



## St. Croix Environmental Association

A Chapter of the Virgin Islands Conservation Society

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### Testimony

before the Virgin Islands Public Service Commission

Henry E. Rohlsen Airport, St. Croix, USVI

October 5, 2009

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Executive Director

The following testimony is based upon our review of the Power Purchase Agreement by and between the VI Water and Power Authority and AEG Anguilla Power, LLC; Technical Review, Proposed Bovoni and Anguilla Alternative Energy Power Generation Projects, R.W. Beck, Aug 3, 2009, and other documents provided in a timely manner from the VI Water and Power Authority (WAPA) in response to a letter dated August 26, 2009 from SEA requesting the documentation. On August 3<sup>rd</sup>, SEA also requested information from the VI Waste Management Authority (VIWMA) on their agreement(s) with Alpine Energy Group (AEG), but as of today, over two months hence, VIWMA has failed to provide any documents for our review.

I find it unconscionable in light of our current knowledge about climate change, and especially the projected impacts of just 2 – 3 degrees increase in atmospheric temperature on a territory comprised of tropical maritime islands that Mr. Hodge and the WAPA Board of Directors have chosen what is in essence a 19<sup>th</sup> century combustion fuel - a coal equivalent called *petroleum coke* - as the primary source of 49 MW of new energy for the next 20 years plus. With the prospects of rises in sea temperature and acidity threatening our coral reefs; and sea level rise and increased frequency and intensity of tropical storms threatening our towns, homes and coastal development; the Virgin Islands should be greatly concerned about global climate change and could be a model for utilizing truly alternative and green energy technologies such as wind, solar, or OTEC. Yet WAPA is apparently recommending combustion of a solid fossil fuel that is actually dirtier than coal and produces waste fly ash that is more dangerous than fly ash generated from coal combustion. Having put that on the record, that is all I will say about climate change and our global-scale problems with this proposal.

Mr. Hodge has taken the position with me on live on radio talk shows that it is not WAPA's mandate to consider the health and welfare of the citizens of the Virgin Islands in the utility's decision-making process. I believe there is room for argument with that position, but today I am addressing the Public Service Commission (PSC), a body appointed by the Governor, so I will make the point that public safety, health and welfare **is** the responsibility of the Governor and the PSC. While WAPA can maintain a narrow focus on direct cost per kilowatt hour to ratepayers and an anything-but-fuel-oil solution through a particular Request for Proposal (RFP) process, the Governor, through his Department of Health, Department of Planning and Natural Resources, Energy Office and PSC must weigh the overall impacts on society and the environment, i.e. external costs of electrical energy production not to be borne by the utility.

I note that the PSC's authority requires that it **protect the interests of** both utilities and **ratepayers....** and that one of the main objectives of the PSC is to **ensure public safety**. (Ref. PSC website homepage,

<http://www.psc.gov.vi/>). There are serious questions pertaining to public safety, health and welfare (as well as direct and indirect costs to be borne by ratepayers) with regard to the proposed petroleum coke / pelletized refuse-derived fuel (PRDF) facilities on St. Croix and St. Thomas. Following I have outlined some issues of serious concern with the decision-making process and the Alpine Energy Group (AEG) facilities proposed for St. Croix and St. Thomas.

- Public involvement in decision-making process
  - Public review of decisions by governmental and quasi-governmental agencies that impact future health, welfare and cost of living of the people of the Virgin Islands
    - Direct financial burden to the people over the next 20 years in the form of WAPA bills, tipping fees and PRDF processing
    - Health care - asthma, other upper respiratory disorders, cancer
    - Environmental costs – facility siting, air quality, groundwater and marine impacts
  - Government protection of the health and welfare of the citizens of the USVI
    - I understand that WAPA may have a narrowly defined mandate under their RFP and a limited corporate mission, but this does not excuse the Governor and Senate from acting on behalf of the citizens of the territory.
  
- Questionable cost assumptions
 

We have questions about cost assumptions that may have biased the decision to select a particular alternative technology through failure to account for external costs and misrepresent some internal costs.

  - Costs of petroleum coke will increase over the 20 years of the Alpine Energy Group PPA. The petroleum coke spot price on the Mediterranean Market increased 18 fold (from \$0.25 per MMBtu to \$4.50 per MMBtu) in the 9 ½ years from July 1998 to January 2008. According to a July 2009 Reuters story, petroleum coke prices rose \$10 per ton (from \$25 to \$35/ton) in December 2008 (a 40% increase within a single month) due to worldwide demand from cement makers. Petroleum coke is as highly volatile when measured by market price as it is when measured in BTUs/lb.
  - \$18 million cost for PRDF production from USVI municipal waste
  - \$440 million price tag compared with other plants at a fraction of this cost
  - Costs per kWh do not include cost of fuel – petroleum coke or PRDF
  - Tipping fee @\$124/ton compared to \$40 – \$50 in USA
  - Pelletizing RDF *Fluff*® appears to be an unnecessary step in preparing the fuel for feed into bubbling or circulating fluidized bed boilers, adding unnecessary cost and risk of disruption in RDF supply due to mechanical breakdown  
Unverified energy projections from combustion of St. Croix PRDF (@7,500 BTU/lb while typical municipal waste in the USA has an energy value of 4,500 BTU/lb). The point is we do not know with any certainty the energy value of the USVI municipal waste - as of August 2009 writing of the R.W. Beck report, waste characterization studies are still “being performed on St. Thomas and St. Croix MSW.” (Ref. R.W. Beck, Aug 3, 2009, Technical Review, Proposed Bovoni and Anguilla Alternative Energy Power Generation Projects, p. 11)
  - cost and source of limestone (required for SO<sub>2</sub> emissions reduction);
  
- Dependence upon a PRDF component unproven at scale
 

The St. Croix and St. Thomas *WasteAway* facilities are each proposed to process 300 tpd - nearly 15 times the maximum Warren County, TN operating volume and over 90 times its operating volume during the past two years. Further, the St. Thomas and St. Croix facilities are proposed to process municipal solid waste (MSW) 20 hours per day 365 days per year, yet the

hydrolyzer run time at the Tennessee facility was 20 hours or greater per day only 7 days out of 370 running days in almost 2 years. Such down time for the St. Croix and St. Thomas *WasteAway* facilities would cause an accumulation of unprocessed MSW and require increased feed of petroleum coke into the Circulating Fluidized Bed (CFB) boilers for uninterrupted energy generation.

- Comparative cost analyses do not include external costs and some internal costs

#### Internal costs

- Costs of fuels – petroleum coke and PRDF – and sources of payments – WAPA bills, VIWMA tipping fees, other?
- Amount and cost of energy generated and used by *WasteAway* to generate *Fluff*® and PRDF is not disclosed
- Costs of environmental controls and monitoring
- Methods and costs of fly ash and bottom ash handling, storage and disposal

#### External costs

- Impacts on public health and welfare
  - fly ash and bottom ash - expected to contain nearly 50% uncombusted petroleum coke, including polycyclic aromatic hydrocarbons (PAHs), and high concentrations of Vanadium and Nickel
  - lost days of work
  - risk of increased incidence of asthma, other upper respiratory ailments, skin disorders, and cancer
- Impacts on St. Croix tourism product and real estate values
- Impacts on historic building preservation - acid rain impact on historic buildings
- Agricultural losses and soil contamination
- Environmental costs
  - Air quality issues, downwind from the St. Croix and St. Thomas facilities
  - groundwater contamination
  - environmental clean-up
  - proposed siting adjacent to a wetland;
  - impacts on coastal habitat and endangered species;
  - monitoring and control of odor, NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, and VOC emissions,
  - Costs of CO<sub>2</sub> and other greenhouse gas control are a major uncertainty dependent upon federal legislation making its way through the US Congress.
  - Alpine has refused to provide preliminary emissions data for the Fluidized Bed Steam Generators (FBSG) for public review, claiming: “[t]he performance emissions and performance guarantees in the EPI documents are confidential.” (Ref. R.W. Beck, Aug 3, 2009, pp. 21 & 33)
- Energy Security – dependency upon 50% Venezuelan-owned refinery for majority (petroleum coke) fuel.

- Approval and enforcement of federal and territorial permits

It is clear from public statements made on radio talk show programs by Executive Director Hodge, and Energy Office Bevin Smith and the following notation in the R.W. Beck Technical Review that WAPA and AEG will comply with the barest level of air quality regulations required by federal and territorial regulatory agencies, and that they may have underestimated time requirements for the permitting process.

*“ AEG has met with the VIDPNR. In these discussions, VIDPNR anticipated an 8- to 12-month review process to issue the key permits. This schedule could more than double and be far more contentious, if the Bovoni Project is determined to be a “major stationary*

source” for prevention of significant deterioration (“PSD”) applicability purposes.” (Ref. R.W. Beck, Aug 3, 2009, p. 28)

- Lack of an detailed comprehensive *Alternatives Analysis* for public review and comment
  - Wolverine Power Cooperative (Cadillac, Michigan) Electric Generation Alternatives Analysis serves as a good model of the breadth and depth of an alternatives analysis that should be prepared and provide for public review.
  - Comparative analyses should weigh comparative costs of CO<sub>2</sub> control for combustion technologies vs. non-combustion energy technologies
  - Comparisons should weigh costs of public health, historic and environmental preservation, and impacts on tourism industry for combustion technologies v. non-combustion energy technologies
  - Minimum list of “alternatives” to be compared individually or in combination:
    - Energy efficiency and conservation
    - Dispersed energy generation and reverse metering
    - Solar with energy storage to meet baseload energy demand
    - Wind with energy storage to meet baseload energy demand
    - Ocean Thermal Energy Conversion (OTEC)
    - Conversion of oil-fired boilers to burn propane and syngas
    - Biochar and other biofuels
    - Refuse-Derived Fuel (RDF) including landfill mining
    - Purchasing energy from Puerto Rico