

Proposal

Mar 27, 2008 by Eric

(KCPW News) Calling it a quote "perpetual money machine," a local environmentalist says a proposed hydroelectric project on the shores of Bear Lake is looking to capture electricity during off-peak hours and re-sell during hours of peak-usage.

"So they can capture the price differential between purchasing power at night when it's cheaper versus sending the electricity out on the grid when it's more expensive," says Jeff Salt of Great Salt Lakekeeper. "So all they are doing is sequestering and holding on to electricity so they can get the profit margin rather than supplying a new source of energy to meet future demand."

Salt says if Symbiotics LLC's claims of generating 1,100 megawatts of energy per day are true, they will end up selling excess energy on the national grid because that amount of energy far exceeds the capacity of the transmission system for Northern Utah.

In addition, Salt says because of the size of the Hook Canyon Pump Storage project, it will be impossible to power own turbines with wind or solar power; therefore it will actually increase greenhouse gas emissions.

"If they are going to produce 1,100 megawatts per day, they are actually going to consume slightly over 1,100 megawatts a day," says Salt. "They're going to have to go to several power plants in the region, which in this area are mostly coal or natural gas based power plants."

Representatives from Symbiotics LLC say a response is forthcoming.

Friday March 28 - UPDATE: Representatives from Symbiotics LLC have decided to withhold comment until after a Public Scoping Meeting scheduled for April 9th from 7 to 10pm at the Oregon Trail Center in Montpelier, Idaho.

Read the Great Salt Lake Keeper critique below:

Hook Canyon Pumped Storage Project A Perpetual Money Machine, Not A Sustainable Energy Source

Salt Lake City - Great Salt Lakekeeper, a local environmental organization, assailed the proposed Hook Canyon Pumped Storage Project (FERC #12707) calling the elaborate project planned for Bear Lake a "Perpetual Money Machine". The group also discredited claims made by proponents of the hydroelectric project that their power generation scheme would provide additional sustainable and environmentally friendly energy for northern Utah into the future.

"At first glance, the Hook Canyon hydroelectric project seems like a potentially viable, and environmentally sensitive proposal. However, after closer scrutiny, it's obvious that Hook Canyon Energy LLC, the facility owner, and Symbiotics Energy, the licensing agent, are attempting to sell the public on a bogus energy scheme that is definitely not environmentally friendly or sustainable. Their proposal borders on the description of a theoretical perpetual motion machine, which violates the basic laws of physics and thermodynamics, by promising a new and reliable source of non-fossil fuel based energy from thin air," claimed Jeff Salt, the environmental organization's Executive Director and Lakekeeper.

"The project proponents have failed to reveal to the public that their 'elegant' pumped storage project actually requires energy inputs that exceed fantastic projections of energy output," Salt added. "There will be no net increase in energy production from the Hook Canyon Pumped Storage Project. What Hook Canyon Energy and Symbiotics are attempting to do is merely capture and purchase energy from the grid at cheaper off-peak rates, then convert, store and reconvert that energy for distribution back to the grid at higher peak demand rates, generating enormous profit not energy, by taking advantage of price differentials. The Hook Canyon project is really a perpetual profit or money machine, not a viable or sustainable source of energy for the future of northern Utah."

Background information: applicant claims

Applicants for the Hook Canyon Pumped Storage Project claim the hydroelectric project will produce 10 hours daily clean, efficient power to over 270,000 homes exclusively in northern Utah (1,120 MW daily and 333,245 GW annually). The applicants also claim that Hook Canyon will provide the region with an efficient alternative to additional fossil fuel based generation by serving as a storage mechanism for intermittent solar and wind generation.

"Hook Canyon pumped storage project would be able to meet peak demands inexpensively and without the environmental price tag of increased CO2 emissions. Looking to the future, by providing an effective storage mechanism, the Hook Canyon Project would also pave the way for transitioning from coal to other forms of alternative energy such as wind and solar."

(from Symbiotics Energy web site, www.symbioticsenergy.com)

"The project replaces needed on-peak energy that would otherwise be provided by additional carbon-based generation. ... the Hook Canyon pumped storage project would avoid increasing regional power generation that relies on fossil fuels and emits greenhouse gases."

(from Symbiotics Energy web site, www.symbioticsenergy.com)

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In addition, the project proponents assert that Hook Canyon will store "excess", "surplus", or "unused" base load energy in the form of potential energy by pumping water uphill from Bear Lake into a holding reservoir and generating power from the storage when needed in a manner that is more efficient than peaking generation.

"Although natural gas-fired peaking generation is one way to meet peak demand, pumped storage can do so more efficiently by taking advantage of previously unused base load capacity. When not consumed by commercial or residential customers, base load capacity goes unused, which happens in Utah daily. Pumped storage hydropower stores this excess off-peak power in the form of potential energy by pumping water uphill. It then efficiently recaptures the energy via downhill water flow as needed, returning it to the grid in the form of on-peak power."

(from Symbiotics Energy web site, www.symbioticsenergy.com)

"It [Hook Canyon Pumped Storage Project] would produce scarce clean peak hour electricity while consuming surplus off peak electricity."

(from Symbiotics Energy web site, www.symbioticsenergy.com)

Project critique

Pumped storage hydroelectric power generation is not as environmentally friendly or sustainable as purported by industry engineers and consultants. According to the laws of thermodynamics, energy within an energy production cycle is conserved and cannot be generated in excess of the inputs required to start and maintain the system. Accordingly, as potential energy is converted to "work", and visa versa, i.e. running pumps or turning turbines through fossil fuel combustion or by moving water through an elevation gradient, incremental losses are incurred. As a result, the total amount of output energy and stored energy generated from an energy cycle must always be less than its inputs. In the case of pumped storage hydroelectric generation, the energy inputs required to sustain the process exceed the projected energy output, resulting in a net loss of total energy production back to the grid. In addition, pumped storage hydroelectric generation requires input energy produced by conventional power sources such as coal or natural gas plants, resulting in increased pollution and greenhouse gases.

The claims made by Hook Canyon Energy and Symbiotics are grossly exaggerated, misleading, and mostly false. First, the projected amount of energy produced by the hydroelectric project would far exceed the capacity of the existing transmission system for northern Utah, and the anticipated growth demand for power. With excess capacity potential, the Hook Canyon Energy will likely be compelled to sell energy to the regional and national grid in contradiction to their stated commitment to sell only to northern Utah.

Secondly, the pumped storage project will require an excess amount of energy to pump water from Bear Lake on a daily basis, and to compensate for incremental transmission and generation losses, that exceeds the projected energy output levels. The input energy required for the project will need to be purchased from conventional power plants throughout the region, which are mostly coal-fired or natural gas plants, in contradiction to the stated goals of the project to provide clean, environmentally friendly electricity that replaces the need for additional fossil fuel base generation. In addition, the levels of input energy required cannot be provided by intermittent wind or solar generation because of the enormous land mass required to build sufficient wind capacity and the fact that solar energy is unavailable at nighttime when electricity is needed to pump water from Bear Lake.

Thirdly, pumped storage generation is not efficient. The amount of energy required to create the fundamental supply of potential energy in the storage reservoir, coupled with transmission and other generation losses, exceeds the projected output energy levels. The pumped storage scenario results in a net loss of energy throughout the grid, and does not generate a net gain in energy to the system overall.

Fourthly, there is no tangible supply of surplus, unused, or excess electricity that the applicants plan to store and regenerate for distribution at a later time. The input energy needed for the pumped storage project will have to be generated specifically for the project at conventional facilities in quantities that exceed projected output levels. This energy will require the mining and combustion of new coal and natural gas resources at various facilities scattered throughout the region. The supposition that input energy needed for the project will come from ethereal surpluses is false and misleading. In addition, the amount of energy needed to sustain the pumped storage project will significantly decrease base load supplies, and drive base load prices up sharply, resulting in higher energy costs throughout the grid.

Fifthly, the proposed pumped storage project is really an elaborate scheme to redistribute electricity and generate profits available from price differentials between base-load and peak-load prices for electricity. Since there is no net gain of energy to the grid from this project, the primary function of the pumped storage project is to capture and sequester inexpensive electricity until peak demand time and redistribution at inflated prices.

Sixthly, the applicants have not adequately studied or modeled the environmental impacts caused by the pumped storage project. It is likely that the volume and velocity of water discharged into Bear Lake by the daytime generation cycle will have profound impacts on lake currents, movement of nutrients and pollutants, ambient water temperature, alteration of aquatic habitats, and reproductive success of aquatic species, especially four sensitive species found in Bear Lake.



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