

Entergy Louisiana seeks approval of 994-MW Lake Charles CCGT project

This is a 2x1 combined-cycle project at the Nelson power plant site

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Entergy Louisiana LLC applied Nov. 2 at the Louisiana Public Service Commission for approval of the construction of the Lake Charles Power Station (LCPS), a nominal 994-MW combined-cycle gas turbine (CCGT) facility in Westlake, Louisiana.

The **Entergy Corp.** (NYSE: ETR) subsidiary is asking for certification that the public convenience and necessity would be served by construction and deployment of LCPS.

Entergy Louisiana (ELL) said it has a substantial overall long-term need for base load and core load-following generation capacity. This need persists notwithstanding the completion of the Ninemile 6 CCGT facility, the acquisition of the gas-fired Union Power Station Power Blocks 3 and 4, and the anticipated construction of the proposed St. Charles Power Station. Without the future capacity additions reflected in ELL's supply plan, the company would have a projected capacity deficit of over 2,400 MW in 2020. Assuming all of the other planned additions are made, without LCPS, ELL's capacity deficit could nevertheless grow to more than 900 MW by 2020 and almost 1,900 MW by 2028.

The utility added: "The Company's need for significant amounts of long-term capacity will continue to increase throughout the next decade primarily due to load growth and unit deactivations. ELL also needs base load and core load-following resources to satisfy a projected energy deficiency, without which resources customers will be exposed to market energy prices without the benefit of offsetting energy margins that can be obtained by LCPS."

Based on its commercially-proven low heat rate, LCPS is projected to operate at a high capacity factor, which means that the unit is expected to produce a significant amount of energy margins to offset purchases from the **Midcontinent Independent System Operator** (MISO) market, the company added.

LCPS is the second of two large, developmental additions that the company currently has planned to bridge what otherwise would be a substantial resource deficit. In addition to helping the company meet its overall long-term need for capacity and energy, LCPS would address specific supply conditions and planning objectives in the West of the Atchafalaya Basin (WOTAB) planning region. WOTAB is a transmission planning area generally west of the Baton Rouge metropolitan area, to the western-most portion of **Entergy Texas Inc.**'s (ETI) service territory. New generation is needed in WOTAB to maintain reliability in the region as load growth continues, the existing generation capacity ages, and unit deactivations become more probable and imminent.

A new CCGT in the Lake Charles area has for years been part of ELL's Integrated Resource Plan for meeting the planning needs and objectives of the WOTAB region. ELL's most recent Integrated Resource Plan, filed in August 2015, was the product of a dynamic, ongoing process that considers both generation and transmission options to meet customer needs. Indeed, if LCPS were eliminated from ELL's supply plan and not constructed, the company said it would need to make a considerable transmission investment in the near term in order to maintain reliability and **North American Electric Reliability Council** (NERC) compliance in WOTAB.

This was picked as the winner out of a 2015 RFP process

To address both its overall need for long-term capacity and energy, as well as the need for local generation in WOTAB, in September 2015, **Entergy Services Inc.** (ESI), as agent for ELL, issued a 2015 Request for Proposals (RFP) for Long-Term Developmental and Existing Capacity and Energy Resources (the "2015 ELL RFP"). LCPS, a self-build proposal developed by the Self-Build Commercial Team of ESI on ELL's behalf, was submitted into and market tested in the 2015 ELL RFP. LCPS and a power purchase agreement (PPA) for capacity from an existing CCGT facility (Proposal 8538) were competitively selected in the commission- and independently-monitored RFP process. The market test determined that LCPS provides the best economics of all the proposals submitted in the 2015 ELL RFP under all sensitivities evaluated, said Entergy Louisiana.

The company proposes to construct LCPS in Westlake, Louisiana. LCPS is a CCGT resource with a nominal capacity of 994 MW and a projected summer rating of 924 MW. The project is designed with two **Mitsubishi Hitachi Power Systems** (MHPS) 501 GAC combustion turbines (CTs), two **Nooter Eriksen** heat recovery steam generators (HRSGs) with duct firing, one **Toshiba** steam turbine generator in a 2x1 CCGT configuration, and other balance of plant equipment, including a cooling tower for closed-cycle cooling operations.

The current estimated cost to construct LCPS is \$871.7 million, which reflects the use of a fixed-price EPC contract, subject to certain possible adjustments. The EPC contract accounts for a significant portion of the overall estimated cost of the project. Other components included in the overall project cost estimate are an allowance for funds used during construction (AFUDC), transmission interconnection to the switchyard, estimates for Network Resource Interconnection Service (NRIS) projects, project contingency, internal construction management, indirect loaders, insurance coverage, expenses related to seeking commission certification, and other non-EPC costs.

The proposed project site in Westlake is near ELL's existing Nelson units. The Nelson site was chosen after multiple sites were considered based on a range of considerations related to reliability, cost, and technical feasibility. LCPS is expected to utilize existing infrastructure and resources at the Nelson site, including transmission and cooling water infrastructure. Generation from the resource is expected to interconnect with the MISO system at a 138-kV, 230-kV, and/or a 500-kV transmission switchyard located at or near the Nelson site. Furthermore, the site is located close to large load concentrations, which improves reliability and reduces losses.

Entergy Louisiana has chosen a single-source EPC approach for the project to ensure that the resources necessary to execute this substantial undertaking are brought to bear in a timely and cost-effective manner. The company negotiated a fixed-price, fixed-schedule duration form of EPC contract with **Chicago Bridge & Iron** (CB&I) that reflects a detailed scope of work. Under the fixed-price, fixed-schedule EPC contract structure, CB&I will act as an independent contractor with respect to the EPC services. CB&I also will procure the CTs, HRSGs, and steam turbine from the original equipment manufacturers (OEMs). CB&I's procurement of this equipment will allow it full coordination and scheduling of the OEMs in order to meet the fixed schedule provided in the contract.

This is one of six new gas-fired plants that Entergy has in the works

Notable is that Entergy Corp. said in its Oct. 25 quarterly earnings presentation that it has six gas-fired projects in the works, including two new combustion turbine projects for which its regulated utility subsidiaries have not yet sought regulatory approvals. Those in-development projects are: **St. Charles CCGT**, 980 MW, Entergy Louisiana subsidiary, \$869 million cost, in-service in June 2019, in regulatory review process with decision from Louisiana PSC expected in 4Q 2016; **New Orleans Power Station** (combustion turbine (CT)), 226 MW, Entergy New Orleans, \$216 million cost, in-service in October 2019, in regulatory review process with city of New Orleans; **Entergy Louisiana CT**, 350 MW, Entergy Louisiana, cost to be determined, in-service in 2020, the project is in the planning assumption stage; **Lake Charles CCGT**, up to 1,000 MW, Entergy Louisiana, cost to be determined, in-service in 2020, self build; **Montgomery County CCGT**, 993 MW, Entergy Texas, \$937 million cost, in-service in summer 2021, in regulatory review process at Texas PUC; and **Entergy Arkansas CT**, 250 MW, Entergy Arkansas, cost to be determined, in-service in 2022, planning assumption stage.

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