

**Date:** 17 October 2001  
**Time:** 9.00 am  
**Venue:** Committee Room 3

## **Impacts of the Large Combustion Plant Directive and National Emissions Ceilings Directive on Aberthaw Power Station**

### *Issue*

This paper summarises the potential impacts of the recently agreed Large Combustion Plant Directive (LCPD) and new National Emissions Ceiling Directive (NECD) on the future of Aberthaw Power Station.

### *Background*

On 2 August 2001 the European Council and European Parliament reached conciliation on the LCPD and NECD.

The revised LCPD aims to reduce acidification, ground level ozone and particles by limiting emissions of sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and dust (particulate matter - PM) from new and 'existing' large combustion plants (mostly power stations, refinery boilers and large boilers in industry). SO<sub>2</sub> and NO<sub>x</sub> are major contributors to acid deposition, which acidifies soils and freshwater bodies, damages plants and aquatic habitats, and corrodes building materials. NO<sub>x</sub> reacts with volatile organic compounds in the presence of sunlight to form ozone that can adversely affect human health and ecosystems.

Once transposed into UK legislation, the revised LCPD will control emissions from plants licensed after transposition ('new-new' plants) through stringent emission limit values (ELVs) based on the latest technologies. 'New' plants (licensed after July 1987 but before transposition of the Directive) and 'existing' plants (licensed before 1987) must meet ELVs that reflect technical and economic issues associated with making improvements to plants already in operation which are often quite old. For 'existing' plants, Member States have the option of reducing emissions under a national emissions reduction plan (National Plan).

The NECD sets national emission ceilings for ammonia, nitrogen oxides, sulphur dioxides and volatile organic compounds from all sources that must be achieved after 2010. The pollutants addressed by this proposal can cause a range of harmful environmental effects, often at long distances from their source. The two main problems being addressed by the proposal are acidification and ground-level ozone. In addition, eutrophication (excess nitrogen enrichment of natural ecosystems) will reduce as a consequence of the controls, but this effect is not explicitly included in the optimisation model used to generate the proposed ceilings. It is unlikely that the NECD will have a specific impact on the future of Aberthaw power station.

The EP and the Council adopted the revised LCPD on 19 and 27 September 2001 respectively. The revised directive is expected to come into force when it is published in the Official Journal. This is likely to occur by the end of autumn 2001.

### ***History***

The European Commission proposed amendments to the LCPD in September 1998 as part of its Acidification Strategy. A Council common position on the amendments was adopted on 9 November 2000. The common position tightened the ELVs for 'new-new' plant, and encouraged their development as combined heat and power installations. The treatment of 'existing' plant has been more contentious. A majority of Member States and the EP at its 1<sup>st</sup> reading, wanted the ELVs for 'new' plants to also apply to the older plants. This was not acceptable to other Member States, including the UK, as the imposition of ELVs on these plants could have serious implications for Member States' Electricity Supply Industries (ESIs) and the amount of coal-burn. The Council reached a compromise in its common position such that Member States could either apply the new plant ELVs in the original Directive, or reduce emissions under a National Plan, by 1 January 2008. An 'existing' plant may be exempted from compliance with the ELVs, or the National Plan, if it will not be operated for more than 20,000 hours after 1 January 2008.

The European Parliament's 2<sup>nd</sup> reading amendments to the LCPD sought to increase the stringency of the compromise reached on older plant, such as Aberthaw. The main pressure for change seemed to come from German MEPs who were anxious about emissions from power plants in neighbouring Eastern European countries that might shortly be joining the EC.

The EP's proposed amendments would have significantly increased the costs of emission reductions for little environmental gain.

### ***Impacts on Aberthaw***

The boiler design at Aberthaw is unique in the UK, and is specifically designed to handle low-volatility coal. All the coal used at Aberthaw, including from the local Tower coal mine, has less than 10% volatile compounds. Higher volatility coals would not be suitable for the boiler.

Of major concern to Wales was the removal of the derogation allowing existing large combustion plant (licensed before July 1987) burning low volatility coal to meet a less stringent nitrogen oxide (NO<sub>x</sub>) emission limit value of 1300 mg/m<sup>3</sup>. The ‘standard’ ELV in the common position of 650mg/m<sup>3</sup> corresponds to performance after fitting the most cost effective primary emission reduction technique (low NO<sub>x</sub> burners) however this level cannot be met at Aberthaw with such technology, hence the need for the derogation. The removal of this derogation would have jeopardised the future of Aberthaw, with the resultant damaging impact on the Welsh coal industry.

In the lead up to the conciliation meeting Welsh ministers and UK officials lobbied MEPs to highlight the potential problems of the EP amendment for Aberthaw and the Welsh coal industry. During the conciliation meeting the UK fought hard to reach a compromise that would not seriously affect the future of Aberthaw and the following derogation was agreed to:

*‘Until 1 January 2018 in the case of plants that in the 12 month period ending on 1 January 2001, operated on, and continue to operate on, solid fuels whose volatile content is less than 10%, 1200mg/Nm<sup>3</sup> shall apply.’*

### ***Compliance Options***

#### **Option 1 – Emission Limit Value Approach**

Under the ELV approach all ‘existing’ plants that have not opted for the limited life derogation, will have to meet specific ELVs for NO<sub>x</sub>, SO<sub>2</sub> and dust by certain dates. Considerably greater emission reductions would be achieved under the ELV approach because each individual station operating after 2008 must comply with the ELVs individually, and the requirements will not be lessened as a result of closures or reductions in load factors of other plants. Aberthaw would not however be affected as the derogation would apply to it.

#### **Option 2 – National Emissions Reduction Plan**

A National Plan must reduce the total annual emissions of NO<sub>x</sub>, SO<sub>2</sub> and dust from ‘existing’ plants (except those that have opted for the limited life derogation) to the levels that would have been achieved if the ELVs for ‘existing’ plants, in operation in the year 2000, had been applied. The level that ‘would have been achieved’ takes the form of a ‘bubble’ for each pollutant based on each plant’s actual annual operating time, fuel used and thermal input (averaged over the last five years of operation up to and including 2000).

A National Plan would be more flexible than the ELV approach because some plants could emit more than the ELVs in balance with other plants emitting less, either due to significant emission reduction commitments, reductions in load factors or plant closures. However, closure of a plant included in a National Plan must not result in an increase in the total annual emissions from the remaining plants covered by the National Plan.

## *Next Steps*

Member States must implement the requirements for 'new-new' and 'new' plant within 12 months of the LCPD's entry into force, and they must ensure that 'existing' plant comply with the ELVs or a National Plan by 2008. A consultation document on the implementation options will be issued for public discussion towards the end of 2001. This will include a description of the likely costs of each option; the possible content of a National Plan; and an assessment of how it would operate. Following consultation with stakeholders and interested parties, the UK Government will determine which of the two implementation options is the most effective way to implement the revised LCPD for 'existing' plants in the UK. If the National Plan option is chosen, it must be submitted to the Commission within 2 years of the revised LCPD's entry into force.