

Albany Energy LLC
Supplemental Environmental Impact Statement

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1.0 Introduction and Background

Please see attached cover letter for this submittal dated July 15, 2010, Staley to Marcuccio.

2.0 Description of Action and the Facility

The Albany Energy LLC landfill gas to energy plant will be located on the City of Albany Landfill on Rapp Road, Albany, New York. The Site has been a landfill for over 30 years. The Site is adjacent to an existing operating landfill gas to energy plant, and in immediate proximity to the City of Albany's landfill equipment (bulldozers, backhoes, high lifts) maintenance facility. The new facility will be comprised of four (4) Caterpillar Model 3520 G engine-generators with an output of approximately gross 6400 kilowatts (6.4 MWs) of electrical energy. The engines will utilize the landfill gas ("LFG") as heat input from the landfill and convert it into mechanical energy that in turn will drive generators to produce electricity. The engine generators will be housed in an enclosed soundproof generating building with some ancillary equipment (radiators, transformers) located outside the building. The total previously disturbed land during the project construction will be less than one (1) acre. The facility will occupy approximately 0.5 acres as completion.

3.0 Project Purpose, Need, Benefits

3.1 Background and History

Please see submittal letter Staley to Marcuccio dated July 15, 2010

3.2 Public Need for the Project and Municipality Objectives

The project is needed to fulfill the requirements of a Contract dated September 30, 2009 between the City of Albany and Albany Energy LLC. The project will provide a financial benefit to the City by a royalty payment of approximately \$600,000 per year.

3.3 Objectives of the Project

The primary objective of the Project is to fulfill the terms and the conditions of a contract to build, own, and operate a landfill gas plant at the City of Albany Landfill.

3.4 Benefits of Proposal Action – Environmental, Economic, etc.

Please see submittal letter Staley to Marcuccio dated July 15, 2010.

3.5 Permits and Approvals

The primary approval for the construction and operation will be the Title V Permit issued by the NYSDEC. A secondary permit to construct is to be issued by the City Of Albany building department to the Engineering Procurement and Construction ("EPC") contractor.

4.0. Environmental Setting

4.1 Location

Please see the attached Google Earth map showing surrounding area. The City of Albany issued the Final Supplemental Draft EIS dated October 6, 2008 for the City of Albany Landfill Expansion, which describes the environmental conditions of the area.

4.2 Topography

The topography of the site is accurately described in the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

4.3 Water Resources

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

4.4 Air Resources

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

4.5 Ecology

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

5.0 Transportation

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

6.0 Land Use and Zoning

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

7.0 Community Services

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

8.0 Cultural Resources

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

In addition, an inquiry was made by AE of the Historic and Cultural resources of the Site. A letter dated June 11, 2010 from the New York State Office of Parks, Recreation, and Historic Preservation stated NO IMPACT on cultural resources was determined.

9.0 Visual Resources

Please see the attached architectural rendering of the proposed plant overlaid on the site. Please note the site blends into the municipal waste disposal activities of the Landfill.

10.0 Noise

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

In addition, the noise generating from the plant will be insignificant relative to the proximity to the Landfill environs and the Highway system in the area. AE has committed to doing a Noise Survey utilizing the closest neighbor identified in the Supplemental EIS referenced above to confirm that with the engine generators in a sound enclosure building, the off-site noise will not be perceptible from the existing sound levels generated at the landfill. This study will be conducted within one (1) year of commercial operation.

11.0 Potential Impacts of Site Development

11.1 Project Site Development

The project site will be immediately north of the existing landfill gas to energy plant at the City of Albany Rapp Road landfill. The project footprint has been previously disturbed and is presently used for storage of landfill equipment such as trucks, compactors, tanks, etc. The land is partly paved by asphalt or gravel with a small part having been overgrown by brush and shrubs.

Changes in existing storm water flow are not anticipated because there is an existing operating system. Prior to construction, a supplemental storm water management plan will be developed and submitted for approval by the EPC contractor. This plan will be in place prior to any commencement of construction. The site will first be cleaned up by having all equipment owned by the City moved to new locations on the landfill property. The area will be stripped of all the vegetation and gravel to 4 – 6” in depth. Areas of asphalt will first be saw-cut and then similarly stripped down.

During construction, parking and lay down areas will be discussed and approved by the landfill manager. This area is presently used for equipment parking and storage, so there are no additional impacts anticipated from the construction activities. The landfill storage area has sufficient parking for the tradesmen and woman. The plant staff will be up to two operators. There will not be any open space in the one-acre area designated for the plant.

11.2 Structures

The Generation Building will be a typically insulated “Butler” building made of steel and sheet metal. The building will have automatic louvers for combustion air intake. The building will be approximately 40’ wide by 100’ long, with a height of 22 feet. The sheet metal will be a light beige color. The staff will utilize the existing office and bathroom facilities. The piping will be above ground and the interconnection into the existing electrical system is above ground too. The engineering for the project will be done by the EPC contractor, which will be signed off by a NY State Professional Engineer and the City of Albany Building Department for the respective building permit.

11.3 Operations

The total operating staff will be up to two operators.

The work days will be five days per week, up to 8-10 hours per week paralleling the landfill operations. If there is a forced outage at the plant, this would necessitate an operator call out.

11.4 Construction

The total construction period will be approximately 6 months and peak at 10 tradesmen and woman. The construction will be done during a typical 40 work week. Weather related impacts cause over time scheduling to maintain the commercial operation date.

The building will be designed for expansion should there be enough gas to fuel additional engines-generators and such addition would require a permit change. However, there will not be a need to disturb the surrounding area to accommodate this expansion, should it occur.

11.5 Odors – Impacts

The City of Albany would have control over the land fill gas collection and conveyance system and would follow the conditions in their Title V permit in the conveyance of landfill gas to AE generators. The city has the permitted and contractual rights if there is an off-site odor report to shut the plant down to investigate the odors.

12.0 Air Quality

12.1 Provide discussion and analysis of the proposed project’s impacts to Air Resources

The proposed Albany Energy LLC Landfill Gas to Energy Project will provide a significant net benefit to the air resources of the State. The information presented below illustrates that the project will provide a net environmental benefit to air resources by reducing emissions of the following compounds by the volumes listed;

- a) CO₂ - 52,040 ton reduction;
- b) N₂O – 0.34 ton reduction;

- c) SOx – 410 ton reduction;
- d) NOx – 88.5 ton reduction.

The project poses no potential adverse impacts that are not already present given the landfill gas is already being generated, collected, and burned in landfill gas flares.

12.2 Provide analysis of projected emissions of the following greenhouse gases as identified by the Environmental Protection Agency:

The maximum estimated GHG emissions from the proposed project have been calculated using methods provided in the Federal GHG Rule for General Stationary Fuel Combustion Sources, specifically 40 CFR Part 98, Subpart C. This Item is NOT taking into consideration the net benefit of the project, but rather solely the estimated emissions of GHGs from the source. The Net Benefit of the project will be discussed in other sections of this document.

Carbon Dioxide (CO₂)

$$CO_2 = 1.1E-10^{-3} * LFG\ Consumed * Annual\ Avg.\ HHV * EF \quad [Eq. C-2a]$$

Where;

CO₂ = Annual mass CO₂ emissions from landfill gas combustion (short tons).

1.1E-10⁻³ = Factor for converting kilograms to short tons.

LFG Consumed = Volume of LFG combusted during the year (scf).

Annual Avg. HHV (MMBtu/scf) = Average HHV of fuel from all valid HHV measurements during year.

EF = Fuel specific CO₂ emission factor provided in Table C-1 of Subpart C (52.07 kg/MMBtu for LFG).

For the proposed project the following are estimated as indicated;

- a) Annual LFG Consumption = 1,139 MMSCF Landfill Gas
 - a. Assuming all four engines running the permitted annual maximum of 34,944 total run-hours.
- b) Average HHV = 4.94E-10⁻⁴ MMBtu/scf
 - a. Based on 48.3% Methane in LFG.
 - b. Based on HHV of 1,010 BTU/scf NG

$$CO_2 = 1.1E-10^{-3} * 1,139\ MMSCF * 4.94E-10^{-4} * 52.07$$

$$CO_2 = 32,228\ Tons/Year$$

It should be noted that CO₂ produced from biomass combustion is exempt from the Federal GHG Rule threshold determinations and that landfill gas is considered biomass and a Renewable Energy Alternative.

Methane (CH₄)

$$CH_4 = 1.1E-10^{-3} * LFG\ Consumed * Annual\ Avg.\ HHV * EF \quad [Eq. C-9a]$$

Where;

CH₄ = Annual mass CH₄ emissions from landfill gas combustion (short tons).

1.1E-10⁻³ = Factor for converting kilograms to short tons.

LFG Consumed = Volume of LFG combusted during the year (scf).

Annual Avg. HHV (MMBtu/scf) = Average HHV of fuel from all valid HHV measurements during year.

EF = Fuel specific CH₄ emission factor provided in Table C-1 of Subpart C (3.2x10⁻³ kg/MMBtu for LFG).

$$CH_4 = 1.1E-10^{-3} * 1,139 \text{ MMSCF} * 4.94E-10^{-4} * 3.2E-10^{-3}$$
$$CH_4 = 1.98 \text{ Tons/Year}$$

Nitrous Oxide (N₂O)

$$N_2O = 1.1E-10^{-3} * \text{LFG Consumed} * \text{Annual Avg. HHV} * EF \quad [\text{Eq. C-9a}]$$

Where:

N₂O = Annual mass N₂O emissions from landfill gas combustion (short tons).

1.1E-10⁻³ = Factor for converting kilograms to short tons.

LFG Consumed = Volume of LFG combusted during the year (scf).

Annual Avg. HHV (MMBtu/scf) = Average HHV of fuel from all valid HHV measurements during year.

EF = Fuel specific N₂O emission factor provided in Table C-1 of Subpart C (6.3x10⁻⁴ kg/MMBtu for LFG).

$$N_2O = 1.1E-10^{-3} * 1,139 \text{ MMSCF} * 4.94E-10^{-4} * 6.3E-10^{-4}$$
$$N_2O = 0.39 \text{ Tons/Year}$$

Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF₆)

Not Applicable at the proposed project.

12.3 Provide analysis of the projected emissions of Sulfur Dioxide (SO₂).

SO_x emissions have been estimated using a mass balance approach by taking the average landfill gas hydrogen sulfide concentration at the Albany Landfill for 2008 and assumes 100% is converted into Sulfur Dioxide during combustion.

Albany Landfill Average Hydrogen Sulfide Concentration for CY 2008 = 637.78 ppmv.

Volume of LFG Burned = 130,358 scf/hr

SO_x Emissions

$$SO_x = 637.78 \text{ ppmv} \div 10^6 \text{ ppmv} \times 64.07 \text{ lb/lbmole} \div 385.3 \text{ scf/lbmole} \times 130,358 \text{ scf/hr} \times 8,760 \text{ hr/yr}$$

$$SO_x = 120,556 \text{ lb/yr (60.3 tons/yr)}$$

12.4 Discussion of air emission impacts from the proposed four gas-fired electrical generating engines compared to emissions from the flare that is used at the landfill to burn excess methane.

GHG Emission Comparison

The Federal Greenhouse Gas Rule for Municipal Solid Waste Landfill's (40 CFR Part 98, Subpart HH) requires that flares calculate GHG emissions using the protocol set forth in Subpart C (General Stationary Combustion Sources). Therefore, there is no difference in the emissions estimates when comparing a flare or the internal combustion engines proposed for this project.

In that regard, the GHG emissions estimates for the flare are equal to the proposed project when using EPA Protocol as presented below.

Engine Plant CO₂ = 32,228 Tons/Year
Flare CO₂ = 32,228 Tons/Year

Engine Plant CH₄ = 1.98 Tons/Year
Flare CH₄ = 1.98 Tons/Year

Engine Plant N₂O = 0.39 Tons/Year
Flare N₂O = 0.39 Tons/Year

The emissions of SO_x are also estimated to be the same when comparing the engine plant and a flare, given industry practice is to assume all H₂S contained in the landfill gas is converted to SO_x. The calculation showing this is presented in the engine plant section above.

Engine Plant SO_x = 120,556 lb/yr (60.3 tons/yr)
Flare SO_x = 120,556 lb/yr (60.3 tons/yr)

CO Emission Comparison

Carbon monoxide emissions have been estimated for the Engine Plant using manufacturer's data, while the flare CO emissions have been estimated using US EPA AP-42 emission factors.

Engine Plant

Engine CO Emissions = 2.9 g/bhp-hr
Engine Rating = 2,233 Hp (4 engines = 8,932 Hp)
Permit Operating Hour Cap = 34,944 hours

Engine Plant Annual Maximum CO Emission = **499,000 pounds (249.5 tons)**

Flare

AP-42 CO Emission Factor = 750 lb/MMDSCF Methane
Annual LFG Consumed = 1,139 MMSCF @ 48.3 % Methane
Methane Consumed = 550.1 MMSCF

Flare CO Emissions = **412,575 lbs (206 tons)**

NO_x Emission Comparison

Oxides of Nitrogen emissions have been estimated for the Engine Plant using manufacturers data, while the flare NO_x emissions have been estimated using AP-42 emission factors.

Engine Plant

Engine NO_x Emissions = 0.6 g/bhp-hr
Engine Rating = 2,233 Hp (4 engines = 8,932 Hp)
Permit Operating Hour Cap = 34,944 hours

Engine Plant Annual Maximum NO_x Emission = **103,085 pounds (51.5 tons)**

Flare

AP-42 NO_x Emission Factor = 40 lb/MMDSCF Methane

Annual LFG Consumed = 1,139 MMSCF @ 48.3 % Methane

Methane Consumed = 550.1 MMSCF

Flare NO_x Emissions = **22,004 lbs (11.0 tons)**

Other Air Contaminants

Particulate Matter, Volatile Organic Compounds, and Hazardous Air Pollutant emissions are minor and will not be considered for this comparison. Refer to the Project's Air Permit Application for the engine plant's emissions estimates for these compounds if necessary.

12.5 Discuss the emissions that would be generated at another facility to replace the power that would not be generated, if this facility is not approved.

The proposed project, at maximum capacity, will generate approximately 55,910 MWhr of electricity for distribution to the power grid. The energy required to generate this amount of electricity is estimated to be approximately 562,598 MMBtu according to the manufacturer's specifications. If the proposed project is not constructed, an equivalent amount of electrical power would have to be generated at another facility, such as a coal-fired plant. Generating the power at an existing power plant would not negate the need to combust the landfill gas collected from the Albany Landfill, therefore, any analysis that seeks to determine the net effects of the proposed project on air resources would need to compare the emissions of the project (if constructed) to the combined emissions of the flare and another power generation source generating an equivalent amount of electricity. The following information illustrates such a comparison assuming the additional power is generated by a coal-fired power plant (dry bottom, wall fired, bituminous). Emissions estimated for the coal-fired plant are derived from AP-42 emission factors.

For ease of comparison, it will be assumed that the thermal efficiency of the coal fired plant and the internal combustion engines are equivalent, but in reality, the engines are at least 15% more efficient.

According to AP-42 for External Combustion Sources, page 1.1-9 (Section 1.1.5), the emission factors can be converted to a mass per heating value basis by dividing by 26.0 MMBtu/ton. This will be done for the air contaminant emission factors and the result (in lb/MMBtu) will be multiplied by the annual heat input consumed by the proposed facility (562,598 MMBtu). This factor reveals that, in theory, the coal-fired power plant will burn 21,638 tons of coal to produce an amount of power equivalent to the proposed project.

Coal Plant CO₂ Emissions

AP-42 Table 1.1-20 Emission Factor = 4,810 lb/ton (185 lb/MMBtu)

Heat Input to Produce Equivalent Electricity = 562,598 MMBtu

CO₂ Emissions (for Equivalent Generation) = **104,080,630 pounds (52,040 tons)**

Coal Plant CH₄ Emissions

AP-42 Table 1.1-19 Emission Factor = 0.04 lb/ton (0.0015 lb/MMBtu)

Heat Input to Produce Equivalent Electricity = 562,598 MMBtu

CH₄ Emissions (for Equivalent Generation) = **843 pounds (0.42 tons)**

Coal Plant N₂O Emissions

AP-42 Table 1.1-19 Emission Factor = 0.03 lb/ton (0.0012 lb/MMBtu)

Heat Input to Produce Equivalent Electricity = 562,598 MMBtu

N₂O Emissions (for Equivalent Generation) = **675 pounds (0.34 tons)**

Coal Plant SO_x Emissions

AP-42 Table 1.1-3 Emission Factor = 38 lb/ton (1.46 lb/MMBtu)

Heat Input to Produce Equivalent Electricity = 562,598 MMBtu

SO_x Emissions (for Equivalent Generation) = **821,393 pounds (410 tons)**

Coal Plant CO Emissions

AP-42 Table 1.1-3 Emission Factor = 0.5 lb/ton (0.019 lb/MMBtu)

Heat Input to Produce Equivalent Electricity = 562,598 MMBtu

CO Emissions (for Equivalent Generation) = **10,689 pounds (5.34 tons)**

Coal Plant NO_x Emissions

AP-42 Table 1.1-3 Emission Factor = 12 lb/ton (0.46 lb/MMBtu)

Heat Input to Produce Equivalent Electricity = 562,598 MMBtu

NO_x Emissions (for Equivalent Generation) = **258,795 pounds (129 tons)**

Comparison of Combined Flare & Coal Plant Emissions versus Proposed Engine Plant

Parameter	Flare Emissions	Coal Plant Emissions	Emission if Proposed Project Denied (Coal Plant + Flare)	Proposed Project Emissions	Net Effect of Project
CO ₂	32,228	52,040	84,268	32,228	(52,040)
CH ₄	1.98	0.42	2.4	1.98	(0.42)
N ₂ O	0.39	0.34	0.73	0.39	(0.34)
SO _x	60.3	410	470.3	60.3	(410)
CO	206	5.34	211.3	249.5	38.2
NO _x	11.0	129	140	51.5	(88.5)

NOTES: 1) All units expressed in tons/year
2) Reduction in parentheses and red (###)

12.6 Discuss impacts that operation of this facility would have to National and State Air Quality Standards for the project area and the compliance status for each standard.

The proposed project will not have any negative impacts to the ambient air quality standards for the location. A SCREEN3 Level analysis of the maximum facility emissions from the proposed facility was prepared for NOx, CO, and SOx. The maximum 1-hour concentrations obtained from the SCREEN3 Model were added to the background concentrations obtained from the NYSDEC's 2009 ambient air quality data (where available) and were compared to the Ambient Air Quality Standards. There were no exceedances for any of the three parameters as is illustrated in the table below. Refer to the attached SCREEN3 analysis and a copy of the NYSDEC Ambient Air Quality Standards and the NCSDEC 2009 Air Quality Data for Region 4.

Ambient Air Quality Analysis

Parameter	SCREEN3 Maximum 1-hr Concentration	Region 4 Background Concentration	Total	Ambient Air Quality Standard*	Compliance
SOx	0.02246	0.003	0.02546	0.03	Pass
CO	0.213	0.3	0.513	9.0	Pass
NOx	0.0268	Not Available	0.0268	0.05	Pass

NOTE: *Most stringent standard used (8-hour for CO & Annual Average for NOx and SOx).

12.7 Impact to existing sources or pollutants-fixed or mobile. (This is covered under Number 6 above)

12.8 Impacts to any sensitive receptors within 1 mile of the project area examples: hospitals, schools, nursing homes, parks.

This item is covered in Number 6 above. The SCREEN3 Models show no exceedances of Ambient Air Quality Standards.

12.9 Description of existing monitoring program (if applicable). (This is not applicable)

12.10 Discussion of direction of dispersion of air pollutants from the site. (This is not applicable)

12.11 Discussion of how the operation of this facility will assure compliance with the air quality and odor permit conditions that are part of the City of Albany's current Title V and Part 360 permits when the authorization to operate this new facility is proposed via permits to be issued on a separate and distinct permitted facility from the current Albany Rapp Road Landfill

and Solid Waste Management Facility, which has the City of Albany as the permittee with full legal responsibility.

The existing facility and the new (expansion) facility will operate in separate building enclosures. The new and existing generators will be operated by the same 1-2 person operating crew. The AE Title V draft permit conditions will be identical to the existing City of Albany Title V Permit conditions for the existing generators. The only differences are the emission factors and heat inputs for different engine-generator sets that will be permitted under the separate Title V Permits. The common thread between the two permits will be the use of the same operating crew. The assurance of emission compliance will be the daily maintenance to assure good combustion characteristics of the engines and the Annual Emission Testing Program required by the plant operating procedures and their respective Title V Permits. The odor compliance program will be identical under each Title V Permit where the permit condition is stated in the Quarterly Flange Check Program, which is attached..

12.12 Air Resources

Identify those aspects of the environmental setting that may be adversely or beneficially affected by the proposed action and require discussion. Describe measures to reduce or avoid potential adverse impacts.

The following is a brief listing of typical measures used for some of the major areas of impact:

The environmental setting will be benefited in that the project will result in a net reduction of greenhouse gases, given electricity that is being generated will reduce the amount of generation needed from a coal-fired power plant.

Additionally, the engine plant will provide an additional control device to burn landfill gas from the Albany Landfill. If the plant is not installed and a flare (or flares) experienced a serious malfunction, then there is a greater potential that excess landfill gas could be leak into the atmosphere.

The project poses no new potentially adverse impacts that are not currently present, given the landfill gas is already generated, collected, and combusted in flares. The project seeks to beneficially use the recovered energy to generate electricity rather than simply burn the energy with no secondary benefit.

All construction activities will be scheduled during normal business hours to minimize noise impacts. Finally, all subcontractors are required to maintain equipment that meets any codes or consensus standards for the equipment being used.

12.13 Climate Change Impacts and Mitigation

Climate Change Impact and Mitigation Landfills produce landfill gas that consists of approximately 50% methane. Methane is a greenhouse gas (GHG) which, upon its introduction into the atmosphere, leads to the retention of heat in the

atmosphere and therefore the earth's surface. This characteristic is referred to as the Global Warming Potential (GWP). Carbon dioxide (CO₂) is a pollutant used as the measurement standard for GWP and it has been assigned a GWP of one ("1"). Methane (CH₄) is a potent GHG and has a GWP of 21 times that of CO₂. This means that for every ton of methane released into the atmosphere it is equivalent to 21 tons of CO₂ that might be released. Combustion of landfill gas in the engines results in approximately a 98% reduction of CH₄, resulting in a large reduction of GHG emissions into the atmosphere. Moreover, production of "green" energy using landfill gas that would otherwise be emitted uncontrolled from a landfill or controlled through the combustion of an on-site flare. This results in the reduction of GHG from conventional power plants using traditional fossil fuels, which on average generate higher emissions for each unit of electricity produced. The implementation of this Action will result in the reduction of methane emissions by conversion of those emissions into less deleterious emissions (on a per ton basis) of CO₂ emission. Therefore, reducing the GHG emissions of methane from the landfill while producing energy that can be beneficially used by the New York State grid in the Albany Region has significant benefits.

13.0 Ecology of the Site

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

14.0 Transportation

Please see the Final Supplemental Draft EIS dated October 6, 2008 prepared for the Albany Landfill Expansion by CHA.

15.0 Community Services

The Interconnection Requirements are governed by the New York Independent System Operator (NYISO). The Application has been designated a Queue number of 342. The approval will be a tripartite agreement with AE, National grid, and NYISO. The construction by National Grid will take place inside the plant fence. There will be no additional services required for sewer and water. The police and fire protection will not require expansion.

16.0 Cultural Resources

Please see attached letter from the New York State Office of Parks Recreation and Historic Preservation..

The analysis performed by the Office of Parks, Recreation and Historic Preservation determined no impact on Cultural Resources.

17.0 Visual Resources

Please see the attached architectural rendering.

18.0 Land Use and Zoning (not applicable)

19.0 Potential Impacts and Mitigation – Air Resources

19.1 Air Quality Impact and Mitigation

The air emissions for the engines will be criteria pollutants, which are regulated by the NYSDEC. The projected emissions are defined in the attached Title V Air Quality Permit Application and Draft Title V Permit with other attached documentation. The air emissions are based on emission guarantees provided by the manufacturer. The emissions guarantees will comply with NYSDEC regulations, as well as applicable Federal, State, and Local regulations governing mass and concentrating emission limits on the criteria air pollutants that are designed by the NYSDEC/EPA to protect human health. In order to ensure continuous compliance with these emission limits, recordkeeping and reporting (run-time, heat input, etc.) will be required and adhered to. In addition, applicable permits will be obtained and the plant will ensure that operations occur in compliance with all permits.

19.2 Assure proper construction practices

The construction site will utilize industry accepted practices to maintain air quality including wetting of dusty surfaces and covering of piles during windy conditions. This will be easily performed given the landfill access road regularly uses wetting and sweeping to control dust from the landfill traffic.

19.3 Installation and assurance of the proper operation of emissions and odor control devices, etc.

The engines are not equipped with a control device, however it should be noted that the model engines proposed for the facility are considered BACT given the engines utilize automatic air/fuel ratio controllers to maintain proper combustion.

19.4 Devise a program for monitoring of air quality

The facility quality control measures include daily system checks and monitoring of operating parameters. There is also quarterly flange leak detection program that will be followed which includes monitoring of all flanges and connections for landfill gas leaks.

20.0 Historic , Archaeological, Environmental, and Construction Impacts

There will be no impact on Historic and Archaeological Resources. See New York State Office of Parks, Recreation, and Historic Preservation letter dated June 11, 2010.

20.1 Noise Impact and Mitigation

It is anticipated that the noise generated from the plant will be negligible due to location and construction materials mitigation. The equipment will be located inside an acoustical insulated generating building. The existing and expansion

generating building are located adjacent to two major freeways. The N.Y.S. Thruway (I-90) and the Northway (I-87). The Thruway and Northway, in addition to the generating equipment located inside the soundproof enclosure will make the engine noise imperceptible off-site. The facility will be located on the landfill that receives domestic and commercial waste in large garbage compactor trucks. The City of Albany uses heavy equipment (bulldozers) to place the waste (compaction, soil cover, water-spraying trucks, etc.). In addition, the plant is located immediately adjacent to the City of Albany's Maintenance shop, which creates additional ambient noise. The noise from the construction and the operation of the engines inside the soundproof building is not expected to be perceptible above the noise related to existing landfill operations.

The primary noise control measure for the engines will be the location of the engines and other noise producing equipment in an enclosure constructed from insulated steel siding.

The Engine exhaust will be vented through a critical grade silencer-system providing an insertion loss of approximately 38 dBA. The building ventilation system and engine radiators will use low speed fans to provide low noise operations. The service transformer and ancillary equipment will be shielded from the property line and nearest residences by the main building or other structures. The Landfill also acts to shield noise from residences living points north, east, and southeast of the Facility. The proposed project is situated at a location at the landfill Facility such that it provides substantial distances, which act as a buffer to the nearest residences.

21.0 Odor Control and Impacts

The landfill gas collection and conveyance system at the landfill is under control of the City of Albany until it reaches the first pipeline flange a few feet from the generating building. Therefore, the process involved in the generation of electrical energy from landfill gas is not generally associated with odors. The landfill gas delivered to the plant will be enclosed in piping. The possible area where landfill gas might be leaking is the pipe-to-pipe flange connection. Therefore, a third party Quarterly Flange Check Program is in place (See attached Draft Title V Permit and Quarterly Flange Check Program) at the plant. The program is implemented as a proactive compliance tool, as well as an independent analysis. AE acknowledges that minimizing odor is of primary concern to the City of Albany, and AE will take such steps as are necessary to ensure odors are minimized in operation of the plant.

22.0 Construction Impacts and Mitigation

Construction will not occur on a large scale due to the nature of utilizing skid-mounted equipment. The total work force will peak at about 10 people, with the average on site number of tradesmen and women being about six (6). AE will employ industry approved best management practices during construction for safety reasons and environmental protection. These practices will minimize storm water run off. Construction efforts will also be coordinated with the adjacent landfill and follow requirements that the landfill operating management might employ for construction projects.

23.0 Permit Compliance

This sub-section is addressed in the Title V Application, the draft Title V Permit, and the Issued Title V Permit of the Rapp Road Landfill dated .
Please see attached above referenced documents.

24.0 Alternatives

The alternatives to this action are at best, limited or none. The site is located within the existing landfill and is tangent to the existing landfill gas to energy facility. The existing infrastructure of transmission interconnection, drainage, parking, ingress, and egress road system have been established over many years. No alternative site exists for this action.

The technology selected is the use of reciprocating engines. The use of combustion turbines was analyzed but due to compression of landfill gas requirements and heavy utility costs for electrical power to perform compression, this alternative was rejected as uneconomic. The capacity of the project was selected to match the landfill gas production at the landfill. The action is compatible with the region objectives and local zoning and planning. This has been determined by the approval of the expansion of the City of Albany Rapp Road Landfill by the NYSDEC.

Finally, having considered the City of Albany's Draft Environmental Impact Statement dated October 8, 2008, the City of Albany's Title V Permit issued by the NYSDEC for the Expansion of the Rapp Road Landfill, the AE SEQRA Long Form, the draft AE Title V permit for the landfill gas to energy project, the draft Title V Permit for the AE landfill gas to energy projected issued by the NYSDEC, and this supplemental prepared by AE, and having considered these written facts and conclusions relied upon from these reference documents, the requirements of SQRA have been met. This documentation supports that this project is consistent with the social, economic, and environmental alternatives available. This project avoids or minimizes the adverse environmental effects of other alternatives that would be utilized to produce the electrical energy for the NYS grid.

The project, if it is not constructed, i.e. no action, would result in not making available a renewable energy source for electrical production and the subsequent loss of \$600,000 per year to the City of Albany. Governor Paterson and the NYSERA have set a renewable portfolio standard goal of 30% of retail electricity sales in New York supplied by renewable resources by the year 2015. This use of landfill gas will contribute to the renewable goal.

The proposed action is highly specific to a select location on a landfill. Therefore, the only option considered was no action at all. This would result in the continuation of flaring the LFG. While this would destroy the methane, it would be a waste of a renewable energy source.

25.0 Matters To Be Decided (Permits, Approvals, Funding)

This Supplemental EIS is to support the issuance of a Negative Declaration under the NYSERA legislation. The subsequent permits will be Title V Permit and a Permit to Construct issued by the City of Albany.

Supplemental Environmental Impact Statement

Appendices