

INVITATION TO COMMENT UPON
WORKING DRAFT
MODEL REGULATIONS FOR THE OUTPUT OF
SPECIFIED AIR EMISSIONS FROM SMALLER-
SCALE ELECTRIC GENERATION RESOURCES

Model Rule and Technical Support Documents

September 2001

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I. INTRODUCTION

Under a contract with the National Renewable Energy Laboratory (NREL), The Regulatory Assistance Project convened a group of approximately 30 people consisting of state utility regulators, state air pollution regulators, representatives of the distributed resources industry, environmental advocates, and federal officials. This group participated in an effort to develop model emissions standards for smaller-scale, primarily distributed, electric generation technologies. Most of the effort was conducted through e-mail, list-serve, and telephone conference calls, and there were two face-to-face meetings of the group during 2001.

The electric industry has major impacts upon our local, regional and global environments. Increased competition in the electric industry can bring new environmental problems as well as new opportunities for improvement. There have been significant developments in small-scale generation technologies. The growing availability of cost-effective distributed generation – micro-turbines, diesel “gen-sets,” fuel cells, solar panels, natural gas-fired systems, etc. – is changing the nature of the electric network. While the potential electric benefits of such technologies (improved reliability, lower costs, and so on) are becoming increasingly well understood, their environmental impacts, and benefits, may be less so. The object of this group was to develop a set of model rules that states can adopt in whole or adapt, that will foster the deployment of environmentally sustainable and economically efficient distributed generation.

RAP enlisted Nancy Seidman of Massachusetts Department of Environmental Protection and Christopher James of the Connecticut Department of Environmental Protection to act as co-coordinators of the project. After consulting with utility regulators, environmental regulators, industry representatives, and other interested persons, a list of potential members of the working group was put together and, in the fall of 2000, letters of invitation were sent to them. The work began in earnest in January 2001 with a "kick-off" conference call and, at the end of the month in Chicago, our first in-person meeting.

The first meeting was dedicated primarily to developing a set of objectives and principles to guide the work, and a time-line in which to finish it. The group discussed a series of questions: What did we hope to accomplish? What is the purpose of the rule? What is its scope? What constraints did we face? What approach to emissions regulation should we take? A “Statement of Objectives, General Principles, and Scope” emerged over the following couple of months (and is included as Appendix A).

The Working Group organized several sub-groups that would address specific issues: applicability, emissions, manufacturer certification, and offsets (credits for combined heat and power, etc.). The sub-groups developed information and suggested approaches for tackling certain issues. The applicability sub-group considered the scope of the rule. How would the rule’s applicability be defined – by generating capacity, output, technology, purpose for generation (*i.e.*, emergency, peaking, baseload), or location (attainment or non-attainment area)? The emissions sub-group put together a comprehensive spreadsheet detailing the emissions

performance of current distributed generating technologies, that is to say, the state-of-the-art for technologies that are now, or will very shortly be, available in the market. The certification sub-group studied how other manufacturer certification programs currently work – for example, the US EPA’s Energy Star Program for appliances and its off-road mobile engine program. The offsets sub-group considered methods for calculating the net emissions reductions resulting from combined heat and power (CHP) installations and administratively streamlined and reliable ways to credit such installations with those savings.

The sub-groups reported regularly on their progress to the Working Group. By spring, the work had advanced to warrant a second in-person meeting. This meeting was convened to discuss central, interrelated substantive issues – applicability and emissions standards. Proposals that had been developed by various members of the Working Group formed points of departure for the discussion. The meeting revealed areas of consensus and disagreement, and an action plan for resolving outstanding issues was set out.

Discussions continued among various members of the Working Group, and around those discussions an *ad hoc* drafting committee formed. Several drafts of the rule circulated among the *ad hoc* committee during the summer of 2001, so that by September a draft could be forwarded to the Working Group as a whole, for their consideration. Nothing in the draft represents a final agreement of the *ad hoc* drafting committee or of the Working Group. Though reflective of the general directions taken by the Working Group, it is a discussion draft only.

II. THE RULE

MODEL REGULATIONS FOR THE OUTPUT OF SPECIFIED AIR EMISSIONS FROM SMALLER-SCALE ELECTRIC GENERATION RESOURCES

[Note: Brackets denote items or provisions on which the ad hoc drafting team seeks particular guidance from the full Working Group. Proposed emissions standards in Section IV are still under discussion at this time.]

Title AA: Output-Based Emissions Standards for Smaller-Scale Electric Generation Facilities

I. Purpose. The purpose of this rule [statute] is to:

- (A) Regulate the emissions of certain air pollutants from smaller-scale electric generating units in [this jurisdiction]; and
- (B) Reduce the regulatory and administrative requirements for the siting of units that meet the requirements of this rule.

II. Definitions. [Assumes that the rule is added to a set of existing rules relating to the emissions and siting of electric generating facilities, and makes reference to other relevant definitions.]

- (A) **Agency:** The local or state governmental department, division, or agency that has jurisdiction over air pollution emissions of electric generating units.
- (B) **Baseload Generator:** A generator that operates more than [700] hours per year.
- (C) **Combined Heat and Power:** A generator that sequentially produces both electric power and usable process heat from a single source. Herein referred to as CHP.
- (D) **Emergency:** A limited-duration failure of the electrical grid [or when needed to run by the system operator to avoid voltage reductions or imminent grid failure].
- (E) **Emergency Generators :** Generators used only during an emergency or for standby service, provided that the maximum annual operating hours, including for maintenance, shall not exceed 300. For purposes of this rule, "standby" means to be used as a "substitute for" and not "in addition to" other equipment. [Rolling or calendar year, for determining accounting of hours. Also, should "standby" be defined?]
- (F) **Fuel Cell:** A type of generator that converts a primary fuel – either hydrogen or a hydrocarbon-based fuel – into electricity or electricity and thermal energy through an electro-chemical reaction.

- (G) **Generator:** Any equipment that converts primary fuel (including fossil fuels and renewables fuels) into electricity or electricity and thermal energy.
- (H) **Greenfield:** A generator sited where none previously existed.
- (I) **Manufacturer:** A person or firm that manufactures, assembles, or otherwise supplies generators subject to the requirements of this rule.
- (J) **Mobile Diesel Fuel:** Ultra-low sulfur content fuel, as defined by the United States Environmental Protection Agency (EPA) [citation].
- (K) **Owner:** The owner of, or person responsible for, a generator subject to the requirements of this rule.
- (L) **Peaking Generator:** A generator that operates fewer than [700] hours per year.
- (M) **Power to Heat Ratio:** For a CHP unit, the sum of the actual or forecasted annual average electrical and mechanical energy divided by the total thermal energy of the unit.

III. Applicability.

- (A) This rule applies to all non-mobile generators that are not subject to major source review under the Clean Air Act, 40 CFR 51, and that are installed on or after the effective date of this rule.
- (B) **Exemptions.** The following will be exempt from compliance with the emissions requirements of this rule:
 - (1) Generators that are less than 37 kilowatts in capacity and operate fewer than 100 hours per year, and.
 - (2) Generators whose engines are subject to Parts 89, 90, and 92 of the EPA's Non-Road Engine Program.

IV. Emissions. A generator's emissions of nitrogen oxides (NO_x), particulate matter-10 microns (PM-10), carbon monoxide (CO), and carbon dioxide (CO₂) shall not exceed the standards set out in the following subparagraphs. Standards are expressed in pounds per megawatt-hour of electricity output. A generator shall meet the standards in effect on the date the unit is installed and for the conditions (emergency or total annual hours) under which it operates, according to the following:

- (A) **Emergency generators.** Generator may run 26 hours per year for maintenance and whenever there is an emergency, [up to a maximum of 300 hours per year]. Source must record date and start/stop time for every operation as well as total annual run hours. Maintenance hours must be separately accounted for. Emissions standards for emergency generators are as follows:

	Phase One: January 1, 2003, through December 31, 2005	Phase Two: January 1, 2006, through December 31, 2008	Phase Three: January 1, 2009, And thereafter
NO _x	TBD	TBD	TBD
PM-10	TBD	TBD	TBD
CO	TBD	TBD	TBD
CO ₂	TBD	TBD	TBD

- (B) **Peaking Generators.** Emissions standards for peaking generators are as follows:

	Phase One: January 1, 2003, through December 31, 2005	Phase Two: January 1, 2006, through December 31, 2008	Phase Three: January 1, 2009, And thereafter
NO _x	TBD	TBD	TBD
PM-10	TBD	TBD	TBD
CO	TBD	TBD	TBD
CO ₂	TBD	TBD	TBD

(C) **Baseload Generators.** Emissions standards for baseload generators are as follows:

	Phase One: January 1, 2003, through December 31, 2005	Phase Two: January 1, 2006, through December 31, 2008	Phase Three: January 1, 2009, And thereafter
NO _x	TBD	TBD	TBD
PM-10	TBD	TBD	TBD
CO	TBD	TBD	TBD
CO ₂	TBD	TBD	TBD

(D) **Technology Review.**

- (1) By December 31, 2007, the agency shall complete a review of the state of technology and emissions rates. This review shall be used by the agency in considering whether the 2009 standards should be amended.
- (2) Beginning in 2014 and every five years thereafter, the agency shall review the state of technology and emissions rates and determine whether the emissions set out herein should be amended.]

V. Emissions Certification. A manufacturer may seek to certify that its generators meet the provisions of this rule. In the absence of certification, an owner of generation will need to establish compliance with this rule through on-site testing.

- (A) **Certification Process.** [This section needs to address process issues and the question of part load operations.] Emissions of nitrogen oxides, PM-10, carbon monoxide, and carbon dioxide from the generator shall be certified by the manufacturer in pounds of pollutant per megawatt hour (lb/MWh). This certification must be displayed on the nameplate of the unit or on a label attached to the unit. Test results from EPA Reference Methods, California Air Resources Board (CARB) methods, or equivalent testing may be used to verify this certification and shall be provided upon request to the agency.
- (B) **Responsibility of manufacturer.** Certification will apply to a specific make and model of a manufacturer and will last for 15,000 hours of operation or until the make and model are modified. Certification means that a generator may carry a label with the following text:

This engine has met the standards defined by [state/ US EPA] regulation and is certified as meeting applicable emission levels when it is maintained and operated in accordance with the manufacturer's instructions.

VI. Accounting for Certain Emissions Reductions [Offsets].

(A) **Flared Fuels:** If a generator uses fuel that would otherwise be flared (i.e., not used for generation or other energy related purpose), the emissions that were or would have been produced through the flaring can be deducted from the actual emissions of the generator, for the purposes of calculating compliance with the requirements of this rule. If the actual emissions from flaring can be documented, they may be used as the basis for calculating the credit, subject to the approval of the Agency. If the actual emissions from flaring cannot be documented, then the following default values shall be used:

- (1) SO_x: xxx lbs/MWh
- (2) NO_x yyy lbs/MWh (engine vs turbine)
- (3) VOC (less CH₄) zzz lbs/MWh
- (4) CO₂ www lbs/MWh
- (5) CH₄ vvv lbs/MWh

[(B) **Combined Heat and Power:** CHP installations must meet the following two requirements to be eligible for emissions credits related to thermal output:

- (1) At least 20% of the useful energy output must be thermal and at least 20% [13%] must be electric. This corresponds to a power-to-heat ratio of between 0.25 [0.15] and 4.0. [Query: should the lower bound power-to-heat ratio be reduced to allow credit for conventional boiler/steam turbine systems? Say, 13% electric, which yields a 0.15 P/H? These systems are not typical in the applicable size range, but we should be consistent if we are going to establish a new requirement for CHP.]
- (2) The average system efficiency when operated in this range of power-to-heat ratios must be at least 55% beginning in 2003, 60% in 2008 and 65% in 2011. Units meeting these requirements must still meet the emissions standards set out above, but may reduce their reported emissions by the amount that a new boiler would emit if it were producing the same amount of thermal energy. This calculation will be performed according to the following assumptions and procedures:
 - (a) The assumed emissions rates for new boilers shall be based on [insert state code reference for boiler standards].
 - (b) The input-based emissions rates for new boilers will be converted to output based rates based on an assumed 80% efficiency.
 - (c) Emission per MMBtu of thermal energy will be converted to MWh of thermal energy by multiplying by 3.412 MMBtu/MWh.

- (d) The assumed new boiler output based emissions rate will be converted based on the CHP unit's power-to-heat ratio by dividing the emissions rate by the power-to-heat ratio.
- (e) The CHP unit's adjusted emissions rate will be calculated by subtracting the prorated output based new boiler emissions rate from the unadjusted emissions rate of the CHP unit (in lbs/MWh of electricity).]

[(C) **Conservation and Renewables:** If end-use energy efficiency and conservation measures or non-emitting electricity generation are installed and operated contemporaneously at the facility where the generator is installed and operated, then the electricity savings credited to the efficiency and conservation measures or supplied by the source of non-emitting electricity shall be added to the electricity supplied by the generator for the purposes of calculating compliance with the requirements of this rule, subject to the approval of the Agency. [Who certifies the EE savings and how are they certified?]]

VII. Fuel Requirements.

- (A) **Diesel Engine Fuel:** Generators powered by diesel internal combustion engines shall use only mobile diesel fuel.
- (B) **Monitoring.** If the generator is powered by an engine supplied with fuel from more than one tank or if multiple sources (engines and other devices that use the fuel) are supplied fuel by one fuel tank, a non-resettable fuel metering device shall be used to continuously monitor the fuel consumption by the generator's engine. [This is used for cross-checking. Is this too burdensome for small systems? What does this mean for fuel cells? Should there be a low-end cut-off? Say, 10 kW?]

VIII. Record Keeping and Reporting. [Should units whose daily or annual emissions (lbs/MWh) are below a specified level be exempt from these reporting requirements? If so, what are the thresholds?]

- (A) **Record-Keeping Requirements.** At the premise where the authorized activity takes place, or at such other place as the Agency approves in writing, the owner shall maintain the following records pertaining to such activity:
 - (1) *Monthly and annual amounts of fuel(s) consumed.* For the purposes of this subparagraph, annual fuel consumption shall be calculated each calendar month by adding (for each fuel) the current calendar month's fuel consumption to those of the previous eleven months;

- (2) *Monthly and annual operating hours.* For the purpose of this subparagraph, annual operating hours shall be calculated each calendar month by adding the current calendar month's operating hours to those of the previous eleven months;
 - (3) *With respect to each shipment of liquid fuel (other than liquefied petroleum gas, to be used in each engine authorized hereunder, a shipping receipt and certification from the fuel supplier of the type of fuel delivered, the percentage of sulfur in such fuel (by weight dry basis), and the method used by the fuel supplier to determine the sulfur content of such fuel; and*
 - (4) *Date and type of emergency during which an emergency generator is operated.* Owner must certify that non-maintenance run hours occurred only during emergencies.
- (B) **Availability of Records.** Unless the Agency provides otherwise in writing, the owner shall maintain each record required by this subsection for a minimum of five years after the date such record is made. An owner shall promptly provide any such record, or copy thereof, to the Agency upon request.
- (C) **Duty to Report.**
- (1) **Additional Information.** If the Agency requests any information pertinent to the authorized activity or to compliance with a general permit issued pursuant to this rule, the owner shall provide such information within thirty days of such request.

IX. Compliance and Enforcement.

- (A) **Duty to Comply.** An owner shall comply with the requirements of this rule or with the terms and conditions of any permit issued pursuant to this rule. Certification does not relieve owners from compliance with all other applicable state and federal regulations (e.g., a general permit or a new source review permit).
- (B) **Enforceability.** This rule and any permit issued pursuant to it is enforceable by the Agency as provided by law.

III. COMMENTARY ON THE RULE

[Still under discussion.]

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

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 [to the Statement of Objectives]**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.

30 April 2001

APPENDIX B. EMISSIONS CALCULATIONS

[Refer to separate Excel spreadsheet.]

APPENDIX C. WORKING GROUP MEMBERS

State Environmental Regulators

Grant Chin, California Air Resources Board
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Linda Taylor, Minnesota Energy Office

State Utility Regulators

James Burg, Chairman, South Dakota Public Utilities Commission
John Farrow, Commissioner, Wisconsin Public Utilities Commission
Edward Garvey, Commissioner, Minnesota Public Utilities Commission
Roger Hamilton, Commissioner, Oregon Public Utilities Commission
Terry Harvill, Commissioner, Illinois Commerce Commission
Alison Silverstein, Advisor to the Chairman, Public Utilities Commission of Texas

Non-State Governmental Participants

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Leslie Witherspoon, Solar Turbines, Inc.
Eric Wong, Caterpillar, Inc.

Working Group Subgroups

Membership in the subgroups was open to all Working Group members. What follows below is a listing of those who participated in conference calls, information gathering, and early drafting efforts.

Emissions Subgroup

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Kevin Duggan
Nancy Seidman
Chris James
Nathanael Greene
Catherine Morris
Eric Wong
Rick Weston

Combined Heat and Power

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Applicability

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Emissions Certification

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