June 2001

Air Quality Standard Permit for Electric Generating Units

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Air Permits Division
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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ELECTRIC GENERATING UNITS
AIR QUALITY STANDARD PERMIT SUMMARY DOCUMENT

I. EXECUTIVE SUMMARY

The Texas Commission on Environmental Quality (commission) is issuing a new standard permit for electric generating units. The new air quality standard permit will be effective June 1, 2001, and authorizes certain electric generating units installed or modified after June 1, 2001 that generate electricity for use by the owner or operator and/or generate electricity to be sold to the electric grid. The standard permit does not apply to electric generating units permitted by rule under title 30 Texas Administrative Code Sections 106.101 (30 TAC Section 106.101), Domestic Use Facilities, 106.511, Portable and Emergency Engines and Turbines, 106.512, Stationary Engines and Turbines, or included on the list entitled "De Minimis Facilities or Sources."

II. EXPLANATION AND BACKGROUND OF AIR QUALITY STANDARD PERMIT

The Public Utility Commission (PUC) of Texas anticipates that small electric generating units (EGUs) may become an attractive option for electric customers as an alternative to central station generating units as a primary source of electricity due to electric restructuring and electric reliability concerns. These EGUs, sited at or near a load that will use all or most of the electricity generated, may be equipped to export electricity to the electrical grid. Until now, many EGUs have been eligible for authorization under 30 TAC Section 106.512. However, a number of EGU technologies exist which can meet and exceed the emission limits in 30 TAC Section 106.512. Thus, it would be inappropriate to allow new or modified engines or turbines to operate under the 30 TAC Section 106.512 emission standards. Therefore, this standard permit contains emission limits more stringent than the emission limits in 30 TAC Section 106.512. The standard permit is designed to provide a streamlined permitting method to encourage the use of "clean" EGU technologies.

III. OVERVIEW OF AIR QUALITY STANDARD PERMIT

The commission is issuing an air quality standard permit authorizing certain electric generating units under authority of the Texas Clean Air Act Section 382.05195 and 30 TAC Chapter 116, Subchapter F, Standard Permits. The commission previously authorized the majority of the electric generating units under the conditions of a permit by rule 30 TAC Section 106.512 or under Chapter 116, Subchapter B. This standard permit provides a streamlined preconstruction authorization mechanism that may be used by any electric generating unit complying with its requirements and not prohibited by some other state or federal permitting statute or regulation. The issuance of this standard permit is consistent with the desire of the commission to simplify its regulatory structure and recognize the potential significance of some sources by developing standard permits to replace existing permits by rule that provide qualification criteria that are lengthy and complex.

The standard permit is designed to allow for authorization of an electric generating unit. However, it is not intended to provide an authorization mechanism for all possible unit configurations or for unusual operating scenarios. Those facilities which cannot meet the standard permit conditions may apply for a case-by-case review of an air quality permit under 30 TAC Section 116.111.

IV. PERMIT CONDITION ANALYSIS AND JUSTIFICATION

The new standard permit for electric generating units creates a new authorization mechanism for construction or modification of electric generating units (EGUs) previously authorized under 30 TAC Section 106.512 (permits by rule) or a permit under 30 TAC Chapter 116. EGUs constructed and operated at a domestic residence for domestic use are permitted by rule under 30 TAC Section 106.101; emergency engines and turbines are permitted by rule under 30 TAC Section 106.511. In a rulemaking concurrent with issuance of this standard permit, the commission is disallowing the use of 30 TAC Section 106.512 to authorize construction or modification of electric generating

units except for engines or turbines used to provide power for electric water pumps used for irrigating crops or for the operation of facilities authorized under 30 TAC Chapter 106 Subchapter E, Aggregate and Pavement or the Air Quality Standard Permit for Concrete Batch Plants. Any EGU not qualifying for this standard permit or a permit by rule may still apply for a 30 TAC Section 116.111 permit for a case-by-case specific review. This standard permit will require electric generating units to comply with certain administrative requirements, including registration and possibly a fee, executive director approval, and record keeping requirements, as well as general requirements, including maximum emission limitations for NO_x. This standard permit will require renewal of registration every 10 years.

Applicability

Paragraph (1) of the standard permit outlines the applicability criteria of the standard permit. This Standard Permit applies to new units installed, or existing units modified, after June 1, 2001 that cannot qualify for a permit by rule (PBR) in 30 TAC Chapter 106.

Definitions

Paragraph (2) of the standard permit contains a definition of installed that was added to clarify that the generating unit is considered installed when it begins generating electricity. The definitions of East Texas Region and West Texas Region are from Senate Bill 7. Thus, the East Texas Region includes all counties traversed by or east of Interstate Highway 35 or Interstate Highway 37, including Bosque, Coryell, Hood, Parker, Somervell and Wise Counties. The West Texas Region includes all of the state not contained in the East Texas Region. The El Paso area is considered in the West Texas region for purposes of this standard permit, although it is considered separately in Senate Bill 7. Different standards will apply in each region based upon generating capacity, date of installation, and hours of operation.

Administrative Requirements

Paragraph (3) of the standard permit outlines the administrative requirements all facilities must meet. Subsection (A) requires registration of the proposed facilities in accordance with the regulatory requirements of 30 TAC Section 116.611, including a current PI-1S. The commission has clarified that 30 TAC Section 116.610(a)(1) emissions and distance limitations do not apply to electric generating units under this standard permit as the emissions are only products of combustion.

Title 30 TAC Section 116.614 requires a fee of $450 for any standard permit registration unless otherwise specified in a particular standard permit. This standard permit requires a $450 fee in accordance with 30 TAC Section 116.614 for any single unit or multiple units with a generating capacity of 1 MW or greater. The fee for units or multiple units with a generating capacity of less than 1 MW is reduced to $100.00, and the fee is waived for units or multiple units with a generating capacity of less than 1 MW that have certified nitrogen oxides (NO_x) emissions that are less than 10 percent of the standards required in this standard permit. This is to encourage the use of ultra-clean technology. The commission believes a fee of $450 is appropriate in the case of this standard permit to recover staff expenses expended to review registration applications.

Subsection (C) states that facilities can not be constructed and/or operated until the applicant obtains from the executive director written approval of the registration.

Subsection (D) establishes the recordkeeping requirements for compliance with the standard permit. Subsection (E) reminds owners of electric generators powered by gas turbines that they must also meet any applicable conditions of 40 CFR Part 60, Subpart GG and Subsection (F) clarifies that this standard permit does not exempt

owners or operators from any 30 TAC Chapter 117 requirements that may apply because of being located in a nonattainment area. Chapter 117 currently contains several exemptions from the requirements of Chapter 117 if a small unit (10 MW or less) is registered under this standard permit. The commission plans to remove those exemptions later this year. Upon removal of those exemptions, all units authorized under this standard permit must comply with applicable Chapter 117 requirements.

General Requirements

Paragraph (4) of the standard permit outlines the general requirements all facilities would have to meet. Subsection (A) requires the manufacturer or owner of the generating unit to certify the emissions of NO_x from the electric generating unit in pounds of pollutant per megawatt hour (lb/MWh). It also requires a name plate or label attached to the unit containing this certification. Certification will require testing using Environmental Protection Agency (EPA) Reference Methods, California Air Resources Board methods, or equivalent testing and shall be provided upon request to the TCEQ.

To encourage efficient use of all the state's energy resources and to reduce inefficient emissions, the rule contains two provisions that allow adjustments to meet the emission standards for special circumstances. First, to encourage efficiency and reduce the need for additional heat sources, subsection (B) allows a DG unit which integrates combined heat and power (CHP) operation to take a credit based upon the amount of heat recovered and establishes requirements to ensure that the heat recovered is used and not wasted. By allowing credits for the use of CHP, the commission hopes to encourage industry use of efficient combined heat and power applications for distributed generation and to increase the market for these environmentally beneficial devices. Second, subsection (E) establishes a higher NO_x standard for generating units that use as fuel landfill gas, digester gas, or some oil field gases. This higher standard is required because landfill gas contains contaminants that poison the catalyst in catalytic converters used on rich burn reciprocating engines. This higher standard represents the best technology available for lean burn engines. The sulfur content allowed for these gases is also increased to encourage the use of oil field gases that would otherwise be flared. The commission feels it is important to encourage the use of these gases to generate electricity rather than just flaring them.

Subsection (C) establishes the emissions standards for units 10 MW or less that must be certified based upon whether the generator is located in the West Texas Region or the East Texas Region. The West Texas standards represent BACT and should allow for clean reciprocating engines to register under the standard permit, as well as clean diesel engines operating as peaking units. The initial East Texas standards represent BACT recognizing the unique ozone problems in East Texas and should allow for authorization of fuel cells, micro-turbines, clean turbines using catalytic combustors or flue gas cleanup, and the very cleanest reciprocating engines using catalytic converters. The standard permit provides for a reduction of the initial East Texas standards in 2005 to address the ozone situation in that area of the state. These output-based standards include an adjustment to account for inefficiencies associated with conversion of mechanical to electrical energy. The commission plans to reevaluate these standards upon completion of a planned study on the environmental impact and market penetration of small electric generating units.

Subsection (D) establishes standards for units greater than 10 MW that represents BACT previously established for simple cycle and combined cycle turbines. Without this provision, these larger units would be required to obtain a permit since the permit by rule 30 TAC Section 106.512 is being amended to no longer allow most engines or turbines used to generate electricity to be permitted by rule.

Subsection (F) establishes the two methods of re-certifying the units after 16,000 hours of operation, but not less frequently than every three years from the date of registration. To encourage the use of the manufacturer's recommended maintenance, re-certification may be accomplished using the maintenance program established and certified by the manufacturer to keep the units operating in compliance with this standard permit. If the manufacturer does not certify his maintenance program or the owner/operator elects to not follow the recommended maintenance schedule established by the manufacturer, the owner will re-certify by testing his own units. Subsection (G) gives the specifications limiting the sulfur content in the liquid or gaseous fuel.

V. PROTECTIVENESS REVIEW

The protectiveness review was based on the review previously done for permit by rule, 30 TAC Section 106.512 Stationary Engines and Turbines (previously SE 6). Since protectiveness was demonstrated then and the emission standards required in this Standard Permit are much more stringent than those required in 30 TAC Section 106.512 no additional review was conducted.

VI. PUBLIC MEETING AND COMMENTERS

In accordance with 30 TAC Section 116.603, the commission published notice of the proposed standard permit in the *Texas Register* and in daily newspapers of the largest general circulation in the following metropolitan areas: Austin, Corpus Christi, Dallas, El Paso, Houston, the Lower Rio Grande Valley, Lubbock, the Permian Basin, San Antonio, and Tyler. The notice was published on November 17, 2000. The initial comment period ran from November 17, 2000 to December 19, 2000. However, in response to comment, the comment period was extended to February 5, 2001.

VII. STAKEHOLDERS MEETING

At the request of several commenters, staff hosted a stakeholders meeting on January 23, 2001 in Room 212W of the TCEQ, Building C, located at 12100 Park 35 Circle, Austin. Notice of the meeting was posted on the agency's web site on January 12, 2001. At that meeting, staff provided stakeholders with an update on the development of the standard permit based on the comments received to that date. Stakeholders were also provided an opportunity to make presentations to the group and to participate in a "roundtable" discussion with staff and with each other on the issue of the standard permit.

VIII. COMMENTS

A public meeting on the proposal was held December 19, 2000 in Room 2210 of the TCEQ Building F, located at 12100 Park 35 Circle, Austin. Oral comments were made by the following: Capstone Turbine Corporation (Capstone); Catalytica Energy Systems (Catalytica); Energy Developments Incorporated (EDI); the Engine Manufacturer's Association (EMA); Good Company Associates (Good Company); Honeywell Power Systems (Honeywell Power); and Public Citizen, Texas office (Public Citizen).

The period for written comments on the proposed standard permit closed at 5:00 p.m., February 5, 2001. Written comments were submitted by the following: the American Council for an Energy-Efficient Economy (ACEEE); the American Gas Cooling Center, Inc. (AGCC); ALSTOM Power Inc. (ALSTOM); American Electric Power (AEP); Atmos Energy Corporation (Atmos); Austin Energy; Calpine Corporation (Calpine); Capstone; Catalytica; Cotton, Bledsoe, Tighe & Dawson, P.C. (Cotton Bledsoe); Cummins, Inc., Cummins Inc./Onan (Cummins); Dresser-Waukesha, Waukesha Engine Division (Waukesha Engine); DTE Energy Technologies (DTE); Deutz Corporation (Deutz); EDI; the EMA on behalf of Caterpillar Inc., Cummins Inc./Onan, Deere & Company, Detroit Diesel Corporation, Deutz Corporation, General Motors Corporation, and Waukesha Engine Division; Encorp; Energy Transfer Group, L.L.C. (ETG); Environmental Defense; Global Power Corporation (Global Power); Good

Company; Holt Companies (Holt); Holt Power Systems (Holt Power); Honeywell Power; Hunt Power, L.P. (Hunt Power); International Fuel Cells; the Natural Resources Defense Council (NRDC); the Office of the Attorney General of Texas, Consumer Protection Division, Public Agency Representation Section (OAG - Public Agency Representation Section); Plug Power Fuel Cell Systems (Plug Power); Public Citizen, Texas office (Public Citizen); the Railroad Commission of Texas, Alternative Fuels Research and Education Division (AFRED); Reliant Energy, Inc. (REI); Solar Turbines Incorporated (Solar); Southern Union Gas Company (Southern Union); Sure Power Corporation (Sure Power); the United States of America Department of Energy (DOE); United States of America Environmental Protection Agency, Office of Atmospheric Programs (EPA); the United States Combined Heat and Power Association (USCHPA); the Honorable Leticia Van de Putte, R. Ph., the Senate of Texas (Senator Van de Putte); and Waukesha-Pearce Industries, Inc. (Waukesha-Pearce).

IX. ANALYSIS OF COMMENTS

Support for Standard Permit

Environmental Defense applauded the commission for the foresight it has shown by proposing the standard permit for small electric generating units. Environmental Defense stated that proliferation of small generation units, lacking meaningful emission standards, could undermine measures adopted to reduce nitrogen oxides (NO_x) emissions in the state implementation plans (SIPs). Public Citizen applauded the commission for using output-based measures for regulating small electric generators and assuring that efficiency is considered. Good Company supported the output-based measure. Capstone supported the intent and objective of the proposed standard permit, the tapered-down NO_x emission requirements over time, and the 9 parts per million (ppm), 5 ppm, 3 ppm profile of the taper down.

The commission appreciates the support expressed by these commenters.

Commitment to Solve Dallas/Fort Worth (DFW) Nonattainment Issue

Calpine stated its willingness and intent to play an integral role in solving the DFW nonattainment issue by putting state-of-the-art combined cycle generation to work in the DFW area.

The commission appreciates Calpine's commitment to help solve the DFW nonattainment issue.

Request for Extension of Original Comment Period

Good Company, DOE, Encorp, and Cummins requested an extension of the original comment period.

The original comment period was extended from December 19, 2000 to February 5, 2001.

Combining Gas Turbines and Duct Burners

Catalytica commented that if the best available emission rate for duct burners is currently 0.1 pounds per million British thermal unit (lb/MMBtu), then the standard permit should require the appropriate emission level from the turbine and limit the duct burner to 0.1 lb/MMBtu.

The standard permit has output-based standards (pounds of NO_x per megawatt-hour) and does not regulate based upon the use of specific technologies, such as duct burners. Therefore, no changes were made to the standard permit in response to this comment.

Statewide Applicability of Proposed Standard

ACEEE, AEP, ALSTOM, Cotton Bledsoe, Encorp, Environmental Defense, Good Company, Honeywell Power, NRDC, Public Citizen, Solar, Southern Union, USCHPA, and Waukesha Engine commented on the statewide applicability of the proposed standards. ACEEE and USCHPA commented that areas that maintain environmental attainment should be given a greater technology choice than the nonattainment areas of downtown Houston and Dallas based on the theory that state-wide emissions can be decreased by allowing the implementation of distributed technologies throughout Texas, and since transmission and distribution losses in rural parts of the state may be more than in urban areas. AEP commented that the emission limitations should be based on siting the plant in an attainment area with special provisions being added for equipment being installed in nonattainment areas. ALSTOM stated that statewide applicability of the standard permit could be catastrophic for the implementation of distributed generation (DG) in NO_x attainment areas and increase demand for existing, higher polluting plants. Cotton Bledsoe questioned the appropriateness of applying the same emission standard to East and West Texas since West Texas has the potential to become a major power generating and exporting region but has not "used up" its portion of the NO_x increment as has East and Central Texas. Encorp recommended that two permits, each with different standards, be developed, one for attainment areas and the second for nonattainment areas. Encorp explained that adoption of a single statewide standard is arbitrary and capricious and penalizes areas which have maintained good air quality by eliminating the possibility of cheaper DG power. Environmental Defense commented that it may be appropriate in the first years of the revised standard permit to apply a different set of standards for East and West Texas. However, Environmental Defense commented that all sources in East Texas subject to the standard permit need to achieve the same standard set out for nonattainment areas. Good Company recommended that the commission establish "attainment area" and "nonattainment area" limits. Honeywell Power recommended that different emission standards be developed for attainment and nonattainment areas of the state. Honeywell Power stated that such an approach would match appropriate technology with each area at minimal cost to the ratepayer. NRDC commented that applying different standards to an East Texas and West Texas region may be useful for some interim period but that the ultimate goal should be a strong, statewide final emission standard. Public Citizen supported the commission proposal to divide the state into East and West Texas for emission limits. Solar proposed that the standard permit set different standards for attainment and nonattainment areas. Southern Union recommended that the proposed standard permit apply only to sources located in ozone nonattainment areas that do not have a Federal Clean Air Act, Section 182(f) waiver for nitrogen oxides. Southern Union recommended that sources in areas designated as attainment or unclassified, or in areas with a Section 182(f) waiver, continue to be permitted by rule under FCAA Section 106.512. Waukesha Engine recommended limiting applicability of additionally restrictive NO_x standards for DG units to nonattainment areas only.

The commission agrees that in the case of an ozone precursor, such as NO_x, different standards should apply in different areas of the state. The standard permit has been revised to include the Senate Bill (SB) 7 (76th Legislature, 1999) definitions of "East Texas region" and "West Texas region" (revised to include the El Paso region). Thus, the East Texas region includes all counties traversed by or east of Interstate Highway 35 or Interstate Highway 37, including Bosque, Coryell, Hood, Parker, Somervell, and Wise Counties. The West Texas region includes all of the state not contained in the East Texas region. As stated, the El Paso area is considered in the West Texas region for purposes of this standard permit, although it is considered separately in SB 7. Different standards will apply in each region based upon generating capacity, date of

installation, and hours of operation. The commission plans to conduct a study to determine the environmental impact of DG on the State of Texas. The standards for each region will be reevaluated at the conclusion of that study.

Recordkeeping and Reporting Requirements

Good Company commented that the recordkeeping and reporting requirements are burdensome for residential and small business uses. NRDC recommended that units between 10 kilowatts (kW) and 50 kW be subject to reduced recordkeeping requirements.

Electric generating units used exclusively for domestic purposes are permitted by rule under 30 TAC Section 106.101 which has no recordkeeping or reporting requirements. The commission believes that requiring records of the hours of operation and maintenance schedule is reasonable for all units, including those between 10 kW and 50 kW. The standard permit has no reporting requirements per se. Instead, records required by the standard permit must be provided upon request to the commission.

Registration Fee

Good Company commented that the $450 registration fee is burdensome for residential and small business uses. Hunt Power commented that smaller scale DG technologies could be unfairly penalized with a flat fee of $450. Hunt Power recommended that the permit fee should be applied as a dollar per kW amount. NRDC recommended that units between 10 kW and 50 kW pay a registration fee of 0.15% of the capital cost of the project regardless if that amount is less than $450. Plug Power recommended that the registration fee be a factor of "x" dollars and the power output of the unit.

The commission has revised the fee schedule from a $450 registration fee for all units to a fee scale based on generating capacity of a unit. Units or multiple units with a generating capacity of 1 megawatt (MW) or greater will be subject to a $450 fee; units or multiple units with a generating capacity of less than 1 MW will be subject to a $100 fee; units or multiple units less than 1 MW that have certified NO_x emissions that are less than 10% of the required standards will be granted a fee waiver. The fee is intended to recover staff expenses in reviewing the registration. The commission reduced the fee for smaller units because a $450 fee may be a substantial percentage of the initial cost to operate some small units. The commission has waived the fee for ultra-clean small units to encourage their use. The commission notes that units used exclusively for domestic purposes are permitted by rule under 30 TAC Section 106.101 which requires no fee.

Registration of Propane-fueled or Gaseous-fueled Units

AFRED recommended that propane-fueled or gaseous-fueled units of 30 kW or less be permitted by rule. In the alternative, AFRED recommended a phased-in implementation over a period of four years for propane-fueled or gaseous-fueled units less than 30 kW and at a reduced permitting cost. AFRED commented that these units will most likely be used by residential customers and small businesses and sometimes in rural attainment areas.

Propane-fueled or gaseous-fueled units of 30 kW or less used exclusively for domestic purposes are permitted by rule under 30 TAC Section 106.101 which requires no fee. The commission has reduced the fee to $100 for units, like propane-fueled or gaseous-fueled units, operating under 1 MW. Should these units emit less than 10% of the standards, no fee is required. The intent of the standard permit is to provide a streamlined preconstruction authorization mechanism for all electric generating units.

Fee Exemption for State Agencies

The OAG - Public Agency Representation Section recommended that state taxpayer-supported facilities, such as state agencies and institutions of higher learning, should be exempt from paying the registration application fee. The OAG - Public Agency Representation Section explained that state agencies operate on limited budgets and that a fee requirement could have serious financial impacts on the larger agencies.

No change has been made directly in response to this comment. State agencies have historically paid all required fees required by the commission for various permitting projects regardless of the media. The standard permit is consistent with this process. It should be noted that the proposed registration fee has been reduced for small units and waived for ultra-clean units.

Applicability of Standard Permit to Wind or Solar-Driven Generators

Cotton Bledsoe asked whether the standard permit requirements apply to alternative energy DG projects, such as wind and solar power.

The standard permit requirements do not apply to wind and solar units. Since they do not have air emissions, the commission does not regulate them under the Texas Clean Air Act.

Applicability of Standard Permit to Emergency Engines or Turbines

NRDC commented that a benefit of the standard permit is that it clarifies that the exemption for emergency generators applies only to generators that run only when there is a loss of power on the electric grid. Waukesha Engine endorsed the exclusion of emergency generators in paragraph (1)(C). EMA approved of the exclusion of emergency EGUs from the scope of the standard permit's applicability. EMA also supported a permitting exemption for DG units installed for operation in the case of "Stage III" power shortages such as are occurring in California.

The commission appreciates the support of the commenters. Emergency engines and turbines will continue to be permitted by rule under Section 106.511, rather than be authorized under this standard permit. However, the commission notes that Section 106.511 applies only to units satisfying its requirements and that Section 106.511 does not use the term "Stage III."

ACEEE proposed that Section 106.511 be modified to tighten the regulations on emergency backup generators. Good Company recommended that the commission establish a new standard, to allow installation of standby generators, or the retrofit of existing standby generators, in a way which meets certain minimum emission levels in order that they might be interconnected to the grid and provide power during an ERCOT/ISO stage three, or higher, emergency. Good Company stated that the commission should work with the PUC to establish similar protocols for localized situations that may occur in the future. Good Company recommended that standby units and Stage II emergency units be exempt from the standard permit. Public Citizen agreed with the commission that there should be different limits for emergency generators but was concerned that the language in the rules is not "tough enough" to assure that emergency plants are required to apply for a permit if used more than a few hours each year. Public Citizen recommended that the operations limit be decreased to no more than 100 hours per year. Public Citizen recommended that the commission explicitly require a change in use patterns to require registration and compliance with emission limits and recommended that emergency generators be tested at night or at hours that

would minimally affect ozone formation. Public Citizen recommended a requirement that all mechanics who work on emergency engines or turbines undergo a training and certification process, and that they be prohibited from modifying a backup unit to provide voltage stability or dispatchability until permitted under the standard permit.

The commission did not propose amendments to Section 106.511 as part of this action, and therefore, these comments are beyond the scope of this standard permit action.

The OAG - Public Agency Representation Section commented that the exemption for emergency units contained in paragraph (1)(C) would prohibit the use of DG in times of high demand. The OAG - Public Agency Representation Section recommended changing paragraph (1)(C) by deleting the word "exclusively" and adding the following language after the word meter: "or when conditions on the grid are such that the power source is unreliable or power quality is questionable." The OAG - Public Agency Representation Section explained that as the use of DG expands and the load on the grid increases, it will be desirable to have large customers that are capable of producing their own electricity, thereby reducing the demands on the utility.

The definition of emergency has been removed from the standard permit to avoid confusion between the standard permit and Section 106.511 which permits by rule emergency engines and turbines.

Applicability of Standard Permit to Non-road Engines and Portable Units

EMA commented that portable DG units are nonroad engines; therefore, the standard permit should not apply to portable DG units because the commission is "specifically and expressly preempted" from regulating nonroad engines pursuant to Federal Clean Air Act, Section 209(e). EMA stated that the commission should adopt the definition of "nonroad engine" contained in 40 Code of Federal Regulations Section 89.2. Good Company recommended that the standard permit not apply to portable units.

The commission agrees with this comment and does not consider portable "nonroad engines" that are not on a site more than 12 months a stationary source. Therefore, this standard permit does not apply to these units.

Applicability of Standard Permit to Units Generating More than 10 MW

ALSTOM recommended increasing the upper range of applicability to 15 MW because there are a number of industrial gas turbines offered by major suppliers in the 10 to 15 MW bracket which may benefit DG if the standard permit option is available. Catalytica commented that a number of turbines operate in the 10 MW area and that setting the limit at 10 MW would give a competitive advantage to some models just below the limit, while hindering competing models just above the limit. Catalytica stated that there are almost no popular models in the 15 to 25 MW range and, therefore, suggested that the standard permit apply to units up to 20 MW. Sure Power commented that the proposed 10 MW size limit will inhibit the use of DG systems in many data center applications. Sure Power commented that if Texas is to set a size limitation, then 50 MW, as is the case in California, should be considered and that Best Available Control Technology (BACT) should be required.

The standard permit has been revised in response to these comments. The commission has issued the standard permit with a provision for electric generating units greater than 10 MW that has separate standards that represent BACT for natural gas-fired turbines. The commission believes this change to the standard permit is appropriate to provide these clean units greater than 10 MW the opportunity to use a streamlined preconstruction authorization mechanism.

Affect of Standard Permit on Ability to Authorize Under Regular NSR Permitting

Global Power stated that issuance of the standard permit should not preclude authorization of small electrical generating units under a regular new source review (NSR) permit.

This standard permit does not preclude authorization by NSR. Any owner or operator may request a NSR permit. This standard permit and the permit by rule are provided as streamlined alternatives, if the unit meets the requirements of the permit by rule or the standard permit.

Applicability of Standard Permit to Landfill to Gas Energy (LFGTE) Projects, Stranded Gas to Energy Projects, and Units using Flare Gas

REI commented that the proposed standard permit should not apply to LFGTE projects because the proposed emission limits cannot be met by internal combustion engines fueled by landfill gas. REI commented that the proposed standard permit will eliminate the development of LFGTE projects in Texas and that LFGTE projects should continue to be permitted by rule under Section 106.512. Deutz commented that DG engines fueled by landfill/digester gas require their own specific NO_x standard because the contents of the fuel prohibit the application of standard aftertreatment technologies. Deutz recommended a standard of 0.6 grams per brake horsepower-hour (g/bhphr) which is the standard adopted by the South Coast Air Quality Management District for these units. Deutz recommended a +/- 10% tolerance be added to the 0.6 g/bhphr standard to take into account the variable nature of landfill/digester gas. Deutz commented that a reasonable standard for landfill/digester gas projects is necessary to realize the significant energy recovery and economic benefits of these projects. Deutz commented that commission regulations need to address the specific engine applications that make use of "stranded gas." Deutz stated that stranded gas, often too far from pipelines to be affordable shipped to market, can be used to generate electricity.

To encourage the use of some gases that would otherwise be flared or vented to the atmosphere, the standard permit was revised to include an East Texas NO_x standard to be applied exclusively to units that use as fuel landfill gas, digester gas, or some oil field gases (stranded gas). The NO_x standard of 1.77 pounds per megawatt-hour (lb/MWh) is equivalent to 0.6 grams per horsepower-hour (g/hp-hr) and was established based upon a lean burn engine, since catalytic converters are poisoned by contaminants found in landfill gas. Since this NO_x standard can be met by existing technology, it would be inappropriate to allow these units to continue to be permitted by rule under the less stringent standards in Section 106.512. Units in the West Texas region using these fuels may comply with the West Texas region standards contained in the standard permit.

Public Citizen recommended a standard permit for landfill gas generators since they have unique emissions profiles and control limits that may need to be different from other generators. Good Company recommended that units using flare gas should be exempt from the standard permit.

The separate NO_x limit applicable only to units that use landfill gas, digester gas, or some oil field gases takes into account the unique emission profiles and control limits of these units. With the changes discussed in the previous response to comment, the commission finds no additional reason to develop a standard permit exclusively for these units. Furthermore, it is these same emission profiles and control limits of these units that require the commission to regulate these units and not exempt from the standard permit.

Applicability of Standard Permit to Ultra-Clean Electric Generating Units or Non-Combustion Generating Units

Plug Power recommended that the commission consider a "zero" or "de minimis" threshold category below which registration for the standard permit is not required or is otherwise provided, based upon ultra-clean technologies, such as solar, wind, and fuel cells or based upon a generation process, such as whether any fuel is combusted. As an alternative, Plug Power recommended that the commission give consideration to a power output threshold approach below which registration is not required or is granted pro forma. International Fuel Cells commented that its PC25 fuel cell has NO_x emissions of 0.0267 lb/MWh and carbon monoxide (CO) emissions of 0.0017 lb/MWh and that in cogeneration applications fuel cells typically approach 85% combined efficiency.

The commission intends the standard permit to apply to all electric generating units that emit air contaminants. Thus, generating units driven by the sun or by the wind are not subject to this standard permit. However, fuel cells that use natural gas or a converter fuel are subject to the standard permit because of their NO_x emissions. Nevertheless, in an effort to encourage the use of ultra-clean technology, such as fuel cells, the commission has revised the standard permit. The registration fee has been waived for units generating less than 1 MW that have NO_x emissions that are less than 10% of the standards. Fuel cells should be able to satisfy this requirement and thus qualify for the fee waiver. In addition, the commission encourages ultra-clean distribution technology to petition the commission for inclusion on the list entitled "De Minimis Facilities or Sources" referenced under 30 TAC Section 116.119. Sources on this list require no registration prior to construction.

Applicability of Standard Permit to EGUs less than 1.5 MW

NRDC commented that the standard permit should explicitly state that it covers generators from 10 MW to either 10 kW or 0 kW. NRDC commented that the lower end should be 0 kW if the commission reduces the fee and record-keeping burden on very small generators. NRDC commented that in the alternative 10 kW could be used to ease the regulatory burden on the smallest generators which will primarily be used by individuals and small commercial customers. NRDC commented that the standard permit should be made mandatory for units too small to be covered by existing minor NSR. NRDC commented that if this step is not taken, small generators currently exempted from minor NSR permitting will not opt into the standard permit.

The commission has revised the standard permit to apply to all electric generating units regardless of size so that all of these units which meet the standard permit may have a streamlined preconstruction authorization mechanism. As previously discussed, the commission has reduced the registration fee for very small and very clean units.

Good Company commented that generating units less than 100 kW should be exempt from any standard for now and that a standard for those units could be developed over the next few years.

No change was made in response to this comment. Units generating less than 100 kW used exclusively for domestic purposes are permitted by rule under 30 TAC Section 106.101 which requires no registration. The commission has reduced the fee to $100 for units operating under 1 MW. If these units emit less than 10% of the standards, no fee is required. The intent of the standard permit is to provide a streamlined preconstruction authorization mechanism for all electric generating units.

AEP commented that smaller DG systems of 1.5 MW and less should be kept in a permit by rule registration system and DG systems and units between 1.5 MW and 10 MW should use the proposed standard permit. AEP commented that this will allow the deployment of this technology with relative ease to that sector of the regulated community

(homeowners and small commercial) that would be most adversely impacted by a permitting requirement. Waukesha Engine recommended that smaller units be exempt from the CO and NO_x emission limits.

The commission notes that units constructed and operated at a domestic residence for domestic purposes are permitted by rule under 30 TAC Section 106.101. As previously discussed, the fee has been reduced to $100 for units under 1 MW and eliminated for very clean units less than 1 MW. The commission anticipates that most small commercial entities using the standard permit will register units less than 1 MW.

Authorization Period under Standard Permit

Public Citizen recommended that the commission limit the life of the standard permit and require generators subject to it to update their technologies to BACT levels every ten years. Sure Power commented that license renewal in ten years will create an uncertainty burden since "high availability power supply" facilities normally have life cycles of 20 years or longer. Sure Power commented that an uncertain renewal process could deter development of clean DG in Texas.

Provisions for amending or revoking a standard permit are included in Chapter 116, Subchapter F. Those rules require that standard permits be renewed at least every ten years. Those rules also provide a mechanism, as appropriate, for updating technology. Comment on those rules is beyond the scope of this commission action and, therefore, no change has been made to the standard permit in response to these comments.

Definition of "Modified"

The OAG - Public Agency Representation Section and Waukesha Engine recommended that Section (1)(A) include an appropriate definition of a "modified unit." Global Power requested clarification of what is meant by the word "modified."

The term "modified" is defined in 30 TAC Section 116.10(9) "Modification of existing facility." This definition applies to this standard permit.

Clarification of When Construction Begins

Cotton Bledsoe asked for clarification whether "dirt work" or setting of a skid for a skid-mounted DG project could begin before commission approval of the application.

To eliminate questions on start of construction and to eliminate the ability to "start construction" on a unit prior to the implementation of a more strict NO_x standard, the standard permit was revised to include a definition of "installed." The NO_x standards are based upon an "installed" date.

Clarification of Term "Site"

Cotton Bledsoe recommended clarification of the word "site". Cotton Bledsoe asked whether a manufacturing facility may put two separate DG skids, one at each building in a manufacturing complex of up to 10 MW each, or whether the facility is considered a single "site" and limited to 10 MW of DG projects total.

For purposes of this standard permit, the term "site" is used as defined in 30 TAC Section 122.10(29).

Clarification of Applicability of Standard Permit to a Site

Waukesha Engine recommended that paragraph (3)(A) clarify that the standards apply to the DG site as a whole and not to each unit individually to provide owners and operators flexibility in operation. Global Power also endorsed this position.

The standard permit was not changed in response to this comment because the commission is specifically regulating the NO_x emissions from each electric generating unit registered under the standard permit. Although the NO_x standard in the standard permit applies to each electric generating unit, the reference to multiple units at an account only applies to the fee determination.

Stakeholder Involvement in Establishing Emission Limits

Honeywell Power recommended that the emission limits be qualitatively determined using a consensus process that involves all stakeholders and that one aspect of this process should be to broadly evaluate the consequences and value of a variety of generation options. DOE, Cummins, EDI, Public Citizen and Good Company supported a collaborative effort to set the emission limits. AGCC requested that a workshop be held with stakeholders to derive a methodology that appropriately calculates and compares emissions impacts of electrical generation alternatives relative to the grid. Global Power recommended that the commission work with EMA and its members to establish practical NO_x and CO limits. AFRED recommended that the commission establish a working group of stakeholders to evaluate present emissions and potential emission reductions and to develop regulatory options that protect air quality but allow the market for these units to develop.

In addition to the public meeting required by rule, staff hosted a stakeholders meeting at the stakeholder's request on January 23, 2001. The commission thanks all stakeholders who have participated in the standard permit development process thus far. The public comment period for written comments was extended until February 5, 2001 at the request of the stakeholders, and all submitted written and oral comments have provided the basis for the revisions in the issued standard permit. The commission intends to continue to involve stakeholders in any further developments on this issue.

Study to Determine Potential Impact of DG on Texas

Good Company recommended that the commission consider entering into a study of the technology and its potential applications, as well as, available emission reduction technologies applicable to generation units of the size under consideration prior to attempting to develop this standard permit. Good Company requested that the commission adopt the standards Good Company submitted if the commission decided to issue the standard permit before such a study was complete. DOE suggested that the commission conduct a study to determine the potential DG impact on Texas and offered to share the cost of such a study. DOE stated that consideration of technology-specific goals may be necessary before development of broad output-based standards. EMA and Cummins stated that the proposed emission standards are not supported by any assessment of impacts on emissions inventories.

The commission intends to participate in a study in conjunction with the DOE and the PUC to determine the environmental impact and define the market potential of DG (electric generating units of 10 MW or less). However, the commission believes it is important to proceed with issuing this standard permit prior to the

completion of the study because of the very real potential for increased preconstruction authorization applications for electric generating units, especially small units. Upon completion of the study, the commission plans to reevaluate the standard permit to ensure that the standards are set at an appropriate level.

The Nitrogen Oxide Emission Limitations

Hunt Power commented that if the commission methodology of central station unit comparisons is to be fairly applied, appropriate central station technology should be used to make the comparison. Hunt Power used the duty cycle of a power plant as an example of a factor that must be considered when determining appropriate emission limitations. Hunt Power also commented that the standards must recognize the short-run benefit of DG in reducing central station power plant emissions. Hunt Power commented that if the commission deemed a specific emission limit for a central station unit in a given duty cycle, the allowable emission limit for DG in the same duty cycle should be 10% higher than the central station technology based solely on line losses. Hunt Power commented that the commission's standards must recognize the overall contribution that DG technologies make to improve air quality by taking into account the physical power system realities, which require re-dispatch of generating plants. Hunt Power commented that to the extent that an end use customer or DG project developer incorporates these technologies into a single site project, we believe the customer or owner of the site should receive 100% credit for the energy generated by these non-polluting technologies, applied against thermal generating resources that are part of the overall site or project.

The NO_x standards originally proposed were based upon BACT for recently permitted combined cycle central power stations. In response to these comments, the standards required in the standard permit have been revised to reflect BACT for electric generating units in pounds of NO_x per MW hour adjusted to reflect a simple cycle power plant. In addition, these output-based standards include an adjustment to account for inefficiencies associated with conversion of mechanical to electrical energy. While no specific credits were included for line losses except in the conversion to lb/MWh, a 100% credit was allowed for any combined heat and power added.

AEP commented that the current state of the technology on the DG systems will not meet the stringent standards as outlined in the proposal and the high cost and operational difficulties associated with post-combustion control equipment will make it prohibitive to install DG equipment in the state. AEP commented that the DG systems should be allowed to be permitted at a BACT rate that was in effect 120 months prior to the submission of the application with a reduction in the standard over the next five years. AEP commented that this will allow DG technology to mature and catch up with the traditional combined cycle type of equipment.

BACT is required by the TCAA and 30 TAC Section 116.602(c) for standard permits. Therefore, the commission does not have the authority to make the suggested change. However, as discussed previously, the standard permit was revised to reflect BACT for simple cycle power plants, as well as the cleanest reciprocating engines.

Austin Energy commented that since the Central Texas region is nearing ozone nonattainment, the emission rates should be weighted toward the clean end of the spectrum of possible emission rates, but that the emission rates should not be so strict that no manufacturer will be able to meet them in a cost-effective manner. Austin Energy commented that it is in the process of building a new facility near Austin that consists of four large peaking-type gas turbines that will have selective catalytic reduction (SCR) emissions control devices added to the units. Austin

Energy commented that the emissions target for these units is below 5 ppm NO_x. Austin Energy commented that it has found that it can invest the added cost of the SCR into its new power plant in an economically viable manner. Austin Energy commented that this fact should be considered during the negotiations regarding emission rates for the various forms of DG and cogeneration. Austin Energy commented that the cost of all of the equipment that would nominally be utilized for emergency backup generation only (the generator and the prime mover) should not be included in the control cost-effectiveness determinations because a facility would have to pay for these generators whether they are DG or not. Austin Energy commented that only the incremental cost of adding the emissions control devices should be used for determining the emission control cost-effectiveness.

The commission appreciates Austin Energy's concern about the air quality of the Central Texas region and agrees that emission controls can be cost-effective for electric generating units. By setting output-based standards and not distinguishing between driver-types, more clean and more efficient units are rewarded and recent gains in air quality from clean central power plants will not be negated. This standard permit does not require emergency generators to use additional controls unless they switch service from emergency-only to peaking applications.

Austin Energy commented that it is concerned that by allowing several small but comparatively high-emitting sources into the air shed, any gains that have been made recently to improving the air quality in Texas through NO_x reductions made at centralized power plants will be negated. Austin Energy commented that this increase would lead to an increase in the emission reduction requirements that would be necessary from the mobile source sector.

The commission is also concerned about the impact of small but comparatively high-emitting sources on the gains made by recently permitted low emitting centralized power plants. The standard permit as issued requires BACT in the East Texas region to address the nonattainment problems in the area.

NRDC supports the proposed standard permit and the commission's efforts to establish user-friendly emissions standards for small electric generators. NRDC commented that the standard permit will close a gap in existing air pollution regulations and encourage the development of small clean electricity generators to address capacity concerns in Texas. NRDC endorsed the aggressive emission limits in the standard permit because use of the standard permit is optional. NRDC commented that the approach for setting standards endorsed in the Federal Clean Air Act requires new units to perform at least as well as the best unit in that technological family, and the result of that approach is to allow the market place to set the rate of tightening in emissions standards. NRDC commented that technological family being regulated here is the customer-owned generation market. However, NRDC commented that no generation technology should be allowed to profit by being dirtier than other technologies and for that reason recommended that the commission explicitly link the standard permit requirements starting in 2007 to the emission rates being achieved by combined cycle natural gas turbines. Environmental Defense commented that it is irresponsible to argue that engine manufacturers should be allowed to emit at rates that are 40 to 70 times higher than existing fleet or new central station power plants that must achieve 93% emission reductions (achieving an emissions rate of approximately 0.1 lb/MWh) and when other much cleaner alternatives are available. In addition, Environmental Defense commented that the commission must consider the cumulative effects from rapid deployment of small generating units in determining the appropriate emission standard under the standard permit given the fact that rapid growth in DG is expected. Environmental Defense commented that a strict emission standard is achievable. Environmental Defense endorsed Capstone's recommended NO_x emission standard schedule of: 0.40 lb/MWh in 2001; 0.19 lb/MWh in 2003; and 0.08 lb/MWh in 2005. Environmental Defense commented that DG should not be subsidized by low-emitting large generators. Environmental Defense commented that it small generators should not be allowed to emit at rates 40 to 70 times higher than large generators when the large

generators are spending millions of dollars to reduce emissions and incur the additional cost of acquiring emission offsets. Environmental Defense stated that it would understand the reasonableness of "backing off" the emission standards if it were accompanied by a 1.3 to 1 emission offset requirement.

The commission appreciates NRDC's and Environmental Defense's comments. The standards in the standard permit are based upon BACT for the cleanest type of equipment available. Due to concerns about potential transmission and distribution problems in remote areas of West Texas, the standard for these peaking units operating less than 300 hours per year represents Tier I non-road engine standards proposed by EPA. The East Texas standards reflect BACT to account for the ozone nonattainment issues in this region, but also provide for the use of clean peaking applications. The future year standard will be reevaluated upon completion of the planned DG study. Additionally, because the standard permit applies to units greater than 10 MW and the proposed standards have been revised, the commission has proposed removal of the exemption for electric generating units contained in Chapter 117. Thus, once this exemption is removed from Chapter 117, electric generating units under 10 MW, operating under the standard permit, will be subject to Chapter 117.

Good Company recommended a site-internal emissions trading system that would allow sites to select the most appropriate and cost-effective technology for each application. Good Company stated that sites should receive credits based on the net emission reductions achieved at a site due to DG implementation.

Providing for emission trading at a site or at an account would unnecessarily complicate the standard permit which was designed to be an expedited method of authorizing clean electric generating units. Therefore, the standard permit was not changed in response to this comment. A flexible permit under 30 TAC Chapter 116, Subchapter G provides a mechanism for the flexibility described in the comment.

Environmental Defense commented that the current DFW and Houston/Galveston (HGA) SIP does not account for emissions increases brought about by increased utilization of small generation that is exempt from major source permitting and offset requirements. Environmental Defense commented that the only way to remedy the failure to account for increased emissions from small generating sources is to establish emission rates that ensure cumulative emissions from these sources over the next seven years that will not have a measurable impact on air quality in the affected regions.

As previously stated, the commission has proposed removal of the exemption for small electric generating units registered under this standard permit from Chapter 117 because of the potential impact upon the SIP from units operating under the standard permit. In addition, the results of the planned DG study will be used to evaluate the 2005 East Texas region standard. The standards applicable to the East Texas region drastically cut the limits currently permitted by rule under 30 TAC Section 106.512 and will require even cleaner technology for future installations.

Environmental Defense commented that effect of the standard permits on the availability of adequate power should not be a factor in deciding on the appropriate emission standards since adequate power is already available. In the alternative, Environmental Defense commented that deployment of energy efficiency measures would solve most electricity sufficiency and reliability problems.

Although adequate power is generally readily available throughout the state, the commission believes this standard permit will be most useful in areas of the state that either do not have adequate power available or

inadequate transmission and distribution systems for the power. The standard permit includes strict emission standards to protect the environment, including the requirement for future installations to meet increasingly stricter standards. The inclusion of a credit for CHP use also benefits those who chose to install and operate more efficient units and eliminate the need for additional fossil fueled heat sources.

Public Citizen recommended more stringent standards for nonattainment areas and commented that the state should be required to examine the cumulative impact of these emissions in nonattainment areas. Public Citizen recommended that the commission adopt a bifurcated rule that would allow EGUs to be permitted as proposed under the standard permit but in nonattainment areas require individual permits with offsets. Public Citizen commented that this would assure that the addition of any new source must be aggregated into the SIP caps and that they are "permittable" under the limits. Public Citizen commented that this would assure that the technologies used meet the Lowest Achievable Emission Rate (LAER) standard.

As discussed earlier, by establishing the standards for both the East Texas region and the West Texas region in the standard permit, the commission is able to ensure that BACT in the East Texas region addresses the unique nonattainment issues in that area of the state. Individual New Source Review permits would be required for any project that triggers nonattainment review which would include LAER.

Public Citizen questioned the wisdom of placing diesel units in neighborhoods or in office clusters where citizens would be continuously exposed to carcinogens and encouraged the commission to keep in mind various air quality issues and deadlines that must be met in upcoming years when choosing the standard permit's emission standards. Public Citizen encouraged the commission to evaluate the impact of other pollutants from DG because of the long useful life of some DG units. Public Citizen also stated that pricing of electricity in the future will likely encourage the use of DG and this fact should also be considered when establishing emission limits.

The commission agrees with Public Citizen's concern about diesel units because of the higher emissions of NO_x and other air pollutants. The only standard in the standard permit that would authorize diesel engines which use current technology is the standard for peaking units operating 300 hours or less in the West Texas region. Parts of the West Texas region may have transmission and distribution limitations in a deregulated market, but by limiting the hours of operation, the impact of all pollutants are minimized.

Public Citizen recommended that the commission modify the standard permit to assure that some or all of the emissions from EGUs are controlled under its general authority to adopt regulations necessary to prevent significant deterioration of air quality. Public Citizen recommended that the commission establish a docket to develop appropriate emission levels for EGU pollutants and incorporate the findings of that inquiry into a BACT review.

The standard permit requires BACT and replaces the use of permit by rule 30 TAC Section 106.512 that has less stringent standards for NO_x. Any BACT determination for permits under review will look at all technology available, not just recently permitted units. In addition, facilities which trigger Prevention of Significant Deterioration permitting would not be eligible to use the standard permit.

Plug Power supported the fact that the proposed standard permit treats different electric generation technologies identically with respect to the air emission standards.

The commission appreciates Plug Power supporting the position that the standards should be the same for all units to encourage the use of the cleanest and most efficient units.

Senator Van de Putte stated that the standard permit inappropriately applied emission standards for one type of technology for the regulation of another and encouraged the commission to apply a broader, integrated solution to the regulation of emissions from the power generation sector. She also stated the proposed standard permit must be revised to allow DG technologies to benefit the Texas environment and economy. Honeywell Power stated that a direct application of combined cycle plant emission standards to the DG industry does not necessarily maintain the current level of air quality. Honeywell Power stated that many factors, as they relate to the operation and use of combined cycle plants and DG, affect air quality. Holt and Holt Power commented that the commission's approach to setting the emission limits has no basis in United States environmental law or regulatory practice. They stated that the commission has set an environmental standard for several categories of equipment based on the peak performance of a different technology in a completely different size category. They stated that the commission should set challenging but attainable emission limits based on the best performance of each DG technology with consideration given to the technical capabilities and economic factors associated with each technology. They requested that there be an opportunity for public review and comment before this rule is finalized. Solar commented that comparing DG technologies to large combined cycle gas turbines (CCGT) is inappropriate because of differences in system efficiency, line losses, and air dispersion characteristics. Solar commented that the standards for DG technologies should be based on technology-based standards (New Source Performance Standards) or case-by-case assessment of technical and economic feasibility (BACT/LAER). Solar commented that lack of DG will harm markets that are not served adequately by central station power plants. EMA and Cummins stated that the standards are not reflective of sound public policy since they "will effect a *de facto* ban" on small electrical generating units powered by reciprocating internal combustion engines (RICE). EMA and Cummins stated that the NO_x standards should be based on the best available emission control technologies for RICE DG units instead of the standards applicable under the HGA SIP to combined cycle power plants. EMA stated that since the proposed standards effect a de facto ban on RICE, owners and operators of will not refurbish or upgrade existing RICE. EMA stated that the decision not to refurbish existing RICE will adversely affect air quality and energy concerns. AGCC commented that the apparent purpose of the proposed standard permit is to ban all DG except for certain renewables and fuel cells. AGCC stated that a ban on DG results in a situation where very few companies representing the same technology control the multi-billion dollar electricity-generating industry and that such a situation appears to violate the spirit (if not the letter) of Section 18 of the Texas Constitution, which states: "Perpetuities and monopolies are contrary to the genius of a free government, and shall never be allowed." AGCC stated that such a situation results in higher electricity and natural gas prices for ratepayers, harms Texas' agricultural industry, and degrades the environment. AGCC also stated that case-by-case full permit hearings create a hardship for DG projects of 1 MW or less because those requirements may eliminate the economic feasibility of those projects. ETG stated that the proposed emission standards will have the effect of limiting competition by eliminating market entrance of smaller competitors and power projects but with no concomitant benefit to air quality since the economic lives of older technologies and equipment will be extended. ETG requested that the commission not take any action that sets standards beyond the reasonable economic capabilities of those who build and supply generating equipment. The OAG - Public Agency Representation Section commented that the commission should reexamine the emission standards to ensure that these standards are achievable using technology that is available now.

The commission has revised the standard permit in response to these comments. The standard permit contains different standards to account for different technologies available and the mode of operation of the units. The original draft used natural gas-fired combined cycle power plants as the basis for the standards. However, in response to comments, the commission divided the state into two regions and allowed different technologies to be used in each. In the West Texas region, nonattainment is not a major concern so the standards allow for the cleanest reciprocating engines as well as turbines, micro-turbines, and fuel cells.

These standards do not ban any clean equipment and even clean diesels meeting the EPA Tier 1 non-road engine standards can be used for peaking in West Texas. In the East Texas region, where concern for ozone formation is greater, the standards should allow for authorization of fuel cells, micro-turbines, clean turbines using catalytic combustors or flue gas cleanup, and the very cleanest reciprocating engines using catalytic converters. The commission also recognizes that the cleanest technology available will be needed to maintain the current level of air quality and to improve it in nonattainment and near-nonattainment areas. The revised standards are output-based to encourage the use of the most efficient and cleanest technology available and to encourage smaller units located at or near the user to avoid the line losses associated with only a few central power plants. The less stringent standards should encourage the use of small units where appropriate and do not represent a ban on any technology that is clean. The TCAA authorizes the commission to control the quality of the state's air, issuing permits that meet or exceed BACT. The commission considered this standard permit in an open meeting at which time the public had the opportunity to comment on the standard permit.

DOE also stated that consideration of technology-specific goals may be necessary before development of broad output-based standards.

The standard permit contains emission limits that allow for authorization of a variety of clean electric generating units. The commission plans to use the results of a planned study with the DOE to determine the environmental impact and market penetration of DG units in Texas to determine the appropriate outlying standards for DG technology.

AGCC also commented on the importance of considering how reduction of one pollutant may increase emissions of another pollutant.

Information reviewed on the engines that can meet the NO_x standards in the standard permit indicates that these engines are efficient combustion sources so that increases in pollutants due to the NO_x standards are anticipated to be minimal, if at all.

ACEEE commented that comparing DG technologies to baseload generating technologies such as CCGT is inappropriate. ACEEE proposed that the commission consider using state-of-the-art peaking units as the comparison technology for DG systems. Sure Power commented that the comparison of DG only to new combined cycle generation neglects other emissions attributable to the system as a whole (DG emissions should be compared to grid emissions plus the emissions from use of uninterruptible power supplies plus the emissions from the use of backup diesel units). Sure Power commented that in markets requiring high-availability power, DG emissions should be compared against the grid plus diesel generators used to assure reliability. Catalytica commented that the commission's decision to set emission limits based on the best emission level achievable from large combined cycle units does not take into account that most DG units will be simple cycle nor that small units cannot achieve the efficiencies of large combined cycle systems. Catalytica commented that no units in the size range covered by the proposed permit will be able to achieve the levels required after January 1, 2005. Catalytica commented that the commission could establish emission limits based on the best performance available from a gas turbine and allow credit for emission reductions resulting from heat recovery. Catalytica commented that by its emission levels the standard permit seems to be mandating heat recovery, and that if that is the case, the commission should develop a standard permit for non-heat recovery applications. Catalytica commented that it would like the proposed standard permit to give credit for use of combustion control technology over NO_x control technology applied to a boiler because emissions at start-up from the former are less than the latter. DTE commented that adoption of the standard

permit will prevent implementation of DG in Texas while suppressing total market opportunities for DG. DTE commented that this result will harm end-users requiring personalized solutions that the electric grid cannot provide, and society in general. AGCC stated the proposed standard permit will result in electricity capacity shortfalls and price increases, increased emissions of global warming gases, and reduced competition in the electricity-generation sector. Good Company requested that the commission examine the costs and benefits of the proposed standard permit. Sure Power commented that the stringent emission limitations will drive customers to use the traditional grid plus diesel backup, since the diesels are permitted by rule.

As previously discussed in response to the standards proposed, the commission has modified the standard permit to represent BACT for more than just combined cycle central station plants. The standards in the issued standard permit will allow for the cleanest reciprocating engines as well as turbines, micro-turbines and fuel cells. This should allow the use of clean equipment, give an incentive for using CHP without setting standards that would require it, and provide economic incentive for reliability power to be generated at the point of use as opposed to relying on central plant power with emergency backup.

USCHPA stated that DG units should be given credit for abated transmission and distribution (T & D) line losses equal to the average T & D losses in Texas because DG reduces the amount of electricity that central station plants must transmit. ACEEE proposed that the commission develop a system for providing small generators with credit for avoiding transmission losses. ACEEE recommended that emission rates for on-site generation be at least 9.0% higher than the emission rates of state-of-the-art central combined cycle gas generators. Good Company commented that the commission should at a minimum allow a fair credit for on-site generation to account for line losses and enhanced power quality and ensure that emissions are measured as total power avoided rather than net power produced on site. Good Company recommended that peaking power applications be given higher line loss and power quality adjustments because peaking power is used when line losses are greatest. Good Company recommended a 30% credit. ALSTOM commented that no credit is given for avoided transmission losses from central generation by using DG despite the fact that in periods of high demand transmission losses may reach 30%. Good Company requested that the commission recognize the variety of needs which DG meets as it develops the standard permit. Good Company commented that the emissions from DG applications should, at a minimum, be compared to the emissions of either peaking units or the electrical generation system average, rather than the baseload combined cycle gas turbine plant. Good Company commented that the commission should determine a fair credit that will account for the avoided line losses and enhanced power that DG affords since increased DG generation means decreased central station emissions. Austin Energy estimated that typical line losses within its service area (the Austin Metro area) are between 8.0% and 10% on a hot day.

The revised standards in the standard permit issued are no longer exclusively based on recently permitted combined cycle power plants. Dividing the state into two regions and setting separate standards in each region allowed for more technologies and eliminated the need to meet the efficiency of a combined cycle unit. This relaxation of the standards to reflect simple cycle turbine and even reciprocating engines provides enough flexibility to adequately account for the 10% line losses avoided. The commission does not believe that it is appropriate to credit the highest possible line losses of 30% to allow equipment that cannot meet the BACT standards to be competitive.

USCHPA suggested that the allowable emission limits be adjusted to allow for multiple DG technologies, including simple-cycle gas turbines and controlled gas engines. USCHPA stated that the only available technology that meets

the requirements in the proposal is the fuel cell but that fuel cells, at a cost of $1,500 to $3,000 per kilowatt-hour (KWh) installed, are cost-effective only for a small number of "high-value industries." ALSTOM stated that DG will only succeed as a "mix of technologies" so that consumers may have maximum choice in how their power is generated. ALSTOM stated that the mix would include reciprocating engines, micro-turbines, wind, solar, small to medium-sized gas turbines, fuel cells, and other technologies as they become available. ALSTOM commented that a standard for turbines and one for reciprocating engines are necessary for DG to successfully grow in Texas. ALSTOM stated that it seems impractical to compare emissions, on a lb/MWh basis, from a small DG unit to that of a combined cycle gas turbine where efficiency is relatively high and exhaust cleanup, though expensive, is a smaller proportion of total cost. AGCC commented that "force-fitting" the state implementation plan for Houston and Galveston on the remainder of Texas, the majority of which is in attainment, is "counterproductive for the greater good of Texas" and consumers from other states who rely on natural gas from Texas. AGCC commented that mandating BACT would preclude more logical Reasonably Available Control Technologies (RACT) which could undermine legitimate environmental objectives. AGCC commented that mandating combined-cycle turbine "merchant plants" would decrease competition and increase water and natural gas consumption (thereby increasing emissions). AGCC commented that combined-cycle emission reductions may be significantly overstated since emissions from those units may vary significantly as a function of inlet air temperature.

As previously discussed in responses to other comments on the standards, the commission has revised the standards based upon East and West Texas regions and upon the operating schedule of the units. The original draft used natural gas-fired combined cycle power plants as the basis for the standards, but by dividing the state into two separate regions, the standard permit issued allows different technologies to be used. In the West Texas region nonattainment is not a major concern, so the standards allow for the cleanest reciprocating engines as well as turbines, micro-turbines and fuel cells. Even clean diesels meeting the EPA Tier 1 non-road engine standards can be used for peaking. In the East Texas region, the standards should allow for authorization of fuel cells, micro-turbines, clean turbines using catalytic combustors or flue gas cleanup, and the very cleanest reciprocating engines using catalytic converters. This mix of technologies should give the users the flexibility to choose the most appropriate equipment for the location.

AGCC commented that an ideal credit formula should be based upon actual overall emissions reduced since the emissions that accompany overall British thermal unit (Btu) consumption are of primary importance. AGCC commented that for DG, credit should be based upon a given DG system's emissions relative to the grid, and for CHP, credit should also compensate for emission differences between heat recovery and use of an on-site furnace or boiler. AGCC provided an alternative formula.

The commission appreciates AGCC's comments on CHP credits, and tried to give adequate credit for CHP installations without over complicating the calculations required. To simplify the calculations and demonstrations required, the revisions in the standard permit credit 100% of the useful heat recovered and no longer require a standardized system.

Waukesha-Pearce urged the commission to carefully study the reduction systems it is advocating with respect to initial cost, operational cost, and total impact on air quality. Waukesha-Pearce expressed concern that the commission is mandating large reductions too quickly with the proposed standard permit and the proposed levels in 30 TAC Section 117.206(C)(9). Waukesha-Pearce stated that the proposed emission limits create a situation where the cost of controls equals or exceeds the cost of the engine. AGCC commented that the trade-offs between minimizing criteria emissions, minimizing adverse economic impacts, and maximizing conservation of finite resources must be comprehensively addressed to minimize unintended consequences of the standard permit emission

limits. AGCC also commented that least-cost/integrated resource planning are being ignored. AGCC explained that most commercially-available DG technologies are less expensive than most combined-cycle power plants when the cost of transmission and distribution infrastructure is included in the cost of combined-cycle power plants. AGCC stated that ignoring such factors usually results in higher costs to consumers, fewer consumer choices, and deterioration of the environment. EMA and Cummins stated that the proposed emission standards are not cost-effective. Cummins stated that the proposed standard permit is not reasonable. Global Power commented that the decision to base the proposed emission limits on emission limits achievable by recently permitted large combined-cycle power plants is misguided and impractical and provided emission, cost, and anecdotal evidence in support of its proposition. Global Power opposed emission limits that would require widespread use of SCR technology to achieve them because of the potential problems associated with SCR use. Global Power stated that the proposed emission limits would create a severe economic hardship for businesses in Texas because the standard permit, in effect, prohibits DG and, therefore, DG cannot be used to supplement the inadequacies of the electric grid transmission and distribution system. Global Power recommended that the standard permit should reflect the emissions capabilities of small gas turbines and reciprocating engines without post-combustion treatment except in nonattainment areas, where non-selective catalytic reducers (NSCR) would be required in the exhausts of natural gas-fueled rich burn engines and turbines that utilize non-dry low NO_x combustion systems. Global Power would be in favor of emission limits for diesel engines in attainment areas that require the use of commercially-viable SCR technology, while diesel engines in nonattainment areas would be required to obtain a regular NSR permit.

As previously discussed in responses to comments about the standards, the issued standard permit has been revised to include different standards based upon the area of the state and operation of the unit. The commission believes that these new standards reflect BACT for what is available for clean technology today in most cases without additional expensive controls.

Good Company recommended credit for any emission reductions or increase of on-site efficiencies attributed to DG units at a site. For example, an owner or operator should be credited for replacement of two industrial boilers by a lesser emitting DG unit. Encorp commented that permitting should be on a "weighted environmental impact" basis and dependent on available options.

The commission believes these issues should be addressed in a case-by-case review permit, such as a flexible permit, rather than the standard permit issued. Therefore, no change to the standard permit was proposed.

AGCC commented that water usage issues have not been considered. AGCC stated that combined-cycle power plant cooling water consumption equates to about 5.71 acre-feet per megawatt-year but that DG units do not. AGCC commented that the standard permit encourages reliance on combined-cycle power plants and that reliance on those units negatively impacts the agriculture industry, especially in the panhandle of Texas, where combined-cycle plants and agriculture sources compete for a limited amount of water. AGCC commented that insufficient water for agriculture sources in the panhandle will result in detriment to the state and the nation. DTE commented that DG benefits include reduced use of land and water resources associated with construction of new central station power plants and expansion of transmission and distribution facilities. DTE also commented that since DG is located near the end-user, DG does not have significant line losses resulting from transmission of electricity over long distances. Solar commented that operation of a 25 ppm or 15 ppm gas turbine during an emergency is better than operation of liquid fuel-based emergency unit and that the emission standards should take this into account.

As revised, the standard permit should encourage the use of smaller, clean generating units near the end-user where there is a limited power supply or distribution system and would, therefore, reduce the need for

additional central power stations that require cooling towers that use large quantities of water to condense the steam back into water. The NO_x standards that were established based upon BACT will ensure that the cleanest units are used.

Good Company encouraged the commission to recognize that small-scale generation, when and if it becomes a significant economic alternative, will not be simply an alternative for large-scale, centrally-generated electric power, but that it holds promise for providing power quality and reliability characteristics not available from the larger power grid. Good Company commented that the commission should consider the impact of the standard permit on the economy. Good Company recommended that the commission recognize three classes of on-site applications (emergency, peaking, and primary power) and that standards be set based upon the best available technology assessment of the applicable technology for each. Good Company recommended that the commission recognize the technical and economic feasibility of a variety of equipment in different size ranges. Good Company commented that the standards should not be based upon the assumption that fuel cells are the best available technology.

The standard permit, as revised, includes standards for large and small units as well as incentives for the use of small units and units that operate a limited number of hours. To encourage efficiency, standards were established in pounds of emissions per unit output, but were not established separately for different types of technology. The standards will allow for very clean reciprocating engines as well as turbines, micro-turbines, and fuel cells.

Good Company commented that a separate standard permit that includes a less stringent standard for units used less than 720 hours could reduce the need for either the use of older, out-dated central station and "must run" plants, or the need to start up diesel backup generator sets. Good Company commented that the commission should consider the standard emission levels in comparison to the most outmoded generation rather than the new utility-scale generation. Good Company commented that by limiting the use of these machines to after 10 a.m., the commission could limit the contribution of any NO_x emissions to ground level ozone formation, as well.

The standard permit has been revised to allow units in the West Texas region to operate up to 300 hours per year at a higher standard which could reduce the needs mentioned. This should allow diesel engines meeting EPA's Tier I diesel off-road standards to be used for peaking. The standards in the East Texas region are more stringent to recognize the nonattainment concerns for this region. Since the commission is required to apply at least BACT, it is difficult to set standards based on outmoded generation rather than current technology.

Southern Union recommended that sites located in nonattainment areas, with total DG capacity of less than 300 kW and emissions less than 5.912 lb/MWh, continue to be permitted by rule under 30 TAC Section 106.512. Southern Union explained that under this scenario, total NO_x emissions would be approximately 7.8 tons per year (assuming continuous operation). Global Power suggested that units with a nameplate rating of 150 kW or less, with a limit of three such units per site, have relaxed emission standards. ACEEE recommended that the regulations for on-site generation set forth in the standard permit be loosened.

No change has been made in response to this comment. Without proper controls, a proliferation of small units could negatively impact the commission's obligation to demonstrate attainment with ozone standards. As previously stated, the standard permit was revised so that more types of facilities could meet it. In addition, the commission wants to encourage the use of emerging ultra-clean technologies, such as fuel cells,

for small generation units. Finally, very clean small units may petition the executive director to be listed on the list entitled "De Minimis Facilities or Sources" and avoid the need to register under this standard permit, if approved and added to the list.

Environmental Defense stated that the standard for West Texas should be set in the first period to allow new units to utilize internal combustion engine (ICE) technology but be fueled and operated in a manner that produces lower emissions. Environmental Defense recommended a 2001 - 2002 NO_x standard of 1 lb/MWh for those units since an ICE engine fueled by natural gas can achieve a standard of 1 lb/MWh without SCR post-combustion control. Environmental Defense recommended a 2003 - 2004 NO_x standard of 0.3 lb/MWh since Caterpillar has publicly stated that it expects to achieve a standard of 0.3 lb/MWh very soon with lean burn natural gas ICEs.

The commission is issuing the standard permit which includes separate standards applicable to an East Texas region and a West Texas region. The West Texas standards represent BACT for natural gas-fired lean burn and rich burn internal combustion engines. The standards recommended by Environmental Defense would not allow lean burn engines to use the standard permit without adding SCR, which the commission has not determined to be needed in the West Texas region. The West Texas standards will be reevaluated at the completion of the planned DG study and may be adjusted, if needed.

Environmental Defense commented that if the East Texas NO_x standards of 0.19 pounds per megawatt-hour (lb/MWh) and 0.08 lb/MWh for 2003 and 2005 are maintained then micro-turbine technology will benefit from increased production and concomitant decreasing production costs. Environmental Defense reasoned that micro-turbine technology will then be economic for use in West Texas, as well as East Texas, by 2005. For that reason, Environmental Defense recommended that for the time being, the West Texas target for 2005 should remain 0.08 lb/MWh.

The standard permit has an initial East Texas region standard for units (10 MW or less) operating more than 300 hours per year of 0.47 lb/MWh to be reduced to 0.14 lb/MWh in 2005. Units (10 MW or less) operating 300 hours or less per year must comply with a standard of 1.65 lb/MWh to be reduced to 0.47 lb/MWh in 2005. The commission will reevaluate the 2005 standard after completion of the planned DG study. The standards in East Texas represent BACT for the ozone nonattainment areas in East Texas. The commission agrees that as clean technology, such as micro-turbines, becomes more commercially available, there will be more options for the owners or operators of these electric generating units. This can be considered when, and if, new standards for West Texas are proposed.

NRDC commented that a number of commenters claim that because the proposed emission rates cannot be achieved by all generation technologies that the standards are too strict. NRDC commented that technology forcing regulations by their very nature should only be achievable by the best technologies, and that there is clearly a set of small generators that can meet the standards proposed by the commission as long as the standards are adjusted for phased-in efficiency. NRDC commented that Capstone, in their comments, suggested adjusting the commission proposed standards to reflect gradual improvements in efficiency. NRDC supported Capstone's suggested NO_x emission rates of 0.40 lb/MWh today, 0.19 lb/MWh in 2003, and 0.08 lb/MWh in 2005.

The commission appreciates NRDC's comments and support for the concept that standards apply to all technologies so long as they are achievable. The standard permit was revised to reflect this concept. The standard permit has an initial East Texas region standard for units (10 MW or less) operating more than

300 hours per year of 0.47 lb/MWh to be reduced to 0.14 lb/MWh in 2005. Units (10 MW or less) operating 300 hours or less per year must comply with a standard of 1.65 lb/MWh to be reduced to 0.47 lb/MWh in 2005. The standard permit contains standards that represent BACT for various electric generating unit technologies. The East Texas region standards will be reevaluated upon completion of the planned DG study.

Honeywell Power commented that practical emission limits should be set that are within the DG industry's "reach" both technically and economically, and that these limits will result in cleaner ambient air and economic benefits. Honeywell Power recommended the following NO_x emission limits: 2001, 2.0 lb/MWh; 2002, 1.0 lb/MWh; 2003, 1.0 lb/MWh; 2004, 0.3 lb/MWh; 2005, 0.3 lb/MWh. Honeywell Power stated that their recommended emission limits are achievable by most manufacturers in the given time period and are significantly lower than the aggregated existing fleet. Honeywell Power stated that they have no technology that can meet the proposed emission limitations. Capstone recommended the following NO_x emission limits over time: 0.4 lb/MWh; 0.19 lb/MWh; 0.08 lb/MWh. Capstone stated that commission assumed too high an efficiency for CCGT on which the commission based its standards. Capstone's recommendation assumes a more realistic efficiency (30% - 35%) for these units. Capstone commented that the emission standards should be stepped down as the efficiency of CCGTs goes up. Capstone commented that the standards should reflect that reduced line losses attributed to DG. Solar recommended the following NO_x emission levels for natural gas-fueled gas turbines across all duty cycles: 1.06 lb/MWh until 2004 and 0.68 lb/MWh from 2005 to 2010. Solar commented that the proposed standards would require add-on controls to achieve and make such projects too expensive to construct.

The standard permit was revised in response to these comments. The standards were adjusted to represent BACT for more than just the most efficient combined-cycle turbines and are similar to the standards proposed by the commenters. The state was divided into two regions with different standards for units under 10 MW because of the nonattainment issues in the East Texas region. The West Texas region standards for units less than or equal to 10 MW are 21 lb/MWh for units operating less than or equal to 300 hours per year and 3.11 lb/MWh for all other units. The standard permit has an initial East Texas region standard for units (10 MW or less) operating more than 300 hours per year of 0.47 lb/MWh to be reduced to 0.14 lb/MWh in 2005. Units (10 MW or less) operating 300 hours or less per year must comply with a standard of 1.65 lb/MWh to be reduced to 0.47 lb/MWh in 2005. The initial standards in the standard permit are achievable by the cleanest reciprocating engines and turbines without expensive controls as well as micro-turbines and fuel cells. The standard permit now contains emission limits that do not require add-on controls.

EMA and Cummins stated that the proposed emission requirements are not technologically feasible for RICE. EMA stated that the proposed interim standard is an order of magnitude more stringent than what can be achieved by the most advanced lean-burn spark-ignited (SI) RICE. EMA also stated that the proposed standard is an order of magnitude more stringent than the expected federal NO_x limit for heavy-duty diesel on-highway engines expected to become final in 2007.

The standard permit was revised in response to these comments. The proposed standards were based upon what had been permitted for combined-cycle central power plants and was not achievable by most of the smaller engines. However, the initial standards in the standard permit, as revised, represent BACT that the cleanest RICE and turbines can meet today, as well as micro-turbines and fuel cells.

DOE suggested that the commission consider an interim ruling targeting single digit NO_x with future reductions that match research and development goals for various DG technologies. DOE stated that commercial offerings do not

exist which will guarantee the proposed 2005 standard can be met. Encorp commented that a determination should be made of the expected distribution and size of DG units in the state in an effort to determine the impact of DG.

The commission plans to participate in a study with the DOE to determine the environmental impact, market potential, and technology available for small electric generating units. The results of this study will be used to reevaluate the 2005 East Texas region standard.

Cummins stated that the standard permit should take into account that NO_x and particulate matter (PM) emission levels from diesel reciprocating engines in heavy-duty on highway applications will have been reduced by 90% by 2002 and that expected near-term standards would require another 90% reduction of these emissions or 99% reduction from unregulated levels. Cummins stated that emission reductions should be staged over time as the cost-effectiveness of technology advances.

The standards in the West Texas region allow for the use of diesel engines meeting the Tier 1 non-road engine standards for 300 hours or less. If the planned DG study demonstrates the market potential for additional diesel use and that the technology will continue to improve, revisions to the West Texas region standards may be considered. Please note that emergency backup generators powered by diesel engines can still be authorized under 30 TAC Section 106.511, Portable and Emergency Engines and Turbines.

Global Power stated that the proposed emission limits are not viable for any small electric generating units using proven technology that is currently available or under development. Global Power disagreed with the agency's intention, presented at the January 23, 2001 stakeholder meeting, to retain the proposed emission standards for years 2003 and 2005. Global Power said that to do so will discourage, if not eliminate, the raising of capital to develop the DG market since companies will not put resources into a market that has unattractive economics and "impassable" environmental regulations.

As previously discussed, the standard permit was revised in response to these comments with a single step-down for the East Texas region in 2005. The initial standard reflects BACT for units available today. The East Texas region 2005 standard will be reevaluated once the planned DG study is completed.

EMA endorsed the alternative permitting standards that Good Company submitted during the January 23, 2001 stakeholder meeting. ALSTOM recommended a standard of 0.4 lb/MWh for today's turbines (in simple, open cycle) and a standard of 0.22 lb/MWh for 2005. ALSTOM commented that the standard permit's 2005 standard of 0.08 lb/MWh is cost prohibitive. ALSTOM commented that relaxing the long-term proposed standards to 9 ppm may encourage the development of small DG in all areas of the state. ALSTOM explained that a relaxed standard should decrease demand for existing plant generation and accelerate the improvement of air quality since modern gas turbines can meet 9 ppm which is an order of magnitude more clean than existing plants in some areas of the state. AGCC stated that the commission should not mandate unaffordable emission reduction technologies since RACT for reciprocating engines can provide economically manageable NO_x emission of 0.5 to 1 lb/MWh, thereby reducing NO_x emissions somewhere between one-third and one-sixth the emissions of the grid average. AGCC commented that overall emission reductions from DG are further increased when rejected heat is recovered to displace less clean combustion processes. Waukesha Engine recommended less stringent CO and NO_x emission standards in paragraph (3)(C) and (D) according to the following: Rich-burn SI RICE: 1.86 lb/MWh CO, 0.62 lb/MWh NO_x; Lean-burn SI RICE: 0.93 lb/MWh CO, 0.93 lb/MWh NO_x. Southern Union requested that the commission reevaluate the proposed emission limits and provide justification that existing, readily available combustion units can meet the limits without an inordinate amount of post-combustion controls. Southern Union

requested that the proposed standard permit be revised to reflect the additional time provided for in the version of the SIP rule adopted by the commission (the first step-down extends until December 31, 2006 rather than December 31, 2004).

The commission has made changes to the standard permit in response to these comments. The state has been divided into two regions to address the need for more stringent requirements in the East Texas region because of the ozone nonattainment problem and inclusion of near nonattainment areas in much of that region. The West Texas region standards for units less than or equal to 10 MW are 21 lb/MWh for units operating less than or equal to 300 hours per year and 3.11 lb/MWh for all other units. The standard permit has an initial East Texas region standard for units (10 MW or less) operating more than 300 hours per year of 0.47 lb/MWh to be reduced to 0.14 lb/MWh in 2005. Units (10 MW or less) operating 300 hours or less per year must comply with a standard of 1.65 lb/MWh to be reduced to 0.47 lb/MWh in 2005. The commission decided that a single-step down four years from now is more appropriate than the two step-down approach over four years because the two step-down approach does not provide manufacturers time to develop, test, and market products. The East Texas region 2005 standard will be reevaluated upon completion of the planned DG study. As discussed previously, different standards are based upon region, date of installation, and hours of operation. Standards, based upon hours of operation, have also been included for units greater than 10 MW.

Southern Union recommended NO_x emission limits of 2.0 g/hp-hr for internal combustion gas-fired engines and 3.0 g/hp-hr for turbines rated at 500 horsepower (hp) or more for sources located in attainment or unclassified areas, since the commission's March 2000 "Revised Draft of BACT for Gas Turbines" states that sources meeting these limits could be permitted by rule under 30 TAC Section 106.512. Encorp recommended that NO_x and carbon dioxide (CO_2) emission limits should be based on specific information about current best available technology for DG units. Encorp recommended that emission limits should be based on the overall electrical and thermal efficiency of the unit. Encorp commented that emission limits should be in units of tons per year. Encorp commented that emission limits should be based on comparisons between the various commercially available DG units and not between DG units and large combined-cycle turbine central plants.

As discussed previously, the emission standards in the issued standard permit have been revised, although not to the extent suggested by these comments. Permits by Rule in Chapter 106 do not necessarily represent BACT. Permit by rule, Section 106.512 has not been revised since 1992. This standard permit represents BACT, as required by 30 TAC Section 116.602(c), with consideration given to the region of the state and operating mode. Establishing the standard in lb/MWh encourages the cleanest and most efficient units regardless of the technology.

Catalytica suggested that paragraph (3)(C) and (D) include the averaging period to be used to determine compliance. Catalytica suggested a three-hour averaging period.

The standard permit has not been revised in response to this comment. The commission believes that there is not enough data available to justify including a three-hour averaging period. A one-hour standard is consistent with NSR permitting on a pound per hour basis.

DTE commented that the proposed NO_x emission standards for DG can only be met with today's emerging fuel cell and renewable energy (wind and solar) based DG technologies. DTE commented that even if an end-use customer were to use an emerging micro- or mini- gas turbine technology with waste heat recovery, the resulting NO_x

emissions, when corrected for the waste heat recovered, would be too high to meet the January 1, 2003 standard. DTE commented that the commission should consider deploying the strict standard for DG NO_x only within ozone nonattainment areas.

The standard permit has been revised in response to these comments. As discussed previously in response to other comments, the standard permit issued has been revised to represent BACT that will include more technologies than just fuel cells and micro-turbines, and to include different standards for the West Texas and East Texas regions.

DTE commented that the time frame for deployment does not provide enough time for technology development to meet the standard. Therefore, DTE recommended modifying the time line for implementation to allow combustion-based technology time to advance to a point where it can meet the outlying standards. Solar commented that the timing proposed in the "stair-step" approach is inappropriate because it does not allow time for technology development. Solar recommended a five-year or ten-year window at each emission level. Solar also commented that project delays may trigger a different emission level than that for which the equipment was designed.

In response to this comment, the standard permit contains a single step-down in 2005 for the East Texas region. The commission will reevaluate this standard upon completion of the planned DG study.

Public Citizen supported the multi-stage process proposed by the commission and supported establishing interim standards and providing for a later review of technology. Public Citizen recommended conducting a reevaluation of the technology in October 2002 after the implementation of the Tier 2 standards.

The commission appreciates the support of Public Citizen. As previously discussed, the standard permit has been revised to retain the step-down feature for the East Texas region, but extended to 2005 to have a single step-down. Upon completion of the planned DG study, the commission will reevaluate this standard, as well as whether the standards in East Texas require adjustment.

Public Citizen commented that the emission reductions and technologies proposed by engine and turbine manufacturers are far too low given the federal Tier 2 and Tier 3 emission levels that will soon be required.

The commission appreciates the effort of the engine and turbine manufacturers in providing information about emissions from their products, but agrees with Public Citizen that the emission standards provided by manufacturers do not represent BACT for electric generators. However, the initial standard has been revised to allow for use of the standard permit by clean RICE which represent BACT.

Public Citizen recommended the following NO_x standards for base-load applications in East Texas: under 560 kW: a 2001 standard of 1.2 lb/MWh and a 2003 standard of 0.23 lb/MWh; between 560 kW and 2 MW: a 2001 standard of 1.1 lb/MWh and a 2003 standard of 0.23 lb/MWh for; between 2 MW and 10 MW: a 2001 standard of 0.23 lb/MWh and a 2003 standard of 0.23 lb/MWh. Public Citizen recommended the following NO_x standards for peaking applications in East Texas: under 560 kW: a 2001 standard of 2.3 lb/MWh and a 2003 standard of 2.3 lb/MWh; between 560 kW and 2 MW: a 2001 standard of 2.3 lb/MWh and a 2003 standard of 2.3 lb/MWh; between 2 MW and 10 MW: a 2001 standard of 1.5 lb/MWh and a 2003 standard of 1.5 lb/MWh. Public Citizen recommended a West Texas 2001 NO_x standard equivalent to Tier 2 for units generating under 560 kW and a 2003 standard equivalent to Tier 3; a 2001 West Texas NO_x standard equivalent to Tier 2 for units generating between 560 kW and 2 MW and a 2003 standard equivalent to Tier 3; and a 2001 West Texas standard equivalent to low

NO_x for units generating between 2 MW and 10 MW and a 2003 standard equivalent to low NO_x. Public Citizen commented that its 2001 standard represents best practices today and that its 2003 standards are commercially achievable somewhere in the nation. Public Citizen supported the position taken by Environmental Defense and NRDC for 2006 but recommended that the commission review the technology in October 2002. Public Citizen commented that its break point at 2 MW reflects the fact that few diesel units are sold below 2 MW while turbines prevail due to cost and efficiency factors. Finally, Public Citizen recommended that the commission review emissions for generators under 37 kW because they are unregulated for the most part and need to be studied for the 2002 review. Good Company recommended the following NQemission standards for nonattainment areas: Good Company recommended a 2001 NO_x standard of 1.2 lb/MWh for a base-load unit generating under 560 kW and a 2003 standard of 1.2 lb/MWh and a 2006 standard of 0.6 lb/MWh; a 2001 NO_x standard of 1.1 lb/MWh for a base-load unit generating between 560 kW and 6 MW and a 2003 standard of 1.1 lb/MWh and a 2006 standard of 0.47 lb/MWh; and a 2001 NO_x standard of 0.6 lb/MWh for a base-load unit generating between 6 MW and 10 MW and a 2003 standard of 0.47 lb/MWh and a 2006 standard of 0.23 lb/MWh. Good Company recommended a 2001 NO_x standard of 7.2 lb/MWh for a peaking unit generating under 560 kW and a 2003 standard of 7.2 lb/MWh and a 2006 standard of 2.5 lb/MWh; a 2001 NO_x standard of 6.2 lb/MWh for a peaking unit generating between 560 kW and 6 MW and a 2003 standard of 6.2 lb/MWh and a 2006 standard of 2.2 lb/MWh; and a 2001 NO_x standard of 4.4 lb/MWh for a peaking unit generating between 6 MW and 10 MW and a 2003 standard of 4.4 lb/MWh and a 2006standard of 1.5 lb/MWh. Good Company recommended that units generating under 37 kW be exempt from the standard permit. Good Company recommended the following NO_x emission standards for attainment areas: Good Company recommended a 2001 NO_x standard of 21 lb/MWh for units generating under 10 MW and a 2003 standard of 21 lb/MWh and a 2006 standard of 14 lb/MWh. Good Company recommended that units generating under 37 kW be exempt from the standard permit because most of these units will be used for residential and small business applications. Good Company recommended that the commission adopt EPA's non-road mobile engine standard for the areas of the state that are in attainment.

The commission agrees that the emission standards originally proposed should be revised but did not agree entirely with the standards proposed by Public Citizen and Good Company because they were too complex and contained too many options. Rather the commission has issued the standard permit to include definitions from SB 7 for an East Texas region and a West Texas region, as requested. The East Texas region includes all of the nonattainment areas, except the El Paso area, and is the same area already identified as needing special consideration due to the ozone "near-nonattainment" for several other major metropolitan areas. Different standards have been included based upon the region, date of installation, and hours of operation. There are no special standards for very small units, but very clean small units may be listed as a de-minimis source. Standards have also been added for units greater than 10 MW based upon hours of operation to encourage streamlined permitting of clean units. The standards in West Texas represent BACT for clean generators and allow for relaxed standards for peaking unit operating 300 hours or less. The East Texas standards for units operating more than 300 hours represent BACT which is comparable to recently permitted central station power generation plants to protect the ozone nonattainment areas of East Texas. The commission notes that the standard permit represents a substantial reduction in emissions permitted by rule under 30 TAC Section 106.512.

Carbon Monoxide Requirement and Other Pollutants

Capstone recommended that unburned hydrocarbons, rather than CO, be regulated because the primary environmental concern is the unburned hydrocarbon emissions. Cotton Bledsoe asked whether the waste gas credit applied to CO emissions. EMA stated that the proposed CO standard would require engines to incorporate catalytic

oxidation aftertreatment. Solar recommended that the CO standard be changed to 1.3 lb/MWh because it represents the upper limit of the range for which manufacturers will guarantee CO but that actual emissions are often much lower. Sure Power commented that the CO emission limit of 0.9 lb/MWh seems very restrictive and could result in significant added cost of additional catalytic reduction to both gas reciprocating engines and gas turbine systems. Sure Power agreed that CO emissions should be as low as practicable and requested that the commission reconsider where the CO number should be established.

The standard permit has been revised to remove the CO emission limit. The commission evaluated the data available for CO and unburned hydrocarbons emissions and determined that since output-based standards require high efficiency, the CO standard was not necessary.

DOE encouraged discussion of emission trade-offs before setting an emission limit. In support of this suggestion, DOE stated that often times regulation of one pollutant increases the emission of non-regulated pollutants. DOE implied that this phenomena should be accounted for in a cost/benefit calculation. AGCC also commented on the importance of considering how reduction of one pollutant may increase emissions of another pollutant.

No change has been made in response to this comment. The commission does not believe that the NQlimits will contribute to large increases in other air contaminants because the standards reward efficient operation of a unit.

Combined Heat and Power (CHP)

NRDC supported the commission's treatment of CHP. USCHPA commended the commission for recognizing the inherent efficiency improvements and emission reductions that CHP systems afford. ACEEE supported the commission's efforts to encourage the adoption of CHP systems. Solar supported the effort to encourage the adoption of CHP systems and the decision to credit recovered heat equally with useable electricity.

The commission appreciates the support for CHP. The CHP credit is designed to encourage users to install and use CHP to improve the efficiency of these generating units where there is a valid need for the recovered heat.

AGCC assumed that the intention of the heat recovery credit is to provide 0.23 pounds of NO_x and/or 0.9 pounds of CO for every 3.4 million Btu recovered and, therefore, suggested that the second sentence in paragraph (3)(E) be revised to so reflect. However, AGCC commented that the second sentence in paragraph (3)(E) and its suggested revision do not address the variability and relationships between overall efficiency and heat recovery of CHP. AGCC also commented that the credit for CHP should also reflect that DG CHP will reduce NO_x and CO emissions from traditional commercial and industrial combustion processes (furnaces, boilers). Sure Power commented that the proposed standard permit provides inadequate credit for CHP applications. For example, in the case where waste heat is used to drive an absorption chiller, this heat should be credited with the average heat rate of the generators in the grid as a whole, rather than just 3.4 million Btu per delivered MWh, as in the proposed standard permit.

By way of clarification, the commission intends the CHP credit to work in the following manner. If, for example, an owner of a 10 MW unit in compliance with the standard permit recovers and applies 3.4 million Btu of heat for some useful purpose, the unit may emit NO_x in an hourly amount equal to that of an 11 MW unit. Thus, suppose that a 10 MW unit is subject to a NO_x emission standard of 0.47 lb/MWh. The hourly

NO_x rate for that unit is 4.7 pounds of NO_x per hour. If 3.4 million Btu of heat is recovered from that unit, the permissible NO_x rate for that unit is 5.17 pounds of NO_x per hour.

However, the standard permit has been revised in response to this comment. Since the CHP credit does not take into account the variability of the relationship between overall efficiency and heat recovery of CHP, the commission removed the requirement that the unit maintain a minimum efficiency of 55%. However, the commission did not change the CHP credit itself. The commission believes the credit is appropriate and that it clearly and simply acknowledges and encourages reduced NO_x emissions concomitant with use of heat recovery. The straightforward credit also keeps the recordkeeping requirements to a minimum. Attempting to assign a credit based on the NO_x emissions of the unit replaced by use of heat recovery would make the standard permit complex.

ACGG stated that the commission would better serve the public by awarding tradable emissions reductions credits for promoting CHP systems.

The standard permit as a streamlined preconstruction authorization mechanism is not an appropriate avenue for implementing a tradable emissions reduction credit program, nor does it preclude participation in an existing emission reduction credit trading program. Therefore, the standard permit was not changed in response to this comment.

AGCC commented that the commission should mandate CHP as BACT rather than combined-cycle turbines.

The standard permit has been changed since the commission agrees that applying combined-cycle turbines standards to all electric generating units is not appropriate. However, mandating CHP as BACT would be inappropriate since many owners and operators have no practical use for recovered heat. Therefore, the standard permit was not changed in response to this latter comment.

AGCC commented that paragraph (3)(E)(ii) and (iii) lacks a time parameter and suggested the time parameter be yearly averages.

The standard permit has been revised to remove paragraph (3)(E)(ii) (55% minimum efficiency for units taking CHP credit) from the standard permit. However, paragraph (3)(E)(iii) (20% heat recovery of total energy output) has been retained. The requirement that the heat recovered must equal at least 20% of the total energy output of the CHP is a requirement that must be satisfied at any given time. Otherwise, the recordkeeping requirements of the standard permit become unnecessarily complex.

Austin Energy commented that the efficiency requirements need to be increased by 10% since central station power plants are approaching 50 - 55% efficiency rates. Austin Energy commented that cogeneration should only receive credit for heat recovered in excess of the efficiency goal (useful energy out/fuel in).

The standard permit was not changed in response to this comment because of the commission's decision not to apply central station power plant emission limits to all electric generating units initially. In addition, the commission believes that any application of heat recovery is beneficial because it represents efficient unit operation and energy conservation.

ALSTOM stated that standard CHP packages do not exist because many factors, such as size of the equipment, steam conditioning requirements, process requirements, and existing plant requirements must be considered when designing such a package. Catalytica commented that heat recovery systems do not lend themselves to a standardized design. Catalytica requested that paragraph (3)(E)(i) be deleted because systems in the 1 - 10 MW size range are not integrated with the heat recovery system. AEP commented that paragraph (3)(E)(i) should be changed to allow a project developer to design and integrate equipment from more than one vendor. AEP commented that this will allow equipment to be used from manufacturers that do not integrate their own DG systems with heat recovery equipment. Good Company commented that the proposed requirement that CHP systems be sold as a standard unit is not feasible and should not be a requirement of the standard permit.

The commission agrees with these comments and has removed the requirement that to obtain credit for CHP the unit must be sold as an integrated standardized package.

Waste Gas Credit

AEP commented that the proposal to allow credits to be generated and used for the use of gas that would otherwise be vented or flared is a very good way to promote the use of waste gases. Environmental Defense supported giving additional credit to generators that use waste gas or renewable fuels and those that install their facilities in a CHP application. Public Citizen supported giving credit for the reuse of waste heat. Solar supported the concept of waste gas to energy projects and stated that these projects are size and technology specific and do not belong in a permit-by-rule arena.

The commission appreciates the commenter's support for the waste gas credit.

Solar commented that for gas turbines, the proposed emission levels are technically unachievable on landfill gas applications. Solar commented that if the waste gas recovery language remains in the rule, the 25% increase in allowable emissions when the standard is 0.08 lb/MWh will not encourage DG implementation for this or any application. Hunt Power commented that the 25% credit for use of flare gas is insufficient and encouraged the commission to develop a methodology which will encourage the beneficial use of what is today a wasted energy resource, by fairly comparing the "before" and "after" air emissions from the useful combustion of flare gas. DTE commented that the waste gas provisions are overly restrictive and eliminate the use of waste gas as a fuel for purposes of DG. Cotton Bledsoe asked for confirmation that this provision is intended to utilize a 25% larger hypothetical unit in calculating total allowable emissions. Honeywell Power recommended that the commission provide a more generous incentive for the use of flare gas in DG sets, otherwise manufacturers will not have the motivation to manufacture DG sets that use flare gas as a fuel. In the alternative, Honeywell Power recommended that the commission implement a plan that encourages the use of flare gas based on a showing of the emission reductions that can be achieved using flare gas. Capstone recommended that users of waste gas be provided a 100% credit for their use. Capstone stated that the proposed 25% credit may discourage the use of waste gases for power generation and result in continued flaring of these gases. AGCC stated that a 25% credit for gas that would otherwise be wasted seems restrictive to the point of being counterproductive. EMA supported extending meaningful allowances (400%) against the permitting standards for DG units operating on landfill and waste gases. EPA commented that the proposed standards cannot be achieved by LFGTE projects that use the latest and lowest NO_x engines, even if the credit for the use of flared gas is applied to the project, because landfill gas poisons the catalyst and has different flow, composition, and Btu characteristics than natural gas. EPA stated that new LFGTE internal combustion engines in common use by industry emit at or below 2.0 lb/MWh and reduce emissions of methane, a greenhouse gas, and volatile organic compounds. Because of the environmental benefits of LFGTE

projects and the recent PUC mandate for renewable energy technologies, EPA encouraged the commission to evaluate the impact that the standard permit would have on the development of LFGTE projects, notwithstanding that LFGTE projects may apply for a regular NSR permit. ALSTOM recommended a 100% credit for the use of flare or waste gas to recognize that any low emissions technology application using the gas is an acceptable improvement over venting or flaring of the gas. Waukesha Engine recommended that paragraph (3)(F) incorporate emission standards commensurate with the engine-out capability of lean-burn SI RICE. Global Power commented that the "waste" gas credit is insufficient. Global Power commented that DG units using "waste" gas should be permitted based on the best available commercially viable technology that does not use SCR-type post-combustion clean-up device. EDI commented that an issued standard permit, rather than granting a 25% credit to units that use "waste" gas as a fuel, should instead establish a different set of emission limits for these units. EDI commented that the emission limits should be based on current BACT emission standards in West Texas and LAER emission standards in East Texas, as justified by taking into account the emissions from flaring or venting and from the other form of electrical generation offset by the operation of the small electric generating unit. EDI recommended the following emission limits for these units: in the West Texas region, NO_x emissions shall not exceed 5.0 lb/MWh and CO emissions shall not exceed 6.0 lb/MWh; in the East Texas region, NO_x emissions shall not exceed 2.0 lb/MWh and CO emissions shall not exceed 6.2 lb/MWh. Environmental Defense commented that the commission should follow two principles in establishing the adjustments for use of waste gas: 1) the tighter the overall emission limits under the standard permit, the more flexibility that can be accorded to these applications; and 2) the method of calculating adjustments and verifying applications should be kept simple. Public Citizen thought that the 25% credit is too inexact. Public Citizen commented that most co-generated waste heat will be used to displace some operation with calculable emissions, such as a boiler, heating unit, or air conditioner. Public Citizen commented that the credit should be based on the emissions of the displaced equipment multiplied by the hours of operation of the DG unit, especially in nonattainment areas.

In response to all of these comments, the commission has changed the standard permit so that it now contains a specific East Texas region NO_x standard of 1.77 lb/MWh for units that use as fuel landfill gas, digester gas, or oil field gases containing less than 1.5 grains hydrogen sulfide or 30 grains total sulfur compounds. The commission acknowledges that engines currently using landfill gas cannot achieve the NO_x standard in the proposed standard permit because of limitations in current technology, and that the 25% credit is not sufficient to bridge the current technological gap. The commission also recognizes the useful benefit in generating electricity with a fuel that is usually flared or vented to the atmosphere. Consistent with the goal of a streamlined, simple authorization mechanism, the commission believes that applying a specific standard for these units rather than a formula based on various factors is more appropriate. The standard for these units should allow for the cleanest lean burn engines. As discussed above, the CO requirement has been removed from the standard permit. Units in the West Texas region using these fuels may comply with the West Texas regions standards contained in the standard permit.

Limitations on Sulfur in Fuel

Cotton Bledsoe stated that a ten grain standard is a very low standard and may prevent many waste gas applications of DG.

The commission agrees that in certain gas fields it is appropriate to allow for a higher sulfur content. The standard permit was revised to allow gases that contain less than 1.5 grains of hydrogen sulfide or 30 grains of total sulfur to be used as fuel. The commission believes that the 10 grain sulfur limit for natural gas fuel is more than generous in most areas of Texas.

Consistent Nationwide Standards for EGUs

Honeywell Power stated that coordination of efforts on a nationwide level is paramount for successfully providing generation options to Texas' ratepayers that are environmentally friendly. Honeywell Power recommended some form of coordination with California on the issue of DG emissions. Good Company encouraged the commission to pursue development of the standard permit in conjunction with other state (California) and national efforts currently underway. EMA encouraged the commission to follow other ongoing issues and efforts related to DG around the nation. EMA cited to efforts on the part of the DOE in this area, the California state legislature, and the Ozone Transport commission.

The commission has been in contact with California Air Resources Board (CARB) personnel, EPA personnel, and DOE personnel as this standard permit has been drafted. The commission plans to participate with DOE and the PUC on a study of technology and market potential for small electric generating units. The California South Coast Air Quality Management District standards were used to help establish BACT for reciprocating engines.

Future Regulatory Treatment of Electric Generating Units

Honeywell Power recommended that the commission phase out existing DG and shaft power units over a period of three to five years and that "in-kind" replacement of these units should be prohibited. Honeywell Power suggested that an exemption from the phaseout be provided to owners and operators who cannot economically justify replacement of the equipment. Honeywell Power stated that such a phaseout would significantly improve air quality.

By statutory authority, NSR air permits only apply to new or modified facilities, though owners or operators of existing facilities may voluntarily operate their units under the standard permit. Requiring existing units to be replaced would require rulemaking that is beyond the scope of this standard permit.

Certification and Recertification Requirements

ALSTOM stated that the proposed certification approach is reasonable for the purpose of guaranteeing emissions at commissioning and for continuous operation for a three-year period. ALSTOM applauded the apparent aim of the certification approach to shift certification responsibility from the operator to the manufacturer. ALSTOM stated that the 10% sample rate for recertification is reasonable because sales of small gas turbines for this purpose will likely number in the tens or hundreds, rather than thousands. Austin Energy commented that the certification requirement in paragraph (3)(B) makes sense if a manufacturer is providing the entire prime mover/generator/emissions control device as a packaged unit. Austin Energy commented that there should be certification provisions made for an entity that desires to add emissions control devices to existing or new prime movers or for units configured on site from equipment provided by different manufacturers. Capstone commented that recertification based on testing of 10% of the DG fleet would be burdensome if DG thrives. Therefore, Capstone recommended the following: 1.0% of the installed base should be tested. If more than 25% fail to meet the standard, then 10% of the base should be tested. If 25% of this sample fail, then the entire fleet should be tested. Failing units would be required to be retrofitted and recertified. Cummins stated that the certification and recertification plan is not sound standard practice for high volume, mass-produced equipment. Global Power commented that the manufacturer certification requirement cannot be met if post-combustion devices are added to

the exhaust stream because manufacturers of DG-size reciprocating engines and turbines do not manufacture post-combustion devices nor market integrated systems.

The standard permit has been revised so that manufacturers or owners may certify units. The commission wanted owners and operators of existing units an opportunity to use the standard permit. The commission also removed the 10% recertification sample rate by manufacturers and, instead, will require recertification of units by owners or operators every 16,000 hours of operation but not less frequently than every 3 years. Recertification may be accomplished by following a maintenance schedule that a manufacturer certifies will ensure continued compliance with the required NO_x standard or by third party testing of the unit using appropriate EPA reference methods. The requirement that manufacturers test 10% of the fleet was not consistent with most air pollution control regulatory requirements which place the onus of testing on the owner or operator of the unit.

AGCC stated that the recertification requirements create a hardship for DG projects of 1 MW or less because those requirements may eliminate the economic feasibility of those projects. AGCC also recommended that the commission approve the use of hand-held NO_x and CO meters instead of EPA reference methods and/or compliance assurance monitoring (CAM).

The standard permit has not been revised in response to these comments. The commission anticipates that most owners or operators will recertify by simply operating the unit consistent with the manufacturer's maintenance schedule. This should keep costs to recertify to a minimum. The standard permit was not changed to allow for recertification using a portable analyzer because the EPA reference methods are considered a more reliable method for specifically identifying the quantity of an air contaminant. However, the standard permit does allow CARB methods to also be used for certification. Finally, the standard permit does not specifically require CAM. However, owners or operators of sites required to operate under a federal operating permit and concerned about the applicability of CAM are directed to 30 TAC Section 122.702 for applicability information.

Waukesha Engine recommended that paragraph (3)(B) clarify who is required to certify the emissions from generating units and to affix the specified label.

The standard permit was revised in response to this comment. Paragraph (4)(A) provides that either the manufacturer or the owner may certify the unit. The person certifying the unit should display that certification on the unit's nameplate or on a label attached to the unit.

Plug Power recommended that the commission enforce the compliance at the manufacturing or distribution facilities, and not at the individual residential customer.

Units constructed and operated at a domestic residence for domestic use are permitted by rule under 30 TAC Section 106.101 and not subject to this standard permit. Therefore, the standard permit has not been revised in response to this comment. Title 30 TAC Section 106.101 does not require certification.

Plug Power recommended that the commission use the PUC-proposed approach of having an independent third party certify that the DG commercial model meets the emission standards. Plug Power commented that, ideally, the PUC certification of compliance with the technical interconnection requirements and the commission certification of

compliance with the emission standards would be accomplished by the same independent third party and through the same document applied for, and issued jointly by, the commission and PUC.

As previously discussed, a manufacturer or an owner may certify compliance while an owner or a third party may recertify a unit. A dual commission/PUC DG certification program is not in place at this time. If, however, it becomes apparent that such a certification process would be useful because of the number of DG units being constructed, the commission is open to studying the feasibility of such a program should the PUC be interested.

Catalytica commented that if the intent of paragraph (3)(B) is to commit the equipment supplier to stand behind the emission claim, the appropriate term would be "guarantee." Catalytica also commented that if the intent is to have a certification process where the supplier demonstrates the emission level, the certification process must be spelled out somewhere in advance of the use of the permit.

Catalytica's interpretation of proposed paragraph (3)(B) is correct; however, the commission believes there is no appreciable benefit to using the word "guarantee" as opposed to the word "certify" so the standard permit was not changed in response to this comment. The standard permit does not provide for certification by a supplier; only a manufacturer or an owner or operator may certify the unit.

Catalytica asked whether undergoing EPA's environmental technology verification (ETV) program or California's precertification program would constitute certification under the standard permit. Catalytica asked what specifically needs to be certified.

As the standard permit is issued, only EPA's reference methods, CARB's methods, or an equivalent testing method, upon a showing by a petitioner of its equivalency, may be used to certify a unit. A manufacturer or owner or operator is certifying that the NO_x emissions from the electric generating unit (the combustion source driving the generator) meet the applicable pound per megawatt-hour NO_x emission limit in the standard permit.

Public Citizen recommended that the commission assure that the referenced EPA test protocols match those proposed for real-world Texas DG use and not just those appropriate for emergency generators.

The standard permit was not changed in response to this comment since EPA reference methods, when properly used, are a long-standing, reliable method for determining NO_x emissions from a stationary source, regardless of the stationary source being tested. For this reason, the commission will accept certifications using EPA reference methods. The commission will also accept CARB methods because they closely track EPA reference methods.

Plug Power recommended that the commission consider registering models of electric generation technologies, not individual units or groups of units.

Manufacturers choosing to certify their units will certify that the emissions from the unit meet the standards established in the standard permit. If the manufacturer certifies a model meets the required standards and has test data to validate this certification, the commission will accept this certification. Owners or operators

authorizing units not certified by a manufacturer must certify the unit using the test methods previously discussed.

Cotton Bledsoe asked whether "accompanying papers" from a manufacturer or manufacturer's web site as to emission rates satisfy the nameplate requirement.

The standard permit was not changed in response to this comment. The standard permit allows the certification of NO_x emissions to be displayed on the nameplate or on a label attached to the unit. The commission believes this will enable commission enforcement personnel to more quickly determine if the unit is certified to meet the required standard. Therefore, accompanying papers will not satisfy the nameplate requirement.

Concern about Existing Fleet of Electric Generating Units and NSR Permitting of EGUs

NRDC commented that the standard permit takes the first step in controlling the emissions from small electricity generators but that it does not address the already installed base of generators, nor prohibit units from seeking a traditional site-specific minor NSR permit at potentially higher emission rates. NRDC called on the commission to continue its efforts as soon as final action on the standard permit is taken to close these gaps.

Regulating the currently installed base of EGUs goes beyond the scope of this standard permit. The standard permit only applies to new or modified units installed and operated after the effective date of this standard permit. Requiring existing units to upgrade would require rulemaking, although owners or operators may voluntarily register existing units under this standard permit.

By statute and rule, the standard permit must reflect BACT for the units authorized under it. The commission believes that the issued standard permit reflects BACT for a variety of units of different sizes and operating characteristics. Therefore, persons applying for a regular NSR permit at emission levels higher than in the standard permit will be required to show why the BACT standards in the standard permit should not apply to their EGU.

Impact of the Proposed Standard Permit on the Agricultural and Oil/Gas Industries

ATMOS commented that the proposed standard permit would result in a severe hardship on the agricultural industry and economy of West Texas because engines, rather than electric grid, are often used to power irrigation equipment in this region. DTE commented that the standard permit will negatively impact Texas' economy if it applies to existing reciprocating and gas turbine engines currently used for water pumping/irrigation and oil and natural gas recovery.

In response to these comments and comments received on 30 TAC Section 106.512, the amendment to 30 TAC Section 106.512 expected to be adopted by the commission concurrently with issuance of this standard permit allows for engines or turbines used exclusively to provide power to electric pumps used for irrigating crops to be permitted by rule. As previously noted, the standard permit only applies to new or modified engines or turbines. The majority of engines or turbines used in oil and natural gas recovery are not used for generating electricity and should continue to be permitted by rule under 30 TAC Section 106.512.

X. STATUTORY AUTHORITY

This standard permit is issued under Texas Clean Air Act (TCAA), Tex. Health & Safety Code Sections 382.011, which authorizes the commission to administer the requirements of the TCAA, 382.023, which authorizes the

commission to issue orders necessary to carry out the policy and purposes of the TCAA, 382.051, which authorizes the commission to issue a permit for numerous similar sources, and 382.05195 which authorizes the commission to issue standard permits.

Air Quality Standard Permit for Electric Generating Units

Effective Date June 1, 2001

This standard permit authorizes electric generating units that generate electricity for use by the owner or operator and/or generate electricity to be sold to the electric grid, and which meet all of the conditions listed in the paragraphs below.

(1) Applicability

This standard permit may be used to authorize electric generating units installed or modified after the effective date of this Standard Permit and that meet the requirements of this standard permit.

(2) Definitions

(A) East Texas Region - All counties traversed by or east of Interstate Highway 35 or Interstate Highway 37, including Bosque, Coryell, Hood, Parker, Somervell and Wise Counties.

(B) Installed - a generating unit is installed on the site when it begins generating electricity.

(C) West Texas Region - Includes all of the state not contained in the East Texas Region.

(3) Administrative Requirements

(A) Electric generating units shall be registered in accordance with 30 TAC Section 116.611, Registration to Use a Standard Permit, using a current Form PI-1S. Units which meet the conditions of this standard permit do not have to meet 30 TAC Section 116.610(a)(1), Applicability.

(B) Registration applications shall comply with 30 TAC Section 116.614, Standard Permit Fees, for any single unit or multiple units at a site with a total generating capacity of 1 MW or greater. The fee for units or multiple units with a total generating capacity of less than 1 MW at a site shall be $100.00. The fee shall be waived for units or multiple units with a total generating capacity of less than 1 MW at a site that have certified NO_x emissions that are less than 10 percent of the standards required by this standard permit .

(C) No owner or operator of an electric generating unit shall begin construction and/or operation without first obtaining written approval from the executive director.

(D) Records shall be maintained and provided upon request to the TCEQ for the following:

(i) Hours of operation of the unit; and

(ii) Maintenance records and/or testing reports for the unit to document re-certification of emission rates as required below.

(E) Electric generators powered by gas turbines must meet the applicable conditions, including testing and performance standards, of 40 Code of Federal Regulations Part 60, Subpart GG, Standards of Performance for Stationary Gas Turbines.

(F) Compliance with this Standard Permit does not exempt the owner or operator from complying with any applicable 30 TAC Chapter 117 requirements.

(4) General Requirements

(A) Emissions of nitrogen oxides (NO_x) from the electric generating unit shall be certified by the manufacturer or owner or operator in pounds of pollutant per megawatt hour (lb/MWh). This certification must be displayed on the name plate of the unit or on a label attached to the unit. Test results from Environmental Protection Agency (EPA) Reference Methods, California Air Resources Board methods, or equivalent testing used to verify this certification shall be provided upon request to the TCEQ.

(B) Electric generating units that use combined heat and power (CHP) may take credit for the heat recovered from the exhaust of the combustion unit to meet the emission standards in paragraphs (4)(C), (4)(D), and (4)(E) . Credit shall be at the rate of one MWh for each 3.4 million BTUs of heat recovered. To take credit for CHP, the owner or operator of units not sold and certified as an integrated package by the manufacturer:

(i) must provide as part of the application documentation of the heat recovered, electric output, efficiency of the generator alone, efficiency of the generator including CHP, and the use for the non-electric output, and

(ii) the heat recovered must equal at least 20 percent of the total energy output of the CHP unit.

(C) Except as provided in paragraph (4)(E), NO_x emissions for units 10 MW or less shall meet the following limitations based upon the date the unit is installed and the region in which it operates:

East Texas Region:

(i) Units installed prior to January 1, 2005 and

(a) operating more than 300 hours per year - 0.47 lb/MWh;

(b) operating 300 hours or less per year - 1.65 lb/MWh;

(ii) Units installed on or after January 1, 2005 and

(a) operating more than 300 hours per year - 0.14 lb/MWh;

(b) operating 300 hours or less per year - 0.47 lb/MWh;

West Texas Region:

(i) Units installed and operating more than 300 hours per year - 3.11 lb/MWh;

(ii) Units installed and operating 300 hours or less per year - 21 lb/MWh.

(D) Except as provided in paragraph (4)(E), NOx emissions for units greater than 10 MW shall meet the following limitations based upon the mode of operation:

(i) Units installed and operating more than 300 hours per year - 0.14 lb/MWh;

(ii) Units installed and operating 300 hours or less per year - 0.38 lb/MWh.

(E) In the East Texas Region, electric generating units that use as fuel landfill gas, digester gas, or oil field gases containing less than 1.5 grains hydrogen sulfide or 30 grains total sulfur compounds shall meet a NO_x emission of 1.77 lb/MWh.

(F) To ensure continuing compliance with the emissions limitations, the owner or operator shall re-certify a unit every 16,000 hours of operation, but no less frequently than every three years. Re-certification may be accomplished by following a maintenance schedule that the manufacturer certifies will ensure continued compliance with the required NOx standard or by third party testing of the unit using appropriate EPA Reference Methods to demonstrate that the unit still meets the required emission standards.

(G) Gaseous fuels combusted in these electric generating units shall contain no more than ten grains total sulfur per 100 dry standard cubic feet. Liquid fuels shall not be a blend containing waste oils or solvents and shall contain less than 0.05 percent by weight sulfur.