Draft

Valley Bio-Energy, LLC 33-MW Biomass Energy Project Initial Study and Proposed Mitigated Negative Declaration

Prepared for

Modesto Irrigation District
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June 2010

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Proposed Mitigated Negative Declaration
Modesto Irrigation District
Valley Bio-Energy, LLC
33-MW Biomass Energy Project

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Introduction

The proposed project consists of Modesto Irrigation District (MID) entering into a Large Generator Interconnection Agreement (LGIA) with Valley Bio-Energy, LLC (VBE), as well as the construction and operation of a 33-megawatt (MW) biomass powerplant, substation, switchyard, and electrical interconnection line (either a transmission or subtransmission line). The proposed biomass powerplant would generate electricity from the biomass and would transmit that electricity to the electrical grid via a proposed transmission or subtransmission line. MID is considering three alternatives for the interconnection line. The purpose of the project is to generate clean renewable energy by using approximately 375,000 tons of agricultural wastes annually and to distribute the electrical energy to customers within MID's electric service area. MID is the lead agency responsible for complying with provisions of the California Environmental Quality Act (CEQA), as amended.

Proposed Project Description

VBE is proposing to construct the VBE 33-MW Biomass Energy Project (the proposed project). It would consist of the construction and operation of a 33-MW biomass powerplant and electrical substation in Stanislaus County, California.

The project would be developed on a 13.9-acre site. The proposed powerplant would be fueled primarily by agricultural wood waste obtained from agricultural operations that are located within 50 miles of the project site. The project would include an electrical substation, an automated fuel feed system, boiler feed water treatment equipment, combustor and boiler, steam turbine generator, condenser, evaporative cooling tower, and air pollution control equipment.

through a series of injection nozzles. The urea reacts with NO_x at temperatures between 1,650°F and 1,800°F, producing nitrogen and water, reducing NO_x emissions by 45 to 50 percent. Trona (2 to 3 truck loads per year) would be delivered and stored in a silo. The trona would be finely ground in an enclosed system and injected into the flue gas, downstream of the boiler. The trona would mix with the flue gas and react with any acid gasses including hydrogen fluoride, HCl, or SO_2, reducing such emissions by 80 percent. The reacted trona-acid gas material is then removed by the multiclone dust collector and the ESP. The boiler exhaust would be directed through a dust collector to remove approximately 70 percent of the ash (PM) in the flue gas before being directed into a three-zone ESP. The ESP would remove approximately 98 percent of the remaining ash before exhausting to the SCR, for a combined PM removal efficiency of approximately 99.8 percent. All bottom ash and fly ash would be stored on-site in enclosed containers prior to off-site disposal. The fly ash is a product with application in several commodity markets, including agricultural applications.

After exiting the ESP, the flue gasses would enter the CO oxidation catalyst, which would reduce the CO by approximately 85 percent, and VOCs by approximately 75 percent. After exiting the CO catalyst, anhydrous ammonia would be injected into the flue gas where it would react in the presence of the catalyst in the SCR, for combined SNCR/SCR NO_x reductions as high as 95 percent. The anhydrous ammonia would be stored in a 2,000 gallon steel tank that is designed for ammonia storage. The storage tank would be equipped with protections and sensors as required by law and the fire department. Ammonia would be delivered to the proposed facility in trucks approximately once per week for a total of 50 truckloads per year.

Project Operating Control System

The Project control room and associated control system components would be located in the turbine building, which would include a traveling bridge crane in its design to allow easy turbine and generator maintenance. A distributed control system would allow the facility to be operated and monitored by a single operator stationed at the main plant console, supported by technicians and fuel handlers in duty stations throughout the plant site. It is expected that the proposed plant design would have greater than 95 percent reliability.

The plant would have a Continuous Emissions Monitoring System installed to provide real-time data that would allow the plant operator to maintain maximum combustion efficiency. The data would also be sent to the SJVAPCD. VBE would be required to monitor specified pollutants to ensure that the plant continuously meets its air quality permit conditions contained in the Permit to Operate that would be issued by the SJVAPCD after the plant is operational.

Electrical Substation

The proposed powerplant would also include an electrical substation, the location of which is shown in Figure 3. The 60′ by 80′ substation would be fenced with an 8′ cyclone fence topped with barbed wire, and would include a nominal 40 megavolt-amperes generator step-up transformer to step up the generator voltage from 13.8 thousand volts (kV) to either 69 kV or 115 kV, depending on MID's selected transmission or

Business Plan for the site had been properly completed and closed (Nelson, 2008). The conclusion of this inspection was that all requirements had been met.

Naturally Occurring Asbestos

A review of the California Department of Conservation's map entitled "A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos" (2000), prepared at a scale of 1:1,100,000, did not indicate the project area as being located in an area containing ultramafic rocks (California Department of Conservation, 2000).

Impacts

Answers to Checklist Questions

a, b. The proposed project would require the transportation, handling, and storage of several hazardous materials to the plant. Waste oil would be collected on site and transported from the site in drums. Hazardous materials that would be used and stored on-site are listed below:

- Two to three 250-gallon totes of boiler chemicals
- One 250-gallon tote of bleach (sodium hypochlorite) for the cooling tower
- One 10,000-gallon tank of urea
- Approximately 2,000 gallons of turbine lube oil stored in a tank incorporated in the turbine skid
- Approximately 1,000 gallons of mineral oil stored in electrical transformers located in the substation
- One 250-gallon tank of diesel fuel for on-site loaders
- Approximately 5 gallons of paint stored in 1-gallon containers plus some spray cans
- Two to three 150-standard cubic foot bottles of compressed acetylene welding gas
- One to two gallons of solvents
- One 2,000-gallon tank of ammonia for use in the SCR

The only product that has the potential to have an off-site consequence is ammonia. Ammonia, classified as an acutely hazardous material by USEPA and a regulated substance by California, would be transported to and used at the plant to reduce NO_x in the exhaust gas. At room temperature, anhydrous ammonia is a colorless highly irritating gas with a pungent, suffocating odor. This odor is familiar to many people because ammonia is used in smelling salts, many household and industrial cleaners, and window-cleaning products. It is lighter than air and flammable, with difficulty, at high concentrations and temperatures. It is easily compressed and forms a clear, colorless liquid under pressure. No health effects have been found in humans exposed to typical environmental concentrations of ammonia. Exposure to high levels of ammonia in air may be irritating to the skin, eyes, throat, and lungs and cause coughing and burns. Lung damage and death may occur after exposure to very high concentrations of