



Executive Summary for the  
Rayburn ERCOT Integration Project  
August 5, 2016

Introduction

Consistent with the referral to ERCOT directed by the Public Utility Commission (Commission) in open meeting on July 20, 2016, Rayburn Country Electric Cooperative (Rayburn) and Lone Star Transmission, LLC (Lone Star) are pleased to submit for Electric Reliability Council of Texas, Inc. (ERCOT) review this joint proposal to migrate 190 Megawatts (MW) of Rayburn load and associated transmission facilities from the Eastern Interconnection to ERCOT (Project).

The Project will join the above-referenced load with the 85% of Rayburn load that is already in ERCOT. Because the proposed Project endpoints are each less than one mile from existing ERCOT facilities, the \$38MM estimated cost of interconnection facilities to complete this grid switch will easily be exceeded by the transmission cost of service (TCOS) payments from the new load, conservatively estimated at \$60MM in 2020. The Project will benefit ERCOT reliability by mitigating an N-1-1 load-shed event in the nearby ERCOT grid, while also benefiting the Eastern Interconnection by potentially deferring the need for transmission upgrades in excess of \$25M, per Southwest Power Pool (SPP) cost estimates.

Background

Rayburn and its five member cooperatives serve approximately 200,000 customers across 17 counties in Northeast Texas with a cumulative annual peak load of approximately 1,000 MW in 2015. As noted above, 150 MW of Rayburn's load, in Henderson, Van Zandt, Anderson, and Kaufman Counties is currently served in the Eastern Interconnect, under a contract with Southwest Electric Power Company (SWEPCO) that expires on December 31, 2019. Due to growth from residential, commercial, and industrial customers in the Project area, the load is forecast to grow to 190 MW in 2020.

In reviewing its alternatives beyond the SWEPCO contract term, Rayburn determined that integrating all Rayburn load into ERCOT would reach a more liquid and competitive power market, eliminate cross-grid issues such as multiple NERC Reliability Standard audits and differing regional practices, and maintain a high level of reliability. Because Rayburn does not wish to take on all transmission service provider (TSP) duties in ERCOT and Lone Star and its affiliates can bring extensive resources to the Project, Rayburn and Lone Star have entered into an agreement to facilitate the grid switch. Subject to Commission approval, Lone Star will seek Commission approval to acquire a subset of the Rayburn transmission facilities, and Rayburn and Lone Star will both own endpoints that would become new connection points to ERCOT facilities.

## Proposal Description

Rayburn and Lone Star retained PWR Solutions, a DNV-GL Group Company, to study transmission options that could reliably and cost-effectively integrate Rayburn's Eastern Interconnection system into the ERCOT grid. Based upon this analysis, a preferred option (Option #3) emerged as the low-cost option that met all reliability criteria. Option #3 includes the following elements:

- Extend bus work & add 138kV jumper (<0.1 mile) to connect Canton Switch Station to Canton Tap
- New 345 kV Substation (6 breaker ring bus, to be called Aristotle) on one circuit of the 345 kV Martin Lake – Tricorner line;
- New 138 kV (Apollo) Switching Station on the 138 kV Teaselville – Palestine line;
- 345/138 kV 650 MVA autotransformer at the Aristotle 345 kV Substation;
- Expand the Ben Wheeler Substation to accommodate the Aristotle 345 kV substation and Canton Substation connections;
- Extend the 138 kV Coffee to Jacksonville single circuit 138 kV line 0.5 miles into the new Apollo 138 kV switching station; and
- Incremental 138 kV upgrades on 2.1 miles of 138 kV.

In consideration of the time necessary to complete the Project, as well as the very short distances required for the new connections, Rayburn and Lone Star believe that ERCOT should follow Protocol 3.11.4.8, whereby the TSPs owning the end points of the proposed transmission projects will be the owners of the project. If different TSPs own the end points of the project, those TSPs are designated as co-providers, and the TSPs must decide between themselves what portions of the project they will each provide. Rayburn and Lone Star will be the owners of the endpoints off of what is now the Rayburn transmission system, while Oncor owns the endpoints of the existing ERCOT system to which Option # 3 will interconnect.

The estimated cost for Option #3 is \$38.03 MM.

## Benefits

As noted above, integrating Rayburn's 190 MW of load will immediately result in a net positive to the ERCOT system due to load ratio share payments of transmission costs, and will not likely have any impact to market prices. The PWR Solutions study shows that integrating Rayburn's load into ERCOT will mitigate 70 MW of load shed in ERCOT due to an N-1-1 event. The study also shows benefits for the Eastern Interconnection with Rayburn's load integrated into ERCOT as it would defer the need for the projects estimated at \$25 MM by SPP. PWR Solutions also observed an additional 138 kV reliability concern in the vicinity of the Rayburn system that would be deferred as the result of integrating Rayburn's load into ERCOT. The overload has not been publicly released by SPP as it was identified in their on-going 2017 ITP10 evaluation and is therefore not identified in this analysis.

Rayburn customers will receive better reliability from having the system fully integrated with ERCOT at three connection points, as well as access to the more liquid ERCOT markets. And

there are no harms to the Eastern Interconnection, where Rayburn's Jacksonville to Overton line will continue providing service.

Study and Approval

Grid-switch proposals are not regularly studied by ERCOT, so Rayburn and Lone Star have respectfully requested this review from the Commission and from ERCOT, and we appreciate the Commission's July 20, 2016, direction that ERCOT to study how the Project would best be integrated to ERCOT if the Commission finds the Project to be in the public interest.

Conclusion

Rayburn and Lone Star strongly believe that the Project is in the best interests of Rayburn customers and ERCOT customers generally and will positively impact reliability for both ERCOT and SPP. We look forward to working with ERCOT on this submission.



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