EU Emission Regulation on coal fired power plants

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Directorate- General Energy

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Convention on Long-range Transboundary Air Pollution

Convention on Long-range Transboundary Air Pollution

The 1979 Geneva Convention on Long-range Transboundary Air Pollution

The Convention on Long-range Transboundary Air Pollution is one of the central means for protecting our environment. It has, over the years, served as a bridge between different political systems and as a factor of stability in years of political change. It has substantially contributed to the development of international environmental law and has created the essential framework for controlling and reducing the damage to human health and the environment caused by transboundary air pollution. It is a successful example of what can be achieved through intergovernmental cooperation.

The history of the Convention can be traced back to the 1960s, when scientists demonstrated the interrelationship between sulphur emissions in continental Europe and the acidification of Scandinavian lakes. The 1972 United Nations Conference on the Human Environment in Stockholm signalled the start for active international cooperation to combat acidification. Between 1972 and 1977 several studies confirmed the hypothesis that air pollutants could travel several thousands of kilometres before deposition and damage occurred. This also implied that cooperation at the international level was necessary to solve problems such as acidification.

In response to these acute problems, a High-level Meeting within the Framework of the ECE on the Protection of the Environment was held at ministerial level in November 1979 in Geneva. It resulted in the signature of the Convention on Long-range Transboundary Air Pollution by 34 Governments and the European Community (EC). The Convention was the first international legally binding instrument to deal with problems of air pollution on a broad regional basis. Besides laying down the general principles of international cooperation for air pollution abatement, the Convention sets up an institutional framework bringing together research and policy.

The Convention on Long-range Transboundary Air Pollution entered into force in 1983. It has been extended by eight specific protocols.

Text of the Convention :
English French Russian Status of ratification

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Protocol to Abate Acidification, Eutrophication and Ground-level Ozone - Microsoft Internet Explorer provided by Delegation Rus
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Protocol to Abate Acidification, Eutrophication and Ground-level Ozone

The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone

The Executive Body adopted the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone in Gothenburg (Sweden) on 30 November 1999.

The Protocol sets emission ceilings for 2010 for four pollutants: sulphur, NOx, VOCs and ammonia. These ceilings were negotiated on the basis of scientific assessments of pollution effects and abatement options. Parties whose emissions have a more severe environmental or health impact and whose emissions are relatively cheap to reduce will have to make the biggest cuts. Once the Protocol is fully implemented, Europe's sulphur emissions should be cut by at least 63%, its NOx emissions by 41%, its VOC emissions by 40% and its ammonia emissions by 17% compared to 1990.

The Protocol also sets tight limit values for specific emission sources (e.g. combustion plant, electricity production, dry cleaning, cars and lorries) and requires best available techniques to be used to keep emissions down. VOC emissions from such products as paints or aerosols will also have to be cut. Finally, farmers will have to take specific measures to control ammonia emissions. Guidance documents adopted together with the Protocol provide a wide range of abatement techniques and economic instruments for the reduction of emissions in the relevant sectors, including transport.

It has been estimated that once the Protocol is implemented, the area in Europe with excessive levels of acidification will shrink from 93 million hectares in 1990 to 15 million hectares. That with excessive levels of eutrophication will fall from 165 million hectares in 1990 to 108 million hectares. The number of days with excessive ozone levels will be halved. Consequently, it is estimated that life-years lost as a result of the chronic effects of ozone exposure will be about 2,300,000 lower in 2010 than in 1990, and there will be approximately 47,500 fewer premature deaths resulting from ozone and particulate matter in the air. The exposure of vegetation to excessive ozone levels will be 44% down on 1990.

Protocol text:

English | French | Russian | Status of ratification

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Current legal situation
IPPC and LCP Directives (1)

- **Integrated Pollution Prevention and control Directive 2008/01/EC – codified version of 96/61/EC**
  - Aiming at a **high level of protection for the environment as a whole**
  - Key instrument of environmental legislation covering all environmental media (air, water, soil)
  - operating permits for industry with conditions to be based on “best available techniques” (BAT)
  - provides for an exchange of information on BAT - Article 16(2)

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Current legal situation
IPPC and LCP Directives (2)

- **Large Combustion Plant Directive 2001/80/EC**

  - è Sets minimum requirements to be met by all installations - emissions limit values (ELV's), monitoring requirements etc
  - è Meeting these requirements is not necessarily sufficient to comply with IPPC Directive – possible stricter requirements under IPPC

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Annex 1 to IPPC Directive

- è **Energy industries**
- è **Production and processing of metals**
- è **Mineral industries**
- è **Chemical industry**
- è **Waste management**
- è **Others activities**

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Energy industries

- **Combustion installations with a rated thermal input exceeding 50 MW**
- **Mineral oil and gas refineries**
- **Coke ovens**
- **Coal gasification and liquefaction plants**

IPPC Implementation

- è **First step is transposition to national law**
- è **Next step is for operator to make application for permit**
- è **Finally, authority determines appropriate permit conditions**
- è **2007 deadline**

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Role of competent authorities (national, regional or local)

- **Receive permit applications**
- **Ensure integrated approach and consult between authorities**
- **Consult the public**
- **Refuse permit or set permit conditions**
- **Monitor compliance (self-monitoring by operators and inspections by authorities)**
- **Take enforcement actions if necessary**
- **Review, update permit conditions**

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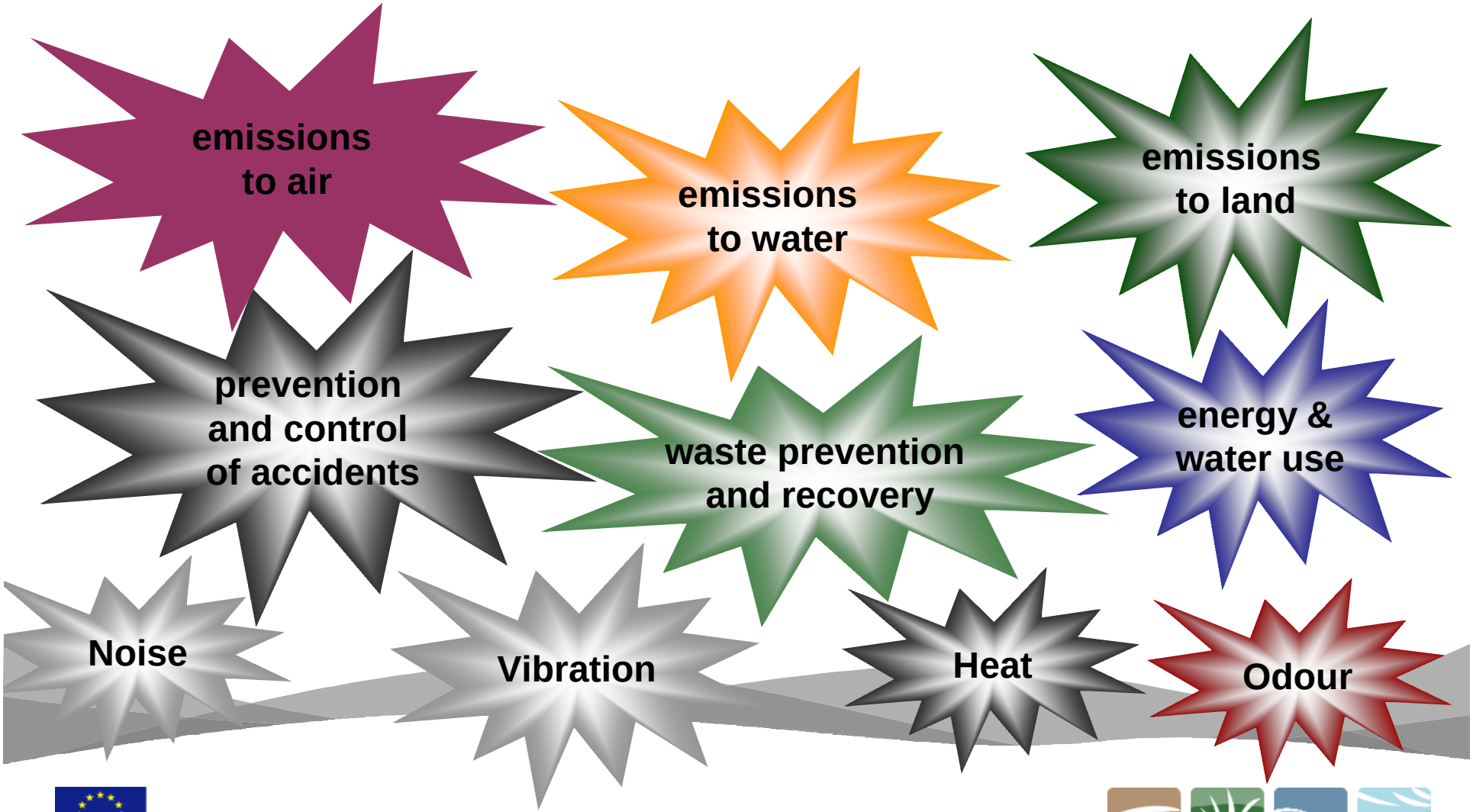
IPPC is about Integrated Permits



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IPPC is about Prevention of Pollution and implementation of Best Available Techniques

Best

most effective in achieving a **high general level of protection** of the environment as a whole

Available

developed on a scale to be implemented in the relevant industrial sector, **under economically and technically viable conditions**, advantages balanced against costs

Techniques

the **technology** used *and* the way the installation is **designed, built, maintained, operated and decommissioned**

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From Article 9(4)

- … permit conditions must, without prejudice to compliance with environmental quality standards, be based on the best available techniques, without prescribing the use of any technique or specific technology, but
  - taking into account the technical characteristics of the installation concerned;
  - its geographical location; and
  - the local environmental conditions.

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Annex IV

- **1. the use of low-waste technology;**
- **2. the use of less hazardous substances;**
- **3. recovery and recycling …….. ;**
- **4. comparable processes …….. ;**
- **5. technological advances & knowledge;**
- **6. the nature, effects and volume of the emissions concerned;**

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Annex IV continued

- **7. commissioning dates for installations;**
- **8. time to introduce BAT;**
- **9. consumption of raw materials and energy efficiency;**
- **10. prevent or reduce overall impact of emissions on environment and risks to it;**
- **11. prevent accidents and minimise consequences for the environment;**
- **The information published by the Commission pursuant to Article 17 (2)…**

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Article 17(2)- BAT Exchange of information

- **Purpose**
  - Exchange of information between Member States and industries on Best available techniques
  - help to redress technological imbalances in EU
  - promote worldwide dissemination of techniques used in EU

- **Process**
  - BREF author from IPPC Bureau (Commission)
  - Technical Working Groups: Member States, industry, NGOs
  - **Sevilla Process**: data gathering and exchange, meetings (3-4 years)
  - Agreement on draft final BREF by Information Exchange Forum (IEF)
  - Formal adoption and publication by European Commission

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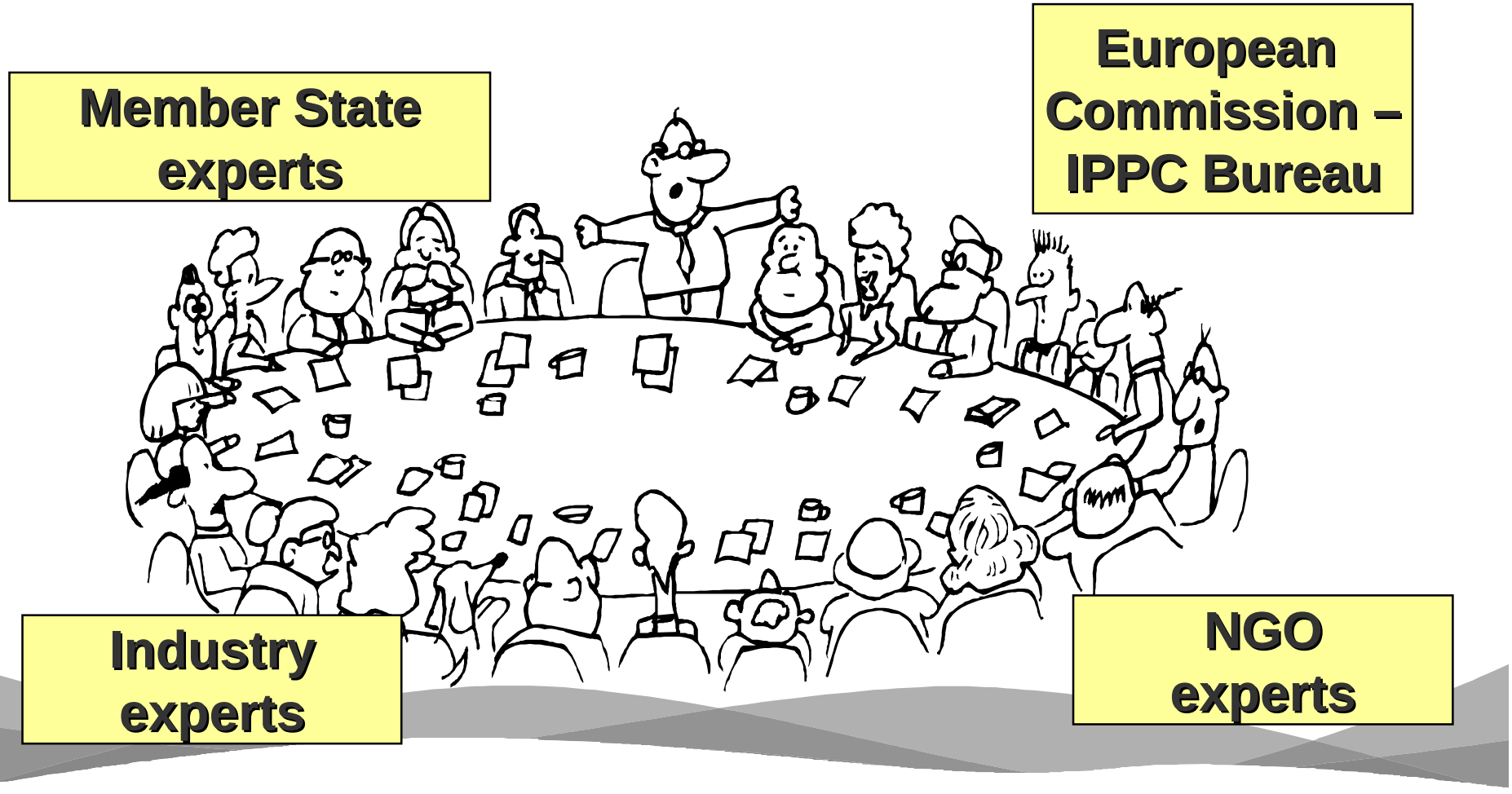
32 BAT Reference Documents (BREFs) adopted by the Commission based on an information exchange



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LCP BREF

- **Adopted in 2006**

n **http://eippcb.jrc.es/reference/**

- **Revision 2012 - 2014**

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Structure of the LCP BREF

- **Executive Summary**
- **Preface**
- **Common Techniques for Energy Generation**
- **Common Processes and Techniques to Reduce Emissions from LCPs**
- **Combustion Techniques for Coal and Lignite (install. > 50 MW)**
- **Combustion Techniques for Biomass and Peat**
- **Combustion Techniques for Liquid Fuels**
- **Combustion Techniques for Gaseous Fuels**
- **Co-Combustion of Waste and Recovered Fuels**
- **Concluding Remarks**

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Pollutants considered in LCP BREF

- **SO_2**
- **NOx**
- **CO**
- **PM10**
- **GHG such as N_2O, CO_2**
- **Heavy metals**
- **Halides**
- **Dioxins**

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BAT- Unloading, storage and handling of fuel

- **Particulate matter**
  - E.g. enclosed conveyors
- **Water contamination**
  - E.g. pipelines above ground
- **Fire prevention**
  - E.g. automatic systems
- **Fugitive emissions**
- **Efficient use of natural resources**
- **Health and safety risks regarding ammonia**

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Commission Proposal for an Industrial Emissions Directive

IPPC Recast Proposal from 21 December 2007:

- **It recasts into one single act the IPPC and LCP Directives and 5 other 'sectoral' Directives**

- **Maintains key principles of IPPC**

- **Main changes:**
  - **strengthening of BAT and the role of the BREFs**
  - **tightening minimum emission limit values for existing and new LCPs**

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LCP chapter of Industrial Emissions Directive

- **Tightening of minimum ELVS from 2016 on**
  - Aligned with current BAT (upper end of the range)
  - Significant contribution to the objectives of the TSAP
- **Introduction of new activities to the scope of IPPC (based on assessment of cost and benefits)**
  - Combustion activities of 20-50 MW capacity

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Ordinary legislative procedure (ex ‘co-decision’)

- **Negotiated in Council and EP 2008 - early 2010**
- **Second reading agreement: June 2010**
- **Agreed by EP Plenary in July 2010**
- **To be adopted by Council (Oct-Nov 2010?)**
- **To be published in OJ (end 2010?)**
  è **enters into force 20 days later**
- After adoption:
  - è **entry into effect: entry into force +2 years (end 2012)**
  - è **transitional periods for existing installations and newly covered activities: -2016-…**

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Summary

- **Following the Geneva Convention and the Gothenburg Protocol, the EU has created a regulatory framework to achieve a high level of protection of the environment and to lower emissions in line with its energy and climate policy.**
- **The conditions of required permits have to be based on Best Available Techniques (BAT).**
- **Best Available Techniques Reference Documents (BREFs) were adopted for the different industrial sectors including large combustions plants as well as for horizontal issues such as energy efficiency.**
- **Regulatory framework fosters development and investment into advanced fossil fuels technologies that belong to Europe's energy mix.**
- **It facilitates knowledge sharing to accelerate uptake of clean coal technologies in accordance with BAT**

- **EU is ready to share experiences and best available techniques on modern clean coal technologies including CCS with non-EU countries on multilateral and bilateral basis.**

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For more information…

- **DG ENV industrial emissions website**
  http://www.ec.europa.eu/environment/ippc/index.htm

- **CIRCA website on the IPPC review (reports)**
  http://circa.europa.eu/Public/irc/env/ippc_rev/library

- **LCP emission inventories 2004-2006**
  http://eea.eionet.europa.eu/Public/irc/eionet-circle/reporting/library?l=/lcp_reporting/summary_report/

- **E-PRTR (pollutant release and transfer register)**
  http://prtr.ec.europa.eu/

- **European IPPC Bureau (BREFs)**
  http://eippcb.jrc.ec.europa.eu/reference/

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Thank You for Your Attention