RWE Generation UK plc Aberthaw Power Station – Response to Regulation 60 Notice

Location: Aberthaw Power Station

Permit Number: RP3313LD

Date: March 2015

Document Reference: RP3133LD/REG60/141114

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RWE Generation

RWE Generation UK plc Aberthaw Power Station – Response to Regulation 60 Notice

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Reviewed by:	Authorised by:
Zoe Harrison	Richard Little, Station Manager

This document has been prepared in response to the Regulation 60 Notice issued by Natural Resources Wales on 14th November 2014.

1 Introduction

This document sets out responses to a Regulation 60 notice issued by Natural Resources Wales in order to gain relevant information to vary the existing Environmental Permit for the site to ensure implementation of the Industrial Emissions Directive (IED) from January 2016.

It should be noted that final decisions in regards to the potential compliance routes has not been made by RWE yet and therefore information is provided for all potential options.

2 Responses to questions

2.1 Question 1

The name (DEFRA LCP identifier) of each Large Combustion Plant (LCP) and its date of operational commencement.

Response

DEFRA LCP Identifier	*Date of Operational Commencement*
234 RWE Generation – Aberthaw Power Station	Commissioned in 1971

2.2 Question 2

For each LCP, state which compliance route you have selected.

Response

DEFRA LCP Identifier	*Compliance Route(s)*
234 RWE Generation – Aberthaw Power Station	vii. Article 32 – Transitional National Plan (TNP).
	viii. Article 33 – Limited Lifetime Derogation (LLD).
	iii. Article 30(2) Annex V Part 1 – 1,500 Limited Hours Derogation (LHD). Note: this can apply to the whole or part of a LCP.

2.3 Question 3

Provide evidence of any notification you may have already made in relation to the TNP and LLD.

Response

Copies of submissions can be found in Appendix A

- IED Transitional National Plan: Application for Inclusion of Plants Letter dated 1 May 2012 (3 pages)
- IED Limited Life Derogation Declaration: Aberthaw Power Station Letter dated 24 December 2013 (8 pages)

2.4 Question 4

The configuration of each LCP:-

i. Identify the types(s) of combustion unit within the LCP:-

Response

Unit Type	*Number of units*	*Fuel Options*	*Venting arrangements*
Boiler	3	Coal Solid Biomass Liquid Biomass Heavy Fuel Oils Processed Fuel Oils Re-fired Ash	Multiple flues within a common windshield.

iii. Identify the fuel options available for each combustion unit within the LCP.

Response
Included in table above

iv. Identify how each combustion unit vents its waste gases:-

Response
Included in table above

2.5 Question 5

The net rated thermal input of the LCP and the method by which it was derived including evidence of any de-rating or proposals for de-rating including a time scale for implementation.

Response

DEFRA LCP Identifier	*Rated thermal input*	*Method*
234 RWE Generation – Aberthaw Power Station	4090 MWth	Performance Data submitted to LCP Inventory

The Rated thermal input will need to be kept under review as there is a potential for de-rating following the installation, commissioning and optimisation of Low NOx Boiler Technology, which will begin in 2015 (please refer to the Low NOx Boiler Permit Variation).

2.6 Question 6

Define the “minimum start up load” and “minimum shut-down load”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU1 in terms of:

i. The output load (i.e. electricity, heat or power generated) (MW); and

ii. This output load as a percentage of the rated thermal output of the combustion plant (%).

And / Or
iii. At least three criteria (operational parameters and / or discrete processes as detailed in the Annex) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU.

Response

Minimum start-up load

Unit	*Output load (MW)*	*Percentage of rated electrical output (%)*	*Criteria/Operational parameters*
Unit 7	395 Generated	74	Not Applicable
Unit 8	395 Generated	74	Not Applicable
Unit 9	395 Generated	74	Not Applicable

Minimum shut-down load

Unit	*Output load (MW)*	*Percentage of rated electrical output (%)*	*Criteria/Operational parameters*
Unit 7	395 Generated	74	Not Applicable
Unit 8	395 Generated	74	Not Applicable
Unit 9	395 Generated	74	Not Applicable

The Minimum start-up load and Minimum shut-down load will need to be kept under review as there is a potential for de-rating following the installation, commissioning and optimisation of Low NOx Boiler Technology, which will begin in 2015 (please refer to the Low NOx Boiler Permit Variation).

2.7 Question 7

For Coal fired power stations entering into the TNP or LLD, with reference to section ‘Coal fired stations’ in the IED BAT ESI Review paper 28 October 2014, will you comply with the Sector approach? If ‘yes’ you do not need to answer any further questions.

Response

Yes – Annex 1 Site specific considerations

All remaining questions have been deleted as they are not relevant to Aberthaw Power Station.

Appendix A. TNP/LLD Notification Letters

Kevin McCullough
Chief Operating Officer

Mr R Vincent
Head of Industrial Pollution Control
DEFRA
Area 5F, Ergon House
17 Smith Square
London
SW1P 3JR

1st May 2012

Dear Richard

Industrial Emissions Directive – Large Combustion Plants – Transitional National Plan – Application for Inclusion of Plants operated by RWE npower and RWE npower Cogen

We refer to your letter to operators dated 28th December 2011. This reply is made on the basis of the terms and conditions applying to the UK Transitional National Plan, as set out in that letter.

Plants to be Included

We are writing to confirm that at this time we would like the following large combustion plants to be included in the UK Transitional National Plan, for the pollutants specified for each:

- RWE npower plc, Aberthaw Power Station, The Leys, Aberthaw, Barry, Mid Glamorgan, CF62 4ZW for nitrogen oxides, sulphur dioxide and dust.
- RWE npower plc, Didcot B Power Station module 5, Didcot, Oxfordshire OX11 7YU for nitrogen oxides.
- RWE npower plc, Didcot B Power Station module 6, Didcot, Oxfordshire OX11 7YU for nitrogen oxides.
- RWE npower plc, Great Yarmouth Power Station, South Denes Road, Great Yarmouth, Norfolk NR30 3PY for nitrogen oxides.
- RWE npower plc, Little Barford Power Station Module 1A, Little Barford, St Neots, Cambridgeshire PE19 6YT for nitrogen oxides.
- RWE npower plc, Little Barford Power Station Module 1B, Little Barford, St Neots, Cambridgeshire PE19 6YT for nitrogen oxides.

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Registered in England
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- RWE npower Cogen, Aylesford Newsprint GT1/HRSG1 Stack, c/o Aylesford Newsprint Ltd, New Hythe Business Park, Aylesford, Kent, ME20 7DL for nitrogen oxides.

- RWE npower Cogen, Aylesford Newsprint GT2/HRSG2 Stack, c/o Aylesford Newsprint Ltd, New Hythe Business Park, Aylesford, Kent, ME20 7DL for nitrogen oxides.

- RWE npower Cogen, Cheshire CHP GT1/HRSG1/Package Boilers Stack Group, North Road, Ellesmere Port, South Wirral, CH65 1AF for nitrogen oxides.

- RWE npower Cogen, Dow Corning GT1/HRSG1/Package Boilers Stack Group, C/o Dow Corning Ltd, Winbourne Road, Dock No.2, Barry, Vale of Glamorgan, CF63 3DH for nitrogen oxides.

- RWE npower Cogen, Grimsby GT1/HRSG1/Package Boilers Stack Group, Moody Lane, Grimsby, North Lincolnshire, DN31 2FW for nitrogen oxides.

- RWE npower Cogen Hythe Limited GT1/HRSG Stack, Charleston Road, Hardley, Hythe, Southampton, Hampshire, SO45 3BP for nitrogen oxides

- RWE npower Cogen Hythe Limited Package Boilers Stack group, Charleston Road, Hardley, Hythe, Southampton, Hampshire, SO45 3BP for nitrogen oxides.

- RWE npower Cogen, INEOS CHP GT1/HRSG1 Stack, C/o Ineos Nitriles, PO Box 62, Seal Sands, Middlesborough, Cleveland, TS2 1TX for nitrogen oxides.

Compliance Measures Foreseen

For all of the above plants, we currently foresee that the measures to comply with the Industrial Emissions Directive emission limit values that will apply from 1st July 2020 will comprise compliance with the Emission Limit Values that apply under Annex V, through the application of the necessary pollution abatement techniques. If we subsequently decide that the plant cannot comply with the emission limit values that will apply from this date, the plant will be closed.

The compliance route and measures foreseen may be subject to review and amendment, as set out in more detail in the notes below.

Calculation of Transitional National Plan Annual Emission Limits for Plants to be included

For each of the Large Combustion Plants to be included in the Transitional National Plan, the applicable Annual Emission Limits and supporting calculations are set out in the attached TNP workbook, which has been accepted by Government without prejudice to the conduct of such final checks of the calculations as may be necessary during the compilation of the draft UK TNP or

in responding to European Commission comments on the plan after it is submitted.

Review of Options for Compliance with the Industrial Emissions Directive and Possible Future Amendments to Measures Foreseen

This declaration is made subject to future reviews by us of the appropriate compliance option for the plants under the Industrial Emissions Directive.

These reviews will be necessary because of a high level of uncertainty on the future operation and investment in the plants, due to factors including:

- The outcome of the current LCP BREF review, which will set BAT for all Large Combustion Plants (LCPs) and will not be finalised until 2015.
- The outcome of the reviews of the Gothenburg Protocol and National Emissions Ceilings Directive for 2020 national ceilings and the ensuing implications for LCPs.
- The outcome of the UK Electricity Market Reform currently in progress and the impact on the future UK electricity market.
- The carbon price in future years.
- The effect of increasing levels of intermittent renewable generation on national generation capacity requirements.

All of these factors could have a profound impact on the future operation and investment in electricity generating LCPs. The outcome of each is uncertain. It will be essential that we review our plans for the operation of our plants post 2015 on a regular basis and update them as necessary in the light of changes to regulatory and commercial circumstances.

Consequently, and in accordance with the points of note set out in your letter of 28th December 2011, we reserve the right:

- to alter both the measures foreseen and the compliance route on exit from the Transitional National Plan;
- to bring forward a plant exit from the Transitional National Plan, prior to 30 June 2020;
- to exit the Transitional National Plan and place plants in the Limited Life Derogation under Article 33 of the Industrial Emissions Directive, prior to the specified deadline for decisions on this derogation of 1 January 2014;
- to propose further plants for inclusion in the Transitional National Plan.

Yours sincerely

Kevin McCullough
Chief Operating Officer

WL/GEN/LH

Cyfoeth Naturiol Cymru
Natural Resources Wales

Ein cyf/Our ref: RWE/LLD/01
Eich cyf/Your ref:

Tŷ Cambria
29 Newport Road
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CF24 0TP

Ebost/Email:
Isobel.Moore@naturalresourceswales.gov.uk

Ffôn/Phone: 02920 466118

Dr Kevin Nix
RWE npower
Electron
Windmill Hill Business Park
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24 December 2013

Industrial Emissions Directive – Large Combustion Plants – Article 33 Limited Life Time Derogation – Declaration for Inclusion of Plants

IED Limited Life Derogation Declaration: Aberthaw Power Station

Dear Kevin,

We acknowledge receipt of your letter of notification in relation to the IED Limited Life Derogation declaration (Article 33), dated the 13 December 2013. We enclose a signed copy of your letter for your records.

Yours sincerely,

Isobel Moore
Head of Business, Regulation & Economics
Knowledge, Strategy & Planning
Natural Resources Wales

cc. Tony Leakey, Natural Resources Wales
Jonathan Williams, Welsh Government
Richard Vincent, Defra
John Henderson, Environment Agency

RWE

Isobel Moore
Natural Resources Wales
Cambria House,
Newport Road,
Cardiff
CF24 0TP

cc. John Henderson, Environment Agency
Tony Leakey, Natural Resources Wales
Richard Vincent, DEFRA
Jonathan Williams, Welsh Government

13th December 2013

Industrial Emissions Directive – Large Combustion Plants – Article 33 Limited Life Time derogation – Declaration for Inclusion of Plants

IED Limited Life Derogation declaration: Aberthaw Power Station

Dear Isobel,

Article 33(1)(a) of the Industrial Emissions Directive 2010/75/EU (the "IED") states that:

"Article 33 Limited life time derogation
1. During the period from 1 January 2016 to 31 December2023, combustion plants may be exempted from compliance with the emission limit values referred to in Article 30(2) and with the rates of desulphurisation referred to in Article 31, where applicable, and from their inclusion in the transitional national plan referred to in Article 32 provided that the following conditions are fulfilled:

(a) the operator of the combustion plant undertakes, in a written declaration submitted by 1 January 2014 at the latest to the competent authority, not to operate the plant for more than 17 500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023"

In accordance with Article 33, we are writing to place the following large combustion plant in the Limited Life Derogation (the "**LLD**"):-

Aberthaw power station (the "**Plant**").

In accordance with the information requirements of Article 33(2), we list out the following details for this plant:-

Aberthaw
Total rated thermal input is 4135 MWth
Fuel types used are coal, solid and liquid biomass and heavy fuel oil;
The emission limit values for sulphur dioxide, nitrogen oxides and dust in the current environmental permit for the plant are set out in Annex A to this letter.

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The plant's reference number in the 2009 LCP inventory is 234.

Subject to our right of rescission, we undertake not to operate the Plant for more than 17,500 operating hours between 1 January 2016, inclusive, and 31 December 2023, inclusive.

The Plant is currently in the UK Transitional National Plan for SO2, NOx and dust submitted to the European Commission in December 2012 (the "**UK TNP**"). By copy of this letter, we are notifying DEFRA that this Plant will now be placed in the LLD.

We refer to the letter dated 22nd January 2013 from DEFRA to Energy UK (the "**DEFRA Letter**"), in which DEFRA confirmed that "an LLD undertaking can be rescinded in writing by the operator at any time up to 31 December 2015, but thereafter it is binding." DEFRA further confirmed that "if a "rescinded LLD" plant is included in the [UK] TNP as submitted to the European Commission in December 2012, then it can remain there." Welsh Government have subsequently confirmed that the Defra letter is also applicable to plants in Wales. We also refer to the document jointly issued by the Environment Agency, Natural Resources Wales and the environment agencies for Scotland and Northern Ireland entitled "The Industrial Emissions Directive: Chapter III Plant; Key objectives and interpretational aspects" and published on 25th April 2013 (the "**Interpretation Guidance**").

In accordance with the DEFRA Letter and the Interpretation Guidance, we (i) reserve the right to rescind this LLD undertaking prior to 31 December 2015 for Aberthaw power station; and (ii) reserve the option to return Aberthaw power station, originally included in the UK TNP prior to being placed in the LLD, in respect of which the LLD has been rescinded, to the UK TNP upon exit from the LLD.

Review of Options for Compliance with the IED

The reason for reserving the right to rescind this LLD undertaking is that there remains uncertainty about the future operation of and investment in the Plant and a final decision about the appropriate IED compliance route may be affected by factors, including but not limited to:.

the outcome of the current LCP BREF review, which will set BAT for all Large Combustion Plants (LCPs) and will not be finalised until 2015;
the outcome of the reviews of the National Emissions Ceilings Directive for 2020 and 2025 national ceilings and the ensuing implications for LCPs;
the outcome of the UK Electricity Market Reform currently in progress and the impact on the future UK electricity market;
the next General Election, expected in May 2015;
the carbon price in future years; and
the effect of increasing levels of intermittent renewable generation on national generation capacity requirements.

All these factors could have a profound impact on the future operation and investment in electricity generating LCPs. The outcome of each is uncertain. Further information may become available during 2014.

Future LCP operation will take place in the wider context of a decarbonisation of the electricity sector. Existing LCPs will play a key role in ensuring security of supply at an affordable price during the transition to new low carbon generation in the early 2020s.

Due to the current uncertainty over the exact transition pathway, it is important that LCP operators evaluate their options carefully, to ensure that the transition can be delivered in the most cost effective

RWE

manner, minimising impacts on consumers.

Yours sincerely

Dr Kevin Nix

Managing Director, Generation UK

Signed in acknowledgement of receipt of the above by:

Signature: ..... ISOBEL MOORE.

Title: Head of Business, Regulation & Economics

RWE

Annex A - Emission limit values for sulphur dioxide, nitrogen oxides and dust in the current environmental permit for Aberthaw power station

This annex presents the relevant sections of the current environmental permit for the plant which set out the emission limit values for sulphur dioxide, nitrogen oxides and dust.

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Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit [a] (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Particulate Matter	Large Combustion Plant designed to operate on low volatile content coal	55 mg/m^3	48hour mean as 97%ile	Continuous	BS EN13284-2 [1, 2]
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Particulate Matter	Large Combustion Plant designed to operate on low volatile content coal	50 mg/m^3 [d]	Calendar monthly average	Continuous	BS EN13284-2 [1, 2]
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Particulate Matter	Large Combustion Plant with FGD designed to operate on low volatile content coal	25 mg/m^3 [d]	Calendar monthly average	Continuous	BS EN13284-2 [1, 2]
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Sulphur dioxide	Large Combustion Plant designed to operate on low volatile content coal	400 mg/m^3 [b, c]	Calendar monthly average	Continuous	BS EN 14181 [1, 2]
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Sulphur dioxide	Large Combustion Plant designed to operate on low volatile content coal	440 mg/m^3 [b, c]	48hour mean as 97%ile	Continuous	BS EN 14181 [1, 2]
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Oxides of nitrogen	Large Combustion Plant designed to operate on low volatile content coal	1100 mg/m^3 [e]	Calendar monthly average	Continuous	BS EN 14181 [1, 2]
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Oxides of nitrogen	Large Combustion Plant designed to operate on low volatile content coal	1210 mg/m^3 [e]	48hour mean as 95%ile	Continuous	BS EN 14181 [1, 2]

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Table S4.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit [a] (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Windshield A2 [96 metre high flue located at NGR ST024 662]	-	Large Combustion Plant (Black start open cycle gas turbine unit 7)	-	-	-	-
Windshield A3 [96 metre high flue located at NGR ST024 662]	-	Large Combustion Plant (Black start open cycle gas turbine unit 8)	-	-	-	-
Windshield A4 [96 metre high flue located at NGR ST024 662]	-	Large Combustion Plant (Black start open cycle gas turbine unit 9)	-	-	-	-
A5 [25 metre high single flue stack located at NGR ST03058 65958]	Particulate Matter and entrained droplets	PFA recycling plant seawater scrubber	No visible release	-	-	-
A7, A8, A9 [Biomass handling]	Particulate Matter	Biomass milling plant cyclone exhausts	No visible release	-	-	-
A10 [Ash handling across the installation]	Particulate Matter	Ash silo and recovery process vents	No visible release	-	-	-
A11 [Utilities]	Particulate Matter	Domestic boiler and waste wood burner flues	No visible release	-	-	-

[1] Subject to the detailed requirements and interpretations agreed with the Environment Agency in the Joint Environmental Programme, Joint Industry/Environment Agency Working Group In stack monitoring, publication **"Monitoring SO_2 and NO_x and Dust Emissions from Power Stations – A Guide to Current Best Practice for the Operators of Coal and Oil Fired Boilers"** PT/06/BE1916/R, D.P.Graham, December 2006 (or any subsequent revision to this agreed in writing with the Environment Agency)

[2] Subject to the detailed requirements and interpretations agreed with the Environment Agency in the Joint Environmental Programme, Joint Industry/Environment Agency Working Group In stack monitoring publication **"Use of CEMs for Reporting Emissions of SO_2, NO_X and Dust under PPC and the LCPD. A Guide to Current Best Practice for the Operators of Coal and Oil Fired Boilers "Graham, D.P., Salway, G, PT/06/BE1917/R, December 2006"** (or any subsequent revision to this agreed in writing with the Environment Agency)

[a] Excludes start up and shut down.

[b] A desulphurisation rate of **94%** will replace the ELV where the LCP cannot meet the ELV due to characteristics of the fuel as set out in the application or as a result of an unforeseeable fluctuation in fuel quality.

[c] Until 31 December 2015 plants of a rated thermal input greater than 400MW, which from 1st January 2008 onwards do not operate more than 2 000 hours a year (rolling average measured over a period of 5 years), shall be subject to a monthly limit value for sulphur dioxide of 800mg/m^3 and a 48 hourly mean as a 97%ile of 880mg/m^3.

[d] The monthly average particulate matter emission limit value for LCP operating temporarily with both FGD abated and non-FGD abated units will be 50 mg/m^3. The monthly average particulate matter emission limit value of 25 mg/m^3 will apply upon completion of commissioning of all FGD abated units.

[e] Upon written agreement from the Environment Agency combustion plant designed to operate on low volatile fuels shall be subject to a monthly average emission limit value for nitrogen oxides of 1200mg/m^3 and a 48 hourly mean as a 95%ile of 1320mg/m^3. Such agreement will be considered following notification of a justified restriction of fuel diet resulting in combustion and ancillary plant performance that limits the implementation of thermal input biasing to control oxides of nitrogen releases.

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