

STATEMENT OF OBJECTIVES, GENERAL PRINCIPLES, AND SCOPE
REGARDING PROPOSED RULES AND STANDARDS
FOR THE REGULATION OF AIR EMISSIONS FROM DISTRIBUTED RESOURCES

THE REGULATORY ASSISTANCE PROJECT
DISTRIBUTED RESOURCES EMISSIONS COLLABORATIVE

April 30, 2001

A. Objectives

The Distributed Resources Emissions Collaborative will identify the issues and will develop the background, criteria, and requirements for a set of recommended rules and performance standards for regulating the air pollutant emissions of smaller-scale electric system generating resources, commonly referred to as distributed generation, or DG (see section on Applicability). The rules and standards are expected ultimately to take the form of a model rule that states can adopt in order to address the potential air quality impacts of new and existing sources of electric generation that are not, for the most part, covered by current state air regulations, policies, or permits. The purpose is to help reduce institutional and infrastructure barriers to cost-effective deployment of distributed power systems, and to do so by facilitating the development, siting, and efficient use of distributed generation in ways that improve or, at least, do not degrade air quality. More specifically, the objectives are:

- (1) To research and develop information, tools, and options for regulatory policies that will encourage the deployment of distributed resources where cost-effective and environmentally beneficial; and
- (2) To establish and foster adoption of a national model for output-based emissions performance standards for distributed resources that state utility and environmental regulators and other key stakeholders have developed through a collaborative approach.

B. Principles To Guide the Collaborative's Effort

1. Environmental Impacts

The recommended rules and standards should regulate the emissions output of distributed generation in a technology-neutral and fuel-neutral approach, as appropriate.

2. Other Distributed Resources

The recommended rules and standards are intended to encourage, or at least not discourage, the deployment of non-emitting distributed resources.

3. Usefulness

The recommended rules and standards should be of immediate use to states and the electric power industries. They should be acceptable to environmental and utility regulators, energy service providers, and manufacturers of distributed generation; and they should, among other things, simplify the administrative processes of siting and permitting.

4. Impacts on the DR and Electric Industries

The recommended rules and standards should have positive impacts on the DR and electric industries. By promoting consistent or uniform standards in multiple jurisdictions, they can enable manufacturers to standardize designs and capture the benefits of economies of scale. The recommended rules should also encourage pre-installation certification of a unit's emissions output, and compliance with the standards should facilitate siting and permitting.

In addition, the rules and standards should be set so as to encourage technological improvements that reduce emissions output. This characteristic is commonly referred to as *technology-forcing*. In this way, the rules should promote, or at least not hinder, the deployment of environmentally sustainable DR.

5. Timing

The recommended rules and standards can be phased in, or staged, over a specified period. A phase-in schedule should be set so as to be technology-forcing, while giving manufacturers a reasonable opportunity to meet the targets.

C. Scope of Draft Rules

1. Applicability

The proposed regulations should be applicable to DG of specified types and sizes. Approaches for specifying the DG to be covered include:

1. *First Alternative:* The recommended rules and standards should apply to generating facilities not already covered under Title V (Clean Air Act) regulations.
2. *Second Alternative:* These recommended rules and standards should apply to generating facilities whose nameplate capacity is XX megawatts or less, interconnected or serving load at the primary or secondary voltage levels.

2. Standards Expressed

The collaborative will consider whether emissions requirements for distributed generation should be output-based performance standards (expressed in terms of pounds per megawatt-hour or kilowatt-hour), to promote innovation, efficiency, and improvements in generation technology.

3. Emissions Covered

The air pollutants to be considered will include nitrogen oxides, sulfur dioxide, particulates, volatile organic compounds, carbon monoxide, and toxics.

4. Methods for Recognizing the Benefits of CHP and Non-Emitting DR

The collaborative will explore whether the recommended rules should include methods for accounting for the potential air quality benefits of distributed resources whose waste heat is recovered and used in other processes (*e.g.*, space and water heating, industrial processes, etc.), thus displacing combustion of fuels and production of emissions. In addition, the collaborative should explore methods for accounting for the emissions reductions of using gas that would otherwise be flared (*e.g.*, landfill gas) to fuel distributed generation and of on-site end-use efficiency improvements.

5. Certification of Emissions Output

The collaborative will consider means for establishing the emissions output of distributed generation facilities. More specifically, the collaborative should explore approaches by which the emissions output of a unit can be certified in advance, through either a self-certification program or through some other appropriate means.

6. Existing and New Units

The collaborative should explore approaches for addressing the emissions output of existing and new facilities. In this context, it may be appropriate, for example, to differentiate between units used solely for emergency purposes and units available for a wider range of electric system needs, that is to differentiate on the basis of “duty cycles.”

APPENDIX

COMMENTARY ON THE STATEMENT OF OBJECTIVES, PRINCIPLES, AND SCOPE OF THE DISTRIBUTED RESOURCES EMISSIONS COLLABORATIVE

What follows here is a description of some of the issues that the collaborative is exploring. It describes questions that have been raised, but not necessarily settled, by members of the working group. The outline of this commentary generally follows that of the principles.

A. Objectives

Should the deployment of DG result in better (or at least not worse) environmental outcomes than what would have occurred in the absence of the DG? If so, then the question of what generation resources will be displaced (and their emissions, if any) by the use of both existing and new DG becomes relevant to the design of proposed DG emissions standards. Most currently available distributed generation technologies produce air pollutants at a greater rate (on an output basis) than a state-of-the-art natural gas-fired, combined-cycle central generating station (GCC) with best available control technologies (BACT) installed. In contrast, some DG technologies produce emissions at a lower rate than certain other fossil-fuel burning technologies (both existing and new).

An alternative view holds that, for most applications, DG does not compete with or replace central generating facilities, and therefore a comparison to such units is not relevant. In addition, it was noted that air pollution regulation in the United States is not typically based on the concept of emissions displaced by the new technology, but rather on the basis of achievable limits. This approach may or may not be tempered by a consideration of the technology's contribution to the overall emissions of an airshed.

Development of proposed air emissions standards requires the careful balancing of a rules benefits and consequences. Factors to be considered may include the environment, consumer choice, integrated energy and land-use planning, economic efficiency of electricity markets, availability of electricity supplies, and competitiveness of the business sector.

B. Principles To Guide the Collaborative's Effort

1. Environmental Impacts

The role of a technology-neutral and fuel-neutral standard is being considered. Such a standard could, depending on how it is set, preclude the deployment of certain technologies. Also, should the standards differ depending on whether the DG will be deployed in attainment or non-attainment areas? Lastly, the question arose whether other potential environmental harms (*e.g.*,

land use and water pollution) should be addressed in addition to air emissions.

2. Other Distributed Resources

The working group concluded that, given the limited time frame and primary focus of the collaborative, the development of explicit rules to encourage the deployment of non-polluting distributed resources (*e.g.*, end-use efficiency, photovoltaics, wind power, etc.) is beyond the scope of work. Future work on this topic could include identifying unintended disincentives in existing permitting processes, developing proposals to undo such disincentives, and creating rules and other policy instruments that recognize the zero emissions of certain distributed resources.

3. Impacts on the DR and Electric Industries

It was noted, however, that current technology-forcing regulations (BACT/LAER) require case-by-case, technology-specific determinations, and that a technology-neutral approach to setting emissions limits that “force” improvements would be new.

C. Scope of Draft Rules

1. Applicability

The collaborative makes a distinction between distributed resources (DR) and distributed generation (DG). Generally speaking, *distributed resources* refers to the broad range of technologies that are not intended to be connected to the bulk electric power transmission system and are typically deployed in close proximity to load. DR includes smaller-scale generation technologies (smaller than traditional central station generator units), energy storage devices, load management activities, and end-use efficiency and conservation measures. *Distributed generation* refers only to the generation subset of DR. Examples of DG include micro-turbines, fuel cells, reciprocating engines, photovoltaics, and wind turbines. The work of the collaborative will focus on regulating the emissions of DG and identifying other, non-emitting DR technologies.

The first alternative expresses the notion that the rule’s applicability should be broad, including even the smallest of units (to be covered under some sort of certification program). The second alternative may be narrower in scope, but the practical differences between the two will depend upon the applicability of existing state regulations and the definitions of “primary and secondary voltage levels.” There seemed to be a general feeling among the participants that favored the first alternative, but then there was the question of whether rule captures more than regulators want or need to be concerned with (*i.e.*, very small generators used by residences and businesses during blackouts or at remote locations for limited periods of time, *e.g.*, at construction sites

before line extensions are installed). By the same token, however, the point was made that the rule should be written to include non-grid-connected units, since they too can contribute emissions to an airshed.

Other approaches to the applicability question were raised for consideration. Should the permitting process differ on the basis of a facility's size (generating capacity) or its potential to emit (PTE) or another attribute? Given other aims of the proposed rules (simplicity and DG development), it seemed that too complex an applicability requirement would create more problems than it would solve.

2. Standards Expressed

Output-based standards encourage efficient operation of facilities. Input-based standards (standards calculated on the basis of the amount of pollutant per unit of fuel input) do not reward increases in efficiency and, moreover, are typically differentiated by fuel-type, often discouraging substitution of less polluting fuels. The general preference is for the standards to be expressed in terms of pound of emissions per unit (kWh or MWh) of output, although the idea of using kilowatt-years in the denominator was raised. Because this latter approach may pose certain operational difficulties, it did not find much enthusiasm in the group.

The collaborative may also want to consider other, non-numerical approaches to regulating air emissions. There may, for instance, be ways of permitting facilities that have the effect of limiting emissions without actually specifying their levels, such as through certification standards, definitions, hours of operation, etc.

3. Emissions Covered

The working group is considering whether carbon dioxide should be included among the emissions to be regulated.

4. Methods for Recognizing the Benefits of CHP and Non-Emitting DR

This, like other aspects of the effort, requires gathering information and developing options, which are two purposes of the Collaborative.

5 Certification of Emissions Output

Certification could be mandatory for the smaller units, so that additional permitting is not required, whereas alternative approaches to certification (*e.g.*, case by case permitting) may be appropriate for large units. The cut-off between "smaller" and "larger" would need to be

addressed. The program could also call for periodic testing of units that are in use, to measure on-going compliance. This approach to certification provides for a kind of “product labeling” that will be helpful to purchasers of distributed resources, particularly as the size of the units decreases.

6. New and Existing

A question raised by this is what constitutes emergency service? Many states already have rules on this topic (*e.g.*, with respect to actions taken immediately before an ISO calls for voltage reductions), but there is concern among some of the participants that “emergency service” may constitute a significant loophole for DR operations. In addition, it would be helpful to have information on the inventories of existing and expected new facilities to determine whether emergency units could be pressed into service for other purposes.

Draft: 30 April 2001