



**ReqDate:** July 9, 2013  
**To:** Board of Directors  
**From:** Chad V. Seely, ERCOT Assistant General Counsel  
**Subject:** Request for Extension of Fast-Responding Regulation Service Pilot Project

**Issue for the ERCOT Board of Directors**

**ERCOT Board of Directors Meeting Date:** July 16, 2013

**Tab No.:** 8.1

**Issues:**

Whether the ERCOT Board of Directors (Board) should authorize an extension of the end date for the Fast-Responding Regulation Service Pilot Project from August 23, 2013, to February 28, 2014.

**Background/History:**

On November 13, 2012, the Board approved a pilot project to assess the operational value of “Fast-Responding Regulation Service” (FRRS)—an Ancillary Service requiring participating Resources to provide 100% of a designated quantity of output (FRRS-Up) or consumption (FRRS-Down) within 60 cycles of an ERCOT instruction or triggering event. The specific parameters of the pilot project were set forth in the Board-approved *Governing Document for Fast-Responding Regulation Service* (Governing Document).

The Governing Document enumerated the following five purposes for the pilot:

- Determine whether FRRS can improve ERCOT’s ability to arrest frequency decay during unit trips;
- Determine the optimal means of deploying FRRS by testing various deployment methodologies;
- Determine whether FRRS can reduce the need for Regulation Service and thereby reduce total Ancillary Service costs;
- Assess the operational benefits and challenges of deploying FRRS;
- Provide data for ERCOT to determine the appropriate settlement treatment for Resources providing FRRS, including possible “pay-for-performance” methods such as those being developed in response to Federal Energy Regulatory Commission (FERC) Order 755.

The Governing Document also established the timeline for the pilot project, which was tentatively scheduled to begin in January 2013. However, due to software release scheduling issues, ERCOT delayed the start of the pilot approximately one month as permitted by the Governing Document. Under the modified timeline, pilot participants began providing FRRS on February 25, 2013. The pilot is scheduled to end on August 23, 2013.



In the first four months of the pilot project, the two participating FRRS Resources—one 36 MW Resource and one 1 MW Resource—have been deployed thousands of times. From these deployments, ERCOT has learned a substantial amount about the capabilities of the service. As detailed in its June 12, 2013, preliminary report on the pilot, FRRS appears to provide ERCOT a very useful tool in controlling frequency and arresting frequency decay following unit trips. Specifically, over the first three months of the pilot project, ERCOT observed a 31% reduction in the rate of change of frequency and a 43% reduction in the rate of change in the deployment of conventional Regulation Service when compared with the rates of change before the pilot began. See *Preliminary Report on ERCOT Pilot Project for Fast Responding Regulation Service*, slides 13 and 14 (available at: <http://www.ercot.com/mktrules/pilots/frrs/index>).

ERCOT presented these conclusions to various stakeholder groups, including the Performance, Disturbance, Compliance Working Group (PDCWG), the Emerging Technologies Working Group (ETWG), the Wholesale Market Subcommittee (WMS), the Reliability and Operations Subcommittee (ROS), and the Technical Advisory Committee (TAC). The bulk of the detailed analysis and discussion of the pilot project occurred at PDCWG. Based on the data presented, that group ultimately reached a “consensus that the response seems to impact frequency as expected”—i.e., that FRRS can reduce the rate of change of frequency.

Although the benefits of FRRS seems to be widely recognized, stakeholders have not yet reached consensus on how the product should be categorized, deployed, or settled. FRRS was conceived and designed as a form of Regulation Service; however, various commenters at PDCWG and elsewhere have suggested that the product bears more resemblance to Primary Frequency Response provided by Generation Resources. At its meeting on July 2, 2013, TAC voted to recommend an extension of the pilot by six months and requested that ERCOT “prepare an NPRR to implement an Ancillary Service product for Primary Frequency Response service that can be provided on a technology-neutral basis by qualified resources.” Presumably, fast-responding Resources would be eligible to participate in such a service.

ERCOT fully supports the concept of a Primary Frequency Response service and is committed to investigating the implementation of such a measure. ERCOT staff also believes further stakeholder dialogue about the proper categorization and settlement of this service should continue. For example, there has been little discussion about whether a pay-for-performance methodology (such as that required for other Independent System Operators (ISOs) by the FERC) would be appropriate. Irrespective of whether fast-responding Resources are ultimately deemed to provide Primary Frequency Response, Regulation Service, or some other existing or new Ancillary Service, the possibility of compensating these and other Resources based on their actual performance seems a matter worthy of further investigation. ERCOT believes this discussion could take place as part of the broader dialogue in the coming months about the categorization, procurement, and settlement of Ancillary Services in ERCOT. ERCOT has already proposed to review the operational and market-based concerns with the current Ancillary Services methodology and issue a whitepaper detailing recommendations for how this methodology might be modified.

In order to accommodate the analysis of these issues and the related stakeholder discussions, ERCOT requests that the Board extend the end date of the pilot project an additional six months



to February 28, 2014, consistent with the request of the TAC. An extension of the pilot would not only permit these additional discussions while allowing fast-responding Resources to continue contributing to system reliability, it would also allow ERCOT to evaluate the capabilities of fast-responding Resources under additional parameters. The knowledge gained from these changes could provide further information in determining how to categorize and compensate these Resources.

An extension of the pilot end date would also potentially accommodate the evaluation of two additional 1 MW Resources that have expressed serious interest in participating in the pilot as early as this fall. These Resources would have different characteristics from those participating in the pilot today and could provide useful data on the variances that might be expected from different types of Resources.

Extending the pilot would not substantially increase costs. Assuming similar levels of participation (approximately 25 MW of FRRS-Up and 5 MW of FRRS-Down), Regulation Service prices similar to those seen last year, and participation of an additional 2 MW, the cost of a six-month extension of the pilot is estimated to be \$900,000. With this extension, the total cost of the pilot would be approximately \$2.1 million. This amount would still be well below the \$3.4 million pilot project cost originally estimated in the Governing Document.

ERCOT would note that this pilot project (under the current design or a modified structure) may need to be further extended if stakeholders decide to create a Primary Frequency Response product and wish to test that concept through a pilot project. ERCOT estimates that the development of such a product could take as long as 18 months.

**Key Factors Influencing Issue:**

The key factors influencing the issue are:

- (1) The need for additional time to determine the proper categorization of a fast-responding service relative to other Ancillary Services;
- (2) The need for further testing of different deployment parameters;
- (3) The potential benefit of participation by additional Resources in the pilot project; and
- (4) The relatively low cost of extending the pilot project.

**Conclusion/Recommendation:**

ERCOT staff respectfully recommends that the Board authorize an extension of the end date for the FRRS Pilot Project from August 23, 2013, to February 28, 2014, and further instruct ERCOT staff to investigate and make a recommendation on whether FRRS should be categorized as part of a Primary Frequency Response product or any other type of Ancillary Service product.



**ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.**  
**BOARD OF DIRECTORS RESOLUTION**

WHEREAS, the Board of Directors (Board) of Electric Reliability Council of Texas, Inc. (ERCOT) authorized a pilot project to test a Fast-Responding Regulation Service (FRRS) at its meeting of November 13, 2012;

WHEREAS, the pilot data have demonstrated the ability of FRRS Resources to arrest frequency decay and reduce the deployment of Regulation Service;

WHEREAS, the Board finds it desirable to determine the appropriate categorization of Resources with fast response times;

WHEREAS, after due consideration of the alternatives, the Board finds that an extension of the pilot project is in the best interest of ERCOT and will facilitate additional dialogue on the proper categorization of fast-responding Resources as part of a broader discussion on the categorization and procurement of existing Ancillary Services;

THEREFORE, BE IT RESOLVED, the Board hereby authorizes an extension of the end date for the FRRS Pilot Project from August 23, 2013, to February 28, 2014, and further authorizes the modification of the *Governing Document for Fast-Responding Regulation Service* to be consistent with this resolution;

BE IT FURTHER RESOLVED, that the Board hereby instructs ERCOT staff to investigate and, after consulting with all appropriate stakeholder groups, provide a recommendation to the Board concerning the categorization of Fast-Responding Regulation Service as part of a Primary Frequency Response product or any other type of Ancillary Service product.

**CORPORATE SECRETARY'S CERTIFICATE**

I, Vickie G. Leady, Assistant Corporate Secretary of ERCOT, do hereby certify that, at its July 16, 2013, meeting, the ERCOT Board passed a motion approving the above Resolution by \_\_\_\_\_.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_ day of \_\_\_\_\_, 2013.

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Vickie G. Leady  
Assistant Corporate Secretary



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# **Item 8.1: Request for Extension of Fast-Responding Regulation Service (FRRS) Pilot Project**

*Kenneth Ragsdale*  
Principal, Market Design

Board of Directors Meeting  
ERCOT Public  
July 16, 2013

# Overview of FRRS Pilot Project

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- Six-month pilot project approved November 2012
- Requires deployment within 60 cycles of receiving instruction or reaching trigger frequency
- Maximum procurement of up to 65 MW FRRS-Up and 35 MW FRRS-Down each hour
- FRRS Participants are paid DAM clearing price for Regulation Service
- Performance determines whether payment reductions apply
- In first 3 months, participation averaged 25MW FRRS-Up, 5MW FRRS-Down
- Original pilot cost estimate was \$3.4 million; updated estimate for original six-month term of pilot is about \$1.2 million due to participation being lower than maximum allowed

# Summary of Observations

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Based on the first three months of the pilot project, ERCOT has observed that:

- FRRS has improved ERCOT's ability to arrest frequency decay during unit trips;
- FRRS Pilot Resources have generally followed ERCOT FRRS deployments and have responded automatically using local frequency detection;
- When deployed, FRRS reduces the rate of change of frequency and regulation deployed to conventional Resources;
- Resources have gradually offered lower quantities for FRRS-Down and have not performed as well in providing FRRS-Down.

See ERCOT's Preliminary Report on the FRRS Pilot Project:

<http://www.ercot.com/mktrules/pilots/frrs/index>

# Relevant Facts in Considering an Extension

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- ERCOT needs more time to further investigate different deployment approaches and gather more information on the value of the Fast-Responding Regulation Service.
- More time is needed for stakeholder discussion about the appropriate operational and market approach.
- Several Resources with other technologies have expressed an interest in participating in the pilot, and this information could be valuable in evaluating the benefits of FRRS.
- The cost of a six-month extension is estimated to be \$900,000.



# ERCOT Recommendation

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ERCOT staff respectfully requests that the Board take action to:

- 1) Extend the FRRS Pilot Project end date from August 23, 2013, to February 28, 2014;
- 2) Modify the Governing Document for Fast-Responding Regulation Service to reflect such extension; and
- 2) Instruct ERCOT staff to investigate and to provide recommendations as to whether FRRS should be categorized as part of a new Primary Frequency Response product or another type of Ancillary Service product.