BEFORE THE

LOUISIANA PUBLIC SERVICES COMMISSION

LOUISIANA PUBLIC SERVICE COMMISSION EX PARTE	)	
	)	**DOCKET R-28271**
IN RE: RE-STUDY OF THE FEASIBILITY OF A RENEWABLE PORTFOLIO STANDARD FOR THE STATE OF LOUISIANA	)	**SUBDOCKET B**

COMMENTS OF THE
U.S. DEPT. OF ENERGY GULF COAST CLEAN ENERGY APPLICATION CENTER

The U.S. Department of Energy Gulf Coast Clean Energy Application Center respectfully offers these comments on the report submitted by J. Kennedy and Associates, Inc. to the Louisiana Public Service Commission ("LPSC" or the "Commission") Staff on December 18, 2009 on the above referenced Renewable Energy Efficiency Goal considered in Docket No. R-28271, Subdocket B.

The U.S. Department of Energy Gulf Coast Clean Energy Application Center ("GC RAC") facilitates greater deployment of clean energy technologies like combined heat and power ("CHP"), district energy, and waste heat recovery in Louisiana, Texas, and Oklahoma. The GC RAC, which is hosted by the Houston Advance Research Center, a non-profit scientific organization, provides education and outreach programs, project-specific support services, and policy development initiatives supportive of clean energy.

GC RAC applauds the PSC's efforts to create a statewide Renewable Portfolio Standard ("RPS") and supports the inclusion of waste heat recovery in the program. An RPS would

provide an incentive structure important for further expansion of waste heat recovery projects across the state.

Waste Heat Recovery

Waste heat is a large and important resource in Louisiana. Heat is a waste product that results from inefficiencies in many industrial processes, including, for example, calcining, cement processing, incineration operations, chemical production, and petroleum refining. The technical potential for waste heat recovery at industrial sites is not well characterized at this time, although the U.S. Environmental Protection Agency ("EPA") is in the process of creating a registry of recoverable waste energy sources, as directed by Congress under Title IV, Subtitle D, Section 451 of the Energy Independence and Security Act of 2007 (EISA).[1] Completion of EPA's registry will allow better quantification of industrial waste heat recovery potential in Louisiana.

Waste heat is also created by natural gas-fueled engines and turbines commonly used in large water pumping operations and at natural gas compression stations. The status and market potential for waste heat recovery in natural gas compressor stations is documented in two recent reports prepared for the Interstate Natural Gas Association of America ("INGAA").[2] The most economical candidates for waste heat recovery are those that employ combustion gas turbines larger than 15,000 hp and that operate in excess of 5,250 hours per year, although the reports note that additional systems are often economical in states where power purchase prices include

[1]For more information, see http://www.epa.gov/RDEE/registry/. Last accessed January 14, 2010.
[2] See "Waste Energy Recovery Opportunities for Interstate Natural Gas Pipelines" (February 2008) and "Status of Waste Heat to Power Projects on Natural Gas Pipelines (November 2009) by Bruce A. Hedman, ICF International.

some incentive for clean energy (e.g., states where heat recovery qualifies as an option under a renewable portfolio standard).

Waste heat recovery is also possible within the power generating sector. Whereas traditional power generation in large central station facilities results in about half of the primary energy to be discarded, CHP technology can improve the effectiveness of waste heat capture and utilization. When appropriately sized generating units are placed at a local industrial facility, college campus, or even commercial building, CHP systems can produce an overall efficiency around 50% higher than conventional approaches. Estimates place the potential for additional CHP in Louisiana at 4,000-5,000 MW in the next decade,[3] much of which may remain undeveloped without an incentive provided through the heat recovery option under the proposed RPS.

In many cases, waste heat can be recovered economically using readily available, conventional technologies. Waste heat can be used to make steam, which can be readily used for a wide variety of purposes including, for example, offsetting boiler operations to replace existing steam loads, producing chilled water, mechanical work, dehumidification, and generating electricity. As an alternative to steam, so-called organic rankine cycle ("ORC") technology can be used to convert waste heat directly into electricity. Beyond steam and ORC, additional technology options are under development.

Waste heat recovery results in zero new emissions. Because industrial plant emissions are already attributed to the plant's process, the waste heat resource can be captured and used without releasing additional greenhouse gases or criteria pollutants. Consequently, waste heat

[3] See "CHP Market Status" (April 2005) by Bruce Hedman, ICF International. Available at http://www.gulfcoastcleanenergy.org/Portals/24/Hedman_GulfCoastCHPOverview.pdf. Last accessed January 15, 2010.

recovery projects are equivalent to wind or solar power in cleanliness, but provide firm, baseload power that is generated in close proximity to where it is needed. Power production close to loads reduces the need for transmission lines to carry power from remote renewable energy resources and increases energy security for adopters. Waste heat recovery is an excellent resource for Louisiana and the PSC should incentivize it within the RPS program.

Resource Portfolio Standard

The goal of the program should be to achieve a portfolio of resources that use a variety of generating technologies chosen for their appropriateness for the State of Louisiana. Hence, the program could be referred to as a "Resource Portfolio Standard" or "RPS." The portfolio approach for selecting energy technologies promotes the public good by carrying the risks inherent in the electricity industry and energy markets across differing technologies, each of which may have limited correlation to the others, especially in regards to specific performance attributes such as, for example, fuel requirements, reliability, performance during adverse weather conditions, GHG emissions, or other criteria of importance to the state. A key attribute in Louisiana's RPS should be an incentive structure that promotes a variety of technologies, and especially those technologies with limited market share.

The Texas Renewable Portfolio Standard ("Texas RPS") is a case in point for the importance of achieving a portfolio. When the Texas Legislature first established the renewable energy goals for Texas in 1999, only 116 MW of wind power had been implemented in the state. At the end of 2009, wind capacity exceeded 9,000 MW, about 80 times the level of just ten years ago. While the Texas RPS had a significant impact on the development of wind power, other renewable energy technologies like solar, biomass, and geothermal, have seen essentially zero

benefit from the program. Thus, the Texas RPS failed to deliver a balanced portfolio of renewable energy technologies. To correct this deficiency and establish a more robust portfolio, the Public Utilities Commission of Texas ("PUCT") recently opened a rulemaking to create a 500 MW "carve out" for non-wind renewable energy technologies.[4] The strawman rule proposes three tiers of resources, each with its associated tradable credit, to preferentially promote both non-wind renewables generally and solar energy specifically. A number of other states also use "tiers" or "classes" with independent goals and incentive structures. The PSC should consider how a tiered approach can help the state achieve a more balanced portfolio of technologies.

Renewable Energy Backup Requirements

Some renewable energy technologies like wind and solar are intermittent. While this variability is often overblown by opponents of these technologies, the possibility exists that some amount of backup generating capacity will be needed to ensure the reliability of the electric power system. Firm power generation from biomass and geothermal resources can be used to increase system reliability, as can steam or combustion turbines operating on waste heat resources or natural gas. Natural gas-fired generation is a good candidate to cover this need, because natural gas turbines can easily operate as spinning reserves, adjusting their output to counter the variability in renewable generation in real time, thereby enhancing system stability. Other options to back up certain renewable energy generation involve energy storage devices such as compressed air storage in salt caverns, but this approach has not been widely adopted. By

[4] Public Utility Commission of Texas, Project No 35792. Staff Stawman Rule Relating to the Goal for Renewable Energy.

including waste heat recovery and, hence, gas-fired CHP, the RPS would incentivize more stable energy resources to back up and complement renewable technologies.

The GC RAC appreciates the opportunity to file these comments.

Respectfully submitted,

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