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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
2008 DEC -5 PM 4: 37
CHIEF CLERKS OFFICE

December 5, 2008

Texas Commission on Environmental Quality
Attention: Docket Clerk
TCEQ Office of Chief Clerk MC 105
P.O. Box 13087
Austin, Texas 78711-3087

Subject: Response to the appeal of the Executive Director's Use Determination (07-11969), regarding Brazos Valley Energy, L.P.; TCEQ Docket Nos. 2008-0849-MIS-U

Dear Commissioners:

Pursuant to Title 30 of Chapter 17 of the Texas Administrative Code, the Applications under appeal were prepared using the Texas Commission on Environmental Quality's ("TCEQ's") Application for Use Determination for Pollution Control Property (TCEQ-0611). For these Tier IV applications, the subject pollution control property included in the application is listed on the TCEQ's Equipment & Categories List ("ECL"), and is identified and summarized as follows:

Gas Turbine Plant Heat Recovery Steam Generators ("HRSG"), Steam Turbine and Supporting Systems: (ECL: B-8 & B-10)

Pertinent Rule(s), Regulation(s) or Law(s):
40 CRF Part 60 Subparts DA and DB, NOx Limits for Electric Utility Steam Generating Units and Industrial commercial Institutional Steam Generating Units for New Source Performance Standards ("NSPS")

TAC Rule 106.512, Standard Permit for electric Generating Units (EGU)

Note: Permits issued under Texas Clean Air Act's Health & Safety code Sections 382.011, applies to all electric generating units that emit air contaminants, regardless of size, and it is to reflect Best Available Control Technology ("BACT") for electric generating units on an output basis in pounds of NOx per megawatt hour, adjusted to reflect a simple cycle power plant.

BACKGROUND

Texas Pollution Prevention Issue

Currently in the U.S. two thirds of the potential energy of fossil fuels burned to generate electricity in traditional fossil-fired steam boilers is lost in the form of waste heat released into the atmosphere or surface waters located near these facilities. Traditional U.S. power generation plant efficiencies have not increased since the 1950's and more than one fifth of the U.S. power plant designs are more than 50 years old. These power generation facilities are the leading contributors to U.S. emissions of carbon dioxide, NO_x, sulfur dioxide, and other contaminants into the air and water due to facility operations.

Combined Cycle Technology Background

Innovative power systems such as combined cycle technology offer enormous potential to reduce the environmental impacts of power generation through the reduction and/or prevention of air emissions to the environment through the efficient use of fossil fuel. Steam produced in the heat recovery steam generators powers a steam turbine generator(s) to produce additional electric power.

Use of the otherwise wasted heat in the combustion turbine exhaust gas results in a higher plant-wide thermal efficiency compared to other combustion-based technologies. As well, state-of-the-art combined-cycle plants can convert about 50 percent of the chemical energy of natural gas into electricity (HHV basis).

Gas turbine combined cycle systems, like the subject plant, generate electricity by burning a fossil fuel and then use a heat recovery unit to capture heat from the combustion system's exhaust stream. This heat is converted into useful thermal energy, usually in the form of steam. Per the US EPA, combined-cycle technology plays an important role in meeting the US energy needs. As well, it reduces the environmental impacts of power generation because of both its fuel efficiency benefits in producing more energy output per pound of fuel burned, and in the resulting reduction in air emissions due to less fuel burned for the same energy output.

RESPONSE TO PETITION

We concur with the Texas Commissions Executive Use Determination for the Heat Recovery Steam Generator (B-8), but disagree with the Use Determination received on the Steam Turbine (B-10) letter received May 1st, 2008 where by the outcome of their review resulted in a Use Determination as follows:

> **A 100% positive use determination for the two Heat Recovery Steam Generators. This equipment is considered to be pollution control equipment and was installed to meet or exceed federal or State regulations.**

A negative determination is issued for the steam turbine. The use of the steam turbine does not provide an environmental benefit at the site. The steam turbine is not considered to be pollution control equipment.

To date, neither the Appellant nor subsequent Executive Director-assembled workgroups have produced any valid evidence or reasonable agreed-upon conclusions that would lead us to believe that the facts, technical merits, and conclusion of our Application for Use Determination of Pollution Control Property are not valid.

The Executive Director's new technical position released on December 3rd, 2008 whereby their findings produce a positive use determination of 61% for the HRSG and 0% for the steam turbine is not technically correct and promotes environmental loss.

We are appealing the TCEQ's Workgroup and Executive Director's Recommendation regarding the modified version of the calculation presented by Cummings Westlake pertaining to a reasonable use determination percentage for HRSGs and steam turbines. The percentage calculation for this use determination based upon thermal efficiency increases resulting from technology provided by Cummings Westlake, LLC is flawed for a number of reasons. First, it departs from the Decision Flow Charts. Ironically, the TCEQ staff leveled this same change with regard to the application we originally submitted. Second, the calculation of a 39% increase in thermal efficiency is based upon all of the back-end equipment components of the plant contributing to the overall process, not just simply the HRSG - hence misappropriating efficiency and pollution control benefits to other items of machinery and equipment not currently identified on Part A or Part B of the ECL. Third, this very simplified calculation significantly underestimates the efficiency and pollution control contribution resulting from the HRSG and steam turbine as evidenced by the output based calculations provided in our application.

Finally, the most significant flaw in the Cummings Westlake calculation of the positive use determination is that it is contrary to public policy and to the purpose of H.B. 3732. Simple logic will prove that it would be inappropriate to provide a benefit based upon the reasoning provided in the Cummings Westlake calculation. By adopting this approach, it is inferred that there is an inverse relationship between thermal efficiency and pollution control. Assume that the efficiency increase was only 20% instead of 39%, then by the methodology set forth by the Cummings Westlake approach, there would be a resulting 80% positive use determination for the HRSG. Conversely, if there was a 60% increase in efficiency, as opposed to the 39%, then the positive use determination would be dramatically reduced to only 40%. This approach would hinder the advancement of clean energy projects through better efficiencies by penalizing the owner with a lower tax exemption percentage, which is clearly contrary to the intent of H.B. 3732.

Our Avoided Emissions Approach parallels the Texas Clear Act Health & Safety Code Sections 382.011, which reflects Best Available Control Technology for electric generating units on an output-based standard in pounds NOx per megawatt hour.

Appellant:

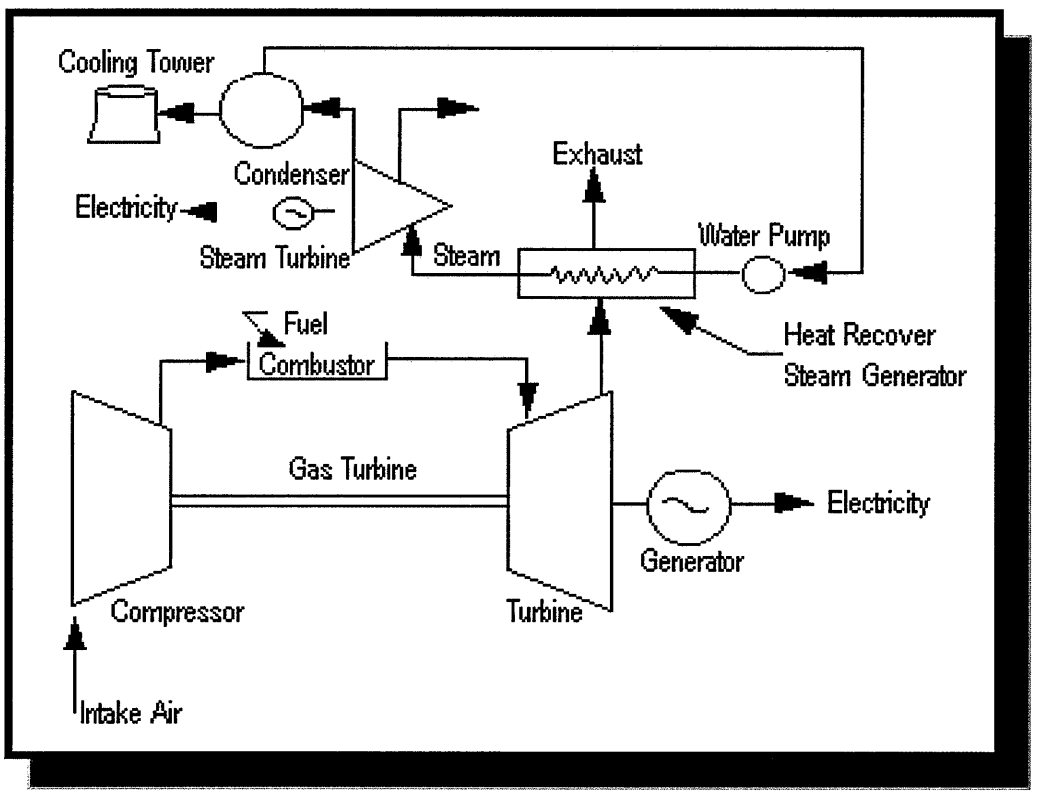
We believe that the Heat Recovery Steam Generators described in this application are production equipment in that they burn natural gas to create steam to generate electricity. This creates pollutants, not reduces them.

Response:

Appellant's allegations are technically incorrect. The Heat Recovery Steam Generator as well as the Steam Turbine do not burn natural gas. Both these pieces of equipment utilize hot waste exhaust and steam as a fuel source, respectively. The details are as follows:

The Brazos Valley Power Plant is located in Richmond, Texas. Two combustion turbines are routed to two heat recovery steam generators which provide steam to one steam turbine. The Brazos Valley Power Plant sells the power it generates to Calpine Commercial Operations. The facility is located in Richmond, TX and has been in operation since May 2003. The facility has a baseload capacity of 508 megawatts and is 100 percent owned by Calpine. The technology employed is a natural gas-fired, combined-cycle GE combustion and steam turbines. The HRSGs found in the facility are therefore, in simple terms, heat exchangers that recover heat from a hot gas stream for reuse versus release into the atmosphere. Use of the otherwise wasted heat in the turbine exhaust gas results in higher plant thermal efficiency compared to other power generation technologies employed in Texas.

The Figure below is representative of a simplified combined-cycle plant process flow.



Appellant:

Secondly, the pollution control components associated with the HRSG's that do reduce pollution have already been exempted under Use Determination 02-6852. Therefore, this second exemption of the entire HRSG only serves to exempt the non-pollution control components of the units.

Response:

All cost associated of the equipment that is within the granted exemption 02-6852 was not included within this Tier IV Application (07-11969). Under the legislation of Texas House Bill 3732 ("HB3732") enacted in 2007, Section 11.31 of the Texas Tax Code is amended by adding certain plant equipment and systems to the current list of air, water, or land pollution control devices. Specifically, the language reads as follows:

> *SECTION 4. Section 11.31, Tax Code, is amended by adding Subsections (k), (l), and (m) to read as follows:*
> *(k) The Texas Commission on Environmental Quality shall adopt rules establishing a nonexclusive list of facilities, devices, or methods for the control of air, water, or land pollution, which* ***must*** *include:*
> *(1) coal cleaning or refining facilities;*
> *(2) atmospheric or pressurized and bubbling or circulating fluidized bed combustion systems and gasification fluidized bed combustion combined cycle systems;*
> *(3) ultra-supercritical pulverized coal boilers;*
> *(4) flue gas recirculation components;*
> *(5) syngas purification systems and gas-cleanup units;*
> *(6) enhanced heat recovery systems;*
> *(7) exhaust heat recovery boilers;*
> *(8) heat recovery steam generators;*
> *(9) superheaters and evaporators;*
> *(10) enhanced steam turbine systems;*
> *(11) methanation;*
> *(12) coal combustion or gasification byproduct and coproduct handling, storage, or treatment facilities;*
> *(13) biomass cofiring storage, distribution, and firing systems;*
> *(14) coal cleaning or drying processes, such as coal drying/moisture reduction, air jigging, precombustion decarbonization, and coal flow balancing technology;*
> *(15) oxy-fuel combustion technology, amine or chilled ammonia scrubbing, fuel or emission conversion through the use of catalysts, enhanced scrubbing technology, modified combustion technology such as chemical looping, and cryogenic technology;*
> *(16) if the United States Environmental Protection Agency adopts a final rule or regulation regulating carbon dioxide as a pollutant, property that is used, constructed, acquired, or installed wholly or partly to capture carbon dioxide from an anthropogenic source in this state that is geologically sequestered in this state;*
> *(17) fuel cells generating electricity using hydrogen derived from coal, biomass, petroleum coke, or solid waste; and*
> *(18) any other equipment designed to prevent, capture, abate, or monitor nitrogen oxides, volatile organic compounds, particulate matter, mercury, carbon monoxide, or any criteria pollutant.*
> *(l) The Texas Commission on Environmental Quality by rule shall update the list adopted under Subsection (k) at least once every three years. An item may be removed from the list if the*

> *commission finds compelling evidence to support the conclusion that the item does not provide pollution control benefits.*
> *(m) Notwithstanding the other provisions of this section, if the facility, device, or method for the control of air, water, or land pollution described in an application for an exemption under this section is a facility, device, or method included on the list adopted under Subsection (k), the executive director of the Texas Commission on Environmental Quality, not later than the 30th day after the date of receipt of the information required by Subsections (c)(2) and (3) and without regard to whether the information required by Subsection (c)(1) has been submitted, shall determine that the facility, device, or method described in the application is used wholly or partly as a facility, device, or method for the control of air, water, or land pollution and shall take the actions that are required by Subsection (d) in the event such a determination is made.*

Based upon the amended language of Section 11.31 of the Texas Tax Code, it is clear that the enumerated facilities, devices or methods must be considered in whole, or in part, as pollution control facilities, devices or methods by the TCEQ; the TCEQ must treat the enumerated facilities, devices or methods as eligible, in whole or in part, for property tax exemption as pollution control property; and finally, such eligibility for tax exemption must be based upon a methodology to be established by the TCEQ. Therefore, in response to the concern raised by the appellant, it is our contention that the HRSGs and the steam turbine systems embedded within the combined cycle system of the subject plant are to be treated as qualifying pollution control facilities, devices or methods, and are no longer to be considered solely within the context of a power/steam generation use.

TCEQ's updated ***"Tax Relief for Pollution Control Property – Application Instructions and Equipment and Categories List – Effective January 2008"*** incorporates a list of the pollution control property categories adopted and set forth in TTC Sec. 26.045(f). Item B-8 of the ECL – Part B lists Heat Recovery Steam Generators (HRSGs), while Item B-10 of the ECL – Part B lists Steam Turbine Generators (STGs).

As required in these instructions, the taxpayer, in its Tier IV application, supplied a pollution control percentage for the equipment listed in Part B via calculations demonstrating pollution control, prevention and/or reductions achieved by the listed equipment or systems, i.e., the subject facility's HRSGs and associated STGs.

Current Regulatory Authority for Output Based Emissions Standards

Consideration of the use of output based emissions standards, as is now incorporated within the U.S. EPA's New Source Performance Standards ("NSPS") for NO_x, are gaining importance for a reason: by determining emission levels based upon the amount of electricity and or thermal energy generated, output based standards support improved efficiency and pollution prevention without regard to the type of fuel or technology used to achieve that improvement. The use of innovative methods of power generation such as combined cycle and CHP reduces fossil fuel use and leads to multi-media reductions in the environmental impacts of the production, processing transportation, and combustion of fossil fuels. Reducing fossil fuel combustion is a pollution prevention measure that reduces emissions of all products of combustion, not just the target pollutant of a regulatory program.

The basis by which the taxpayer represented the percentage of tax exemption eligibility for the HRSGs utilized an output-based emissions philosophy to demonstrate the level of

emissions avoidance, or reduction, achieved by incorporating the combined cycle system approach within the Facility's operations. Emissions reductions, as represented by NOx emissions reductions achieved through fuel consumption savings, represents the pollution control or prevention purpose of the combined cycle system. For simplicity, NOx emissions were chosen; additional emissions reductions for SO2, CO2, etc., were also available.

Currently, the subject facility's input based NOx emissions standard, as represented in data provided by the taxpayer, does not recognize the subject facility for its fuel consumption savings and resulting emissions reductions. By establishing the amount of reduction found by using output based annual emissions versus input-based standards and multiplying this amount by the subject facility's historical costs, we were able to derive a surrogate for the subject plant's capital costs dedicated to additional NOx emissions avoidance, above the historically granted pollution control exemptions recognized on prior TCEQ Tier I or II application reviews. As this value was equal to or greater than the historical cost of the equipment item established on the ECL – Part B, it was considered to be eligible for 100% tax exemption status.

The subject appeal requests that the 100% tax exemption status granted under the methodology demonstrated be vacated and that the technical presumption that the HRSGs are major components of electrical and/or steam production be the only measure of equipment contribution to the subject facility's performance. This argument has ignored the broader policy-driven mandate established in Texas to support and further the use of energy efficient power generation technologies in the state. It also ignores the presentation of fact – made earlier within this rebuttal – that combined cycle and are recognized by the U.S. EPA, by the state of Texas, and in most industry applications currently using such systems as a major methodology by which to prevent and/or reduce air pollution in the State under an output based emissions standard.

Pollution control percentages greater than 100% is not a flawed calculation; the breakpoints for facility-wide contributions versus equipment-specific contributions should be made relative to the necessary balance-of-plant systems and equipment supportive of the HRSGs and steam turbines in the subject facility. We agree with the appellant that the entire balance of plant equipment that supports the HRSG and steam turbine, e.g., the steam condensing systems, circulating water systems, chemical treatment systems etc., are completely intertwined and necessarily included within the plant-wide calculation of fuel efficiency and emissions reductions for CHP and combined cycle systems. Therefore, although all such systems and equipment would more appropriately be identified as tax exempt for its emissions prevention capabilities, it can be inferred that the Texas Legislature judiciously considered the two major pieces of equipment within the Combined Cycle and CHP systems - HRSGs and enhanced steam turbine systems - and enumerated them specifically in the equipment list that ultimately exists in the final statute for tax exemption consideration. It is therefore the taxpayer's contention that such equipment's 100% exempt status represents that portion of the entire balance of plant combined cycle and CHP systems eligible for exemption and the remaining portion of the subject plant remain taxable for property tax considerations.

Conclusions

As stated in the sections above, it is the taxpayer's continued belief, as demonstrated through the Avoided Emissions Approach, that the HRSGs and steam turbines found in

the subject plant are 100% exempt from property tax under their definition as pollution control facilities, devices or methods within the statute established by the Texas Legislature, and that their eligibility as pollution control/pollution prevention devices may be measured through a calculation of emissions avoidance demonstrated within the calculations developed. It is also our continued belief that a 100% pollution control exemption be extended to the steam turbine as well.

If you have any questions regarding the application or the information supplied with these application, please contact me at (512) 671-5580 or Ms. Kathy Tronsberg of Duff & Phelps LLC at (215) 430-6059.

Very truly yours,

Mr. Greg Maxim
Duff & Phelps LLC.

Enclosures

cc: Kathy Tronsberg (Duff & Phelps LLC - Philadelphia)
Rick Fine (Duff & Phelps LLC - Austin)