
Technology Distinguish Proposed LNG Terminals Along Texas

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Announcements of proposed liquefied natural gas receiving facilities are regular events these days, but two projects disclosed last week each come with unique technological aspects.

Gulf Coast LNG Partners said they hope to develop Calhoun LNG on Lavaca Bay near the fishing community of Port Lavaca and adjacent to an established industrial zone at Point Comfort, about 120 miles southwest of Houston and 100 miles northeast of Corpus Christi.

Plans call for Calhoun LNG to have not only standard LNG regasification and storage units, but also a liquids extraction plant. "Hot" LNG has become a significant concern recently as the gas quality varies from one source country to another. The Btu content is higher than the standard on US and Canadian pipelines because it contains small amounts of natural gas liquids.

The NGLs, primarily ethane but also some propane and butane, can be extracted and sold as petrochemical feedstocks. Calhoun expects to sell the NGLs to petrochemical producers in the area, said Rafael Garcia, executive vice president of asset development for Gulf Coast LNG.

The site is on property owned by the Port of Port Lavaca-Point Comfort and Calhoun County Navigation District. It is immediately south of a major Alcoa Alumina and Chemical complex and not far from Formosa Chemicals' large petrochemical facilities.

In addition, the location is only a few miles south of the primary natural gas pipeline corridor running from South Texas to the Houston Ship Channel, giving the project easy access to multiple markets.

The size of the project will be determined by market demand, Garcia said, but Calhoun could begin with a capacity as low as 300 MMcf/d, or just over 2 million tons/year of LNG. Plans call for two above-ground storage tanks, but the developers also are considering salt-cavern storage. Construction would begin in 2006, with the first LNG delivered in 2009.

Gulf Coast LNG has obtained financing through the permitting stage from Houston-based Haddington Ventures, a venture capital fund that has invested about \$7 million in the project, said Chris Hilgert, chief executive and chief financial officer for the company. Eventually, the company would like to bring in equity partners with operating experience to takeover the project.

Meanwhile, HNG Storage, a Houston-based developer and operator of natural gas storage facilities, has licensed an LNG regasification and storage technology from Conversion Gas Imports (CGI) that HNG hopes to apply at an offshore Gulf of Mexico site.

Called Freedom LNG, HNG would use CGI's patented Bishop process to heat LNG under pressure into a dense-phase vapor that would be stored in salt caverns.

HNG President Craig Taylor said applying the Bishop process would reduce the costs of the project significantly when compared to offshore LNG receiving terminals that would use conventional storage tanks. For example, cost of constructing salt caverns is only half that of standard above-ground tanks, he said.

No existing LNG receiving and regasification terminal stores the product in salt caverns, though Sempra Energy may do so at its proposed Cameron LNG facility at Hackberry, Louisiana. Freeport-McMoRan's proposed Main Pass Energy Hub offshore Louisiana envisions using both conventional tanks and salt caverns.

Taylor said use of salt caverns would eliminate the largest physical component in LNG terminals and make the facilities safer and more secure.