



Department  
for Environment  
Food & Rural Affairs



Llywodraeth Cymru  
Welsh Government

# Consultation on reducing emissions from Medium Combustion Plants and Generators to improve air quality

November 2016



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## Corrigendum

Amendment	Justification
Page 13, Footnote 9 <b>New footnote</b> <b>“No running time restrictions will apply to these generators when providing power on site during an emergency”.</b>	The new footnote clarifies our intent that back-up generators which provide on-site power during emergencies and test for 50 for less per year will not face any time restriction when operating to provide power on site during an emergency.
Page 13, Footnote 12 (previously footnote 11) <b>Adding of the words “until 1 January 2025”</b>	The previous text in the proposals on page 13 of the document incorrectly indicated that Tranche A generators with a rated thermal input 5-<50MW with NOx emissions 500mg/Nm <sup>3</sup> or greater would not be required to meet the “standard requirements” to be applied to generators. The text has now been amended to confirm that we are proposing that these generators will be required to meet the “standard requirements” referred to in the proposals on page 13 of the document from 1 <sup>st</sup> January 2025.
Page 14, final paragraph, second line <b>The term Tranche A has been changed to Tranche B and vice versa</b>	This was a typographical error and has now been corrected.
Page 27, Annex B <b>A &lt; (less than) sign has been replaced with a &gt; (greater than) sign on the middle column of the table in Annex B on page 27 of the document.</b>	This was a typographical error and has now been corrected.
Page 32, Annex D <b>The following text has been added;</b> <ul style="list-style-type: none"> <li>• <b>(for generators that are also Medium Combustion Plants these controls apply in addition to the requirements of the MCPD)</b></li> <li>• <b>operation to provide power on site during an emergency is unrestricted (this relates to the new footnote 9 on page 13)</b></li> <li>• <b>“Until 2025” (this relates to the textual addition to footnote 12 referred to above)</b></li> </ul>	This is a point of clarification  Same reason as new footnote 9 on page 13, referred to above  Same reason as textual addition to footnote 12 referred to above

**The amendments are highlighted in the main text.**

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# Introduction

This consultation seeks views on proposals designed to reduce emissions of harmful air pollutants from medium sized combustion plants and generators in England and Wales. These plants are a significant source of air pollutants (oxides of nitrogen- NO<sub>x</sub>, particulate matter- PM, sulphur dioxide- SO<sub>2</sub>) which impact on air quality. This consultation is jointly issued by Defra and the Welsh Government.

Air pollution harms our health and wellbeing. The combined impact of Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter (PM) pollution in the UK is estimated to lead to the equivalent of approximately 50,000 premature deaths per year, at a cost of around £30 billion per year. Air pollution also damages biodiversity and reduces crop yields.

Government is committed to tackling air pollution and improving air quality. Reducing air pollution is vital for people's health and the environment. The UK also has EU and international obligations to protect air quality by preventing harmful pollutant levels and limiting national emissions of pollutants (under the EU Ambient Air Quality Directive and the United Nations Convention on Long Range Trans-boundary Air Pollution).

The Medium Combustion Plant Directive (MCPD) will help to reduce air pollution by bringing in emission controls for combustion plants in the 1-50MWth range. The MCPD was supported by the UK as it will deliver a cost-effective improvement to air quality. The Directive requires all plant in scope to be registered or permitted and sets limits on the levels of pollutants that these plants can emit according to their type, size, age, fuel type and annual operating hours. It also requires operators to test emissions from their plants to demonstrate compliance with emission limits.

MCPs are used to generate heat for large buildings (offices, hotels, hospitals, prisons) and industrial processes, as well as for power generation. The Directive provides important flexibilities to account for specific circumstances in which the Directive requirements might otherwise give rise to excessive costs to businesses or a risk to energy security.

The MCPD must be transposed into UK law by 19 December 2017. The controls will apply to new plants from December 2018. Existing plants must comply with requirements from 2024 or 2029, depending largely on size. Full implementation will be achieved in 2030. Annex B sets out the timeline for implementation and obligations for the regulator and operator. While many of requirements in the Directive are set, there are options for how to implement it in the UK. It is those options which are the focus of this consultation, and where we are seeking your views.

Within Great Britain, there has been rapid growth in the use of low-cost, small scale flexible power generators in the past few years. Whilst there is a legitimate role for some rapidly-responding relatively efficient small-scale generation (such as gas), the recent growth of (mainly diesel) generators that emit high levels of NO<sub>x</sub> relative to other MCPs has, in part, been driven by a number of potential distortions in the wider policy landscape

which can give diesel an unfair advantage. Unless action is taken<sup>1</sup>, this trend could continue over the next few years.

To protect human health, the EU Ambient Air Quality Directive sets NO<sub>2</sub> hourly limits (200 µg/m<sup>3</sup>, the World Health Organisation guideline levels<sup>2</sup>) which cannot be breached more than 18 times each year. If there are more than 18 exceedances in a year, local authorities in England and Wales must declare air quality management areas and implement local air quality action plans. Modelling of air pollution indicates generators with high NO<sub>x</sub> emissions can lead to breaches of the NO<sub>2</sub> hourly limits.

An increase in the use of these highly polluting generators could also lead to an avoidable increase in national emissions of NO<sub>x</sub>. The UK is committed to reducing these emissions in accordance with the United Nations Convention on Long-Range Transboundary Air Pollution (specifically, the Gothenburg protocol, agreed in November 1999<sup>3</sup>) which set maximum national emission (emission ceilings) for various pollutants including NO<sub>x</sub> from 2010 onwards. The protocol was amended in 2012 to set more stringent ceilings that will apply from 2020; an amendment to the EU National Emissions Ceilings Directive to implement these and set ceilings for 2030 is expected to be agreed shortly.

We propose to control emissions from these generators to protect air quality and meet our legal obligations. Implementation of the MCPD in the UK will make a valuable contribution to improving air quality by providing an estimated 24% of the SO<sub>2</sub> and 9% of the NO<sub>x</sub> emission reductions needed to meet the 2030 national emission ceilings. However, according to our analysis the MCPD requirements are not sufficient to tackle emissions from increased use of generators which emit high levels of NO<sub>x</sub>, so we are consulting on additional measures to control them which allow us to meet our legal obligations. Quick action is needed to ensure that any generators with high NO<sub>x</sub> emissions which are not yet installed and in the future secure energy supply agreements, are required to control their emissions – and the next opportunity to secure such agreements is the Capacity Market Auction scheduled for December 2016.

This consultation seeks views on broad principles for transposition of the MCPD and emissions controls for generators. Associated guidance will be subject to a separate consultation by early 2018.

On 23 June, the EU referendum took place and the people of the United Kingdom voted to leave the European Union. Until exit negotiations are concluded, the UK remains a full member of the European Union and all the rights and obligations of EU membership remain in force. During this period the Government will continue to negotiate, implement and apply EU legislation. The outcome of these negotiations will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU.

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<sup>1</sup> Ofgem and BEIS are separately taking action to address potential distortion in the wider policy landscape. Ofgem is currently reviewing the use of embedded benefits. While BEIS recently launched a consultation on a proposal to calculate the Capacity Market supplier charge

<sup>2</sup> <http://www.who.int/mediacentre/factsheets/fs313/en/>

<sup>3</sup> <http://www.unece.org/info/ece-homepage.html>

## **Stakeholder engagement**

In the development of our proposals, government has consulted industry and regulators through a number of fora. A series of technical workshops were held with industry and regulators to seek views on possible regulatory approaches. We have also engaged with a “core group” of regulators and industry experts throughout the policy development process. The Project to develop the proposals is overseen by a Project Board whose membership includes other Government Departments, Devolved Administrations and regulators and for the controls on generators National Grid and Ofgem. In addition officials have presented and sought views at a number of industry events, at one to one meetings and held a briefing session for Non-Government Organisations with an interest in Air Quality.

During the consultation we will organise events to seek views from stakeholders on draft legislation.

## **Devolved Administrations**

The UK and Welsh Governments are proposing to amend the current England and Wales environmental permitting regime (see “Environmental Permitting Regime in England and Wales” section below) to implement the MCPD and introduce additional emissions controls for generators. Scotland and Northern Ireland will lay their own legislation to transpose the MCPD. Since very few of the Capacity Market diesel generation facilities from the 2015 auctions were located in Scotland, the Scottish Government is still reviewing the case for adopting emissions controls for generators.

MCPs within scope of the Directive which are located on UK offshore oil and gas platforms (gas turbines and gas and diesel engines on offshore platforms are exempt) will be regulated through an amendment to The Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013.

## **Structure of Document**

This document is split into three key sections. The first covers proposals relating to the MCPD, the second to additional proposals to control emissions from generators. The final section covers issues affecting both proposals. Additional information and a list of the consultation questions are included in the annexes at the end of this document.

The Impact Assessment (IA) published with this consultation provides an analysis of the estimated costs and benefits of the proposals. Your views on this document are sought on Question 22 (see page 21).

## **Environmental Permitting Regime in England and Wales**

Emissions from some combustion plants, including all those over 20MWth, are currently regulated under the existing Environmental Permitting (England and Wales) Regulations 2010 as amended (EPR). The EPR transposes the Industrial Emissions Directive in relation to combustion plant above 50MWth and implements domestic provisions in relation to plants between 20MWth and 50MWth. Such plant are examples of industrial activity types that form installations, each installation requiring an environmental permit that includes conditions designed to minimise impact on the environment. These conditions include limits and monitoring requirements relating to emissions to air. Installations are also subject compliance assessment, including site inspections.

We propose to transpose the MCPD and introduce emission controls for generators through amendments to the Environmental Permitting (England and Wales) Regulations (2016)<sup>4</sup> which will, in relation to England, be subject to review in 2019. It is anticipated the Environmental Permitting (England and Wales) Regulations (2016) will come into force in January 2017 if approved by the National Assembly for Wales and both Houses of Parliament and then made. Where a MCP is part of an installation or another type of regulated facility already subject to environmental permitting, the permit may need to be amended to ensure compliance with the MCPD. By adopting existing processes and procedures for plants already permitted under the EPR we will maintain a consistent approach, avoid confusion for regulators and operators, and also reduce the burdens associated with establishing new regimes.

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<sup>4</sup> <http://www.legislation.gov.uk/ukdsi/2016/9780111150184/contents> (these regulations consolidate the Environmental Permitting (England and Wales) Regulations 2010 and the subsequent amendment regulations and were laid in Parliament and in the National Assembly for Wales on 10 October 2016.



# Medium Combustion Plant Directive (MCPD)

The MCPD introduces mandatory registration or permitting of Medium Combustion Plant (MCPs) between 1 and 50MWth. It is estimated that the MCPD will affect over 30,000 plant in England and Wales. MCPs must comply with emission limits (set out in Annex II of the Directive) which are applied according to plant age, size, type and fuel used (see Annex C in this document). Periodic monitoring is also required to demonstrate compliance with the Directive. It is estimated that in excess of 9,000 routinely operated MCPs will be subject to the provisions of the Directive in England and Wales, with the remaining MCPs being standby and back-up, which operate infrequently. Of the plant subject to emission limits, the majority are 1-5MW gas boilers but plant operating on solid (e.g. biomass, coal) and liquid fuels are also affected.

Please note that the proposed emission controls for generators (combustion plant used to generate electricity) differ from those under the MCPD (in stringency and timescale) and apply to sites on which generators aggregate to a thermal input over 1MW, regardless of the size of your individual generators. If you have such a site, please read the section of this document setting out the proposed emission controls for generators.

## General approach

We propose that operators will be required to obtain an environmental permit under the EPR in order to operate an MCP. From 20 December 2018 operators of all new plants (plants that are not already in operation as at that date) will need a permit while operators of existing plants (those in operation by 20 December 2018) must obtain a permit by January 2024 if over 5MWth and by January 2029 if between 1 and 5MWth. For MCPs which are part of other regulated facilities, the conditions of the existing permit may need to be amended to apply the requirements of the MCPD (as proposed in this document).

Subject to some limited exceptions (described in Table 1), all MCPs which operate on average more than 500 hours per annum will be required to comply with the emission limit values set out in Annex II of the MCPD. All MCPs firing solid fuels, regardless of the number of operating hours, will be required to comply with emission limit values for dust. Emission limit values apply from 20 December 2018 for new plants, from January 2025 for existing plants over 5MWth and from January 2030 for existing plants between 1 and 5MWth, as set out on Article 6 of the MCPD.

A permitting approach is proposed because that seems the best fit between EPR and the MCPD requirements. We anticipate that for the large majority of plant, the requirements applicable will be as specified by the Directive, subject to our adoption of the optional flexibilities in the Directive as proposed in Table 1. We anticipate that for a small minority of MCPs (e.g. 20-50MWth plant using solid fuels) the regulator may need to apply different or additional conditions, including different emission limits, in order to safeguard air quality.

Where the MCP is part of an EPR 'Part B' installation' or another type of regulated facility, the existing EPR requirements will continue to apply and the MCPD requirements will be

added where necessary to comply with the Directive. Also in line with EPR, the regulator will recover costs from operators via permitting fees and charges.

***Q1. Do you agree with the general approach to permitting that is proposed?***

## Flexibilities

MCPs are very diverse and used for a range of functions. The Directive provides for a number of flexibilities to cover specific circumstances in which the requirements on certain MCPs might otherwise be disproportionate, risking impacts on energy or heat security. For these flexibilities, the MCPD text is not prescriptive and so Member States must clarify in transposition if they are applied (See Table 1). We propose to apply those flexibilities which we consider to be appropriate in relation to England and Wales, as explained in Table 1 in the column ‘Proposed approach and rationale’.

**Table 1 Flexibilities**

Flexibility	Proposed approach and rationale
1) Exemption from MCPD Annex II ELVs for existing plant operating less than 500 hours per year as a 5 year rolling average.	Apply partially – For most plant operating a limited number of hours, compliance with ELVs is not proportionate considering the limited emission reductions achieved and the costs associated with doing so. However, later in this document we are proposing emission controls for generators, which will include some MCPs, in order to safeguard air quality.
2) Extension of time exempted in 1) above to 1000h for plant supplying heating in exceptionally cold weather.	Do not apply. No evidence of the need for this exemption has been submitted by industry so far.
3) Extension of time exempted in 1) above to 1000h for plants in islands when the power supply is interrupted.	Apply in full – this is expected to be a very rare event where additional flexibility in the exemption from compliance to ELVs may be needed to allow power supply to be restored.
4) Exemption from Annex II ELVs for new plant operating less than 500 hours per year as a 3 year rolling average.	Apply partially – for most plant operating a limited number of hours, compliance with ELVs is not proportionate considering the limited emission reductions achieved. However, later in this document we are proposing emission controls for generators to safeguard air quality.
5) Less stringent ELVs for some new MCPs until 2025 and delay in application of ELVs to existing MCPs until 2030, if located in Small and Micro Isolated Systems (SIS and MIS).	Apply in full - there are a very small number of such plants in England and Wales and this flexibility enables plants in such difficult locations longer time to achieve compliance.
6) Delay in application of Annex II ELVs for certain existing plant over 5MW supplying heat to public district heating networks. The Directive specifies maximum ELVs that must be applied, however regulators are required to ensure that emission controls applied to not lead to significant pollution.	Apply in full – District heating is a sustainable technology supported by Government. This flexibility applies for a short period to a low number of older plants where abating emissions to comply with the MCPD will be more complex and enables regulators to set emission controls which safeguard local air quality and are proportionate.
7) Higher dust ELV (for a limited period) for plant firing solid biomass located in zones compliant with air quality limits. The Directive specifies maximum dust ELV that must be applied, however regulators are required to ensure that emission controls applied to not lead to significant pollution.	Apply in full – Biomass is supported by Government as a sustainable, low carbon technology. Under the Renewable Heat Incentive, biomass plants are required to comply with dust and NO <sub>x</sub> emission limits which safeguard air quality and are proportionate. However, meeting MCPD Annex II ELVs may require different abatement technology, so it is important to retain flexibility for the regulator to set ELVs that do not require additional abatement if air quality is already safeguarded.
8) Delay in application of requirements for certain plant used to drive compressor stations in national gas transmission system	Apply in full – this flexibility is required to allow enough time for upgrading the national gas grid, but impacts a very small number of plants. This exemption was included at UKs request.
9) Increase in NO <sub>x</sub> ELV for new engines operating between 500-1500 hours provided they are applying primary abatement measures	Apply partially – we are proposing emission controls for generators to meet EU and international legislative requirements.

**Q2. Do you agree with the proposed approaches set out in Table 1?**

*If not, why not?*

**Q3. What are the practical problems with applying the 3-year and 5-year rolling averages?**

*Should a yearly maximum be applied?*

We have not seen evidence of the need to extend the number of hours combustion plants used for heat production can operate without complying with emission limits in the cases of exceptionally cold weather. We are therefore proposing not to apply this extension in England and Wales, unless compelling evidence for its need is submitted.

**Q4. Do you have specific examples where applying the extension to exempted hours in exceptionally cold weather is justified?**

The consultation impact assessment assumes that, where allowed by the Directive, Annex II ELVs for biomass and district heating plants are only applied in 2030 and until then plants benefiting from this later application only need to comply with the higher emission limits required in the Directive. However, the Directive also requires the regulator to ensure that no significant pollution is caused and that a high level of protection of the environment as a whole is achieved, when these flexibilities are applied. We are seeking views on how emission limits which do not allow significant pollution should be set and what these limits should be. Under the Renewable Heat Incentive (RHI), biomass plants are already required to comply with emission limits (30g PM and 150g NO<sub>x</sub> per Giga Joule (GJ) heat input).

**Q5. For biomass and district heating plants which qualify for later application of Annex II emission limits, do you have views on how emission limits should be set which ensure that no significant pollution is caused and that a high level of protection of the environment as a whole is achieved?**

### **Non-Road Mobile Machinery**

The MCPD contains an exemption for combustion plants covered by the Non-Road Mobile Machinery Directive (NRMMD)<sup>5</sup>. The NRMMD is being replaced with a new Regulation which will apply from January 2019 and will require all compression ignition engines installed in non-road mobile machinery within the MCP range to comply with 'placing on the market' emission standards. We consider that engines above 1MWth installed on NRMM and not subject to placing on the market emission standards will be in scope of the MCPD, except where otherwise exempted by the MCPD.

**Q6. What are the practical difficulties with applying the MCPD to compression ignition engines within the MCPD size range which are not used in the propulsion of a vehicle, ship or aircraft and are not subject to 'placing on the market' emission standards under the Non-Road Mobile Machinery Directive?**

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<sup>5</sup> Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion (Compression Ignition and spark ignition) engines to be installed in non-road mobile machinery, inland waterway vessels and railway applications.

## **Compliance checks**

The Directive requires Member States to set up an effective system, based on either environmental inspections or other measures, to check operator compliance. Currently, combustion plants subject to emission controls under EPR are subject to a compliance checking regime which can include site inspections. For MCPD we envisage a focus on remote checks with site inspections being conducted at the regulator's discretion, where required to confirm compliance as is currently the case for activities already regulated under EPR. For MCPs which form part of existing installations or other regulated facilities, compliance checks may be incorporated into the compliance checking that the regulator already undertakes for the rest of the regulated facility.

When analysing the impact of the proposals in the consultation Impact Assessment (IA), we compared two different compliance checking regimes, one based on scheduled checks (i.e., data relating to each plant is checked every 3 years) and the other based on randomised spot checks where data relating to a percentage of plant are selected for checking at random each year. Scheduled checks would be supported by mandatory data reporting for operators in order to demonstrate compliance, while for randomised spot checks there would be no mandatory data reporting, and regulators would request data from operators in order to check compliance. Please note that the frequency and risk matrix on the IA are indicative only and do not reflect settled policy proposals. The analysis indicated that a random spot check regime is more cost effective if assumed that random spot checks can be less frequent than scheduled checks because they are a more effective deterrent from non-compliance. In addition to compliance assessment, we envisage the regulator will have available to them broadly the existing range of enforcement powers provided under the EPR.

### ***Q7. What approach for compliance checks do you support, and why:***

- a) Random compliance checks as described above***
- b) Scheduled compliance checks as described above***
- c) Other – please describe***

## **Monitoring**

As previously stated, operators are required to monitor pollutant emissions periodically. Where secondary abatement equipment is fitted, the operator is also required to keep records to prove continuous operation of the equipment. For plants which operate on average up to 500h per annum and benefit from the exemption from compliance with MCPD Annex II ELVs, Member States are allowed to set a frequency of monitoring which is partly dependent on the number of operating hours. Member States must also decide whether to allow alternative methods for determining SO<sub>2</sub> emissions (e.g., based on fuel sulphur content) or require continuous monitoring.

The monitoring frequencies prescribed by the MCPD for each type of plant are outlined in Table 2 – these should be interpreted as a minimum requirement, since for MCPs which are part of regulated installations, more onerous monitoring requirements may apply.

**Table 2 Monitoring requirements**

Type of Plant	Pollutants Monitored	Plant Capacity	Minimum Frequency
natural gas fired plants	Carbon monoxide (CO) and NO <sub>x</sub> emissions	1-20 MWth	Every 3 years
		20-50 MWth	Annually
plants firing gaseous fuels other than natural gas	CO, NO <sub>x</sub> and SO <sub>2</sub> emissions	1-20 MWth	Every 3 years
		20-50 MWth	Annually
plants firing solid and other liquid fuels	CO, NO <sub>x</sub> , SO <sub>2</sub> and PM emissions	1-20 MWth	Every 3 years
		20-50 MWth	Annually
biomass and other solid fuels (operating <500 hours per annum)	CO and PM emissions	1-20 MWth	Every 1,500h of operation, and at least once every 5 years
		20-50 MWth	Every 500h of operation, and at least once every 5 years
gaseous and liquid fuels (operating <500 hours per annum)	CO emissions	1-20 MWth	Every 1,500h of operation, and at least once every 5 years
		20-50 MWth	Every 500h of operation, and at least once every 5 years*

As regards continuous monitoring, stakeholders have suggested that the costs would be disproportionate for the vast majority of MCPs and thus it should not be made mandatory. We therefore propose not to apply mandatory continuous monitoring. Where continuous monitoring is otherwise required in relation to a regulated facility of which the MCP is a part, that requirement will remain. In addition, as required by the Directive, the operator will need to check the MCP continuous monitoring equipment against the reference monitoring methods annually and report the results to the regulator.

**Q8. Do you agree with the proposed approach for monitoring of plants?**

***If not, what are your concerns?***

Member States must ensure monitoring is carried out based on methods enabling reliable, representative and comparable results. We are working with industry and regulators to identify suitable methods. In the UK, plants over 50MWth are required to meet MCERTs (UK Monitoring Certification Scheme) monitoring standards; for 20-50MWth plant, operators must use monitoring methods approved by the regulator, such as MCERTs methods. However, under the MCPD the majority of MCPs (those using natural gas and gas oil) are required to monitor only NO<sub>x</sub> and CO emissions and we consider MCERTs is likely to be disproportionate. We are therefore working with industry to identify cheaper and less stringent methods possibly utilising existing plant maintenance systems. These

methods will be subject to further consultation but we welcome proposals in response to this consultation.

***Q9. Do you have any suggestions for monitoring methods which could be applied to MCPs as an alternative to MCERTs?***

### **Non-Compliance reporting**

The Directive requires Member States to lay down rules for the type, frequency and format of information concerning events of non-compliance with emission limits to be reported by operators to the regulator and this will be the subject of later consultation.

Notwithstanding, the Directive requires operators of MCPs to take any measures necessary to ensure that compliance is restored within the shortest possible time and to keep a record of events of non-compliance with ELVs. Upon request, operators must provide this record to the regulator. The regulator may require the operator to take additional measures to ensure compliance with ELVs is restored without undue delay, and must order suspension of operation of the combustion plant where the non-compliance causes a significant degradation of local air quality.

## Emission controls for generators

There is evidence that the number of generators which have relatively high NO<sub>x</sub> emissions (mainly diesel) has grown over the past few years and there is a risk this could continue if current distortions in the wider policy landscape persist.

Many of the electricity generating facilities with high NO<sub>x</sub> emissions that provide additional capacity to the electricity system at peak times have an aggregated thermal input <50MWth in size and individual generators under 20MWth. As a result their emissions are largely unregulated at present. This means that detailed data on the emissions, numbers, locations of generators and running time for these generators is not readily available. We have gathered the best data possible by working with BEIS, National Grid, regulators, industry and Defra's Air Quality Expert Group. The data used and the assumptions made are presented in the associated consultation stage impact assessment.

Timing is of paramount importance. Estimates of the number of small scale generators that have prequalified for December's Capacity Market auction suggest, at the higher end of the range, there is a risk that the growth observed to date could continue unless action is taken. It is important to establish controls on NO<sub>x</sub> emissions from these generators now to ensure that any growth does not lead to air quality problems. Moreover, the proposed controls are an important step in removing, before the auction, an unfair advantage from which these generators benefit *i.e.* unlike larger generators, they are not currently exposed to costs arising from having to limit their emissions. As a result we are consulting early on the broad principles for regulation while seeking further evidence to develop our analysis.

BEIS and Ofgem have also been working separately to remove any unfair advantages that may be giving some types of small-scale generation an unjustified competitive edge in the Capacity Market auctions. Ofgem is currently reviewing the use of embedded benefits<sup>6</sup>. While BEIS recently launched a consultation<sup>7</sup> on a proposal to calculate the Capacity Market supplier charge – the method by which Capacity Market costs are recouped from suppliers – on the basis of gross rather than net demand which would remove any possible unreasonable advantage afforded by the current arrangements.

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<sup>6</sup> [https://www.ofgem.gov.uk/system/files/docs/2016/07/open\\_letter\\_-\\_charging\\_arrangments\\_for\\_embedded\\_generation.pdf](https://www.ofgem.gov.uk/system/files/docs/2016/07/open_letter_-_charging_arrangments_for_embedded_generation.pdf)

<sup>7</sup> <https://www.gov.uk/government/consultations/capacity-market-proposals-to-simplify-and-improve-accessibility-in-future-capacity-auctions>



## Proposals

Proposals to control emissions from generators are set out in the text box below.

### Proposals to control emissions from generators

From 1 January 2019 and subject to the requirements of the MCPD in relation to plant that are MCPs, all generators<sup>8</sup> will require a permit to operate, except:

- a) Back-up generators (generators operating to supply power during an on-site emergency e.g. a power cut) which are operated for the purpose of testing for no more than 50 hours per year<sup>9</sup>
- b) Generators operating on a site that is the subject of a nuclear site licence<sup>10</sup>
- c) (until 2025) Tranche A generators<sup>11</sup>, with a rated thermal input of 5- $<50\text{MW}_{\text{th}}$  and with an emission  $<500\text{mg}/\text{Nm}^3$  and Tranche A generators, with a rated thermal input of 5- $<50\text{MW}_{\text{th}}$  and operating  $<50$  hours/year
- d) (until 2030) Tranche A generators 1- $<5\text{MW}_{\text{th}}$

Unless otherwise specified below, the regulator will be required to exercise their permitting functions so as to ensure that at least the four following **standard requirements** are applied to the generator<sup>12</sup> though the permit:

- a  **$\text{NO}_x$  ELV of  $190\text{mg}/\text{Nm}^3$** <sup>13</sup>
- **where secondary abatement is required to meet the  $190\text{mg}/\text{Nm}^3$  it must be met within 5 minutes of the generator commencing operation**
- **there must be no persistent visible emission**
- **where the generator relies on secondary abatement to meet the  $190\text{mg}/\text{Nm}^3$   $\text{NO}_x$  ELV, emissions must be monitored every 3 years.**

Where the regulator considers there may be a risk to air quality standards resulting from the operation of the generator, an operator will be expected to quantify the impact of emissions on sensitive receptors, e.g. by air dispersion modelling, incorporating as necessary, for example, any proposals for appropriate dispersion, abatement and restrictions on operating hours. The Regulator, accounting for the results of such assessment, will be required to apply any further or different requirements as are necessary to ensure any breach of Ambient AQ Directive Annex XI standards is avoided.

In relation to the generators described at c) and d) above, the regulator will not be required to apply the **standard requirements** or any additional requirements to safeguard local air quality where operation of the generator is required only for the purpose of a legally binding pre-existing supply contract or agreement<sup>14</sup>, in which case the standard requirements and any additional requirements to safeguard local air quality will be applied from the date the contract/agreement expires.

<sup>8</sup> "Generator" means:

- any single stationary electricity generating combustion plant; or
- any group of stationary electricity generating combustion plant located at the same site and providing electricity for the same purpose,

with a rated thermal input of between  $1\text{MW}_{\text{th}}$  and  $50\text{MW}_{\text{th}}$ , including any MCP, but excluding any plant subject to the provisions of Chapter II or Chapter III of Directive 2010/75/EU (the industrial emissions Directive).

<sup>9</sup> No running time restrictions will apply to these generators when providing power on site during an emergency

<sup>10</sup> A nuclear site licence issued by the Office for Nuclear Regulation

<sup>11</sup> "Tranche A generator" means any generator that:

- comes into operation before 1 December 2016; or
- is the subject of a Capacity Market Agreement for new capacity arising from the 2014 or 2015 auction (including those which have not come into operation by 1 December 2016); or
- for which a Feed-in Tariff preliminary accreditation application has been received by Ofgem before 1 December 2016.

"Tranche B generator" means any generator other than a "Tranche A generator"

<sup>12</sup> Except:

- any Tranche B generator used at a site to which it is not reasonably practicable to supply mains power; or
- any Tranche B back-up generator for which the operator has demonstrated to the regulator a genuine need to carry out routine testing for more than 50 hours per year.
- **Until 1 January 2025**, any Tranche A generator with a rated thermal input 5- $<50\text{MW}$  with  $\text{NO}_x$  emissions  $500\text{mg}/\text{Nm}^3$  or greater

In these cases, the regulator will exercise their functions as necessary to ensure that the conditions set in permits will ensure that generators will not give rise to a breach of standards specified in Annex XI of the Ambient Air Quality Directive.

<sup>13</sup> under the MCPD reference conditions for engines and turbines (see Annex C).

<sup>14</sup> A contract or agreement to supply capacity or electricity to National Grid made before 1 December 2016.

## Definition of Generators

The term “Generators” will be defined. A possible definition is

- any single stationary electricity generating combustion plant; or
- any group of stationary electricity generating combustion plant located at the same site and providing electricity for the same purpose,

with a rated thermal input of between 1MWth and 50MWth, including any MCP, but excluding any plant subject to the provisions of Chapter II or Chapter III of Directive 2010/75/EU (the Industrial Emissions Directive). This definition means that mobile generators would be excluded from the proposals and that the combined capacity of all stationary electricity generating combustion plant located at the same site will be aggregated to determine the total rated thermal input of the “Generator” so plant <1MWth may be affected by the proposed regulation.

The proposed regulation seeks to reduce emissions from generators with relatively high NO<sub>x</sub> emissions which are increasing rapidly in use due to energy market incentives. We do not intend to regulate mobile generators through the proposals because we understand that plants used in the provision of balancing services, triad avoidance or demand side response would be attached to permanent infrastructure and would be on site for long enough that they would not be deemed mobile. We would welcome further evidence on this point, including whether this may create a potential loophole.

***Q10. Do you agree with the proposed definition of “generators”? If not please explain your reasons and propose an alternative definition.***

## Operator Obligations

Guidance will be developed to ensure that operators and regulators are aware of their obligations and this will be consulted on by early 2018 at the latest.

We anticipate that the operator of a generator which is not exempt from permitting would be required to submit evidence of its emissions to the regulator. This may be in the form of an emissions test or evidence from manufacturers on the emissions from the generator and abatement equipment.

Operators of generators running for more than 50 hours with NO<sub>x</sub> emissions over a specified threshold (190mg/Nm<sup>3</sup> for Tranche B or 500mg/Nm<sup>3</sup> for Tranche A generators) would be required to demonstrate compliance with Ambient Air Quality Limits<sup>15</sup>. This may involve submission of site-specific air dispersion modelling of pollutants from the generator. The regulator could also apply this requirement to operators of generators with emissions below the specified thresholds, where they have reason to believe that the process contributions of the generator could lead to a breach of Ambient Air Quality Limits. The regulator would not issue a permit to any generator that cannot demonstrate compliance with the limits.

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<sup>15</sup> the pollutant concentration limits set in Annex XI of the Ambient Air Quality Directive (Directive 2008/50/EC) at any sensitive receptor (for example a place where people are likely to be exposed) in the local area

We propose that operators of exempt plant would not be required to hold or apply for a permit.

### **Permit Conditions**

All generators that are not exempt would be required to meet the four standard requirements shown in the proposals set out on page 14, and may also be required to meet additional permit conditions to comply with Ambient Air Quality Limits.

The conditions set in permits will ensure that generator process contributions are not likely to lead to a breach of limits. The permit conditions may limit the operating hours and emissions limits of the generator and may require dispersion equipment (e.g. stacks) or abatement equipment to be installed to ensure compliance with Ambient Air Quality Limits.

### **Environment Agency Modelling**

Modelling undertaken by the Environment Agency based on high-risk configurations of generators was used to identify size, time and emission limits below which breaches of the EU Ambient Air Quality Directive and national air quality objectives would be unlikely (occur less than 1 in 20 years). With these conservative assumptions the modelling indicated that a breach was unlikely for;

- Multiple diesel generators co-located at a single site (just under 50 MWth in total) with NO<sub>x</sub> emissions from each unit less than 190mg/Nm<sup>3</sup>,
- Multiple diesel generators with very high emissions <sup>16</sup> co-located at a single site (just under 50 MWth in total) that operate for no more than 50 hours per year
- Multiple generators with very high emissions co-located at a single site up to 5MWth in total

unless they were located within 150m of a sensitive receptor (e.g., a location where people are likely to be exposed).

Such extreme configurations are thought to be very unlikely to occur in practice and as such the modelling is likely to represent a bad/worst-case scenario. Large generators are likely to have been subject to an air quality assessment through the planning regime and as a result would have to meet conditions to ensure there were no breaches to Ambient Air Quality Limits e.g. install stacks to disperse emissions or limit operations.

The model has been reviewed by Defra's Air Quality Expert Group and the Environment Agency has updated the analysis in response to the reviewers' comments. The finalised modelling report will be made available online during the consultation.

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<sup>16</sup> The Environment Agency's model worked with an assumption that emissions from these generators >3000mg/Nm<sup>3</sup>

## **Emission Limits and Thresholds**

The thresholds proposed for the automatic requirement to demonstrate compliance with Ambient Air Quality Limits have been selected to protect air quality, ensure that impacts on energy security are minimised and costs to businesses are proportionate.

The standard requirement that applies a NO<sub>x</sub> emissions limit of 190mg/Nm<sup>3</sup> to all new generators (except back-up generators used in emergencies and those on nuclear sites) has been selected to protect local air quality and drive the use of cleaner technology in power production, acting to curb emissions from this source. Technology already exists (e.g. lean burn gas engines) that can meet this emission limit and the 190mg/ Nm<sup>3</sup> limit also aligns with the lower limits for diesel engines in the MCPD.

### **The five minute abatement limit**

The proposals include a requirement for generators relying on secondary abatement to achieve emission limits and thresholds within five minutes of operation. This is because Selective Catalytic Reduction (the form of secondary NO<sub>x</sub> abatement that could be used with diesel generators to enable them to fall below the emissions thresholds proposed) operates effectively only when the catalyst has reached a high temperature. Diesel generators providing energy balancing services may operate for as little as 20 minutes per run and in some situations the catalyst may not reach the required temperature to reduce emissions. A five minute time limit has therefore been proposed to ensure that the secondary abatement operates effectively in the circumstances that these plants are most likely to be operating.

***Q11. Do you agree with the emissions limits proposed and that where secondary abatement is applied it must abate emissions to the required Emission Limit Value within five minutes?***

### **Proposed Timelines and Transitional Measures to protect Energy Security and minimise costs to business**

The proposals seek to balance the need to retain sufficient electricity generating capacity at a national level with the need to protect local air quality and limit national emissions. We therefore propose to introduce transitional measures for generators in operation before 1 December 2016, those with Capacity Market contracts for new capacity from 2014 and 2015 auctions and plants for which a Feed-in Tariff preliminary accreditation application has been received by Ofgem before 1 December 2016) (Tranche A generators).

The Capacity Market is the UK Government's key policy tool to ensure we maintain a secure supply of electricity. In order to protect the new capacity secured through auctions held to date and to minimise impacts on these businesses we are proposing that these generators will be able to continue to fulfil their Capacity Market obligations without needing to abate their emissions until the end of their agreements. Tranche A generators with contracts to supply the National Grid predating 1 December 2016 (e.g. a Short Term Operating Reserve contract or Firm Frequency Response contract) would also be able to provide power as required by that contract without abating emissions. Tranche A generators with 2014/2015 Capacity Market agreements for new capacity that operate for

other purposes (e.g. provision of Short Term Operating Reserve services without a contract made on or before 1 December 2016) will be expected to meet the standard requirements (including the 190mg/Nm<sup>3</sup> NO<sub>x</sub> emissions limit) in 2025 or 2030 depending on the size of the generator.

We are also proposing that generators for which a Feed-in Tariff (FIT) preliminary accreditation application has been received by Ofgem before 1 December 2016 will be subject to transitional measures. All plants accredited under FIT will be ≤5 MWth and the Environment Agency's modelling indicates that plants of this size are not likely to breach the EU Ambient Air Quality Directive. These plants are required to submit evidence of planning permission (including information on environmental effects and air quality) and grid connection agreement. Preliminary accreditation under FIT is unique in that projects are able to "lock-in" to a particular tariff rate, which is guaranteed if the project goes ahead as described in the preliminary application. Operators who make material changes to the plant after receiving preliminary accreditation risk invalidating the accreditation; this could incur a cost to the operator, who may have to accept a lower tariff.

Tranche A generators that are not exempt from emissions controls and have high emissions (>500mg/Nm<sup>3</sup>) would be required to obtain permits and meet controls aimed at protecting local air quality from January 2019 unless they are run for a short duration (50 hours or less). Introducing this requirement for the most polluting plant targets those which present the highest risk to local air quality. However the lighter-touch 500 mg/Nm<sup>3</sup> threshold is proposed for Tranche A generators because a large number of gas generators have emissions below this threshold and excluding them from these permitting requirements until 2025, when the MCPD requirements are introduced reduces the cost of the regulation to business substantially.

By contrast, Tranche B generators would be expected to meet tight emissions standards (190mg/Nm<sup>3</sup>) aimed at protecting local and national air quality on 1 January 2019. We anticipate that the generators legislation is likely to come into force in April 2018, so this date has been proposed to allow operators time to apply for permits and make any required modifications to their plants.

***Q12. Do you agree with the proposed timescales for implementation, which reflect those specified in the Medium Combustion Plant Directive?***

***Q13. Do you agree that all generators with Capacity Market Agreements for new capacity from 2014/ 2015 auctions should be regulated in the same way as generators that are already operating?***

## **Applying Limits to Generators <1MWth**

We are proposing that generators (as previously defined) 1-<50MWth should be permitted. Provision of National Grid services is usually restricted to generators with a capacity greater than 3MWth electrical (roughly 10 MW thermal input), however there is no requirement for these generators to be co-located at a single site. Third party companies, known as “aggregators”, work with companies that own diesel generators <3MW electrical capacity to produce aggregated bids to National Grid services. We have no information to suggest that generators with an aggregated input smaller than 1MWth are currently being used for this purpose. However there is a large reservoir of back-up diesel generators (possibly 20GW<sup>17</sup>), so failing to limit NO<sub>x</sub> emissions from generators could open a loophole potentially undermining some of the benefits of the proposed regulation. We are therefore seeking views on whether the legislation should be extended to generators <1MWth in size.

***Q14. Do you believe that generators with an aggregated rated thermal input <1MW (at a single site) should be required to comply with low emission limits?***

### **Exemption for legitimate testing of back-up generators**

The proposals allow back-up generators to be operated for no more than 50 hours each year for testing purposes without the requirement for a permit. Discussions with operators suggest that 50 hours enables adequate testing of back-up generators and associated cooling systems for most back-up generators, including those used in hospitals. For generators operating in such circumstances, operators would be able to undertake legitimate testing of their plant at peak times for no more than 50 hours per year, enabling them to use the electrical output during testing to participate in “triad avoidance” and provision of demand side response services. The air quality impact of operating generators at peak times of energy demand is not expected to be significantly greater than operation at other times, and allowing testing of backup generators at peak times could help to balance demand on the transmission network at these times. However, we are aware that this could provide an incentive for operators to test for more hours than they might otherwise (within the 50 hours per year limit), resulting in additional, avoidable pollutant emissions. We are therefore seeking views on whether testing between 4-7pm on winter weekday evenings (expected peak times of electricity demand) should be restricted (notwithstanding the fact that Ofgem is currently undertaking a review of embedded benefits so this incentive may reduce in future).

***Q15. Is there a case for allowing back-up generators to be tested at peak times of demand?***

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<sup>17</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/467024/rpt-frontier-DECC\\_DSR\\_phase\\_2\\_report-rev3-PDF-021015.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/467024/rpt-frontier-DECC_DSR_phase_2_report-rev3-PDF-021015.pdf)

## **A spatial approach to regulation**

We have considered whether it is appropriate to adopt different emissions controls for generators situated within and outside Air Quality Management Areas designated on the basis of local NO<sub>2</sub> concentrations. Most of these designations follow a breach of the annual NO<sub>2</sub> concentration limit in the Ambient Air Quality Directive. Generators with very high NO<sub>x</sub> emissions can lead to exceedance of local hourly NO<sub>2</sub> limits but because they operate less than 500 hours/year their contribution to annual NO<sub>2</sub> concentrations is very small. We are therefore not proposing to automatically adopt different emissions limits in permits for generators located within Air Quality Management Areas. However, background NO<sub>2</sub> levels will be taken into account by regulators when determining whether the operator is required to demonstrate compliance with Ambient Air Quality Limits.

## **Particulate Emissions**

Diesel generators emit higher levels of particulate emissions than gas generators. Our initial assessment of particulate emissions from diesel generators, based on emissions information published by engine manufacturers, indicates that particulate emissions were below the level likely to cause a significant issue at local or national scale. As a result of this assessment, emission limit values for particulate emissions have not been proposed. However background PM levels will be taken into account by regulators when determining whether the operator is required to demonstrate compliance with Ambient Air Quality Limits. In addition, in order to protect the environment from high levels of particulate emissions from poorly functioning generators, a standard requirement to be set out in permits will require operators of generators with a persistent visible emission to carry out maintenance to ensure the problem does not persist.

***Q16. Do you agree with the proposed approach to controlling particulate emissions from generators?***

## **Exemptions from Emission Controls**

We are proposing that back-up generators that operate to provide power in emergency situations should not be required to meet ELVs or to hold a permit unless their testing regime exceeds 50 hours per year. This reflects the importance of diesel generators in providing security of supply to sites, recognising the costs and technical challenges of fitting abatement at these sites. We are also proposing that generators providing power at nuclear sites should be exempt on the basis that these sites are licenced under a separate regulatory regime which ensures that back-up generators are only used for supplying power to the site and cannot be used to generate power for export off-site. We will review evidence submitted for exempting other generators, particularly those that aim to promote resource efficiency and produce low carbon power if their impacts on local air quality and national emissions are likely to be low and there is not a good economic case for abating NO<sub>x</sub> emissions.

***Q17. Do you agree with the proposed exemptions from emission controls?***

## **Monitoring**

We propose that permitted generators that rely on secondary abatement to achieve emissions limits will require emissions monitoring at least once every three years. In addition, all plant 1-<50MWth will be subject to the MCPD monitoring requirements set out on page 10 of this document.

***Q18. Do you agree that permitted generators should be required to monitor their emissions every three years only if they have adopted abatement?***



## Proposed legislative approach

Transposition of the MCPD and implementation of Generator emission controls are to be achieved via amendments to the Environmental Permitting Regulations. We intend to use a number of general provisions within the main body of the EPRs regarding powers or the regulator, penalties and offences, which are required to enforce the new requirements and ensure compliance. By adopting existing processes and procedures for plants already permitted under the EPRs we will maintain a consistent approach, avoid confusion for regulators and operators, and also reduce the burdens associated with establishing new regimes.

***Q19. Do you foresee any challenges to using the Environmental Permitting Regulations for implementing the MCPD and controls on generators?***

### **Fees and Charges**

It is envisaged that the costs of permitting any plants within scope of the controls proposed will be recovered by the regulator through an initial fee to cover the cost of permitting and an annual subsistence charge to cover the costs of compliance checking. The level of fees and charges that apply will be updated periodically and will be published by the Environment Agency, Natural Resources Wales; or by Defra and the Welsh Government (for Local Authorities) as applied to other regulated facilities under EPR. The way in which Local Authorities fees and charges are set is currently being reviewed and the finding will be incorporated into the MCPD and generator regimes.

### **Overlapping legislation e.g. the Clean Air Act 1993 (CAA), Sulphur Content of Liquid Fuels Regulations (2007) (SCoLFR) and Environmental Protection Act 1990 (EPA1990)**

Plants in scope of the MCPD and emission controls proposed for generators are currently subject to requirements to control air pollution under the CAA, SCoLFR and EPA1990. We will ensure duplicating and conflicting controls are removed whilst ensuring that the current level of environmental protection is maintained. Notably, the CAA contains provisions to limit emissions of dark smoke and set height of chimneys to protect local air quality and ensure safe dispersion of pollutants which we consider should be retained, as they are complementary to our proposals.

***Q.20 Do you agree with this approach?***

***If not, please explain***

## The Regulator

Member States are required to determine the regulators or competent authorities for MCPD.

Currently, the Environment Agency (EA) in England and Natural Resources Wales (NRW) in Wales regulate combustion plants in sites with an aggregated rated thermal input over 50MW and those which are part of EPR Part A1 installations, while Local Authorities (LAs) regulate the remaining 20-50MWth plants and those which are part of EPR Part A2 and Part B installations. The EA and NRW have considerable expertise and resources for permitting complex sites, by setting conditions which safeguard the local environment. However, LAs are more likely to already have contact with MCP operators (e.g., through charging of business rates) and already appraise the impact of MCPs in proposed developments subject to planning consent.

**Q21. Which of the following approaches do you consider to be the best option for choice of the regulator:**

**A) EA in England and NRW in Wales regulate plants in Part A1 installations and those where the regulator must determine the permit conditions to safeguard local air quality; LAs regulate all other plants.**

**B) EA regulates all plants in England and NRW regulates all plants in Wales**

**C) LAs regulate all plants**

**Q22. Are there any situations where you consider the identity of the regulator needs to be further clarified?**

## Impact of the proposals

An impact assessment is provided in support of the proposals in this consultation.

**Q23. Do you agree with the assumptions made/ evidence provided in the policy analysis and associated impact assessment e.g. number of plants, operating hours, emissions?**

**If not, please provide details.**

## Next Steps

The consultation runs for 12 weeks. The consultation will close 8 February 2017.

Following the close of the consultation period, Government will publish a summary of all the responses received, unless specifically notified otherwise

Government will, within 3 months of the close of the consultation, publish the consultation response. This response will take the form of decisions made in light of the consultation and reasons given for decisions finally taken. This document will be published on the Defra website with paper copies available on request.

This consultation is in line with the Code of practice on Consultations. This can be found at <https://www.gov.uk/government/publications/consultation-principles-guidance>

Copies of responses will be made available to the public on request. If you do not want your response – including your name, contact details and any other personal information – to be publicly available, please say so clearly in writing when you send your response to the consultation. Please note, if your computer automatically includes a confidentiality disclaimer, that won't count as a confidentiality request.

Please explain why you need to keep details confidential. We will take your reasons into account if someone asks for this information under freedom of information legislation. But, because of the law, we cannot promise that we will always be able to keep those details confidential.

We will summarise all responses and place this summary on our website at:

[www.gov.uk/defra](http://www.gov.uk/defra).

This summary will include a list of names of organisations that responded but not people's personal names, addresses or other contact details

## Contact Points

1. Please send responses to:

**Email:** [Control.Pollution@defra.gsi.gov.uk](mailto:Control.Pollution@defra.gsi.gov.uk)

Or by post to:

**MCPD**

**Air Quality**

**Area 2C Nobel House**

**17 Smith Square**

**London**

**SW1P 3JR**

2. If your comments are specifically in relation to or have implications for Wales, please copy your response to:

**Email:** [EQR@wales.gsi.gov.uk](mailto:EQR@wales.gsi.gov.uk)

Or by post to:

**Environment Quality and Regulation Branch**

**Welsh Government**

**Cathays Park**

**Cardiff**

**CF10 3NQ**

3. The questions asked throughout this document are listed at Annex A. When responding, please state whether you are responding as a private individual or on behalf of an organisation or company. You do not need to answer every question to submit a response.
4. We will consider all responses that are received by the closing date.
5. The UK and Welsh Government will publish a response within 12 weeks of the closing date of the consultation. This may include copies of the responses we receive, unless you have specifically requested that we keep your response confidential. Please indicate in your response if you want us to treat it as confidential.
6. Respondents should also be aware that there may be circumstances in which Defra and the Welsh Government will be required to communicate information to third parties on request, in order to comply with its obligations under the Freedom of Information Act 2000.
7. This consultation complies with HM Government's Consultation Principles.

## Annex A – Consultation Questions

<b>MCPD Transposition Questions</b>	
<b>Q1.</b>	<b><i>Do you agree with the general approach to permitting that is proposed?</i></b>
<b>Q2.</b>	<b><i>Do you agree with the proposed approaches set out in Table 1? If not, why not?</i></b>
<b>Q3.</b>	<b><i>What are the practical problems with applying the 3-year and 5-year rolling averages? Should a yearly maximum be applied?</i></b>
<b>Q4.</b>	<b><i>Do you have specific examples where applying the extension to exempted hours in exceptionally cold weather is justified?</i></b>
<b>Q5.</b>	<b><i>For biomass and district heating plants which qualify for later application of Annex II emission limits, do you have views on how emission limits should be set which ensure that no significant pollution is caused and that a high level of protection of the environment as a whole is achieved?</i></b>
<b>Q6.</b>	<b><i>What are the practical difficulties with applying the MCPD to compression ignition engines within the MCPD size range which are not used in the propulsion of a vehicle, ship or aircraft and are not subject to ‘placing on the market’ emission standards under the Non-Road Mobile Machinery Directive?</i></b>
<b>Q7.</b>	<b><i>What approach for compliance checks to you prefer: a) Random compliance checks as described above b) Scheduled compliance checks as described above c) Other – please describe</i></b>
<b>Q8.</b>	<b><i>Do you agree with the proposed approach for monitoring plants? If not, what are your concerns?</i></b>
<b>Q9.</b>	<b><i>Do you have any suggestions for monitoring methods which could be applied to MCPs as an alternative to MCERTs?</i></b>
<b>Emission controls generators Questions</b>	
<b>Q10.</b>	<b><i>Do you agree with the proposed definition of “generators”? If not please explain your reasons and propose an alternative definition.</i></b>
<b>Q11.</b>	<b><i>Do you agree with the emissions limits proposed and that where secondary abatement is applied it must abate emissions to the required Emission Limit Value within five minutes?</i></b>
<b>Q12.</b>	<b><i>Do you agree with the proposed timescales for implementation, which reflect those specified in the Medium Combustion Plant Directive?</i></b>

Q13.	<i>Do you agree that generators with Capacity Market Agreements from 2014/ 2015 auctions that are not already operating should be regulated in the same way as generators that are already operating?</i>
Q14.	<i>Do you believe that generators with an aggregated rated thermal input &lt;1MW (at a single site) should be required to comply with low emission limits?</i>
Q15.	<i>Is there a case for allowing back-up generators to be tested at peak times of demand?</i>
Q16.	<i>Do you agree with the proposed approach to controlling particulate emissions from generators?</i>
Q17.	<i>Do you agree with the proposed exemptions from emission controls?</i>
Q18.	<i>Do you agree that permitted generators should be required to monitor their emissions every three years only if they have adopted abatement?</i>

### **Proposed legislative approach Questions**

Q19.	<i>Do you foresee any challenges to using the Environmental Permitting Regulations for implementing the MCPD and controls on generators?</i>
Q20.	<i>Do you agree with this approach? If not, please explain</i>
Q21.	<i>Which of the following approaches do you consider to be the best option for choice of the regulator: A) Plants where regulator must determine the permit conditions to safeguard local air quality and those in Part A1 installations are regulated by EA in England and NRW in Wales, and other plants are regulated by LAs B) EA regulates all plants in England and NRW regulates all plants in Wales C) LAs regulate all plants</i>
Q22.	<i>Are there any situations where you consider the identity of regulator needs to be further clarified?</i>
Q23.	<i>Do you agree with the assumptions made/ evidence provided in the policy analysis and associated impact assessment e.g. number of plants, operating hours, emissions? If not, please provide details.</i>

# Annex B – MCPD timeline and obligations for the operator and regulator

MCPD implementation timeline			
	New plants	Existing plants > 5MW	Existing 1-5MW plants
20 December 2018	Permit required Emission limits apply		
1 January 2024		Permit required	
1 January 2025		Emission limits apply	
1 January 2029			Permit required
1 January 2030			Emission limits apply

MCPD operator obligations
<ol style="list-style-type: none"> <li>1. The operator must not operate a plant beyond the deadlines set out above without a permit.</li> <li>2. Submit the information required to apply for a permit (see table below) in order to meet obligation 1.</li> <li>3. Ensure compliance with applicable ELVs.</li> <li>4. Ensure compliance with monitoring frequency and rules.</li> <li>5. Keep the permit issued by the competent authority and, if relevant, its updated version and related information.</li> <li>6. Keep for at least 6 years records of: <ul style="list-style-type: none"> <li>• the monitoring results to demonstrate compliance with the ELVs and monitoring requirements.</li> <li>• proof of effective continuous operation of secondary abatement equipment, where required to meet the ELVs.</li> <li>• where the plant benefits from an exemption from compliance with Annex II ELVs because it operates limited hours, a record of operating hours.</li> <li>• a record of the type and quantities of fuels used in the plant and of any malfunctions or breakdown of secondary abatement equipment.</li> <li>• a record of the events of non-compliance and the measures taken, as referred to in paragraph 7.</li> </ul> </li> <li>7. Supply the information listed in points 3 and 4, above when requested by the Competent Authority.</li> <li>8. In the event of non-compliance with the ELVs on the permit, the operator shall take the measures necessary to ensure that compliance is restored within the shortest possible time, including measures requested by the Competent Authority.</li> <li>9. Notify the Competent Authority of events of non-compliance as set out under National rules (see proposal on non-compliance reporting under MCPD section): <ul style="list-style-type: none"> <li>• There is malfunction of secondary abatement that cannot be fixed within 24h</li> <li>• Other occasions where compliance cannot be restored within one month</li> </ul> </li> <li>10. Keep periods of start-up and shut down as short as possible.</li> <li>11. Notify the Competent Authority without any undue delay of planned changes to the combustion plant which would affect the applicable ELVs.</li> </ol>

## Minimum data operators must submit in permit applications

1. Rated thermal input (MW) of the medium combustion plant.
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).
3. Type and share of fuels used according to the fuel categories laid down in Annex II.
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.
5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code).
6. Expected number of annual operating hours of the medium combustion plant and average load in use.
7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.
8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.

## MCPD Competent Authority Obligations

1. Permit combustion plants based on information supplied by the operator.
2. Determine whether new combustion plants at a site should be aggregated.
3. For plants subject to bespoke permits, set permit conditions which safeguard local air quality.
4. Amend permits when operator submits information about modifications to combustion plants, or if required when reviewing information collated in compliance checks.
5. Carry out checks to assess compliance with permit conditions.
6. Ensure operators comply with permit conditions, and direct operators to take action to rectify non-compliance.
7. Develop, update and make available, including via the web, a public register with the information submitted by operators in permit applications, and modifications to plants which affect the applicable ELVs.
8. Determine when to apply the derogations from ELVs in case of shortage of low sulphur fuels or interruption in supply of natural gas.
9. When operators report a non-compliance with ELVs which causes significant degradation to air quality, order suspension of operation until compliance is restored.
10. Answer requests from the public for the data operators are required to hold for 6 years, by requesting data from operators if required.



## Annex C – MCPD Annex II Emission Limit Values (ELVs)

All emission limit values set out in this Annex are defined 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 O<sub>2</sub> content of 6 % for medium combustion plants using solid fuels, 3 % for medium combustion plants, other than engines and gas turbines, using liquid and gaseous fuels and 15 % for engines and gas turbines.

### PART 1 - Emission limit values for existing medium combustion plants

**Table 1 - Emission limit values (mg/Nm<sup>3</sup>) for existing medium combustion plants with a rated thermal input equal to or greater than 1 MW and less than or equal to 5 MW, other than engines and gas turbines**

Pollutant	Solid biomass	Other solid fuels	Gas oil	Liquid fuels other than gas oil	Natural gas	Gaseous fuels other than natural gas
SO <sub>2</sub>	200 <sup>(1)(2)</sup>	1,100	—	350	—	200 <sup>(3)</sup>
NO <sub>x</sub>	650	650	200	650	250	250
Dust	50	50	—	50	—	—

**Table 2 - Emission limit values (mg/Nm<sup>3</sup>) for existing medium combustion plants with a rated thermal input greater than 5 MW, other than engines and gas turbines**

Pollutant	Solid biomass	Other solid fuels	Gas oil	Liquid fuels other than gas oil	Natural gas	Gaseous fuels other than natural gas
SO <sub>2</sub>	200 <sup>(4)(5)</sup>	400 <sup>(6)</sup>	—	350 <sup>(7)</sup>	—	35 <sup>(8)(9)</sup>
NO <sub>x</sub>	650	650	200	650	200	250
Dust	30 <sup>(10)</sup>	30 <sup>(10)</sup>	—	30	—	—

**Table 3 - Emission limit values (mg/Nm<sup>3</sup>) for existing engines and gas turbines**

Pollutant	Type of medium combustion plant	Gas oil	Liquid fuels other than gas oil	Natural gas	Gaseous fuels other than natural gas
SO <sub>2</sub>	Engines and gas turbines	—	120	—	15 <sup>(11)(12)</sup>
NO <sub>x</sub>	Engines	190 <sup>(13)(14)</sup>	190 <sup>(13)(15)</sup>	190 <sup>(16)</sup>	190 <sup>(16)</sup>
	Gas turbines <sup>(17)</sup>	200	200	150	200
Dust	Engines and gas turbines	—	10 <sup>(18)</sup>	—	—

## PART 2 - Emission limit values for new medium combustion plants

**Table 1 - Emission limit values (mg/Nm<sup>3</sup>) for new medium combustion plants other than engines and gas turbines**

Pollutant	Solid biomass	Other solid fuels	Gas oil	Liquid fuels other than gas oil	Natural gas	Gaseous fuels other than natural gas
SO <sub>2</sub>	200 <sup>(19)</sup>	400	—	350 <sup>(20)</sup>	—	35 <sup>(21)(22)</sup>
NO <sub>x</sub>	300 <sup>(23)</sup>	300 <sup>(23)</sup>	200	300 <sup>(24)</sup>	100	200
Dust	20 <sup>(25)</sup>	20 <sup>(25)</sup>	—	20 <sup>(26)</sup>	—	—

**Table 2 - Emission limit values (mg/Nm<sup>3</sup>) for new engines and gas turbines**

Pollutant	Type of medium combustion plant	Gas oil	Liquid fuels other than gas oil	Natural gas	Gaseous fuels other than natural gas
SO <sub>2</sub>	Engines and gas turbines	—	120 <sup>(27)</sup>	—	15 <sup>(28)</sup>
NO <sub>x</sub>	Engines <sup>(29)(30)</sup>	190 <sup>(31)</sup>	190 <sup>(31)(32)</sup>	95 <sup>(33)</sup>	190
	Gas turbines <sup>(34)</sup>	75	75 <sup>(35)</sup>	50	75
Dust	Engines and gas turbines	—	10 <sup>(36)(37)</sup>	—	—

- (1) The value does not apply in the case of plants firing exclusively woody solid biomass.
- (2) 300 mg/Nm<sup>3</sup> in the case of plants firing straw.
- (3) 400 mg/Nm<sup>3</sup> in the case of low calorific gases from coke ovens in the iron and steel industry.
- (4) The value does not apply in the case of plants firing exclusively woody solid biomass.
- (5) 300 mg/Nm<sup>3</sup> in the case of plants firing straw.
- (6) 1,100 mg/Nm<sup>3</sup> in the case of plants with a rated thermal input greater than 5 MW and less than or equal to 20 MW.
- (7) Until 1 January 2030, 850 mg/Nm<sup>3</sup> in the case of plants with a rated thermal input greater than 5 MW and less than or equal to 20 MW firing heavy fuel oil.
- (8) 400 mg/Nm<sup>3</sup> in the case of low calorific gases from coke ovens, and 200 mg/Nm<sup>3</sup> in the case of low calorific gases from blast furnaces, in the iron and steel industry.
- (9) 170 mg/Nm<sup>3</sup> in the case of biogas.
- (10) 50 mg/Nm<sup>3</sup> in the case of plants with a rated thermal input greater than 5 MW and less than or equal to 20 MW.
- (11) 60 mg/Nm<sup>3</sup> in the case of biogas.
- (12) 130 mg/Nm<sup>3</sup> in the case of low calorific gases from coke ovens, and 65 mg/Nm<sup>3</sup> in the case of low calorific gases from blast furnaces, in the iron and steel industry.
- (13) 1,850 mg/Nm<sup>3</sup> in the following cases:
  - (i) for diesel engines the construction of which commenced before 18 May 2006;
  - (ii) for dual fuel engines in liquid mode.
- (14) 250 mg/Nm<sup>3</sup> in the case of engines with a rated thermal input equal to or greater than 1 MW and less than or equal to 5 MW.
- (15) 250 mg/Nm<sup>3</sup> in the case of engines with a rated thermal input equal to or greater than 1 MW and less than or equal to 5 MW; 225 mg/Nm<sup>3</sup> in the case of engines with a rated thermal input greater than 5 MW and less than or equal to 20 MW.

- (16) 380 mg/Nm<sup>3</sup> for dual fuel engines in gas mode.
- (17) Emission limit values are only applicable above 70 % load.
- (18) 20 mg/Nm<sup>3</sup> in the case of plants with a rated thermal input equal to or greater than 1 MW and less than or equal to 20 MW.
- (19) The value does not apply in the case of plants firing exclusively woody solid biomass.
- (20) Until 1 January 2025, 1,700 mg/Nm<sup>3</sup> in the case of plants which are part of SIS or MIS.
- (21) 400 mg/Nm<sup>3</sup> in the case of low calorific gases from coke ovens, and 200 mg/Nm<sup>3</sup> in the case of low calorific gases from blast furnaces, in the iron and steel industry.
- (22) 100 mg/Nm<sup>3</sup> in the case of biogas.
- (23) 500 mg/Nm<sup>3</sup> in the case of plants with a total rated thermal input equal to or greater than 1 MW and less than or equal to 5 MW.
- (24) Until 1 January 2025, 450 mg/Nm<sup>3</sup> when firing heavy fuel oil containing between 0,2 % and 0,3 % N and 360 mg/Nm<sup>3</sup> when firing heavy fuel oil containing less than 0,2 % N in the case of plants which are part of SIS or MIS.
- (25) 50 mg/Nm<sup>3</sup> in the case of plants with a total rated thermal input equal to or greater than 1 MW and less than or equal to 5 MW; 30 mg/Nm<sup>3</sup> in the case of plants with a total rated thermal input greater than 5 MW and less than or equal to 20 MW.
- (26) 50 mg/Nm<sup>3</sup> in the case of plants with a total rated thermal input equal to or greater than 1 MW and less than or equal to 5 MW.
- (27) Until 1 January 2025, 590 mg/Nm<sup>3</sup> for diesel engines which are part of SIS or MIS.
- (28) 40 mg/Nm<sup>3</sup> in the case of biogas.
- (29) Engines running between 500 and 1 500 hours per year may be exempted from compliance with those emission limit values if they are applying primary measures to limit NO<sub>x</sub> emissions and meet the emission limit values set out in footnote (4).
- (30) Until 1 January 2025 in SIS and MIS, 1 850 mg/Nm<sup>3</sup> for dual fuel engines in liquid mode and 380 mg/Nm<sup>3</sup> in gas mode; 1 300 mg/Nm<sup>3</sup> for diesel engines with ≤ 1 200 rpm with a total rated thermal input less than or equal to 20 MW and 1 850 mg/Nm<sup>3</sup> for diesel engines with a total rated thermal input greater than 20 MW; 750 mg/Nm<sup>3</sup> for diesel engines with > 1 200 rpm.
- (31) 225 mg/Nm<sup>3</sup> for dual fuel engines in liquid mode.
- (32) 225 mg/Nm<sup>3</sup> for diesel engines with a total rated thermal input less than or equal to 20 MW with ≤ 1 200 rpm.
- (33) 190 mg/Nm<sup>3</sup> for dual fuel engines in gas mode.
- (34) These emission limit values are only applicable above 70 % load.
- (35) Until 1 January 2025, 550 mg/Nm<sup>3</sup> for plants which are part of SIS or MIS.
- (36) Until 1 January 2025, 75 mg/Nm<sup>3</sup> for diesel engines which are part of SIS or MIS.
- (37) 20 mg/Nm<sup>3</sup> in the case of plants with a total rated thermal input equal to or greater than 1 MW and less than or equal to 5 MW.

# Annex D – Summary of generator emission controls

(for generators that are also Medium Combustion Plants these controls apply in addition to the requirements of the MCPD)

## Tranche A generators are those:

- that come into operation before 1 December 2016.
- that are the subject of a Capacity Market Agreement for new capacity arising from the 2014 or 2015 auction (including those which have not come into operation by 1 December 2016).
- for which a Feed-in Tariff preliminary accreditation application has been received by Ofgem before 1 December 2016.

## Tranche B generators are:

any generators that are not Tranche A generators

## Generator definition

Generator means:

- any single stationary electricity generating combustion plant; or
- any group of stationary electricity generating combustion plant located together and providing electricity for the same purpose, with a rated thermal input of between 1MWth and 50MWth, including any MCP, but excluding any plant subject to the provisions of Chapter II or Chapter III of Directive 2010/75/EU (the industrial emissions Directive).

If your generator qualifies for one of the exemptions below:

- Back-up generator (generators operating to supply power during an on-site emergency e.g. a power cut) which are operated for the purpose of testing for no more than 50 hours per year (operation to provide power on site during an emergency is unrestricted) or
- Generators operating under a nuclear site licence

**Then your generator is fully exempt from the proposals, no further action is required.**

The following generators are exempt from permitting for a limited period;

- Tranche A generators, with a thermal rated input of 5-50MWth and with an emission  $<500\text{mg}/\text{Nm}^3$  and Tranche A generators, with a thermal rated input of 5-50MWth and operating  $<50$  hours per year (until 2025)
- Tranche A generators 1-5MWth (until 2030)

**For these generators the standard requirements will apply from 2025/2030** unless operation of the generator is required (only) to fulfil a legally binding pre-existing supply contract/ or capacity agreement in which case the standard requirements and any additional requirements to safeguard local air quality will be applied from the date this expires.

If your generator is classed as one of these:

- any Tranche B generator used at a site to which it is not reasonably practicable to supply mains power
- any Tranche B generator for which the operator has demonstrated to the regulator a genuine need to carry out routine testing for more than 50 hours per year
- **Until 2025**, any tranche A generator with a rated thermal input of 5-50MWth with  $\text{NO}_x$  emissions of  $500\text{mg}/\text{Nm}^3$  or greater

**Then your generator requires a permit with site-specific conditions to safeguard local air quality.** The conditions of the permit will be based on an assessment of the impact of emissions on nearby sensitive receptors, e.g. by air dispersion modelling.

**All other generators require a permit from January 2019, containing at least the following standard requirements:**

- a  $\text{NO}_x$  ELV of  $190\text{mg}/\text{Nm}^3$
- where secondary abatement is required to meet the  $190\text{mg}/\text{Nm}^3$  it must be met within 5 minutes of the generator commencing operation
- there must be no persistent visible emission
- where the generator relies on secondary abatement to meet the  $190\text{mg}/\text{Nm}^3$   $\text{NO}_x$  ELV, emissions must be monitored every 3 years.

Where the regulator considers there may be a risk to air quality standards resulting from the operation of the generator, an operator will be expected to quantify the impact of emissions on sensitive receptors, e.g. by air dispersion modelling.

## Annex E- Glossary

<b>Ambient Air Quality Limits</b>	Limits on the maximum concentration of pollutants at a sensitive receptor (e.g. place where people may be exposed or sensitive habitat) as set out in Annex XI of the Ambient Air Quality Directive.
<b>BEIS</b>	Department of Business, Energy and Industrial strategy
<b>CAR</b>	Compliance assurance report
<b>CO</b>	Carbon Monoxide
<b>Combustion Plant</b>	Any technical apparatus in which fuels are oxidised in order to use the heat thus generated
<b>DEFRA</b>	Department for Environment, Food and Rural Affairs
<b>Devolved Administration</b>	The devolved governments of the UK nations. They are the Welsh Government in relation to Wales, The Scottish Government in relation to Scotland and the Northern Ireland Executive in relation to Northern Ireland.
<b>EA</b>	Environment Agency
<b>ELVs</b>	Emission Limit Values means the permissible concentration of a substance contained in the waste gases from a combustion plant which may be discharged into the air at any given time
<b>EPR</b>	Environmental Permitting Regulations
<b>ESI</b>	Electricity Supply Industry
<b>Government</b>	Defra and Welsh Government
<b>GJ</b>	GJ - energy content of the fuel in Giga Joule
<b>Installation</b>	(a) a stationary technical unit where one or more activities are carried on, and

	(b) any other location on the same site where any other directly associated activities are carried on,
<b>LA</b>	Local Authority
<b>MCERTS</b>	Monitoring Certification Scheme
<b>MCP</b>	Medium Combustion Plant
<b>MCPD</b>	Medium Combustion Plant Directive
<b>Member states</b>	Members of the European Union
<b>mg/Nm<sup>3</sup></b>	Milligrams per normalised metre cubed
<b>MIS</b>	Micro Isolated Systems
<b>MW</b>	Megawatt - a unit of power equal to one million watts
<b>MWth</b>	Thermal rated input in MW – the maximum fuel energy rate of the combustion plant.
<b>NACE Code</b>	The Statistical Classification of Economic Activities in the European Community, commonly referred to as NACE is the industry standard classification system used in the European Union.
<b>National Grid</b>	International electricity and gas company based in the UK. It is the operator of the UK's high voltage electricity transmission network
<b>NGO</b>	Non-Government Organisation
<b>NO<sub>2</sub></b>	Nitrogen Dioxide
<b>NO<sub>x</sub></b>	Nitric oxide and nitrogen dioxide
<b>NRMM</b>	Non Road Mobile machinery
<b>Ofgem</b>	Office of Gas and Electricity Markets

<b>PM</b>	Particulate Matter
<b>RHI</b>	Renewable Heat Incentive
<b>SCR</b>	Selective catalytic reduction
<b>SIS</b>	Small isolated systems
<b>SO<sub>2</sub></b>	Sulphur Dioxide
<b>Solid Fuels</b>	Refers to fuel made of solid substance, typically coal or wood
<b>T-1</b>	Capacity Market auctions held one year ahead of delivery offering 1-year agreements (only) to top-up/fine tune the capacity requirement as needed for the coming delivery year.
<b>T-4</b>	T-4' Capacity Market auctions seek to procure capacity four years in advance of the required delivery window, and award 'capacity agreements' to those successful
<b>TRIAD</b>	The Triads are defined as the three half-hours of highest demand on the Great British electricity transmission network between November and February each year. The triad charging system is a tool used by National Grid to smooth demand for electricity at peak times and is used to recover the costs of building and maintaining the electricity transmission network. The cost of electricity for large industrial and commercial users of electricity whose consumption is half hourly metered is determined by their demand during the Triads. Large users of energy therefore have an incentive to reduce their demand during the Triads by running their generators to avoid drawing power from the transmission network during Triads (this is known as Triad avoidance). Generators connected at the distribution level are paid to produce power during the Triad peaks. Triads are declared by National Grid retrospectively so generators are run whenever the operator believes a triad is likely to occur.
<b>WHO</b>	World Health Organisation

