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FINDING OF NO SIGNIFICANT IMPACT TENNESSEE VALLEY AUTHORITY

POWER PURCHASE AGREEMENT FOR RENEWABLE ENERGY FROM LANDFILL GAS - INCREASED GENERATING CAPACITY FROM THE CHESTNUT RIDGE SANITARY LANDFILL

Proposed Action and Need

The Tennessee Valley Authority (TVA) proposes to enter into a power purchase agreement (PPA) with WM Renewable Energy LLC (WMRE) for the additional power generated at the Chestnut Ridge Sanitary Landfill in Anderson County, Tennessee. This additional power would be generated by two new landfill gas (LFG)-powered reciprocating engines; presently, there are four reciprocating engines in use, and WMRE proposes to add two additional engines.

East Tennessee and Anderson County, in particular, are areas of rapid residential and commercial growth. This growth represents a generally increasing need for power in the TVA power service area. TVA produces or obtains electricity from a diverse portfolio of energy sources such as nuclear, fossil, hydro, solar, wind, and biomass. In order to help fulfill the objectives of its 2007 Strategic Plan and 2008 Environmental Policy, TVA has recently undertaken efforts to expand the contribution of renewable and low greenhouse gas-emitting sources in its generation portfolio. The utilization of LFG from biomass for the production of electricity would qualify as a renewable power source. The more energy generated from renewable resources such as LFG, the less energy would need to be generated from nonrenewable resources. The proposed project is to utilize LFG, which would otherwise be combusted by flares into the atmosphere, as an energy source for generating additional electricity.

The addition of two reciprocating engine systems would increase the amount of electricity generated at the landfill from 3.2 MW to 4.8 MW, thereby also reducing the amount of LFG being incinerated in the flares or escaping directly into the air (i.e., fugitive emissions) and reducing methane (a greenhouse gas) emissions from Chestnut Ridge landfill.

Actions proposed for this project include:

- Installing two additional power generation units, which are rated at 2,233 horsepower at 100 percent load and have a heat input of 17.85 million British thermal units per hour per engine. Each unit would consist of one Caterpillar Model G3520C reciprocating internal combustion engine, one electrical generator, auxiliary systems to connect with the gas collection and control system, a filtration system to remove particulate matter, a treatment system to compress and dehydrate the gas before use, and connectors to the existing open process flares for control of excess gas.
- Replacing one of the two existing open flares (there are currently two open flares and one enclosed flare) with a 2,000 standard cubic feet per minute (scfm) open flare, for a total of 6,500-scfm open-flare capacity (this would be a reduction of 2,500 scfm in current flare capacity).

Constructing a new 2,100 square foot modular building to house the new generating units. The existing generating units are contained within a 4,300-square-foot building on the landfill site. This building is an aboveground modular building. If the two additional reciprocating engines could not be fit into the existing building, they would be placed in a new building next to the existing building. The area where the new modular building would be placed has already been prepared; preparation occurred when the existing four engine systems were installed in 1992.

Alternatives

This environmental assessment (EA) evaluated two alternatives – the No Action Alternative and the Action Alternative.

Under the No Action Alternative, TVA would not purchase additional power from the facility, and two additional LFG-fueled engine systems would not be installed by WMRE. TVA would continue purchasing power generated from the four existing engine systems, and the excess LFG that could not be processed by the four existing engines would continue to be flared to the atmosphere, with a maximum capacity of 9,000 scfm.

Under the Action Alternative, TVA would enter into a PPA to purchase additional generation from the WMRE facility. Two additional LFG-fueled engine systems would be installed, and one of the open flares would be downsized from a 4,500 scfm to a 2,000-scfm capacity.

Impacts Assessment

The project would not have impacts on hazardous and nonhazardous wastes, biological resources, transportation, or environmental justice. The project's impacts on noise level, transmission, and visual resources would be minimal and insignificant. The project's impacts on air quality are considered beneficial but insignificant.

The project location is not located within a floodplain, and the proposed addition of LFG-fueled engine systems would not affect floodplain values or functions. Thus, the proposed action is consistent with Executive Order 11988 Floodplain Management. No direct, indirect, or cumulative effects to wetlands are anticipated from the proposed project. Thus, the proposed action is consistent with sections 401 and 404 of the Clean Water Act and with Executive Order 11990 Protection of Wetlands. Adoption of the Action Alternative is not expected to cause direct or indirect impacts to threatened or endangered terrestrial or aquatic species or their habitats. Thus, the requirements of Section 7 of the Endangered Species Act are satisfied.

TVA determined that the proposed undertaking would not have an adverse effect on any historic properties that are potentially eligible or currently listed on the National Register of Historic Places. The Tennessee State Historic Preservation Officer concurred with this determination. Therefore, requirements of Section 106 of the National Historic Preservation Act are satisfied.

Mitigation

Best management practices and other routine measures will be implemented during installation activities. TVA has not identified the need for any other nonroutine mitigation measures to reduce potential environmental impacts.

Public and Intergovernmental Review

The renewal of a major source operating permit, with the increase in LFG-fueled generating capacity, was the subject of a public notice issued by the Tennessee Air Pollution Control Division on February 8, 2010 for a 45-day review period.

Conclusion and Findings

Based on the findings listed above and the analyses in the EA, TVA concludes that implementing the Action Alternative involving PPA approval for this project would not be a major federal action significantly affecting the environment. Accordingly, preparation of an environmental impact statement is not required.



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Date Signed