

Wind, Solar and Natural Gas as Clean Tech Leaders

Of the three Clean Tech leaders, natural gas represents the largest scale contributor to clean and efficient environmental energy.

Contributed by Global Energy, Inc.

As the Clean Tech revolution spreads across America and around the world, more and more people have become convinced wind, solar and natural gas represent a positive way forward for the environment and efficient energy production; and as desirable elements of a national energy policy.

The United States and many parts of the world have seen large numbers of clean and efficient gas turbines installed, only to find that the price of natural gas rose exponentially, based on dramatically increased demand and dwindling supplies. Now, unconventional gas supplies from liquefied natural gas (LNG), shale gas and other sources are coming to the market, but still with relatively high and volatile pricing as the tension between supply and demand continues to result in high-cost energy products.

The benefits of replacing old-coal with natural

gas plants are clear: If the 200,000-MW of clean and efficient gas turbine capacity were moved into baseload service, the result would be electric power generation 10 times cleaner and 20% more efficient, while emitting only one-third the carbon dioxide (CO₂). This extra 40,000 MW in efficiency gain would light up several major U.S. cities with no extra energy use. Additionally, compressed natural gas use in cars would be 90% cleaner and half the price at the pump than gasoline.



Lima Energy fuel storage building under construction. (Photo courtesy of Global Energy, Inc.)

Enter synthetic natural gas (SNG) – the conversion of low-cost-solid hydrocarbon BTUs to clean pipeline-quality gas. The technology for this BTU conversion is commercially proven, lower risk and lower cost than other new supply sources for gas. It is estimated that SNG will reach the pipeline at a 35% lower cost than the current lifting cost of shale gas. LNG cargoes are often targeted for or diverted to non-U.S. ports offering higher prices as exemplified by a \$20/MBtu LNG load delivered to Korea this past summer.



Global Energy, Inc. has optimized BTU conversion through its ownership of gasification technologies as well as the ownership and operation of gasification units. This conversion skill set combines with the company's ownership of 1.2 billion boe of solid hydrocarbons to create significant value as low-cost, solid hydrocarbons are converted from solids to gas-to-liquids. The company is well positioned to convert America's energy resource to clean low-cost energy products to serve gas, hydrogen, transportation fuel and power markets.

The Lima Energy project is the leading advanced energy project in the state of Ohio and the flagship of the Global Energy, Inc. portfolio. The Ohio Air Quality Development Authority (OAQDA) has issued a resolution certifying that the project is an air quality facility and thereby qualifies for OAQDA Bonds, with which the Lima Energy Project will make Ohio the Clean Tech leader.

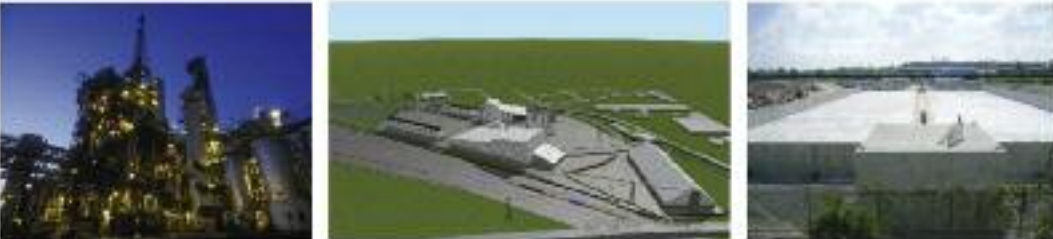
This ultra-clean, high-tech facility will be built in phases, initially producing SNG and ultimately adding the 540-MW General Electric 7FA combined cycle power island to complete the project. This state-of-the-art Lima Energy solid fuel refining facility sits directly adjacent to John D. Rockefeller's first modern oil refinery in Lima now owned by Husky Energy of Canada.

The project is a major breakthrough for the Clean Tech revolution as, finally, large supplies of low-cost, clean energy will be available across America. The project leads the way in breakthrough technology for oil, gas and power markets, and will capture CO₂ for use in enhanced oil recovery and carbon capture and sequestration applications in Ohio. Procter and Gamble has purchased the majority of gas from Phase 1 of the project and will benefit from lower energy costs while providing a top quality industrial contract partner for the project.

Global Energy, Inc.'s BTU Conversion Gasification Technology, and those for producing SNG, has been demonstrated to produce economic, low-cost and clean synthetic natural gas. Vast, low-cost solid hydrocarbon resources in the United States provide a secure, locally produced alternative energy supply when converted to a clean natural gas supply. The ongoing Lima Energy gasification project is fully permitted and enjoys favorable economics without government subsidy, unlike other alternative energy sources, which rely on federal and state subsidies to be constructed and operated. The Lima Energy Project has had initial construction, demolition and site preparation performed on its brownfield site and will accelerate to full construction upon complete financing, including the sale of Ohio Air Quality Bonds. ■



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