

Integrated Pollution Prevention and Control Directive



COGEN
europe

The IPPC Directive

Full Title	<p>Council Directive 96/61/EC concerning integrated pollution prevention and control ("IPPC Directive"). The IPPC Directive has recently been codified 2008/1/EC. The codified act includes all the previous amendments to the Directive 96/61/EC and introduces some linguistic changes and adaptations. The substance of Directive 96/61/EC has not been changed and the adopted new legal act is without prejudice to the new proposal for a Directive on Industrial Emissions.</p> <p>The current IPPC Directive 2008/1/EC will expire as soon as the recast Directive is into force.</p>
Brief Outline	<p>The Directive establishes a set of EU-wide common rules on permitting for industrial installations. All installations covered by Annex I of the Directive are required to obtain an authorisation (permit) from the authorities in the EU countries. Unless they have a permit, they are not allowed to operate. The permits must be "integrated", i.e. they must take into account the whole environmental performance of the plant, including air emissions, water, land use, waste, use of raw materials, energy efficiency, noise, prevention of accidents, risk management, etc. Permits must be based on the concept of Best Available Techniques (BAT). The concept of BAT is defined in Article 2 of the Directive, whilst Annex IV provides considerations to be taken into account when determining BAT.</p> <p>Annex V of the Directive contains the Emission Limit Values (ELV) for Large Combustion Plants. These ELV vary according to the general category type of fuel (solid, liquid, gaseous) and the general type of technology used e.g. boiler, turbine, or engine.</p>

Recast of the IPPC Directive

Full Title	<p>Proposal for a Directive of the European Parliament and of the Council on industrial emissions (integrated pollution prevention control) RECAST 2007/0286 (COD).</p>
Entry into force	<p>The Directive is expected to enter into force in 2014. However, as of 16th February 2009, there is a possibility that Member States will push back entry into force to 2020 in the Council. The ELVs are to enter into force 2016.</p>
Brief Outline	<p>On 21 December 2007 the Commission adopted a Proposal for a Directive on industrial emissions. The Proposal recasts seven existing Directives related to industrial emissions into a single clear and coherent legislative instrument. The recast includes in particular the IPPC Directive.</p> <p>The scope of the legislation is being extended to include all installations with a rated thermal input of 20 MWth (down from 50 MWth). Additionally the NO_x and SO ELV laid out in Annex V for installations running on gaseous fuels are very tight and arguably impossible to achieve without post-combustion flue-gas treatment. If implemented in its current form it puts heavy additional cost on installations. The ELV for installations running on natural gas do not distinguish across gases and specific technologies. This</p>

	<p>can be seen as presenting a serious barrier to the growth of bio gas cogeneration market. The risk is that SCR technology becomes compulsory for these large gas-engine based installations.</p> <p>The ELV contained in Annex V are directly based on the emission levels presented in the BREF.</p>
BAT and IPPC values	<p>The Commission organises an information exchange on BAT, which is coordinated by the European IPPC Bureau ("Sevilla Process").</p> <p>This work feeds into the BREF (Best Available Technique reference documents) on Large Combustion Plants. The emission levels associated with BAT in the BREF directly feed into the Commission's thinking and are to be used as basis when setting ELV under the IPPC Directive.</p>
BREF in the Review	<p>The current emission levels associated with the use of BAT for turbines and engines powered by gaseous fuels have been based on an O₂ level of 15 vol-%, and standard conditions as the reference point. The BAT associated emission levels are based on a daily average, standard conditions and represent a typical situation (see Annex II).</p> <p>The recast of the Directive foresees an extension of the scope of Annex I to installations in the 20-50 fuel input capacity range, which implies that the Large Combustion Plant BREF will be extended covering these smaller installations. Thus, the next revision of the BREF envisaged in 2010 will include an extension to smaller installations.</p>
Updates of legislative processes and next steps	<p>The Commission's proposal was amended on 22nd January by the ENVI committee. However, the ELVs in Annex V were left unchanged (i.e. as in the Commission's proposal, see Annex I & II).</p> <p>It is now left to the EP plenary and the Council of ministers to adopt the Directive. While the Parliament has opted to take a strong position on IPPC, the Council is expected to try to soften the text as it is seen as a burden on the economy. In particular, member States are likely to ask for an entry into force in 2020 only, instead of 2014.</p> <p>The IPPC Directive will be put to the vote in plenary of the Parliament in March 2009, before going to the Council.</p> <p>The general consensus is that there will be 2 readings in the Parliament's plenary as MEPs anticipate some disagreements between the EP and the Council.</p> <p>The final recast Directive is expected to be adopted by the end of 2009.</p> <p>The LCP BREF will be revised as of 2010. Once the new BREF is published, the Commission will have 12 months to adjust the Annex V ELVs.</p>
Problem areas	<p>The proposed revised Directive introduces 2 problematic changes:</p> <ol style="list-style-type: none"> 1/ The threshold for inclusion is lowered to 20 MWth input, down from 50 MW. 2/ The Emission Limit Values for CO and NO_x are much tighter, in particular for gas-fired installations and the text makes no difference between types of gas or types of engines. <p>Because of these changes there is a real risk that gas engine based systems will have to invest in SCR in the future. There may be some implication on gas turbines as well.</p>
Impact on co/polygeneration	<p>Although the gas engine sector contributes only 0.4 % and 0.0056 % to the total EU emissions of NO_x and CO, the extremely low ELVs will increase pressure on water use and will require the use of ammonia (for selective catalytic reduction installations). This will result in additional secondary pollutions from the production and transportation of the reagents from factories to the plants. The low ELV will also lead to lower energy efficiency due to higher fuel consumption, higher operation costs, and higher CO₂ emissions.</p> <p>The Combined Heat and Power CHP plant bonus is removed for gas turbines, thus the high fuel efficiency of cogeneration is no longer recognized.</p> <p>The proposed recast Directive marks a significant tightening of ELV for LCP. The ELV in Annex V will apply to installations with a thermal rating input capacity of 50 MW or</p>

	<p>more. However, the extension of the scope of the Directive to installations rated 20MW or more implies that much smaller cogeneration installations will have to comply with strict NOx and CO emission limits once the LCP BREF has been revised to cover the 20-50MW range. The extension of the scope to smaller plants will lead to virtually no further reduction in NOx and CO2 emissions but has a high cost for end users</p> <p>The “one size fits all” approach is inappropriate because</p> <ol style="list-style-type: none"> a. The proposed emission limits do not take different types of gas into account b. The proposed limits do not take different gas engine technologies into account c. The flexibility mechanism is lost in the proposal
Lead Committee	ENVI Committee
European Commission	European Commission DG: Environment Directorate C4 : Industrial Emissions & Protection of the ozone layer
Council of Ministers	Ministers of Environment
Websites	<p>Commission’s IPPC website: http://ec.europa.eu/environment/air/pollutants/stationary/ippc/index.htm</p> <p>IPPC Bureau website: http://eippcb.jrc.es/</p> <p>EPER website: http://eper.eea.europa.eu/eper/</p> <p>New proposal on IPPC Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0844:FIN:EN:PDF</p> <p>Parliament Procedure File: http://www.europarl.europa.eu/oeil/file.jsp?id=5578652</p>

Annex I

Recast of the Directive, Annex V, Part 1, point 5

Technical Provisions relating to combustion plants

Part 1 (for existing plants)

5. Emission limit values (mg/Nm³) for NO_x and CO for gas fired combustion plants

	NO _x	CO
Gas fired boilers	100	100
Gas turbines (including CCGT), using natural gas ⁽¹⁾ as fuel	50 ⁽²⁾⁽³⁾	100
Gas turbines (including CCGT), using other than natural gas as fuel ⁽⁴⁾	90	100
Gas engines	100	100

Notes:

- (1) Natural gas naturally occurring methane with not more than 20% (by volume) of inerts and other constituents.
- (2) 75mg/Nm³ in the following cases, where the efficiency of the gas turbine is determined at ISO base load conditions:
 - (i) gas turbines, used in combined heat and power systems having an overall efficiency greater than 75%;
 - (ii) gas turbines used in combined cycle plants having an annual average overall electrical efficiency greater than 55%;
 - (iii) gas turbines for mechanical drives.
- (3) For single gas turbines not falling into any of the categories mention under note (2), but having an efficiency greater than 35% - determined at ISO base load conditions – the emission limit value for NO_x shall be $50x^* / 35$ where x^* is the gas turbine efficiency at ISO base load conditions expressed as percentage.
- (4) These emission limit values also apply to gas turbines using light and middle distillates as liquid fuels.

For gas turbines (including CCGT) the NO_x and CO emission limit values set out in the table contained in this point apply only above 70% load.

Gas turbines for emergency use that operate less than 500 hours per year are covered by the emission limit values set out in this point. The operator of such plants shall record the used operating time.

Part 2: Emission limit values for combustion plants (for new plants)

5. Emission limit values (mg/Nm³) for NO_x and CO for gas fired combustion plants

	NO _x	CO
Gas fired boilers	100	100
Gas turbines (including CCGT) ⁽¹⁾	50 ⁽²⁾	100
Gas engines	75	100

Notes

- (1) For gas turbines using light and middle distillates as liquid fuels, the emission limit values for NO_x and CO set out in this point also apply.
- (2) For single cycle gas turbines having an efficiency greater than 35% - determined at ISO base load conditions – the emission limit value for NO_x shall be $50x^* / 35$ where x^* is the gas turbine efficiency at ISO base load conditions expressed as percentage.
- (3) For gas turbines (including CCGT) the NO_x and CO emission limit values set out in this point apply only above 70% load.

Gas turbines for emergency use that operate less than 500 hours per year are covered by the emission limit values set out in this point. The operator of such plants shall record the used operating time.

Annex II

BAT Emission Limit Values for gas-fired power generation systems in LCP BREF (p. 481)

Plant type	Emission level associated with BAT (mg/Nm ³)		O ₂ level (%)	BAT options to reach these levels	Monitoring
	NO _x	CO			
Gas turbines					
New gas turbines	20 - 50	5 - 100	15	Dry low-NO _x premix burners (standard equipment for new gas turbines) or SCR	Continuous
DLN for existing gas turbines	20 - 75	5 - 100	15	Dry low-NO _x premix burners as retrofitting packages if available	Continuous
Existing gas turbines	50 - 90 ⁽¹⁾	30 - 100	15	Water and steam injection or SCR	Continuous
Gas engines					
New gas engines	20 - 75 ⁽²⁾	30 - 100 ⁽³⁾	15	Lean burn concept low-NO _x tuned and oxidation catalyst for CO or SCR and oxidation catalyst for CO	Continuous ⁽⁴⁾
New gas engine with HRSG in CHP mode	20 - 75 ⁽²⁾	30 - 100 ⁽³⁾	15	Lean burn concept low-NO _x tuned and oxidation catalyst for CO or SCR and oxidation catalyst for CO	Continuous ⁽⁴⁾
Existing gas engines	20 - 100 ⁽²⁾	30 - 100 ⁽³⁾	15	Low-NO _x tuned	Continuous ⁽⁴⁾
1	Industry and one Member State claimed that the amount of water or steam that can be injected in an existing gas turbine is limited. Injection high amounts of water or steam may lead to damage of gas turbine components. Therefore, they claimed that the range needs to be substituted by 80 - 120 mg/Nm ³ .				
2	Industry claimed that these ranges are not according the BAT approach. The reason given was that the range given as BAT is the same as the one given by the American LAER approach (lowest achievable emission rate). Industry proposed an environmental quality driven approach taking the surrounding (urban/other areas) into account. That means that small plants situated in rural areas shall have leaner BAT levels than large plants in city areas. Industry claimed that levels of 190 mg/Nm ³ (15 % O ₂) in gas mode represented the overall emission optimum considering the lowest possible fuel consumption and unburned gaseous emission of CO, VOC etc. for spark-ignited (SG) and dual fuel engines (DF) in gas mode.				
3	Industry mentioned that due to technical reasons (fuel composition impact), CO should be at a level of 110 - 380 mg/Nm ³ (15 % O ₂) in order to represent BAT.				
2	Another Industry representative claimed that the ranges should be changed to:				
3	90 - 190 mg/Nm ³ 100 mg/Nm ³ because the emission levels associated with BAT for gas engines are only applicable for burning natural gas and not for renewable gases like landfill gas, biogas or purification gas. Moreover, they claimed that such levels would create disadvantages for competitiveness in the market for such gases.				
4	One Industry representative proposed changing to discontinuous monitoring because continuous engine emission monitoring is not common practice for stationary internal combustion engines.				

Contact Details

Function	Name	E-mail	Telephone
Rapporteur ALDE	Holger Krahmer	Holger.krahmer@europarl.europa.eu	0032 (0) 228 45344
Shadow Rapporteur EPP/ED	Marcello Vernola	Marcello.vernola@europarl.europa.eu	0032 (0) 228 45304
Shadow Rapporteur PES	Gyula Hegyí	Gyula.hegyi@europarl.europa.eu	0032 (0) 228 45829
Shadow Rapporteur Greens	Claude Turmes	Claude.turmes@europarl.europa.eu	0032 (0) 228 45246
Shadow Rapporteur GUE/NGL	Roberto Musacchio	Roberto.musacchio@europarl.europa.eu	0032 (0) 228 45664
Shadow Rapporteur IND/DEM	Johannes Blokland	Johannes.blokland@europarl.europa.eu	0032 (0) 45820
JURI Avis Rapporteur	Lidia Joanna Geringer de Oedenberg	Lidiajoanna.geringerdeoedenberg@europarl.europa.eu	0032 (0) 228 45809
Committee Administrator	Christina Malmros	Christina.malmros@europarl.europa.eu	0032 (0) 228 46229
EPP Political Advisor	Amarylli Gersony	Amarylli.gersony@europarl.europa.eu	0032 (0) 228 42657
PES Political Advisor	Francisco Guerra	Francisco.guerra@europarl.europa.eu	0032 (0) 228 31381
PES Political Advisor	Ulrike Schoener	Ulrike.schoener@europarl.europa.eu	0032 (0) 228 32488
ALDE Political Advisor	Tue Fosdal	Tue.fosdal@europarl.europa.eu	0032 (0) 228 32747
Green Political Advisor	Mathieu Fichter	Mathieu.fichter@europarl.europa.eu	0032 (0) 228 42165
Green Political Advisor	Terhi Lehtonen	Terhi.lehtonen@europarl.europa.eu	0032 (0) 228 43052
Green Political Advisor	Axel Singhofen	Axel.singhofen@europarl.europa.eu	0032 (0) 228 42836
UEN Political Advisor	Valeria Fiore	Valeria.fiore@europarl.europa.eu	0032 (0) 228 32296
UEN Political Advisor	Regina O'Connor	Regina.oconnor@europarl.europa.eu	0032 (0) 228 47751

DG Environment Contact

Marianne Wenning	0032 (0) 229 55943
Thomas Verheye (Head of Unit)	0032 (0) 229 59639