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STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the matter of:

Application for Certification of the
PUENTE POWER PROJECT

DOCKET NO. 15-AFC-01

**DECLARATION OF DR. PHYLLIS
FOX IN SUPPORT OF THE CITY OF
OXNARD'S PETITION TO COMPEL**

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DECLARATION OF DR. PHYLLIS FOX

I, Phyllis Fox, declare as follows:

1. I have personal knowledge of the facts set forth herein, except as to those stated on information and belief and, as to those, I am informed and believe them to be true. If called as a witness, I could and would competently testify to the matters stated herein. I make this declaration in support of the City of Oxnard's Petition to Compel Production of Data.

2. I have over 40 years of experience in the field of environmental engineering, including air emissions and air pollution control; greenhouse gas emission inventory and control; air quality management; environmental permitting; power plant licensing; environmental impact reports, including CEQA/NEPA documentation; and risk assessments. I hold a doctorate in environmental and civil engineering from the University of California, Berkeley. I am also a licensed professional engineer in California and certified in Air Pollution Control by the American Academy of Environmental Engineers.

3. I have prepared and reviewed emission inventories; health risk assessments; cost effectiveness analyses; BACT, LAER and MACT analyses; and air permit applications in numerous cases. These include licensing and permitting of over 200 coal, gas, oil, biomass, tire, and pet coke-fired power plants, generating over 100,000 MW of electricity in total. I have presented written and oral testimony before administrative bodies, including the California Energy Commission, and in state and federal courts, on criteria and hazardous pollutant emissions, health risk assessments, and BACT/LAER determinations.

4. In Data Request 1, the City requested "all Excel spreadsheets used to support the emission estimates in the AFC, Appendices C-2, C-6, and C-8 in their native electronic format and unprotected (i.e., showing formulas)" Appendix C-2 provides emission estimates for operation of the Project; Appendix C-6 provides emission

estimates for construction of the Project; and Appendix C-8 provides emission estimates for non-criteria pollutant emissions used in the health risk assessment.

5. These emission estimates are contained in a large number of spreadsheets in AFC Appendix C, presented in pdf format, which hides the underlying spreadsheet calculations. The calculations, which can extend over several linked spreadsheets, are difficult to follow without access to the underlying spreadsheet calculations. Without unlocked spreadsheets, some emission calculations cannot be verified because not all inputs are shown in footnotes to the pdf tables. Thus the original, unlocked Excel spreadsheets with the underlying data and formulae are essential to understand and verify the emissions in Appendices C-2, C-6, and C-8.

6. Additionally, the nature of the applicant's forthcoming changes to the emission calculations cannot be verified without access to the original spreadsheet.

7. In Data Requests 68 and 71, the City requested a copy of the formal vendor guarantees and any supporting evidence to confirm that the GE 7HA.01 gas turbine could meet the asserted emission limitations for normal operations and startup and shutdown. A "vendor guarantee" is an agreement between the applicant and the equipment vendors (turbine, pollution control equipment) that guarantees the emission limits will be met under a given set of conditions. If they are not met, the guarantor must repair the equipment to meet the warranty. In my experience, all equipment that emits (e.g., the turbine) or controls criteria pollutants (e.g., the SCR and oxidation catalyst) pursuant to an operating permit is guaranteed by the vendor(s).

8. Typically, vendor guarantees apply only under "new and clean" conditions and are valid for only up to one year. A make-right guarantee, on the other hand, is good for the life of the equipment and requires the vendor to return the equipment to the guaranteed emission level if it fails to meet the guaranteed levels. A vendor guarantee also commonly specifies the conditions under which the guarantee is valid, such as averaging time, turbine load, ambient conditions, exhaust gas temperature, etc. A load

profile curve, which reports emissions as a function of load, is commonly included.

9. In response to Data Request 68, the applicant points to a one-page letter in Appendix C-2. This letter states “GE confirms that the NRG Mandalay Bay 7HA.01 gas turbine, installed in a simple cycle configuration and equipped with an SCR and CO catalyst will achieve the following steady state operation emission values.” This statement is followed by a table that lists the emissions rates for NO_x, CO, VOC, NH₃, and total particulates. The column head characterizes these emission rates as “[s]teady state stack emissions during emission compliance mode.” This one-page letter is not a vendor guarantee.

10. Information in the vendor guarantee is essential to ascertain whether the proposed emission limits can be met under all operating conditions over the life of the facility. This is particularly critical as continuous emission monitoring is proposed only for NO_x. Infrequent stack tests are typically required for other parameters – CO, VOC, and total particulates, and stack tests generally are not required for startups and shutdowns. Infrequent stack tests, or no stack tests at all, are not adequate to assure that the facility will meet the stated emission levels over the life of the facility under all potential operating conditions. The actual vendor guarantee(s) must be reviewed to confirm that the facility can meet the proposed limits over its proposed lifetime under all conditions.

11. In Data Request 71, the City requested that the applicant verify emissions for the GE 7HA.01 gas turbine by providing test data for startup and shutdown conditions. This information is particularly critical for these periods as emissions are uncontrolled during startups and shutdowns and many hazardous air pollutants increase by large amounts.

12. In response, the applicant simply asserts that it is “customary to use vendor-supplied emission rates to determine project impacts.” The “customary” practice is not adequate here because the proposed turbine is a new model with no commercial operating

experience. The measurements that form the basis of the vendor's estimates are necessary to confirm the asserted emissions.

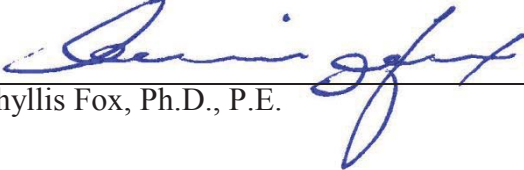
13. The applicant also used decades old emission factors from AP-42 and CATEF to estimate hazardous air pollutant (HAP) emissions. In Data Request 77, the City requested stack tests to support normal operation and startup/shutdown HAP emissions. The response implies that the actual HAP emissions from the proposed turbine would be lower than the emissions included in its analysis due to the type of turbine and add-on controls: "lower TAC/HAP emissions associated with a new fast start GE 7HA.01 gas turbine equipped with dry low-NOx combustion combined with an oxidation catalyst system." The City's request seeks the testing data that is necessary to support this assertion, as it is atypical for HAP emissions to be routinely monitored to confirm compliance with emission standards.

14. In the response to Data Request 77, the applicant also asserts that it is "customary" to use AP-42 and CATEF emission factors to estimate HAPs. As noted in paragraph 12, customary practice is not relevant here as this turbine has no commercial operating experience. The test data that the vendor has collected is needed to verify the applicant's claim.

15. GE and other vendors have measured HAP emissions from other turbine models for years. GE's HAP testing on the GE 7HA.01 and earlier GE 7HA turbines should therefore be readily available to the applicant upon request.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed November 20, 2015, at Berkeley, California.


Phyllis Fox, Ph.D., P.E.