

# Natural Resources Wales permitting decisions

## Natural Resources Wales initiated variation

We have decided to issue a Natural Resources Wales initiated variation for Aberthaw Power Station operated by RWE Generation UK plc.

The variation number is EPR/RP3133LD/V013.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

### Purpose of this document

This decision document:

- explains how this Natural Resources Wales initiated variation has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account

### Structure of this document

- Key issues
- Annex 1 the decision checklist

### Key issues of the decision

#### Permit Review Process

This variation amends the permit to deliver compliance with the Chapter III provisions of the Industrial Emissions Directive (IED) following the Court of Justice of the European Union (CJEU) judgement in relation to Aberthaw Power Station made on the 21 September 2016. More specifically, these are the requirements under Schedule 15, paragraph 3(d) of EPR 2016, and its reference to Article 32(2) of the Industrial Emissions Directive (IED).

A letter notifying RWE Generation UK plc of Natural Resources Wales' intention to review and vary the Aberthaw Power Station environmental permit was sent on 6 January 2017.

An Environmental Permitting Regulations 2016 Regulation 61(1) Notice requiring information accompanied the notification letter seeking to confirm whether or not RWE Generation UK plc was in compliance with the oxides of nitrogen emission limit values (ELVs) required during the Transitional National Plan in accordance with IED Article 32(2) in light of the CJEU judgement. In the event of non-

compliance, the notice also sought details of measures taken or proposed in order to achieve compliance with the ELVs.

A response was received from RWE Generation UK plc by the deadline of 17 February 2017. However, during the period allowed to gather the information RWE Generation UK plc notified Natural Resources Wales that some detailed engineering information would not be available until 3 March 2017.

RWE Generation UK plc responded to the notice in full by 3 March 2017 setting out details of measures already implemented to achieve a 500 mg NO<sub>x</sub>/m<sup>3</sup> monthly average ELV and timescales to implement further measures. The response also set out the basis for an annual ELV for the 95<sup>th</sup> percentile of daily averages (see ELV section below).

### Emission Limit Values

The oxides of nitrogen (NO and NO<sub>2</sub> expressed as NO<sub>2</sub>) emission limit values (ELV) have been significantly reduced in order to maintain the Large Combustion Plant Directive ELVs required by Article 32(2) of IED for conventional coal plant during the Transitional National Plan (TNP) period (1 January 2016 – 30 June 2020). Therefore the calendar monthly mean ELV has been reduced from 1050 mg/m<sup>3</sup> to 500 mg/m<sup>3</sup>.

Unit 9 low NO<sub>x</sub> boiler (LNBo) commissioning and bituminous coal trials emissions data suggest that the revised monthly NO<sub>x</sub> ELV can be met by Aberthaw Power Station, including during commissioning periods.

The limited duration bituminous coal trials provide insufficient emissions data from which to derive a BAT 95<sup>th</sup> percentile of Validated Daily Means within a Calendar Year ELV. The UK regulators have adopted a daily ELV during the TNP regime in order to align compliance assessment with IED Annex V averaging periods. This daily annual 95<sup>th</sup> percentile ELV needs to at least provide equivalence to the Large Combustion Plant Directive (LCPD) 48-hourly annual 95<sup>th</sup> percentile ELV that is the minimum required by the Transitional National Plan provisions of IED.

The Environment Agency and Natural Resources Wales “IED BAT ESI Review paper” of 28 October 2014 sets out a basis for deriving daily 95<sup>th</sup> percentile ELVs from 48-hour emissions data and sets out BAT ELVs for monthly and daily averaging periods. These BAT ELVs are based upon 5 years of operating data and are not applicable to Aberthaw Power Station because there is currently insufficient emissions data for unit 9 LNBo and units 7 and 8 air staging modifications when operating on bituminous coals.

Instead a daily 95<sup>th</sup> percentile ELV equivalent to the LCPD 550 mg/m<sup>3</sup> 48-hour 95<sup>th</sup> percentile has been derived by applying the 110% factor used to set the BAT ELVs for other coal plants. This gives a daily 95<sup>th</sup> percentile NO<sub>x</sub> ELV for Aberthaw Power Station of 605 mg/m<sup>3</sup>.

Therefore the daily 95%ile NO<sub>x</sub> ELV has been reduced from 1080 mg/m<sup>3</sup> to 605 mg/m<sup>3</sup>.

The revised monthly and 95%ile daily ELVs ensure that the permit implements the Article 32(2) ELV requirements of IED for conventional coal plant during the TNP. These ELVs will be subject to further review following determination of the expected application for the permanent change in fuel diet to predominantly bituminous coal.

The annual emission limit of 33,000 tonnes for oxides of nitrogen has been removed because the reduced concentration ELVs provide equivalent protection even at very high load factors. 80% annual load factor operation at 500 mg NO<sub>x</sub>/m<sup>3</sup> would result in around 20,000 tonnes of oxides of nitrogen releases. This is well below the annual mass emission level previously shown by modelling to have no likely significant effects on sensitive habitats within range or local air quality standard breaches.

In summary, we consider that overall releases of oxides of nitrogen from the installation will be reduced as a result of this variation.

We have also amended the lower limit for pH at release point W2 (the combined FGD seawater treatment plant and cooling water discharge) from 5.8 to 5.6 (minimum instantaneous) and 6.0 to 5.8 (95%ile of the instantaneous measurement) following completion of successful trials and monitoring in accordance with existing improvement conditions IC38 and IC39.

#### Other administrative changes

We have used this variation as an opportunity to correct some minor errors which occurred in the last variation. These are described as follows:

- condition 4.2.2 has been updated to include a requirement to record annual operating hours for the OCGT LCP;
- The first part of IC36 has been updated to remove the words: “If the review extends to the entire installation then it will be deemed to have met the requirement of Condition 1.2.1 (b)”;
- Footnote “a” re-inserted after Table S3.7.

We have also updated the status of improvement conditions IC6, IC7, IC36 and IC37 in Table S1.3.

#### Our consultation position

We do not routinely consult with external organisations for administrative permit variations. This Natural Resources Wales initiated variation is administrative on the basis that it simply implements the requirements of the CJEU judgement. The risk to human populations and ecological receptors will also be reduced as a result of this variation. However, based on the high level of interest in this

application, we took the decision to write to Public Health Wales (PHW) and the Cardiff and Vale University Health Board (CVUHB) to formally explain this position and seek agreement to our approach.

Individual letters were sent to PHW and CVUHB on 6 March 2017. A joint response from the two organisations was received on 20 March 2017. The response concludes that the reduction in NO<sub>x</sub> emissions from Aberthaw Power Station is welcomed and is likely to result in a reduction of concentrations of NO<sub>x</sub> at receptor locations.

However PHW and CVUHB have asked for confirmation from NRW that in complying with the ELVs for NO<sub>x</sub>, emissions from the plant and their associated activities (such as transport of fuel and wastes) of other air pollutants or sources of air pollutants will not increase. We consider that the reduced NO<sub>x</sub> ELVs will have no implications for other air pollutants or sources of air pollutants. However, further assessment of future plant modifications will be undertaken during determination of an application to change coal diet expected imminently. This information has been communicated to PHW and CVUHB by email on 24 March 2017.

PHW and CVUHB have also recommended that both the Vale of Glamorgan Council and the Wales Health Impact Assessment Support Unit (WHIASU) are advised of the permit variation at the plant. As such copies of the variation notice will be sent to PHW, CVUHB, Vale of Glamorgan Council and WHIASU for information upon issue.

### Annex 1: decision checklist

This document should be read in conjunction with the agreed Natural Resources Wales variation request form and permit / notice.

Aspect considered	Justification / Detail
<b>European Directives</b>	
Applicable directives	All applicable European directives have been considered in the determination of Natural Resources Wales initiated variation.  See Key Issues section of this document for full details.
<b>Environmental Risk Assessment and operating techniques</b>	
Environmental risk	The revised ELVs will reduce environmental risk. (See Emission Limit Values section above).
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes.

Aspect considered	Justification / Detail
	<p>The use of primary NO<sub>x</sub> control measures for coal-firing during the TNP period is considered to represent BAT.</p> <p>The proposed techniques/ emission levels for oxides of nitrogen are in line with the minimum standards contained in the relevant Directives and we consider them to represent appropriate techniques for the facility.</p> <p>BAT assessment of fuel conversion to bituminous coal will be undertaken separately when an application is received.</p> <p>We consider that the emission limits included in the permit reflect the current BAT for the installation.</p>
The permit conditions	
Emission limits	We have decided that revised emission limits should be set for oxides of nitrogen. Full details of the changes are described in the Key Issues section of this document.
Monitoring	There are no changes to the monitoring parameters required in the permit.
Reporting	<p>There are no changes to the specified reporting in the permit.</p> <p>The new NO<sub>x</sub> ELVs take effect from 1 April 2017 in order to align reporting periods to the calendar month averaging period and to simplify annual daily 95%ile reporting for the split year.</p>