



EUROPEAN COMMISSION
DIRECTORATE-GENERAL JRC
JOINT RESEARCH CENTRE
Institute for Prospective Technological Studies
European IPPC Bureau

Integrated Pollution Prevention and Control

Executive summary Reference Document on Economics and Cross-Media Effects

June 2005

EXECUTIVE SUMMARY

This document is developed primarily to assist in the determination of best available techniques (BAT) under Directive 96/61/EC concerning integrated pollution prevention and control [20, European Commission, 1996]. The concept of BAT under IPPC takes into account the likely cost and benefits of measures as well as aiming to protect the environment taken as a whole to avoid creating a new and more serious environmental problem when solving another. BAT in a general sense is determined by stakeholder groups (technical working groups – TWGs) and is presented in a series of BAT reference documents (BREFs). BAT in BREFs serves as a reference point to assist in the determination of BAT-based permit conditions or for the establishment of general binding rules under Article 9 (8).

Article 9 (4) requires that permit conditions shall be based on BAT but taking into account the technical characteristics of the installation concerned, its geographical location and the local environmental conditions. Recital 18 furthermore leaves it for the Member State to determine how these local conditions can, where appropriate, be taken into consideration. Where there is a need to determine which option provides the higher level of protection to the environment in such local situations, the “cross-media” methodologies set out in this document may also help in this determination.

Some of the core principles of the Directive are discussed in this document insofar as they relate to taking account of the economic aspects of BAT and taking the environment as a whole (cross-media effects).

Chapter 1 - General information on economics and cross-media effects. This chapter discusses the terminology used in the Directive and explains the issues that are addressed in this document. Subsequent chapters set out a number of guidelines which may be used together or in combination to assist decision making relating to the determination of BAT. It is envisaged that the guidelines help to resolve differences in opinion as to BAT decisions by bringing structure to the discussion.

The purpose of the Directive is to achieve the integrated prevention and control of pollution arising from the industrial activities listed in Annex 1 of the Directive. The Directive lays down measures designed to prevent or, where that is not practicable, to reduce emissions to the air, water and land from these activities, including measures concerning waste, in order to achieve a high general level of protection of the environment taken as a whole. One of the principles of the Directive is that installations are operated in such a way that all appropriate preventive measures are taken against pollution, in particular through application of the Best Available Techniques (BAT).

The definition of BAT in the Directive and the principles that have to be taken into account are discussed.

Chapter 2 - Cross-Media guidelines. In order to determine BAT, there is a need to select the technique that is the most effective in achieving a high general level of protection of the environment taken as a whole. To achieve this in practice, there are likely to be instances where it will not be clear which technique offers the highest level of protection. Where this is the case, there may be a need to carry out an assessment to identify which technique is ‘best’. Chapter 2 on cross-media effects sets out the methodologies that should help to determine this.

The chapter sets out four guidelines which can lead the user through the process of determining which out of a choice of techniques is the best environmental option.

Guideline 1 sets out the information that is necessary to scope and identify the alternative techniques under consideration.

Concluding Remarks

Guideline 2 addresses the compilation of an inventory of the emissions from each of the alternative techniques and of the resources that they use. Such an inventory can be an important precursor to apply subsequent guidelines.

Guideline 3 sets out the steps necessary for estimating the environmental effects. There will usually be a range of emissions, discharges or resources used by the alternative techniques under consideration, and this guideline looks at ways of expressing the environmental effects so that comparisons can be made between the alternatives. Calculations are described that allow a wide range of pollutants to be expressed so that they can be compared and collated into 7 environmental themes; human toxicity, global warming, aquatic toxicity, acidification, eutrophication, ozone depletion and photochemical ozone creation potential. The guideline also considers the evaluation of energy use and the production of waste.

Guideline 4 describes the way in which the environmental themes that have been estimated in Guideline 3 can be interpreted. It details how different environmental effects can be compared and how the user can come to a decision as to which of the alternatives offers the highest general level of protection for the environment as a whole.

By following the guidelines in the cross-media chapter, the user should be in a better position to determine which option offers the highest level of protection for the environment. Carrying out the methodology also allows the user to set out the justification in a logical way so that the findings can be audited and validated at any point.

Chapter 3 - The costing methodology. The Directive also requires that the likely costs and benefits are taken into consideration when determining BAT. In order to determine the costs, a costing methodology is set out in Chapter 3. A further 5 guidelines are presented that allow the user to set out the costs transparently, so that the options can be validated, audited and compared in an equitable way.

Guideline 5 is analogous to guideline 1 in the cross-media methodology, in that it requires the user to scope and identify the alternative options.

Guideline 6 sets out the steps that are necessary for the user to gather and validate the cost data.

Guideline 7 requires the user to define which costs are being collated in the evaluation. This will require the identification of those costs that relate to investment expenditure and those that relate to operating and maintenance costs. In this guideline disaggregating the costs into as much detail as possible is preferred, so that they can be audited and validated more easily.

Guideline 8 sets out the steps that are necessary to process and present the cost information. Methodologies are described for dealing with exchange rates, inflation, discounting, and for calculating annual costs.

Guideline 9 discusses which costs should be attributed to environmental protection.

Chapter 4 - Evaluating the alternatives. Once the environmental effects have been established from Chapter 2, and the costs have been established from Chapter 3, there needs to be some way of comparing them. This chapter looks at ways of expressing cost effectiveness and at how the environmental benefits from implementing a technique can be valued. This can be useful as it allows the economic cost of implementing a technique to be balanced against the environmental benefit that it delivers. This can help clarify whether or not implementing a technique represents value for money in terms of environmental benefit.

Chapter 5 - Economic viability in the sector. In the Directive definition of BAT, “available” includes a requirement that techniques that are determined to be BAT are those that are *‘developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions’*. This chapter sets out a framework for assessing economic viability. Within this framework, the critical issues that need to be considered are the ‘Industry Structure’, the ‘Market Structure’, and the ‘Resilience’ of the sector.

Where it is found that implementing the proposed techniques will not undermine the viability of the sector but there still remain concerns about the economic impact, then an evaluation can be carried out as to whether the implementation can be eased by looking at the ‘Speed of Implementation’.

Although an assessment of economic viability is an inherent part of determining BAT, a detailed assessment is expected to be carried out only to resolve a claim that a technique (or a combination of techniques) is too expensive to be BAT. That claim is considered most likely to come from the industrial sector concerned and this chapter sets out a framework within which the arguments can be presented. The burden of proof in such an argument rests with those who object to the proposed BAT.

The Annexes - The annexes provide data and information that might be necessary when carrying out the methodologies described in this document.

- annexes 1 to 9 provide supporting information for the cross-media assessment
- annex 10 lists some useful sources for European price indices in support of the costing methodology
- annex 11 lists some financial ratios that might be useful in support of the economic viability valuation
- annex 12 lists external costs for some air pollutants in support of Chapter 4 on evaluating the alternatives
- annex 13 lists some of the methodologies that are used in support of the Directive in some Member States
- annex 14 describes the printing press example that was used in the development of the cross-media methodology
- annex 15 presents an example of NO_x reduction in municipal waste incinerator to illustrate application of the various methodologies in the document.

Although the methodologies that are described here have been simplified wherever possible, carrying out any of the assessments will still be an onerous process and should not be considered unless there is genuine disagreement about whether or not a proposed technique (or combination of techniques) is BAT.

The methodologies that are presented in this document assist a user to evaluate and set out both the environmental, and the economic consequences of introducing new techniques in support of the IPPC Directive. A key purpose of the methodologies described here is transparency, so that any part of the process can be validated or audited. Following the structure of the methodologies helps the user to achieve this transparency. The methodologies cannot make the decision, but can support subsequent expert judgement and provide a more consistent basis for the ultimate decision.

The EC is launching and supporting, through its RTD programmes, a series of projects dealing with clean technologies, emerging effluent treatment and recycling technologies and management strategies. Potentially these projects could provide a useful contribution to future BREF reviews. Readers are therefore invited to inform the EIPPCB of any research results which are relevant to the scope of this document (see also the preface of this document).