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New Utah Gas Storage Facility Changes Power Equation In The West

BY CHRIS HOLLY

In a project with major ramifications for electricity generation in the region, Magnum Gas Storage LLC announced last week it has received final approval from the Federal Energy Regulatory Commission to build a huge, high-performance gas storage facility in central Utah that may facilitate conversion of a nearby coal-fired power plant to gas to meet long-term clean energy requirements facing municipal utilities in California and to provide firming power for intermittent renewable projects in several states.

The FERC permit, announced Wednesday, authorizes Magnum to build a facility capable of storing up to 40 billion cubic feet (bcf) of working natural gas and provide up to 12-turn service, meaning customers will be able to contract for injection and withdrawal rights sufficient to turn over their inventory 12 times in one year. The company says the facility will be the first large-scale, "Gulf-style" multi-turn salt cavern storage facility in the western United States.

Magnum also recently won approval from the Bureau of Land Management to build a pipeline connecting the Delta, Utah, storage facility to the Kern River and Questar interstate pipelines at Goshen, Utah. Magnum's customers also will have access through backhaul and displacement arrangements to the Opal, Wyo., trading hub, which will enable access to the Northwest, CIG, Overthrust and Ruby pipelines.

Magnum's permit comes on the heels of a November announcement by the Intermountain Power Agency (IPA) that it is considering repowering its 1,800 megawatt coal-fired plant—located very close to the Magnum gas storage facility—to burn natural gas.

The IPA's Intermountain Power Project (IPP) serves three dozen utilities, mostly municipals in Utah and California, under power purchase agreements that expire in 2027. Six California municipals, led by Los Angeles Department of Water and Power (LADWP) with 44 percent, consume nearly 75 percent of the IPP's capacity.

This dependence on the California municipals poses a major problem for the IPP because California, driven by global warming concerns, now prohibits the import of electricity generated by sources that emit carbon dioxide (CO2) at a higher rate than that of natural gas combined-cycle plants. That means no electricity from a coal plant can be shipped into California unless the plant captures about 50 percent of its CO2 and places the greenhouse gas in permanent geologic storage.

While the municipal power purchases are exempt from the import restriction until their contracts expire in 2027, they will need to seek new arrangements for capacity to serve their customers thereafter.

That reality led the IPA board of directors in November to adopt a plan the board said would provide "flexibility to use the [IPP's] extensive assets—including land, water and electrical transmission systems—for energy resources in addition to coal."

Under the plan, three major studies that have been under way for months would be completed early this year, including a study to determine what market exists for coal-fired electricity from the IPP after 2027; an engineering study to assess the functional and economic requirements for installing conventional pollutant controls and carbon capture and storage technology at the plant; and an engineering analysis to determine the feasibility of repowering the plant to use natural gas, biomass or some other fuel.

Based on the outcome of the three studies, a final plan for continuing IPP operations after 2027 will be concluded by mid-2011, the board said.

Abundant transmission capacity at the IPP site already is targeted for use by the Milford Wind Corridor, a southwestern Utah development by First Wind that has completed the first phase of installing 97 wind turbines and is considering additional wind development.

In addition, LADWP is developing a solar project near the southern terminus of IPP's transmission system in California.

The benefit of having a 1,800 MW gas-fired plant next door is not lost on Magnum officials.

"[W]e obviously have our eye on that and many other similar drivers for gas storage at the Magnum facility," Magnum Chief Operating Officer Robert Webster said in a Friday e-mail to *The Energy Daily*, adding that there is a growing market in the West for gas generation to firm up intermittent wind and solar generation mandated by renewable portfolio standards in western states.

"It is both the reduction in overall carbon (and other air pollutants), as well as the requirements contained within renewable portfolio standards that are driving utilities to not only require more gas-fired generation in the future, but also to use it more intermittently as firming and shaping for wind and solar. This intermittent and often unscheduled and/or short-scheduled use of the gas-fired generation makes high-deliverability storage an important tool in managing fuel supply."

Magnum said plans for the 2,050-acre site call for development of four high-deliverability caverns with capacities of up to 10 million barrels of natural gas equivalent. Natural gas will be stored in caverns 1,300-1,400 feet tall and 300 feet in diameter, located 3,500-4,000 feet below the ground surface in a naturally-occurring salt dome formation. The company anticipates that each natural gas storage cavern will have working gas capacity of approximately 8 billion cubic feet.

Magnum is currently finalizing precedent agreements for firm storage capacity, which will be followed by a $350 million project financing. Commercial operations are expected to begin in 2013.