



Frequently Asked Questions

Is pet coke still part of the Virgin Islands waste-to-energy proposal? No, pet coke is no longer a component of the proposed Alpine Energy's Waste to Energy project.

Is there enough waste to offset the pet coke component? Alpine's proposed 33-megawatt power plant on St. Thomas was eliminated due to the removal of pet coke from the project. However, the additional refuse derived fuel (RDF) that was designed for use in the St. Thomas power generation facility will now be used in the St. Croix power generation facility to make up for the loss of pet coke on St. Croix.

How will the refuse derived fuel be delivered from St. Thomas to St. Croix? After being processed into sterilized and odorless pellets, the refuse derived fuel will be securely wrapped and shipped from a dock to be determined in St. Thomas to the Renaissance (or Martin Marietta) channel adjacent to the Alpine facility.

Will there be enough waste to operate the power plant? Yes, the VI Waste Management Authority has guaranteed Alpine a minimum of 400 tons per day of municipal household solid waste from St. Thomas and St. Croix combined based on its projections for waste disposal in the Territory over the next 20 years.

Describe the process for production of electricity without pet coke? The process remains the same, with the only change being one aspect of the fuel supply (i.e. no pet coke). Instead, electricity production will use other fuel, primarily municipal waste that is converted into odorless refuse derived fuel pellets. The plant will be a state-of-the-art steam electric generating plant. In a modern steam electric power plant, there are three primary processes that are required to convert solid fuel into electricity

Step 1: The energy conversion takes place first in the boiler. Fuel is burned in the boiler furnace to generate heat. The fuel is burned in a controlled manner mixing air with the fuel in a measured manner to extract as much energy as possible from the fuel. Temperatures of the combustion process for the Alpine project will exceed 1,600 degrees Fahrenheit. The gas produced from combustion is directed through a series of heat exchange components and emission reduction treatments and is exhausted into the atmosphere.

Step 2: The second step in converting energy is the thermodynamic process. The heat generated by burning fuel is transferred through the metal from which the boiler is constructed into water where it boils to produce steam. In the Alpine project, the steam will be at high pressure and temperature at approximately 850 pounds of pressure per square inch and 830 degree Fahrenheit. The high temperature and pressure steam is directed to and introduced into a steam turbine. The steam works through the turbine at which point it is condensed and pumped back into the boiler to repeat the cycle.

Step 3: In the third phase of energy conversion, the energy from the steam working through the steam turbine is converted into rotational energy which turns the electric generators producing electricity.



Without pet coke, will the electricity cost more to the consumer? No. Alpine's contracted price of power sold to WAPA has not changed.

How much power will Alpine Energy provide to WAPA? The plant will generate between 16.5 and 20.0 megawatts net electric output delivered to WAPA's transmission system.

Is there potential for other alternative energy sources to supplement the refused derived fuel that Alpine will produce from waste, if needed. What would they be? Yes, the Alpine Energy Project will be able to combust agricultural crops, rum bottoms, tires, sludge from waste water treatment facilities and bio mass in the production of energy.

What is the significance of the Alpine project to the Virgin Islands? Alpine's waste-to-energy projects offer multiple benefits to the Virgin Islands. These include generating 40 percent of the power for St. Croix and 20 percent of the power for the Territory using a renewable source of energy that will displace approximately 400,000 barrels of oil. This will have a positive effect on the LEAC and create a 20 percent hedge against oil price fluctuations in the future. In addition, converting municipal waste into electricity will enable the Territory to comply with EPA and FAA compliance requirements to close the Anguilla landfill on St. Croix and the Bovoni landfill on St. Thomas.

What is the price per kilowatt-hour that Alpine Energy will sell power to WAPA? Between 10 and 15 cents per kilowatt-hour in year one of operations, or approximately 20 to 25 percent of the current retail price.

How much will this reduce the average consumer's WAPA bill? Alpine will save WAPA approximately \$40 million annually based on oil prices of \$130 per barrel. Only WAPA can determine how much that will translate into savings on a given power bill for an individual customer.

Will the Alpine Project eliminate the LEAC?

The Levelized Energy Adjustment Clause (LEAC) factor is a monthly surcharge that covers the cost of the fuel oil WAPA purchases to produce water and power for its customers—simply put, it is a fuel oil charge. The Alpine Project will not totally eliminate the use of fuel oil, but will reduce WAPA's 100% dependency on fossil fuel as an energy source in its power plants. As is the case in all electric utilities, there will always be a cost of producing electricity and, therefore, it is likely that there will always be a cost for converting an energy source to electricity. That cost is passed on to customers as a fuel (energy) charge in the utility rates they pay. The amount of that energy charge will be based on the type of energy that is used for conversion to electric power—e.g., solar, wind, waste to energy, biofuels, etc. However, WAPA anticipates that its fossil fuel oil costs (now referred to as the LEAC) will be reduced as the utility diversifies its generation portfolio.

What are the total electric savings for the people of the Virgin Islands? Is there a potential for increased savings to the consumer? Under the current LEAC structure, the savings to ratepayers throughout the Territory would be approximately \$40 million a year if the Alpine project were operating today.

Where will the St. Croix facility be located in Renaissance Park? The Alpine facility will occupy approximately 20 acres of the St. Croix Renaissance Park. The facility will be built near the existing Renaissance administrative office building.



Why are there two facilities on St. Croix in one location instead of two locations? Is it not feasible to process the municipal waste into refuse derived fuel at the landfill? It is not feasible due to land availability and the fact that power and steam generation are required to operate the refuse derived fuel facility, both of which come from the power generation facility. The two facilities need to be adjacent to one another to make the project technically and economically feasible. The site selection of the St. Croix Renaissance industrial park, which is very close to the existing Anguilla landfill, minimizes the impact of the current traffic pattern.

In a recent video, a statement was made that there will be no emissions at the Alpine Energy facilities. How is this possible? Is there documentation to support such a statement? The statement made was that there would be no visible emissions. In other words, you will not be able to see smoke or opacity coming out of the stack.

What odors will come from converting the municipal waste into refused derived fuel? To control odor, trucks delivering waste will enter into an enclosed building before its contents are emptied onto a tipping floor. The building will be fitted with fans that draw outside air and direct its flow through the building and into the boiler. All waste will be processed into a sterilized, odorless fuel. The interior of the building is expected to have an odor similar to the waste smell at waste drop-off bins or convenience centers. The grounds surrounding the building will be well maintained and the building will aesthetically attractive.

What odors will come from combusting the refused derived fuel? There will be no odors coming from combustion of the refuse derived fuels. The combustion process is extremely efficient. It is controlled and the gases produced are treated to reduce pollutants - while no odors are created.

What air emissions are expected during the production of electricity? The plant will generate typical combustion by-product emissions such as nitrogen oxides, sulfur dioxide, particulate matter, etc. Through the use of best available control technology and modern pollution control techniques, air emissions from the plant will be minimized to the greatest extent possible. Alpine's emissions will be less than one-half of one percent of the total emissions currently permitted on St. Croix.

How do the emissions from Alpine compare to other industries St. Croix? Please refer to the emissions comparison slides. Alpine's emissions will be less than one half of one percent of the currently permitted emissions on St. Croix. The emissions from Alpine's power generation will be significantly lower than WAPA's emissions. Thus, the plant will produce electricity that is both cleaner and cheaper than WAPA.

What are the by-products resulting from the waste-to-energy process? The primary by-products are electricity for WAPA and recyclable materials, such as glass and metal, which will be returned to the Waste Management Authority. The process will also generate a combustion waste by-product or ash. The ash is not hazardous and can be used for certain aggregate applications. The plant will generate less than 20,000 tons of ash annually.

What is Alpine Energy Group's procedure for disposal of this ash? Combustion waste by-product or ash will be collected from the waste to energy process. The collection and storage process will be covered and protected from the elements. No ash will be stored outdoors. Alpine is currently working with local aggregate and construction companies to re-use the ash as road base material, erosion control blocks, etc. In the event that the by-product cannot be used in the USVI,



Alpine will ship the ash to the mainland US. The cost of managing and disposing of the ash belongs to Alpine.

How will the construction of this project be financed? 100% of the project's construction costs will be funded by Alpine through a combination of commercial bank debt and equity.

Are there any existing permits which Alpine obtained earlier than can be applicable to the project? No. All permits are unique to a given site and project design.

What steps are necessary to expedite the project? The Bovini land lease and the Waste Management Authority's credit support documentation have to be approved by the Legislative arm of the Virgin Islands. After which, proper permitting has to be obtained from the Coastal Zone Management Commission by November.

What is the scheduled timeline for the plants to begin operation? Construction will begin four months after necessary approvals from the V.I. Legislature. The refuse derived fuel facility will have a 14-18 months construction schedule and the power generation facility will have a 28-month construction schedule

Is there an option to increase the size and production of the facilities? This could be possible in the future if more waste becomes available and WAPA has a need to purchase additional power.

How many people will have permanent employment and what is Alpine Energy's annual estimated payroll? Approximately 80 new, full-time positions will be created. The estimated annual payroll and benefits is projected to be \$4.5 million in year one.

How does Alpine Energy plan to award construction and supply contracts during the building phase of the facilities? Construction and supply contracts will be awarded through a competitive bidding process using local companies to the fullest extent possible.

What is the difference between the Alpine project and a waste incinerator, similar to that in the BVI? The Alpine plant is not an incinerator. There is a significant distinction between incineration and controlled combustion to generate steam for electricity production. An incinerator does not have controlled combustion, emission control or heat recovery. The combustion technology used in the Alpine project incorporates controlled combustion, emission control and heat recovery to minimize emissions and create steam to power the turbine and make electricity. Communities around the world are employing waste-to-energy for power production because it offers their communities long-term waste management solutions which include permanent landfill closure.

Isn't recycling a better alternative? Recycling can and should be a part of the long-term solution. However, 100% recycling is not feasible nor does it provide lower cost electric energy. The Alpine project promotes recycling by removing nearly all glass and metals from household waste at the initial stage, rather than the current process of sending most of these materials to the Anguilla and Bovoni landfills. The glass and metals that are recovered are returned to the Waste Management Authority for sale to third parties, which will both promote recycling and provide a source of revenues for the authority. Given there is no active market for the remaining waste, the best solution for its disposal is combustion. This provides the most environmentally-friendly disposal option with the lowest carbon footprint (versus shipping off-island or landfilling the materials), while also lowering power prices for WAPA.



What are the qualifications which make the Alpine Energy Group the correct partner for the Waste Management Authority and WAPA to construct and operate the proposed waste to energy facilities? Alpine is a full-scale power project development company with in-house expertise in all facets of power project development, including engineering and design, environmental permitting, construction management, project financing, operations and maintenance, and transmission. Alpine has partnered in the USVI project with Energy Investors Funds (EIF), which was founded in 1987 as the first private equity fund manager dedicated exclusively to the independent power and electric utility industry. Since that time, EIF has mobilized over \$3.3 billion in capital in over 80 investments. It currently manages six private equity funds that control over 5,000 megawatts of power generation.