

# Types of Environmental Standards

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*Different kinds of environmental standards can serve quite different purposes in environmental policy, as discussed in this chapter.*

## Ambient Standards

Ambient standards set maximum allowable levels of a pollutant in the receiving medium (air, water, or soil). Ambient standards can offer a simple method of establishing priorities, since areas (or stream lengths) that comply with the relevant ambient standards are considered to require no further intervention, while other areas may be ranked by the extent to which concentrations exceed the ambient standards. Setting ambient standards requires an explicit agreement on the environmental quality objectives that are desired and the costs that society is willing to accept to meet those objectives. However, because ambient standards can be set at different levels for different locations, it is possible to use them to protect valuable ecosystems in a way that would not be possible by using emissions standards.<sup>1</sup>

It has been usual to establish an ambient standard for a pollutant by referring to the health effects of different levels of exposure, although some countries are moving toward ambient standards aiming to protect natural ecosystems. Historically, ambient standards in the industrial market economies have been continually tightened in the light of medical evidence on the impact of certain pollutants and in response to increased demand for better environmental quality. In particular, as reductions are achieved in the levels of simple pollutants such as biochemical oxygen demand (BOD), the focus has moved to the control of less obvious but more persistent pollutants such as heavy metals, polychlorinated biphenyls (PCBs), and the like,

which are accumulative and essentially not biodegradable.

## Emissions Standards

Emissions standards set maximum amounts of a pollutant that may be given off by a plant or other source. They have typically been expressed as concentrations, although there is increasing use of load-based standards, which reflect more directly the overall objective of reducing the total load on the environment. Emissions standards may be established in terms of what can be achieved with available technology or in terms of the impacts of the emissions on the ambient environment.

Technology-based standards are based on knowledge of what can be achieved with current equipment and practices. A wide range of principles has been used, including “best available technology” (BAT), “best practicable technology” (BPT), and “best available technology not entailing excessive cost” (BATNEEC). All these approaches are open to interpretation and are related to establishing what are the highest levels of equipment and performance that can reasonably be demanded from industrial plants.

Alternatively, emissions standards can be established by estimating the discharges that are compatible with ensuring that receiving areas around the plant meet the ambient standards defined for the pollutant. This, however, requires considerable information on both the sources and the ambient environment and varies from area to area.

New source performance standards (NSPSs) are specific emissions standards in which the standard is applied only to new plants. They represent a special form of grandfathering, since emissions from existing plants are treated differently from those from new plants. Where NSPSs are significantly stricter than standards imposed on existing plants and are therefore costly, they may have the effect of prolonging the economic life of existing plants—subject, of course, to the influence of other economic and technological factors. On the other hand, it is easier for new plants to adopt cleaner processes and to incorporate treatment requirements in the initial design. Therefore, the costs of well-designed NSPSs need not be excessive.

**Note**

1. An example of this differentiation is the setting of “critical loads” for acidic depositions in various areas of Europe and Asia. Critical loads are a specific application of an ambient standard designed to protect vulnerable ecosystems from the damage caused by acid rain. They are a quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur, according to present knowledge. Critical loads illustrate that it may be desirable to set joint ambient standards for several pollutants that interact or reinforce each other. Another example is the joint ambient standard for particulates and sulfur dioxide that has been adopted by the European Union.