



September 23, 2011

**RE: GTA Comments on the OTC Model Rule for Control of NOx Emissions From Natural Gas Pipeline Compressor Fuel-Fired Prime Movers**

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The Gas Turbine Association (GTA) appreciates the opportunity to comment on the proposed 2014 OTC Model Rule for Control of NOx Emissions From Natural Gas Pipeline Compressor Fuel-Fired Prime Movers (Draft Model Rule).

GTA is the trade association representing the gas turbine industry in the US. The Gas Turbine Association serves as a unified voice on important matters for the gas turbine industry. Our mission is to lead gas turbine industry efforts to support research and development initiatives in the national interest, to assure that energy and environmental regulations are reasonable and technically sound, and to support the electric power industry in its quest to provide secure, reliable, clean and affordable electric power to the nation.

GTA's comments follow. GTA encourages the Ozone Transport Commission (OTC) to contact GTA if supporting data or further explanation of any of our concerns is warranted.

## **2.0 Definitions**

### **2.4 Natural Gas**

For consistency, GTA recommends that OTC adopt the definition of natural gas found in 40 CFR 60 Subpart KKKK (Subpart KKKK).

## 2.18 Shutdown

GTA asks that the OTC provide a more precise definition of the term “minimum load” in the “Shutdown” definition. We understand that the intent of the term “minimum load” in the definition is to refer to the load during a shutdown event at which the unit is no longer in low emissions mode or at the lower end of the emissions warranty load range as specified by the OEM.

## 2.19 Start-up

GTA asks that the OTC provide a more precise definition of the term “minimum load” in the “Start-up” definition. We understand that the intent of the term “minimum load” in the definition is to refer to the load during a start-up at which the unit enters low emissions mode or reaches the lower end of the emissions warranty load range as specified by the OEM.

## 4.4 Combustion Turbines Emissions Limitations

### Category Size Cut-off

It is GTA’s understanding that the 4000 hp cut-off for combustion turbines was selected due to a natural break in the inventory data that was used in the Draft Model Rule development. GTA suggests the OTC consider a 50 MMBtu/hr (HHV) or a 5000-6000 hp level as alternatives to the proposed 4000 hp level. GTA recommends exemption units small than 50 MMBtu/hr from the Draft Model Rule

### 4.4.1 Emissions Limitations

GTA recommends the OTC Draft Model Rule reference an emissions level that is commercially available for the size, class, and category of combustion turbine. In establishing a RACT-like standard, the emission limits selected should be able to be reasonably met by existing sources in an industrial category. With respect to the proposed emissions levels for the smaller turbines in the Draft Model Rule, please consider technology limitation for retrofit control of existing equipment.

When Subpart KKKK was developed in the 2003-05 timeframe much discussion and data collection centered on what smaller combustion turbines (e.g. <50 MMBtu/hr (HHV)) could meet on a retrofit basis. If the OTC does not exempt smaller gas turbines, then based on data analyzed for Subpart KKKK development coupled with the fact that technology has not changed, GTA recommends the emissions level in the Draft Model Rule match Subpart KKKK at 150 ppmvd @ 15% O<sub>2</sub> NO<sub>x</sub>.

The proposed emission limit of 50 ppmvd @ 15% O<sub>2</sub> is only achievable on smaller combustion turbines with selective catalytic reduction (SCR). To date, no small compressor pipeline combustion turbine is in operation that has been retrofit with SCR. GTA estimates a RACT cost effectiveness analysis would come in between \$60-\$80K/ton NO<sub>x</sub> removed; well over any acceptable RACT cost threshold. This cost estimate may be low as a “new equipment” cost model was used. We are told that retrofit SCR systems could cost 2-3 times as much as a new installation depending on the complexity of integrating an SCR into the existing site.

The preamble to proposed subpart KKKK notes that EPA considered requiring the use of SCR in setting the NOx limit, but determined the costs were too high and that there may be implementation issues for combustion turbines operating under variable load. The subpart KKKK preamble states:

*“We considered requiring the use of SCR in setting the limit for NOx. However, we determined that the costs for SCR were high compared to the incremental difference in emission concentration.... In addition, SCR may be difficult to implement for turbines operating under variable loads. We determined that the incremental benefit in emissions reductions did not justify the costs and technical challenges associated with the addition and operation of SCR.”*

New York has a RACT that sets a level of 50 ppm NOx for units larger than 10 MMBtu/hr. The New York 50 ppm NOx level is unattainable by smaller (<4500 hp) pipeline compressor combustion turbines. Note that, in New York, the RACT applies to major sources. The proposed Draft Model Rule does not have the major source distinction. Thus, while it may appear that smaller combustion turbines in NY are complying with 50 ppm NOx RACT, in reality, the smaller pipeline compressor turbines aren't subject. Smaller gas turbines will not provide meaningful reductions and should be exempted.

#### 4.4.2 Emissions Level

GTA recommends the Draft Model Rule reference an emissions level that is commercially available across combustion turbine OEMs for the size class and category of combustion turbine.

As with the smaller combustion turbines in Section 4.4.1, much data collection and discussion took place when Subpart KKKK was developed as to the achievable emissions level for existing combustion turbines. While 25 ppm is available for many models, a 42 ppm level, as in Subpart KKKK, better matches the market availability of dry low NOx retrofit capability. Note that even at 42 ppm NOx, there are turbine models in compression service that will need to utilize the Alternative RACT option in Section 5.

#### 4.5 Emission Level Applicability

GTA asks that the Draft Model Rule adopt similar exemptions to the emission levels as found in Subpart KKKK. Please consider adding malfunctions, operation at ambient temperatures <0°F, and part-load operation (e.g.<75% load as in Subpart KKKK) to the text.

***“... except periods of start-up, shut down, malfunctions, at ambient temperatures <0°F and operation at <75% load.”***

#### **4.6 New Section for Phased in Compliance Schedule**

The Draft Model Rule states that subject units must comply with emissions limits no later than 1/1/15. GTA feels the proposed timeline is too aggressive. Compliance dates of 2017 or 2018 are more reasonable. GTA suggests the OTC adopt a compliance schedule that takes into account an OEMs recommended maintenance schedule, the number of impacted units, and an appropriate phase-in period.

#### **5. Alternative RACT Emissions Limitation Determination**

GTA supports the inclusion of Section 5. If the OTC incorporates comments found in this letter, Section 5 will get limited use for “one-off” type applications. If the OTC does not adopt GTA’s recommendations, Section 5 will get significant use and significantly increase staff burden in the OTR sates.

#### **6.3 Test Frequency**

Twice annual source testing is excessive. GTA suggests annual testing with an option for testing every two years if the NOx emissions level from the performance test is less than or equal to 75% of the NOx emission limit for the unit.

#### **8.3 Major Maintenance**

The inclusion of Section 8.3 is intended to address major malfunctions of smaller end (300-500 hp) reciprocating engines. GTA requests that the Draft Model Rule include language that states Section 8.3 does not apply to routine overhauls (via industry standard combustion turbine engine exchange programs).