OWCE Military Case

Achieving Energy Security Through Deployment of the Commercially-Viable Technology: One World Clean Energy (Patented) Integrated Biorefinery

Issue

Historically, the Military operated with the assumption that low cost energy would be readily available when and where it is needed. Now, however, reliable access to affordable, stable energy supplies is a significant challenge for the Military and the nation. Given the Military's reliance on energy, disruption of critical power and fuel supplies would harm the Military's ability to accomplish its missions.

Such a risk exposes a tactical vulnerability that must be addressed by a more secure energy position and outlook, making energy management important as a 2010 priority.

The Military's assumptions concerning future plans for power and fuel at home, overseas and on the battlefield must account for such challenges.

Goal: ***Produce Renewable Energy for Military Energy Security, Reduce Energy Costs, Reduce Landfill Waste and Decrease Carbon Footprint***

1. **Address the Rising Cost of Energy Consumption.** Each base can find energy cost savings through One World Clean Energy (OWCE) which offers a single-source, integrated biorefinery that would produce electricity, natural gas, biodiesel and ethanol while optimizing the use of its waste streams. With the goal of landfill diversion, waste streams are evaluated/categorized into reuse, recycle, and energy production.
2. **Deliver Energy Security.** Each military base, as directed by executive orders and Military Leadership security initiatives, seeks to reduce energy demand through implementing renewable energy conservation projects. In conjunction with this, and the construction of a biorefinery, each military base can achieve "Net Zero Energy," and ultimately create its own "energy island". The energy island allows for independence from outside electricity to run the base during catastrophic, weather-related events and grid outages, thus providing "energy security."
3. **Produce Renewable Energy**. On site production of the renewable fuels, as well as producing electricity, natural gas, biodiesel and ethanol, provides the base alternatives to grid electricity and petroleum transportation fuels.
4. **Provide Environmental Stewardship.** Optimizing waste streams use with the goals of landfill diversion and cost reduction, bases could reduce their impact on the environment.

Sample Military Base Profile:

Operations
*280 major base structures
*3.3 million square feet
*1,500 homes
*2 million square feet of residential units, single-family, duplexes and triplexes.

***Annual Utility Bill**: $5.4 million
--265,838 MMBtus of natural gas ($1,808,914 annually),
--94,152 MWh of electricity ($3,257,846), and,
--995,629,000 gallons of waste water ($428,476).

Population
27,100 on base Total.
--7,000 military,
--20,000 dependents/retirees,
--1,100 civilian employees.

*Please Note: *A potential site must be able to support the use of 35 million gallons of gray water or 30 million gallons potable water annually. *The base may also have an additional 10 thousand tons of waste cooking oil annually to be recycled. *Access to a natural gas pipe line capable of accepting "input," as well as supplying gas, is required. *The site must be near a high voltage electricity sub-station. *Major road access able to support an average of 40 tractor trailer deliveries daily is required. *Ideal sites should be located within 50 miles of a population center of 100,000 to 200,000. *A one-half mile agricultural buffer surrounding the site is ideal. *An agriculture supply chain and a complementing industry base within a 75 mile radius are desirable. *Communities and/or economic development agencies must demonstrate a strong technical capability to support and facilitate state and federal energy-related grant and loan programs. *Strong localized incentives will also be evaluated.*

Primary Funding Sources

1. **Energy Conservation Investment Program funds (ECIP**) including:
    - Energy Savings Performance Contracting (ESPC)
        - Energy Services Agreement (ESA)
    - Utility partnerships
        - Utility Energy Savings Contracts (UESC),
        - Power Purchase Agreements (PPA)
2. **American Recovery and Reinvestment Act (ARRA) funds**

This will follow the privatization initiative of the military to partner with the private sector, allowing the industry experts at One World Clean Energy (OWCE) to select land, build, and own a (patented) integrated biorefinery which oversees waste management on the base.

The Energy Security Answer

The "energy island" model for cost savings, energy efficiencies, and energy security begins when the base's energy conservation project team sees that additional cost savings are possible and available through an OWCE Integrated Biorefinery.

The One World Clean Energy (Patented) Integrated Biorefinery provides agile, adaptable, and ready operational capabilities, best suited to serve the Nation's energy interests. Moreover, for any installation within and beyond U.S. territorial limits, OWCE will begin a unique project plan to implement this flexible technology resulting in reduced energy costs, increased electricity reliability, and producing renewable energy alternatives. This

includes energy alternatives to petroleum transportation fuels and fossil electricity--converting waste to energy, and processing sewer water. It is the only patented biorefinery technology that provides an energy island (NetZero energy) model which supports the federal homeland security and homeland defense missions.

Throughout the Military domain, energy efficiencies and alternative energy production are being accomplished on base at a One World Clean Energy (OWCE) Integrated Biorefinery, including access to renewable biofuels, such as renewable electricity, renewable natural gas, ethanol, and biodiesel. The local farming community is supported by purchasing agricultural crop as additional feed stock. Financing options are attainable, and diverse under federal funding guidelines in different branches of government.

Benefits of a Renewable Integrated BioRefinery: Energy Security and Cost Savings Now

Energy Island Net Zero Energy. All natural disaster situations are no longer vulnerabilities regarding energy management on base. The energy island approach allows for an equal renewable fuel volume to what has been consumed on the base—in either natural gas, electricity, methanol, or ethanol. For example, renewable transportation fuel, including biodiesel for transportation use, may be derived from waste cooking oil, animal fat or vegetable oil. One World Clean Energy conversion technologies may release the energy directly, in the form of heat or electricity, or may convert it to another form, such as liquid biofuel or combustible biogas. Usage of waste and the form of its recycled output into energy varies. Efficiencies of available feedstocks may lower what the base costs are in production of electricity or other biofuels.

Energy Savings on the Bottom Line. At the end of the day, optimizing waste contracts, recycling available forms of waste, and reusing energy output from this waste is meaningful to the bottom line at the military base, including white papers, cardboard, mixed solid waste, and waste cooking oil contracts.

Return-On-Investment

Military bases are interested in this model for alternative energy production from waste management because it provides the following *Return-On-Investment (ROI)*.

1. **Reduces costs of vulnerabilities from OPEC shutting the pipeline or other instabilities.** In the event of inclement weather or catastrophic circumstances, there is a path to generate electricity and run base operations as a backup support system that does not require outside electricity.
2. **Achieves Environmental Stewardship.** Waste streams on and even near the base (within a 75-mile radius) can be managed, and monetized to their optimal advantage. All types of organic waste are converted to energy in the OWCE (Patented) Integrated Biorefinery. The viability of going green is heightened with the build, own and operate model from and economical, functional, and environmental point-of-view, with at least a 20 plus year operational return. This will include reuse of sewer sludge, and the reuse of yellow cooking oil.
3. **Provides Renewable Energy Sources On Base**. Funding of alternative energies and energy efficiency is effectively spread between all participating parties, through approved federal funding initiatives now in place.
4. **Reduces the Carbon Footprint of the Military.** The renewable electricity generated for the base will offset carbon based electricity (typically coal). Transportation biodiesel produced in this model reduces lifecycle carbon emissions by 60 to 80 percent compared to petro diesel. The integrated biorefinery implementation will have the greatest reduction of the base's carbon footprint than any other "single" effort.

Next Steps

To schedule an appointment to discuss a military base feasibility assessment, contact Bill Bivins, CEO of One World Clean Energy and his team of professionals at bill.bivins@oneworldcleanenergy.com.