36)**

Potential environmental issues associated with the siting, building and running of the Power Station were initially considered in 2006 as part of the application for consent for the development, as required under Section 36 of the *Electricity Act 1989*. The results of this process, known as Environmental Impact Assessment, were presented in an Environmental Statement which accompanied the planning application. The Environmental Impact Assessment considered a range of issues including air quality, land use; planning; socio-economic issues; water quality; ecology; visual and landscape issues; noise and vibration; traffic and transport and hydrology. Also considered were the significant aspects and impacts arising from operations and on the surrounding areas on completion of commissioning. Where potential environmental impacts were noted, measures were taken to either prevent the environmental effect from occurring or to reduce its significance where required to be implemented.

Power Stations are some of the most regulated industrial facilities in the UK. For example, West Burton B CCGT is operated according to limits and requirements specified by the Environment Agency in the Environmental and Greenhouse Gas Emissions Permits and conditions specified by Bassetlaw District Council in the Planning Permission for the plant. A list of the key consents for the plant is presented in the following table.

**Table 1 Summary of Environmental Consents for West Burton B CCGT Power Station**

Regulatory Body	Consent	Reference
Environment Agency	Environmental Permit	CP3035MK
Environment Agency	Greenhouse Gas Permit	UK-E-IN-11927
Environment Agency	Abstraction Licence	03/28/69/0070
Department of Trade and Industry	Section 36 Consent	GDBC/001/00255C
Department of Business, Enterprise and Regulatory Reform	Pipeline Construction Authorisation	30-10-2007
Natural England and English Heritage	Schedule 9 Statement	30-01-2014

Measures have been adopted in the design of the Power Station to ensure that the long-term operation of the plant will not lead to a significant deterioration of the site land e.g. by the use of an engineered drainage system. Measures adopted during the build stage e.g. avoidance of underground storage tanks will minimise potential risks to the ground and ground water. To return the site to an appropriate condition after approximately 30 years of operation (e.g. in 2043), a closure plan includes analysing soil and groundwater to assess conditions compared to that recorded prior to building the Installation. Eventually, the demolition plan is to remove all plant and structures back to ground level.

#### 4.5. Significant Operational Environmental Aspects and Impacts

The assessment and our experience of plant construction, commissioning and operations have provided the basis for an on-going annual review, as part of the Environmental Management System and has enabled us to identify significant impacts and provide a focus for environmental management and improved performance.

Key environmental impacts associated with operating and maintaining the Plant are listed below:

- Use of resources including natural gas, water from the River Trent, drinkable mains (potable) water and other materials such as water treatment chemicals, engineering and office supplies.
- Burning natural gas that releases carbon dioxide (a greenhouse gas, contributing to climate change) and nitrogen oxides (which relate to local air quality and the formation of acidic rain).
- Abstractions from, and discharges to, the River Trent for cooling purposes.
- Generation of small quantities of solid wastes, which are taken off-site for recycling or disposal at a landfill site.
- Generation of noise that could disturb local residents and wildlife.

#### 4.6. Biodiversity and Protected Species

The potential for impacting on nature conservation as a result of power station activities is minimised as West Burton B CCGT Power Station is located on a brownfield site of limited nature conservation value. However ecological surveys of surrounding areas were undertaken prior to construction. The project included responsibility for restoration of areas around the site boundary which were used temporarily for construction and commissioning. These surveys confirmed the presence of the following protected species:

- Great crested newts and grass snakes (both protected under the Wildlife and Countryside Act 1981).
- Badgers (protected under the Protection of Badgers Act 1992).



*Great Crested Newt*



*Badger*

Surrounding areas could also provide important foraging habitat for grass snakes. Piles of vegetation in or near the wetland areas will provide egg-laying sites, whilst mammal burrows, tree roots, tree stumps and piles of logs situated within scrub and trees on the boundaries of the CCGT site provide places to hibernate. Mitigation measures were put in place to prevent impacts to areas containing these species during construction of the plant (installation of newt-proof fencing).

Ecological surveys were undertaken following the completion of construction works in 2014 by specialist ecologists: these surveys confirmed that the construction of the Plant, and its subsequent operation, has had no significant impact on the local populations of these species.

Following construction, creative conservation and habitat enhancement initiatives have been undertaken including the planting of large areas with native hedgerow and tree species, including oak, ash and field maple, the erection of bat and bird boxes and the seeding of wild flower meadow areas. Rabbits, pheasants, squirrels, foxes and Roe deer have also been seen in these areas.

The River Trent supports eels, a species protected under the requirements of the Eels (England and Wales) Regulations 2009. To minimise the potential for impacts on eels as a result of the abstraction of water from the Trent, the intake pipe is fitted with a 'passive water intake screen'. Such screens are regarded as the best available technology for protecting juvenile and larval fish.

After the planned restoration works are complete (2016) the long term management of the EDF Energy land at West Burton surrounding the CCGT Power Station will be once again managed by the pre-existing 'A' coal fired Station. In the long term the core EMAS statement element of Biodiversity may be excluded as this is not of any significance within the site boundary.



*Grass Snake*



## 5. ENVIRONMENTAL PERFORMANCE

### 5.1. Control of Operations

Shift teams control Plant operations continuously each day. Electricity is produced to satisfy commercial arrangements with the National Grid. This may involve ‘two-shifting’ that is starting and stopping electricity production each day, typically from 7am to 11pm or ‘base loading’ for continuous generation. In addition the station may be called upon to assist with stabilising the National Grid power transmission frequency.



Switch yard connection to the National Grid



Central Control Room Operations

During commercial operations on the 12th February 2015 high NOx emissions on one unit occurred for 12 hours due to non-standard combustion setting. Measures taken to prevent recurrence included establishing new alarm settings for CEMS signals and revision of operational procedures to include a check on emission levels and the combustion mode settings within 1 hour of start-up. River discharge limits were exceeded without environmental impact for brief periods of time on three occasions, twice for chlorine and once for temperature. Each event was investigated and actions taken to prevent recurrence including: procedure revision, plant modification and further training.

These were reported to and accepted by the Environment Agency. No further action has been taken.

### 5.2. Electricity Production and Energy Efficiency

Electricity is generated at 24,000 volts and then stepped up to 275,000 volts by transformers before being exported from the site via the UK National Transmission System. CCGT power stations are more efficient than conventional power stations as they make double the use of the heat produced from burning fuel, first in the gas turbines then, with the HRSGs capturing the waste heat, raising steam to power steam turbines. The high efficiency achieved by West Burton B CCGT Power Station means less fuel consumption and lower levels of emissions for every unit of electricity generated.

As certification to the requirements of the Energy Management System ISO standard 50001 (2011) has been achieved, energy efficiency is monitored and opportunities for continual improvement in efficiency, and associated reductions in greenhouse gas emissions, are identified and implemented. Certification to ISO 50001 facilitates compliance with the Energy Savings Opportunity Scheme Regulations (ESOS) 2014. Electricity production increased in 2015 due to a significant increase in the hours of operation of the plant in response to commercial demand.

**Table 2 Summary of Electricity Production and Energy Efficiency**

Energy Generation	2014 data	2015 data
Electricity generated	4,988 GWh(e)	6,209 GWh(e)
Net Efficiency	55.3%	53.7%

### 5.3. Air Emissions

West Burton B CCGT Power Station includes pollution control technology, known as dry low NO<sub>x</sub> burners, to control emissions of nitrogen dioxide. Continuous Emissions Monitoring systems (CEMs) are installed on each of the station's three stacks (chimneys) to demonstrate to the Environment Agency that emissions limits are achieved. Computer modelling was used to select the height of the stacks (80 metres) to minimise visibility in the landscape whilst optimising the dispersion of emissions.



*HRSG Stacks Units 1, 2 and 3*

Combustion of natural gas gives rise to negligible emissions of sulphur dioxide and no dust or ash (which historically has been linked with 'acid rain' damage to ecosystems and respiratory irritation in people).

**Table 3 Summary of Emissions to Air**

Emissions to air	2014 data	2015 data
Oxides of Nitrogen (NO <sub>x</sub> )	926 tonnes 0.186 t/GWh(e)	1,210 tonnes 0.195 t/GWh(e)
Carbon Monoxide (CO)	62 tonnes 0.012 t/GWh(e)	66 tonnes 0.011 t/GWh(e)
Sulphur Dioxide (SO <sub>2</sub> )	2 tonnes 0.0005 t/GWh(e)	3 tonnes 0.0005 t/GWh(e)

### Climate Change

Industrial installations and transport are important sources of the key greenhouse gas, carbon dioxide. Power stations, in particular, are recognised as being a major source of carbon dioxide. The emissions from West Burton B CCGT are subject to monitoring and reporting requirements specified in the Greenhouse Gas Emissions Permit issued by the Environment Agency, as required by the European Union's Emissions Trading Scheme (EU ETS). The EU ETS is one of the key policies that have been introduced by the EU to combat the serious threat of climate change. The scheme works on a 'cap and trade' basis. EU Member States set an emission limit (cap) for all installations covered by the scheme. Each relevant installation, such as the West Burton B CCGT Power Station, has to purchase Carbon Credits which must offset the quantity of carbon dioxide released, which is independently verified. West Burton B CCGT produces approximately half the carbon dioxide, for every unit of electricity generated, compared to a coal fired plant, due primarily to the higher energy efficiency of the CCGT plant.

**Table 4 Summary of Emissions to Air of Greenhouse Gases**

Emissions to air	2014 data	2015 data
Carbon dioxide (CO <sub>2</sub> ) from gas and diesel oil	1,842,770 tonnes 369 t/GWh(e)	2,371,371 tonnes 382 t/GWh(e)

Emissions of carbon dioxide, oxides of nitrogen, sulphur dioxide increased in 2015 due to the significant increase in the hours of operation of the plant.

## 5.4. Raw Material Consumption

West Burton B CCGT Power Station is only fuelled by natural gas supplied by a 19 kilometre underground pipeline connection to the national grid for gas. As a standby fuel, such as distillate oil, is not used, we avoid significant emissions of sulphur dioxide and particles (soot), minimise the releases of carbon dioxide and nitrogen oxides and eliminate environmental risks associated with the bulk storage of fuel oil.



*Gas Reception Facility and River Trent*



*Chemical Tanker Delivery*

Chemicals are essential for water treatment purposes i.e. for water purification, corrosion prevention and cooling tower management. Other, small quantities of additional raw materials are used in the operation and maintenance of West Burton B CCGT Power Station by site personnel.

**Table 5 Summary of Raw Material Consumption**

Raw Materials	2014 data	2015 data
Natural Gas	9,992,737,141 kWh gross 2.003 GWh(g)/GWh(e)	12,799,919,357 kWh gross 2.062 GWh(g)/GWh(e)
Process Chemical Purchased and Use	3,292 tonnes 0.660 t/GWh(e)	3,852 tonnes 0.620 t/GWh(e)
Oil Lubricants & Hydraulic Fluids purchased	17 tonnes 0.003 t/GWh(e)	27 tonnes 0.004 t/GWh(e)

## 5.5. River Water Abstraction and Discharge

Water is withdrawn (abstracted) from the adjacent River Trent in line with the controls of the Abstraction Licence issued by the Environment Agency. The abstracted water is purified by a river water treatment plant for cooling purposes and then by a demineralisation plant for the production of high quality water for the generation of steam by HRSGs for the steam turbine generators. To cool the plant, the water passes through a new generation hybrid cooling system to reduce the temperature to an acceptable level prior to its return to the River Trent. Hybrid cooling eliminates the visible plume normally associated with conventional cooling under most weather conditions. Typically, water vapour from the hybrid cooling towers is only visible when the background air temperature is below 5 degrees centigrade and the relative humidity is above 95%. Water is returned to the River Trent in accordance with the limits specified by the Environment Agency in the Environmental Permit. A combination of continuous monitoring, comprising a

Water Continuous Monitoring (WCM) system, and regular sampling of the discharge is undertaken to confirm compliance with Permit limits.

**Table 6 Summary of Emissions to Water**

Water	2014 data	2015 data
Water taken (abstracted) from the River Trent	5,183,058 m3 1,039 m3/GWh(e)	6,121,111 m3 986 m3/GWh(e)
Net abstraction (abstraction minus return)	3,755,870 m3 753 m3/GWh(e)	4,032,982 m3 650 m3/GWh(e)
Water returned (discharged) to the River Trent	1,427,188 m3 28%	2,088,129 m3 34%
	286 m3/GWh(e)	336 m3/GWh(e)

Consumption of all raw materials increased in 2015 due to the significant increase in the hours of operation of the plant.

### 5.6. Waste Management

No solid waste is generated as a result of the combustion of natural gas to produce electricity. Waste arising is limited to controlled (non-hazardous) waste arising as solids from the river water treatment plant, plant maintenance activities particularly during plant outages and typical waste from offices. Small quantities of hazardous waste arise when the use of hazardous substances is unavoidable. The quantity of waste requiring off-site disposal is minimised via the adoption of waste avoidance/minimisation, re-use and recycling initiatives.

Waste materials are subject to segregation and temporary storage within marked containers located within specified areas. Waste is collected via licensed contractors and disposed at licensed sites.



*Waste Segregation Area*

**Table 7 Summary of Waste Generation**

Waste Generation	2014 data	2015 data
Controlled (general) waste arising	13,326 tonnes 2.67 t/GWh(e)	9,267 tonnes 1.49 t/GWh(e)
Hazardous waste arising	28 tonnes 0.006 t/GWh(e)	7 tonnes 0.001 t/GWh(e)
Quantity of waste recycled	13,316 tonnes 99.9%	9,260 tonnes 99.9%
	2.670 t/GWh(e)	1.491 t/GWh(e)

Despite the increase in operation of the plant in 2015, waste production dropped significantly due to waste avoidance and recycling initiatives.



## 5.7. Community Relations

An official opening event for the visitor centre was held in July 2015. A ceremony was performed by EDF Energy Chief Executive Vincent de Rivaz and local MP John Mann for invited guests including members of the local community and neighbouring coal stations personnel. Over 1500 visited the centre in 2015, which also provided the venue for the 'John Mann Summer School' reward event for high achieving children from surrounding schools.

### Environmental Enquiries

As part of the business management system all complaints received are logged and investigated as appropriate. Measures are subsequently undertaken to minimise the potential for future complaints.

In July 2015, a call was received by West Burton B CCGT reception staff from a local resident concerned about the speed of traffic on local roads when leaving the West Burton site in the late afternoon. Liaison with the neighbouring coal fired Power Station, West Burton A, confirmed that a large number of contractor vehicles were on site at that time due to essential works forming part of an annual outage maintenance programme. Communications on driving safely were delivered across the Station and the resident informed of the action taken.

### Helping Hands

Throughout 2015 as part of EDF Energy's charity partnership West Burton B CCGT continued to support the company charity Marie Curie. Activities included a cake bake, raffle ticket sales and a donated book sale. Over £7,000 was raised in conjunction with the neighbouring coal Stations.

Charitable events promoted by West Burton B CCGT employees and contractors in 2015 included the following:

In February, support was given to the British Heart Foundation with a 'Different Fruit Friday' event demonstrating the benefits of changing diets.

In March a 'Best Cake Competition' was held for Comic Relief Red Nose Day and a 'Walking Awareness Day' encouraged exercise and fitness.

As April was Male Cancer Awareness month information leaflets were distributed.

During May a memorial day was held for the unexpected and non-accidental death of a respected work colleague.

In September:

- A local coffee morning was held for the nationwide MacMillan Cancer Support event;
- Lung Cancer Awareness was supported;
- A project was planned for Ingham Primary School. This will be delivered in 2016 and involves painting of the school boundary fence and some grounds maintenance with pruning of trees and shrubbery.

For European Health and Safety Week in October, a Health Fair has held which included a variety of interactive presentations including support on mental health from MIND and dietary advice involving fruit and vegetable smoothie recipes.

In November with the neighbouring coal stations the 10K Power Surge run raised £2000 for a local Primary School.

At Christmas time for the Text Santa charities (We Are MacMillan, Make a Wish, and Save the Children) a Christmas Jumper competition was held.

In total throughout the year West Burton B CCGT raised over £4,500 for charity.



## 6. ENVIRONMENTAL IMPROVEMENT OBJECTIVES AND TARGETS

### 6.1. Performance against 2015 Objectives

Continual environmental improvement is achieved via the implementation of an annual programme of environmental improvements. At the beginning of each year, a programme is prepared and the progress in their completion, monitored. Potential environmental improvements are identified based on the results of the annual environmental review.

The full list of environmental improvements is reported to the Environment Agency as part of the annual reporting requirements associated with the Environmental Permit. In January 2015, a list containing a total of 38 environmental improvements for 2015 was issued to the Environment Agency. Of these, 26 (68%) were confirmed as complete and 12 carried forward to 2016. A selection of the key 2015 environmental improvements is presented below with a description of progress in their completion.

2015 Environmental Improvement Initiative	Progress
<b>Monitoring of Environmental Parameters.</b> Consult with Environment Agency to agree and implement variations on the permit for practical and sustainable future operations.	Environmental study prepared for the impact of ammonia, chlorine and temperature in the discharge to the River Trent. Meeting held with the Environment Agency to discuss minor technical variations to environmental permit.
<b>Provision of Environmental Information to Stakeholders.</b> Prepare and publish an environmental report, which complies with the requirements of the EU EMAS Regulation, publish the document on the West Burton B CCGT Power Station website and provide copies in the new Visitors' Centre.	Site registered under the EMAS Regulation and first annual report published.
<b>Consideration of Wildlife.</b> Achieve certification of the site to the requirements of the EU standard for biodiversity.	Application for European Biodiversity Standard issued by European Centre for Nature Conservation prepared.
<b>Waste Management.</b> Optimise waste management plans for hazardous, non-hazardous and inert water treatment (silt) waste with Zero to Landfill.	Zero waste to Landfill achieved.
<b>Consumption of Raw Materials.</b> Reduce to the minimum end-to-end site chemical use to benefit the environment and reduce costs against 2014 figures.	Auto-dosing for systems for HCTs and water/steam put into service.
<b>Monitoring of Environmental Parameters.</b> Install equipment to monitor the temperature of water abstracted from the River Trent.	Related to possible permit changes.
Upgrade Water Continuous Monitoring (WCM) of discharge to river.	Completed. New instrument kiosk installed and undergoing testing.
Modifications to river discharge Bisulphite dosing (de-chlorination) system.	Completed.
Identify and paint external drains with colour coding.	Completed.
Automate operation of surface water discharge valve.	Completed.
Construct new Hazardous Waste Storage Compound	Completed.
Improve management of river water treatment plant waste sludge product (silt).	Completed. Use of 'Walking Floor' trailers established reducing vehicle movements by 65%.

## 6.2. Improvement Objectives for 2016

A list of 48 environmental improvements has been identified for completion during 2016, including those unfinished items carried over from 2015. These are included in the Plant Maintenance system. A selection of the key business plan environmental improvements for 2016 is presented below.

2016 Environmental Improvement Initiative	Comments
<b>Monitoring of Environmental Parameters.</b> Consult with Environment Agency to agree and implement variations on the permit for practical and sustainable future operations.	Submit an application to the Environment Agency for minor technical variations relating to limits for chlorine and temperature and for changes to original application details regarding ammonia in discharges to water.
<b>Consumption of Water</b> Reduce HRSG water demand to enable single stream demineralised water treatment plant operations for 80% time.	Reduction of water demand influences the consumption of water treatment raw materials.
<b>Consideration of Wildlife.</b> Certify the site to the requirements of the EU standard for biodiversity.	Recognition of construction and commissioning considerations.
<b>Waste Management.</b> Minimise waste and optimise management plans for all waste streams with a continued objective of Zero to Landfill.	Efficient lowest cost disposal with Duty of Care compliance.
<b>Site Infrastructure.</b> Deliver the site drainage improvement plan.	A range of civil works involving cooling water, boiler water, foul drainage, process effluent and surface water drainage systems.
<b>Consumption of Raw Materials.</b> Further reduce to the minimum end-to-end site chemical use to benefit the environment and reduce costs against 2015 figures.	Reduction of water treatment raw materials is influenced by water demand and optimisation of process water quality.

## 7. Abbreviations

ACC	Air Cooled Condenser	GW	Gigawatt
BAT	Best Available Techniques	HCT	Hybrid Cooling Tower
CCGT	Combined Cycle Gas Turbine	HRSG	Heat Recovery Steam Generator
CEMS	Continuous Emissions Monitoring System	ISO	International Standards Organisation
CO <sub>2</sub>	Carbon dioxide	MW	Megawatts
EIA	Environmental Impact Assessment	NO <sub>2</sub>	Nitrogen dioxide
EMAS	Eco-Management and Audit Scheme	NO <sub>x</sub>	Oxides of nitrogen
EMS	Environmental Management System	OHSAS	Occupational Health and Safety Advisory Service
ESOS	Energy Savings Opportunity Scheme	PAS	Publicly Available Specification
ETS	Emissions trading Scheme	PFA	Pulverised Fuel Ash
EU	European Union	SSSI	Site of Special Scientific Interest
		SO <sub>2</sub>	Sulphur dioxide
		WCM	Water Continuous Monitoring

## 8. VERIFICATION OF THIS STATEMENT

AFNOR UK Ltd (UK-V-0010) verified this statement against the requirements of the EMAS Regulation 1221/2009.

## 9. CONTACT DETAILS

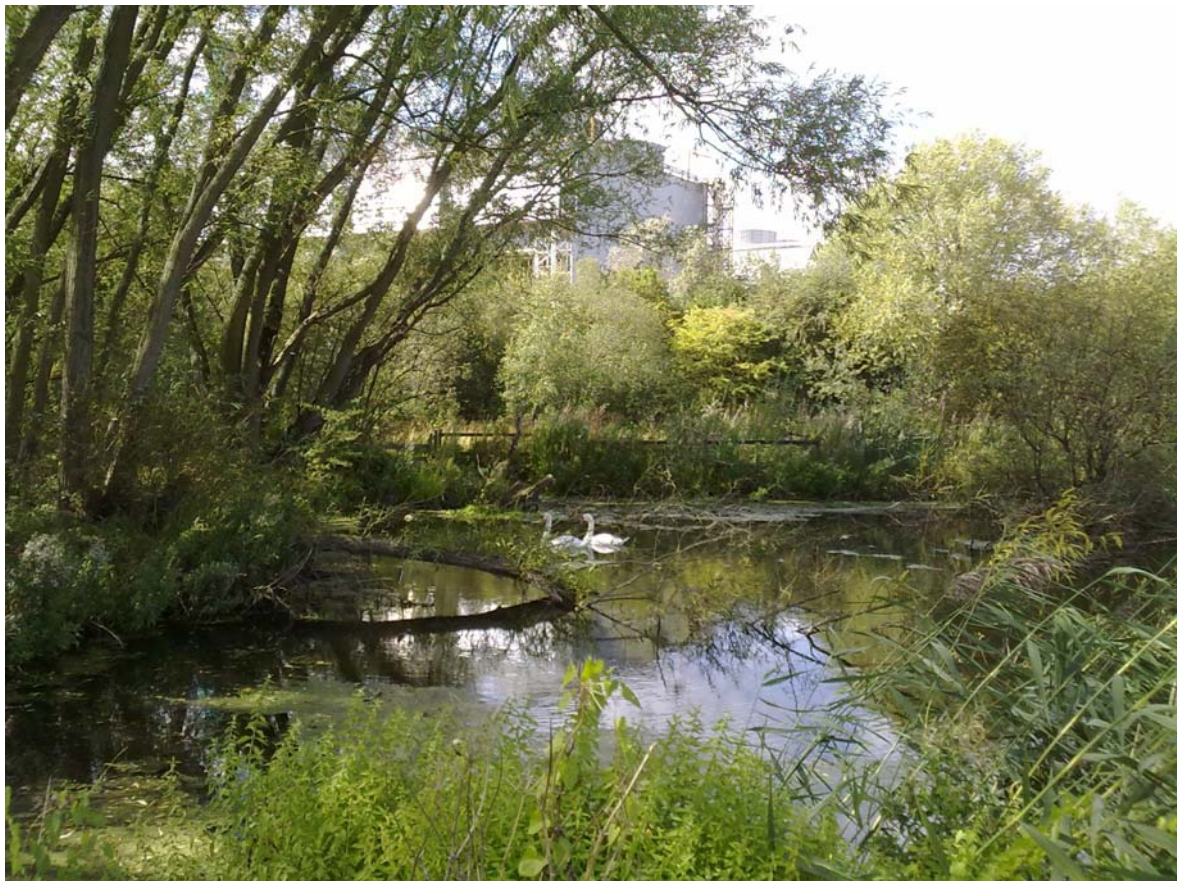
If you require more information on our environmental activities please contact our site information line.

West Burton B CCGT Power Station

Telephone 07875 115 288

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This statement will be made available at:  
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Fishing Ponds adjacent to EDF Energy's West Burton B CCGT Power Station Cooling Tower 3

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