

Environment Agency

Review of an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2010 (as amended)

Decision document recording our decision-making process following review of a permit

The Permit number is: EPR/AP3130LY
The Operator is: EPR Ely Limited
The Installation is: Elean Power Station
This Variation Notice number is: EPR/AP3130LY/V003

What this document is about

All Environmental permits which permit the operation of large combustion plant (LCP), as defined by articles 28 and 29 of the Industrial Emissions Directive (IED), need to be varied to implement the special provisions for LCP given in the IED, by the 1 January 2016 (Article 82(3)). The IED makes special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The IED provides a period of transition towards the new ELVs via Article 32, the Transitional National Plan (TNP). It also makes provision for plant that wish to be exempted from compliance with the new ELVs in Article 33, the Limited Life Derogation (LLD). Other derogations include limited operating hour regimes for sites using 500 hr or 1500 hr derogations. There are also options for exemption from emission limits based on operating hours.

The operator has submitted responses to our notices requiring information, issued under regulation 60(1) of the Environmental Permitting Regulations (EPR), which has provided us with information on which compliance route they wish to follow for each LCP. The responses also includes specific details relating to each LCP, necessary for accurate implementation of the IED requirements. A copy of the regulation 60 notice and the operator's response is available on the public register.

We have reviewed the permit for this installation, including all variations since the last permit consolidation, and referred to the operator's responses to the regulation 60 notices requiring information. This is our decision document, which explains the reasoning for the consolidated variation notice that we have issued.

It explains how we have reviewed and considered the compliance routes and, where relevant, the emissions limits proposed by the Operator for each LCP on the installation. This review has been undertaken with reference to the:

- Chapter III and annex V of the IED
- “IED BAT ESI Review Paper, 28 October 2014” produced by the Environment Agency (referred to as the “2014 ESI BAT review paper” in this document)
- “Electricity Supply Industry – IED compliance protocol for Utility Boilers and Gas Turbines”, published by the Joint Environmental Programme.

It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

As well as implementing the chapter III IED compliance of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. It also modernises the entire permit to reflect the conditions contained in our current generic permit template.

The introduction of new template conditions makes the Permit consistent with our current general approach and philosophy and with other permits issued to installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document we therefore address only our determination of substantive issues relating to chapter III review and any changes to the operation of the installation.

How this document is structured

Glossary

1. Our decision
2. How we reached our decision
3. The legal framework
4. Key Issues

Annex 1 – Review and assessment of changes that are not part of the Chapter III IED derived permit review.

GLOSSARY

Baseload	means: (i) as a mode of operation, operating for >4000hrs per annum; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating
BAT	best available techniques
BREF	best available techniques reference document
CCGT	combined cycle gas turbine
Derogation	as set out in Article 15(4) of the IED
Emergency use	<500 operating hours per annum
ELV	emission limit value set out in either IED or LCPD
IED	Industrial Emissions Directive 2010/75/EC
LCP	large combustion plant – combustion plant subject to Chapter III of IED
LCPD	Large Combustion Plant Directive 2001/80/EC
MCR	Maximum Continuous Rating
MSUL/MSDL	Minimum start up load/minimum shut-down load
Part load operation	operation during a 24 hr period that includes loads between MSUL/MSDL and maximum continuous rating (MCR)
TNP	Transitional National Plan

1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow it to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the varied permit will ensure that a high level of protection is provided for the environment and human health.

The Consolidated Variation Notice contains many conditions that concern the operation of the non-LCP part of the installation taken from our standard Environmental Permit template including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Notice, we have considered the techniques identified by the operator for the operation of their installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our Permit template provides two or more options.

2 How we reached our decision

2.1 Requesting information relating to the requirements of Chapter III of and Annex V to the IED

We issued a Notice under Regulation 60(1) of the Environmental Permitting (England and Wales) Regulations 2010 (a Regulation 60 Notice) on 31/10/2014 requiring the Operator to provide information for each LCP they operate, including:

- The type of plant, size and configuration.
- The proposed compliance routes.
- Minimum start up and shut down loads.
- The proposed emission limits and how they accord with the 2014 BAT review paper.

The Regulation 60 Notice response from the Operator was received on 31/3/2015

We considered that the response did not contain sufficient information for us to commence determination of the permit review. We therefore issued a further information request to the Operator. Suitable further information was provided by the Operator on 03/7/2015.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review but not that it necessarily contained all the information we would need to complete that determination.

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 60 Notice response that appears to be confidential in relation to any party.

2.2 Requests for Further Information during determination

Although we were able to consider the Regulation 60 Notice response generally satisfactory at receipt, we did in fact need more information in order to complete our permit review assessment, and issued a further information request on 21 October 2015. A copy of the further information requests was placed on our public register.

3 The legal framework

The Consolidated Variation Notice will be issued under Regulations 18 and 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Consolidated Variation Notice, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

Meeting the requirements of the IED

The table below shows how each requirement of the IED has been addressed by the permit conditions.

IED Article Reference	IED requirement	Permit condition
30(6)	If there is an interruption in the supply of gas, an alternative fuel may be used and the permit emission limits deferred for a period of up to 10 days, except where there is an overriding need to maintain energy supplies. The EA shall be notified immediately.	Not applicable
32(4)	For installations that have applied to derogate from the IED Annex V emission limits by means of the transitional national plan, the monitoring and reporting requirements set by UK Government shall be complied with.	3.1.5 Schedule 3, Table S3.4
33(1)b	For installations that have applied to derogate from the IED Annex V emission limits by means of the Limited Life Derogation, the operator shall submit annually a record of the number of operating hours since 1 January 2016;	Not applicable
37	Provisions for malfunction and breakdown of abatement equipment including notifying the EA.	2.3.13 4.2.7 4.3.1d
38	Monitoring of air emissions in accordance with Ann V Pt 3	3.5, 3.6
40	Multi-fuel firing	Schedule 3, Table 3.1
41(a)	Determination of start-up and shut-down periods	2.3.12 Schedule 1 Table S1.5
72b	For combustion plants which do not operate more than 1500 operating hours per year as a rolling average over a period of 5 years, the number of operating hours per year.	Not applicable
Ann V Pt 1(1)	All emission limit values shall be calculated at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised O2 content of 6 % for solid fuels, 3 % for combustion plants, other than gas turbines and gas engines using liquid and gaseous fuels and 15 % for gas turbines and gas engines.	Schedule 6, Interpretation
Ann V Pt 1	Emission limit values	3.1.2 Schedule 3, Table S3.1
Ann V Pt 1	For plants operating less than 500 hours per year, record the used operating hours	Not applicable
Ann V Pt 1(6(1))	Definition of natural gas	Schedule 6, Interpretation
Ann V Pt 2	Emission limit values	3.1.2 Schedule 3, Table S3.1
AnnV Pt 3(1)	Continuous monitoring for >100MWth for specified substances	3.5, 3.6 Schedule 3, Table S3.1

IED Article Reference	IED requirement	Permit condition
AnnV Pt 3(2, 3, 5)	Monitoring derogations	Not applicable
AnnV Pt3(4)	Measurement of total mercury	Not applicable
AnnV Pt3(6)	EA informed of significant changes in fuel type or in mode of operation so can check Pt3 (1-4) still apply	2.3.1 Schedule 1, Table S1.2
AnnV Pt3(7)	Monitoring requirements	3.5.1 Schedule 3, Table S3.1
AnnV Part 3(8,9,10)	Monitoring methods	3.5, 3.6
AnnV Pt 4	Monthly, daily, 95%ile hourly emission limit value compliance	3.5.1 Schedule 3, Table S3.1
AnnV Pt7	Refinery multi-fuel firing SO2 derogation	3.5.1 Schedule 3, Table S3.1

4. Key Issues

This installation is a base load biomass plant which operates at high availability with limited periods of down time, however, oxides of Nitrogen are primarily controlled through combustion technique with no secondary abatement. This plant therefore applied to meet Annex V ELVs but going into the TNP for oxides of Nitrogen only as they identify further improvements to meet IED ELVs by primary measures.

The key assessment within the determination was to ensure that appropriate ELVs were set for oxides of Nitrogen however the definition of end of start up and start of shut down required further assessment in order to ensure compliance with the Directive.

The operator was unable to justify the methodology used for the data provided for Net rated thermal load. The Environment Agency recommended that an improvement condition be set to receive this information within the 1st year of IED coming into force. We have included a standard improvement condition for that to be completed by the 31 December 2016.

The MSUL/MSDL provided was deemed satisfactory however it was agreed with to understand the length of time required on starting biomass plant from cold, using supplementary gas, that a reporting requirement was included to monitor, quarterly, the periods and lengths of all start up periods (time between cold start and MSUK). This will be reviewed to decide whether site specific ELVs should be set below MSUL in the future.

The approach to ELV setting was as follows:-

The daily mean of validated hourly averages (Annex V requirements) were included for parameters needed for a biomass plant (Sulphur Dioxide and Particulate Matter). Under the current requirements of the IED no ELVs are required for Carbon Monoxide for this type of installation but the requirement to monitor this parameter is retained as a process monitoring requirement in Table 3.8. The monitoring requirement for the above parameters were also transposed to monthly means of validated hourly averages and 95% of validated hourly averages within a calendar year using the rules set out in IED Annex V.

An existing monitoring requirement for Hydrogen Chloride was retained but only referenced to the monthly mean of validated hourly averages.

The approach to setting the emission limit for Oxides of Nitrogen followed the principles set out in the 2014 ESI BAT review paper. The current daily mean of validated hourly averages was retained (no back-sliding) and converted to the monthly mean and hourly average periods using the rules set out in IED Annex V. No hourly average ELV was set for NOx. This approach is deemed satisfactory for the Transitional National Plan for oxides of Nitrogen.

The Environment Agency took this opportunity to correct factual errors in the current permit. These included:-

Updating the introductory note to remove a reference on Carbon Monoxide process contributions suggesting a significant contribution to background air that requires emission limit values to be set and also to update references to European designations for environmental receptors.

This note also corrected an error on biomass tonnages being accepted at the installation. This does not change the maximum thermal input allowed into the LCP.

Table S2.1 updated to reflect the modern template approach to raw materials and fuels.

Table S2.2 to correct an error to the modern template approach to permitting waste being combusted in Large Combustion Plant and updates the biomass tonnage accepted at the site to reflect the existing maximum thermal input allowed into the LCP.

Condition 3.7 included to reflect the modern template approach to installations that receive waste material that may attract pests. This addition does not suggest that the current installation has a pest control problem but ensures that are regulatory approach to pest control is consistent across all similar permits.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Where relevant and appropriate, we have incorporated the techniques described by the Operator in their Regulation 60 Notice response as specific operating techniques required by the permit, through their inclusion in Table S1.2 of the Consolidated Variation Notice.

The variation notice uses an updated LCP number in accordance with the most recent EIONET references. The LCP references have changed as follows:

- **LCP 185** is changed to **LCP 135**

LCP 135

This LCP consists of 1 boiler receiving hot gases from a vibrating grate combustion chamber that produces steam to drive a steam turbine, combustion gases vent via a single flue within a single windshield at emission point A1. The units burn biomass straw and natural gas standby fuel for start-up.

Compliance Route:

The operator has proposed to operate this LCP under the TNP compliance route for oxides of Nitrogen and ELVs for other substances.

For plant operating under the TNP, ELVs are set which have been derived for the period 2016 – 30 June 2020 (the duration of the TNP). At the end of this period it is expected that both Annex V and the revised LCP BREF will become applicable, in which case Annex V or the BAT conclusions must be achieved (whichever is stricter), or operators must have applied for a derogation from the BAT conclusion (if that is stricter: Annex V will apply in any event). The operator will apply, at the appropriate time, to vary the permit again to reflect this.

Net Rated Thermal Input:

The Applicant has stated that the Net Thermal Input is 114MWth. They have justified this figure by providing limited information. We have set an improvement condition for the operator to carry out a performance test by 31/12/2016 to satisfy this request.

Minimum start up load and Minimum shut-down load:

The Operator has defined the “minimum start up load” and “minimum shut-down load” for the LCP in their response to question 6 of the Reg 60, in terms of:

The output load (i.e. electricity generated) as one of five thresholds for operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up and three thresholds for operational parameters that suit the technical characteristics of the plant, which can be met at the start of shut-down.

We agree with all of these definitions and have set these thresholds in table S1.5 of the permit accordingly. Standard permit condition 2.3.12 has been set to define the period of start up and shut down, referring to the thresholds in this table.

We have inserted an additional monitoring requirement to monitor the periods and length of time when the LCP is in start-up.

Emission limits:

The operator has proposed limits in line with annex V of the IED and the 2014 BAT review paper. Consequently we have accepted the proposed limits and incorporated them into table 3.1 of the permit. The LCP will be subject to TNP compliance regime for oxides of Nitrogen and the operator has confirmed that they will comply with the approach in the 2014 BAT review paper.

Consequently we have set the emission limits for this LCP in line with the BAT paper in table S3.1, we have also set the standard annual emission target in table S3.4.

Energy efficiency:

The installation does not have CHP. In line with the DEFRA Part A guidance, to report on the scope for further improvement, a condition has been included for the operator to carry out a 4-yearly efficiency review.

Reporting efficiency:

In order to ensure the efficiency of plant using fossil fuels or biomass is maximised and regularly recorded, condition 1.2.1(c), condition 4.2.2(b) and table S4.2 have been added to the permit.

Notifications:

Schedule 5, Part C, takes account of the malfunction and breakdown requirements. A breach of permit condition is NOT implicit in notification under Part C.

Monitoring & standards:

Standards for assessment of the monitoring location and for measurement of oxygen, water vapour, temperature and pressure have been added to the permit template for clarity.

Resource efficiency metrics:

A more comprehensive suite of reporting metrics has been added to the permit template for ESI plant. Table S4.2 "Resource Efficiency Metrics" has been added requiring the reporting of various resource parameters, as this is an Electrical Supply Industry (ESI) power plant. This table is being used for all ESI plant.

Additional IED Chapter II requirements:

Condition 3.1.6 relating to protection of soil, groundwater and groundwater monitoring, has been added in compliance with IED requirements. Conditions 4.3.1 and 4.3.2 relating to notifications have been amended in compliance with IED requirements.

Annex 1: Review and assessment of changes that are not part of the Chapter III IED derived permit review.

We have used the opportunity of permit variation to correct errors in previous variations these are listed below:-

Condition 2.3.7 / Table 2.2 – Waste - this condition has been added to provide clarity on the status of waste straw and to update an error that didn't specifically refer to straw as fuel for this biomass station.

Condition 2.4 / Table 1.3 – Improvement Conditions - has been updated to include 2 improvement conditions; the first is a administrative one relating to ensuring that we get the final Large Combustion Plant Directive data. The second is relating to confirmation of thermal input.

Condition 3.7 – Pests – this condition wasn't available previously but should be applied where organic material could attract pests. This updates the permit to include standard conditions for this type of installation and does not suggest that the installation has a current problem with pests.

Schedule 7 – Site Plan - was updated to reflect the emission points and to clarify the extent of the boundary in the required format.