



Tab 8: 30-Minute Emergency Response Service (ERS) Pilot Project Overview and Request for Third Contract Period

John Dumas
Director of Market Operations

Board of Directors Meeting
ERCOT Public
December 11, 2012

- **Implemented (2) ERS Contract Periods**
 - July 15, 2012 through September 31, 2012
 - October 1, 2012 through January 31, 2013
- **No Energy Emergency Alert (EEA) Level Deployment Events**
- **ERCOT has conducted (5) test deployments**
 - 3 test deployments during 1st Contract Period
 - 2 test deployments during 2nd Contract Period (to-date)
- **Completed Availability Analysis for 1st Contract Period**
- **Estimated Pilot Cost (2 Contract Periods) - \$2,142,768.54**

Initial Assessment

1. Assess the operational benefits and challenges of deploying an ERS product with a 30-minute ramp period.
 - Additional Demand Response (DR) capacity available and willing to participate in a 30-minute product.
 - Results of deployment test data show a tendency to over provide.

	Test Date	Contract Period	Time Period	Fleet Obligation (MW)	Fleet Load Reduction (MW)
Test #1	Sept 5	Jul-Sep	BH1	18.01	9.09
Test #2	Sept 13	Jul-Sep	BH1	19.4	24.13
Test #3	Sept 26	Jul-Sep	BH2	16.25	22.44
Test #4	Oct 30	Oct-Jan	BH2	59.13	71.09
Test #5	Nov 20	Oct-Jan	BH1	80.28	Not Avail

Initial Assessment

2. Study the optimal means of deploying 30-minute ERS in an EEA.
 - To date, no EEA level deployment events during pilot.
 - Deploying in EEA L1 seems appropriate for 30-minute product.

3. Gather data to analyze the execution and benefits of a clearing price mechanism.
 - Current mechanism can produce a marginal price to pay all procured ERS providers.
 - Does require a level of subjectivity on the part of the ERCOT procurement committee which may produce inconsistent results.
 - ERCOT is reviewing alternatives to the current clearing price mechanism to reduce or eliminate subjectivity.

Initial Assessment

4. & 5. Gather data to assist ERCOT in determining the appropriate price to pay for 30-minute ERS and to compare costs and benefits relative to 10-minute ERS.
- Pricing data difficult to assess for the following reasons:
 - Pilot has a 100% risk of deployment (tests) whereas 10-minute ERS risk of deployment is likely less than 100%.
 - Procured all offered capacity in 1st Contract Period whereas in the 2nd Contract Period some capacity was not procured.
 - ERS providers that offered separate or the same ERS Resources into both products seem to value the service equally.

Initial Assessment

6. Determine overall market interest in 30-minute ERS before making appropriate ERCOT rule changes.

Time Period	Bus. Hrs. 1 HE 0900 – 1300, M-F except Holidays	Bus. Hrs. 2 HE 1400 – 1600, M-F except Holidays	Bus. Hrs. 3 HE 1700 – 2000, M-F except Holidays	Non-Bus. Hrs. All Other Hours
Capacity Offered (1 st CP)	19.4 MW	16.25 MW	15.80 MW	9.5 MW
Capacity Offered (2 nd CP)	80.28 MW	82.33 MW	82.01 MW	71.15 MW

- 3 new Qualified Scheduling Entities (QSEs) participating
- 352 first time sites
- First ever ERS Residential Aggregations
 - 284 sites in 1st Contract Period
 - 347 sites in 2nd Contract Period
- As communicated during Demand Side Working Group (DSWG) meetings, additional DR capacity waiting for a 30-minute product in ERCOT Protocols.

Recommended Board Action

1. Grant ERCOT staff approval to procure 30-Minute ERS for an additional Contract Period covering February 1, 2013, through May 31, 2013; and
2. Authorize ERCOT staff to submit, on a Board Priority basis, an Nodal Protocol Revision Request (NPRR) to codify 30-Minute ERS into ERCOT Protocols before June 1, 2013.
 - ERCOT staff would expect to have the Board consider the NPRR at its March 2013 meeting.



Date: December 4, 2012
To: Board of Directors
From: Chad V. Seely, ERCOT Assistant General Counsel
Subject: Request for Additional 30-Minute Emergency Response Service (ERS) Pilot Project Contract Period and Request for Authorization to Submit Nodal Protocol Revision Request (NPRR) as Board Priority NPRR

Issue for the ERCOT Board of Directors

ERCOT Board of Directors Meeting Date: December 11, 2012

Tab No.: 8

Issues:

- (1) Whether the ERCOT Board of Directors (Board) should authorize ERCOT staff to submit, on a Board Priority basis, an NPRR to implement a 30-Minute Emergency Response Service product in time for the 2013 summer season (June through September); and
- (2) Whether the Board should, in the interim, authorize an additional February 1, 2013, to May 31, 2013, Contract Period for the 30-Minute ERS Pilot Project.

Background/History:

On June 19, 2012, the Board approved a pilot project to test procurement and deployment of an ERS product with a 30-minute ramp period (commonly referred to as “30-Minute ERS”). The Board’s resolution provided that the pilot would be conducted in accordance with the *Governing Document for 30-Minute Emergency Response Service Pilot Project* (“Governing Document”).

As required by the Governing Document, ERCOT procured 30-Minute ERS for two Contract Periods (July 15, 2012, to September 30, 2012, and October 1, 2012, to January 31, 2013). During those Contract Periods, Pilot Resources were subject to deployment a minimum of one time and a maximum of four times, and could be deployed during any Energy Emergency Alert (EEA) event or test deployment. There were no EEA events during the first 30-Minute ERS Contract Period, and there have been no EEA events in the second Contract Period to date. Consequently, ERCOT has thus far relied on testing to gather deployment data.

In particular, ERCOT conducted three fleet-wide tests of 30-Minute ERS during the first Contract Period and two tests during the part of the second Contract Period to date. ERCOT has received all of the meter data for the three tests in the first Contract Period, which occurred on various days in September 2012, and approximately 60% of the meter data for the fourth test, which took place on October 30, 2012. (Meter data is submitted to ERCOT by Transmission and/or Distribution Service Providers (TDSPs) following monthly meter-read cycles.) ERCOT has not yet received any data from the last test, which occurred on November 20, 2012.

Based on its review of the test deployment data received to date, ERCOT staff has concluded that adding a 30-Minute ERS product would provide significant operational value to the



ERCOT System. As shown in the Initial Report on the ERCOT 30-Minute ERS Pilot Project (attached), Pilot Resources generally demonstrated an ability to provide their amount of demand response obligations within the required ramp period. Indeed, in three of the four test deployments for which ERCOT has collected data, Pilot Resources over-provided their total megawatt (MW) capacity obligations to the ERCOT System. In the one case where Pilot Resources did not meet their fleet-wide obligation—the very first deployment of the service—the shortcoming appears to have been based on a misunderstanding of deployment requirements under the specific anomalous circumstances, as opposed to a technical or physical impediment to deployment.

ERCOT staff believes that introducing a demand response product with a 30-minute ramp rate could substantially increase participation in ERS, with commensurate benefits to system reliability. ERCOT has already seen more than 95 MW of participating Loads in 30-Minute ERS during the pilot project, and ERS providers have informed ERCOT that additional capacity will become available if the program is made permanent.

30-Minute ERS is an important addition to the ERCOT portfolio of services because it facilitates demand response from Loads who would otherwise be unable to participate in any other service due to the necessary response times and other technical requirements. Although 30-Minute ERS Loads may not be able to respond as quickly as traditional ERS Resources, their demand response capability is still extremely valuable—especially where intervals of Resource scarcity are foreseeable (as in summer afternoon peaks, for example). In such cases, ERCOT may be able to avoid falling into a deeper shortage by deploying 30-Minute ERS Loads as early as EEA Level 1.

For these reasons, ERCOT recommends that the Board authorize ERCOT staff, pursuant to paragraph (3) of Protocol Section 21.5, to submit an NPRR on a Board Priority basis to implement 30-Minute ERS into the Protocols. Board Priority status is needed to ensure that the NPRR comes to the Board no later than its March 2013 meeting, as Board approval in May 2013 would provide insufficient time for ERS providers to recruit participation for the June to September 2013 ERS Standard Contract Period.

If the Board grants ERCOT staff the approval to submit an NPRR to implement the Pilot Project, ERCOT intends to include in this NPRR a revision to procure both the 30-minute and 10-minute varieties of ERS using a clearing price mechanism instead of the pay-as-bid mechanism currently used. ERCOT successfully tested the use of a clearing price to procure 30-Minute ERS during the pilot project and believes this could be a useful mechanism to procure the product more economically.

Additionally, if the Board agrees that 30-Minute ERS should be implemented effective at the beginning of the June to September 2013 ERS Standard Contract Period, then ERCOT staff would propose that the Board authorize an additional pilot Contract Period beginning on February 1, 2013, and ending on May 31, 2013. This Contract Period is necessary to ensure the continuity of the 30-Minute product prior to the effective date of any NPRR, though it will certainly also provide additional valuable data to ERCOT concerning the characteristics of 30-Minute ERS Resources. This data would be included in ERCOT's final report to the Board on



the pilot project. Should the Board authorize this additional Contract Period, Pilot Resources would be subject to the same program requirements as applied to the first two Contract Periods, including testing requirements. Of course, participating Pilot Resources would continue to be available for deployment as needed during an EEA, providing additional system reliability even before formal implementation of any NPRR.

Key Factors Influencing Issue:

The key factors influencing the issue are:

- (1) The potential operational value of a demand response program with a longer ramp rate;
- (2) The demonstrated market interest in such a product; and
- (3) The need for additional demand response in a time of diminishing reserves.

Conclusion/Recommendation:

ERCOT staff respectfully recommends that the Board:

- (1) Authorize ERCOT staff to submit, on a Board Priority basis, an NPRR to implement a 30-Minute ERS product in time for the 2013 summer season (June through September); and
- (2) Authorize an additional February 1, 2013, to May 31, 2013, Contract Period for the 30-Minute ERS Pilot Project.



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 an Emergency Response Service with a 30-Minute ramp period (30-Minute ERS) at its meeting of June 19, 2012;

WHEREAS, test deployments conducted during the pilot have demonstrated the capability of 30-Minute ERS Resources to provide valuable demand reduction to the ERCOT System;

WHEREAS, the Board finds it desirable to implement a 30-Minute ERS product in advance of the ERS procurement cycle for summer 2013; and

WHEREAS, an additional pilot project Contract Period beginning February 1, 2013, and ending on May 31, 2013, will provide additional valuable test data and will encourage the growth of the 30-Minute ERS program during the pendency of the pilot prior to the formal implementation of a 30-Minute ERS product in the ERCOT Protocols;

THEREFORE, BE IT RESOLVED, and pursuant to paragraph (3) of ERCOT Protocol Section 21.5, that ERCOT staff is hereby directed to submit, as a Board Priority Nodal Protocol Revision Request (NPRR), a proposal to implement a 30-Minute ERS product, to be effective by June 1, 2013; and

BE IT FURTHER RESOLVED, that ERCOT staff is hereby directed to procure 30-Minute ERS for an additional February 1, 2013, to May 31, 2013, Contract Period, and to administer this service in accordance with the *Governing Document for 30-Minute Emergency Response Service Pilot Project*.

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CORPORATE SECRETARY’S CERTIFICATE

I, Vickie G. Leady, Assistant Corporate Secretary of ERCOT, do hereby certify that, at its December 11, 2012, meeting, the ERCOT Board passed a motion approving the above Resolution by _____.

IN WITNESS WHEREOF, I have hereunto set my hand this ____ day of December, 2012.

Vickie G. Leady
Assistant Corporate Secretary

Initial Report: ERCOT 30-Minute Emergency Response Service Pilot Project

ERCOT provides this initial assessment of the 30-Minute Emergency Response Service (ERS) pilot project in accordance with the Governing Document for 30-Minute Emergency Response Service Pilot Project (“Governing Document”), which was approved by the ERCOT Board of Directors on June 19, 2012.¹ This report summarizes ERCOT’s analysis of data concerning the procurement, deployment, and availability of participating Pilot Resources.²

Summary of the 30-Minute ERS Pilot Project

As the Governing Document recognizes, the purpose of the pilot project is to:

1. Assess the operational benefits and challenges of deploying an ERS product with a thirty-minute ramp period;
2. Study the optimal means of deploying 30-Minute ERS in an EEA;
3. Gather data to analyze the execution and benefits of a clearing price mechanism;
4. Gather data to assist ERCOT in determining the appropriate price to pay for 30-Minute ERS;
5. Gather data to compare costs and benefits relative to 10-Minute ERS; and
6. Determine overall market interest in 30-Minute ERS before making appropriate ERCOT rule changes.

To evaluate these measures, the Governing Document authorizes ERCOT to procure 30-Minute ERS for a minimum of two Contract Periods. The first Contract Period was initiated on July 15, 2012 and ran through the end of September 2012. The second Contract Period started on October 1, 2012 and will run through the end of January 2013.

The Governing Document requires ERCOT to deploy Pilot Resources a minimum of one time and a maximum of four times in each Contract Period. Deployments may occur during an Energy Emergency Alert (EEA), as with conventional 10-minute ERS, or through fleet-wide tests. To date, ERCOT has not experienced an EEA event which could have triggered the deployment of Pilot Resources. ERCOT has, however, conducted numerous test deployments of these Resources. During the first Contract Period ERCOT conducted three test deployments, and an additional two test deployments have been conducted during the second Contract Period.

¹ The Governing Document is available at <http://www.ercot.com/mktrules/pilots/>.

² Except where defined by the ERCOT Protocols, capitalized terms in this report are those defined in the Governing Document.

As of the date of this report, ERCOT has received all of the meter data for the three deployments in the first Contract Period and most of the meter data for the first deployment in the second Contract Period. ERCOT has not yet received the data for the second deployment in the second Contract Period. Based on the data it has received, ERCOT has conducted an initial analysis of the 30-Minute ERS product in light of the six purposes identified above. The results of that analysis are included in this report.

ERCOT will continue to test Pilot Resources throughout the duration of this Contract Period and any subsequent Contract Period that may be approved by the Board of Directors. Data from these deployments will be provided to the Board in a final Pilot assessment, as required by the Governing Document.

Purpose 1: Assess the operational benefits and challenges of deploying an ERS product with a thirty-minute ramp period

Data from the five fleet-wide tests conducted thus far suggests that an ERS product with a 30-Minute ramp period can provide valuable additional demand response upon dispatch. Table A, below, summarizes the results of the five fleet-wide deployment tests conducted to date. With the exception of the first test (which is addressed more specifically below), the fleet provided Load reduction well in excess of its obligation.

	Test Date	Contract Period	Time Period ³	Fleet Obligation (MW)	Fleet Load Reduction (MW)
Test #1	Sept 5	Jul-Sep	BH1	18.0 ¹	9.09
Test #2	Sept 13	Jul-Sep	BH1	19.4	24.13
Test #3	Sept 26	Jul-Sep	BH2	16.25	22.44

³ Pilot Resources were committed for the same Time Periods as exist for the 10-minute ERS: Business Hours 1 (BH1) (8 AM to 1 PM Monday through Friday except ERCOT Holidays); BH2 (1 PM to 4 PM Monday through Friday except ERCOT Holidays); BH3 (4 PM to 8 PM Monday through Friday except ERCOT Holidays); and Non-Business Hours (NBH) (all other hours).

Test #4	Oct 30	Oct-Jan	BH2	59.13 ²	71.09 ²
Test #5	Nov 20	Oct-Jan	BH1	80.28	Not Avail ³

Table A: Summary of Test Deployments Conducted To-Date

- Notes: ¹ Represents the BH1 obligation for those resources that had an obligation at the time of the VDI (NBH)
² Obligation and Load reduction amounts include data for only those ERS Resources with data available at time of this assessment
³ No data available at time of this assessment

The following series of graphs and tables provides a more in-depth analysis of each deployment test. Pilot Resource-level and aggregated fleet-level test event performance data are provided to give a better overall understanding of each event. It is important to note here that fleet-level event deployment results allow any over-provision by some resources to offset any under-provision by others; consequently, the fleet score for a deployment test may not correlate directly to the overall performance scores for the individual participating ERS Resources.

Test 1 Results

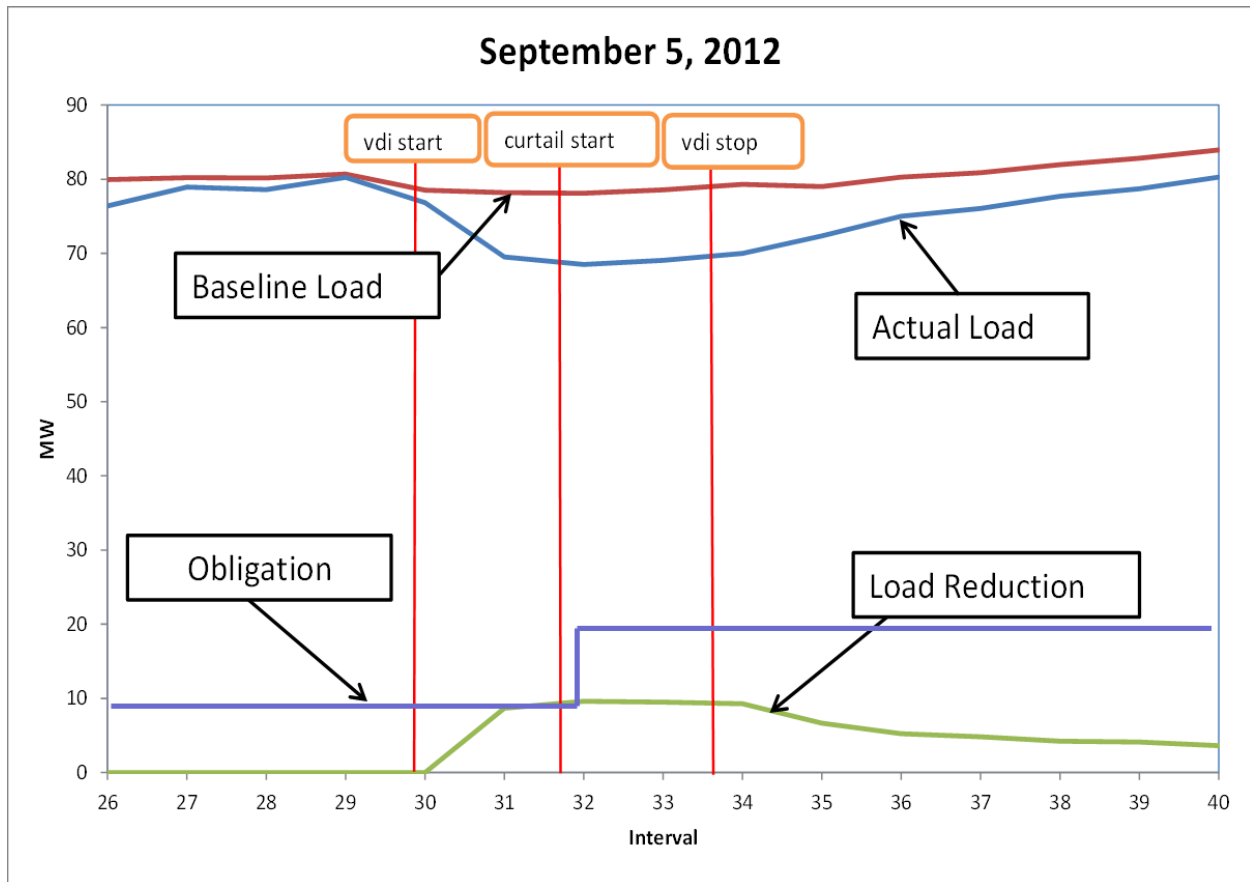
Table B, below, shows the Pilot Resource-level event performance for each of the eight Pilot Resources that had an obligation at the time of Test 1. Because the Dispatch Instruction was issued during the Non-Business Hours Time Period, but just over 30 minutes before the beginning of the Business Hours 1 Time Period, only those resources that had an obligation in both the Non-Business Hours and Business Hours 1 Time Periods were required to remain deployed during BH1. For the first partial interval of the deployment, which fell within the Non-Business Hours Time Period, the fleet’s Load reduction obligation was 9.0 MW; for the first full interval of the deployment in Business Hours 1 the fleet’s obligation was 18.0 MW. The actual Load reduction measured during the full interval, however, was only 9.09 MW. Review of the resource-level performance showed that five of the eight Pilot Resources met their required load reduction for the first full interval and that the other three did not. The fleet level performance was significantly impacted by the fact that Resource2 accounted for about 48% of the total fleet obligation and was among the three resources that did not provide the required amount of Load reduction.

ERCOT has concluded that the Time Period overlap in the middle of this deployment created some confusion among some Qualified Scheduling Entities (QSEs) and/or their Resources, and that the failure of the 30-Minute ERS fleet to meet its collective deployment requirement is

largely attributable to this confusion. ERCOT acknowledges the need to emphasize with QSEs and ERS Resources the requirement that Resources must not only remain deployed when a deployment crosses into a new Time Period, but must also adjust to any different obligation in that new Time Period.

Test # 1 - 9/5/2012			
Resource	Event Performance Factor *	First Full Interval	
		Obligation (MW)	Load Reduction (MW)
Resource1	1.000	0.30	0.31
Resource2	0.050	8.60	0.17
Resource3	1.000	0.40	0.50
Resource4	1.000	6.00	6.38
Resource6	0.476	0.10	0.06
Resource9	0.067	2.00	0.25
Resource11	1.000	0.30	1.06
Resource12	1.000	0.30	0.37
Fleet	0.830	18.00	9.09
* Includes First Partial Interval			

Table B: Resource and Fleet level Test Deployment data for September 5, 2012



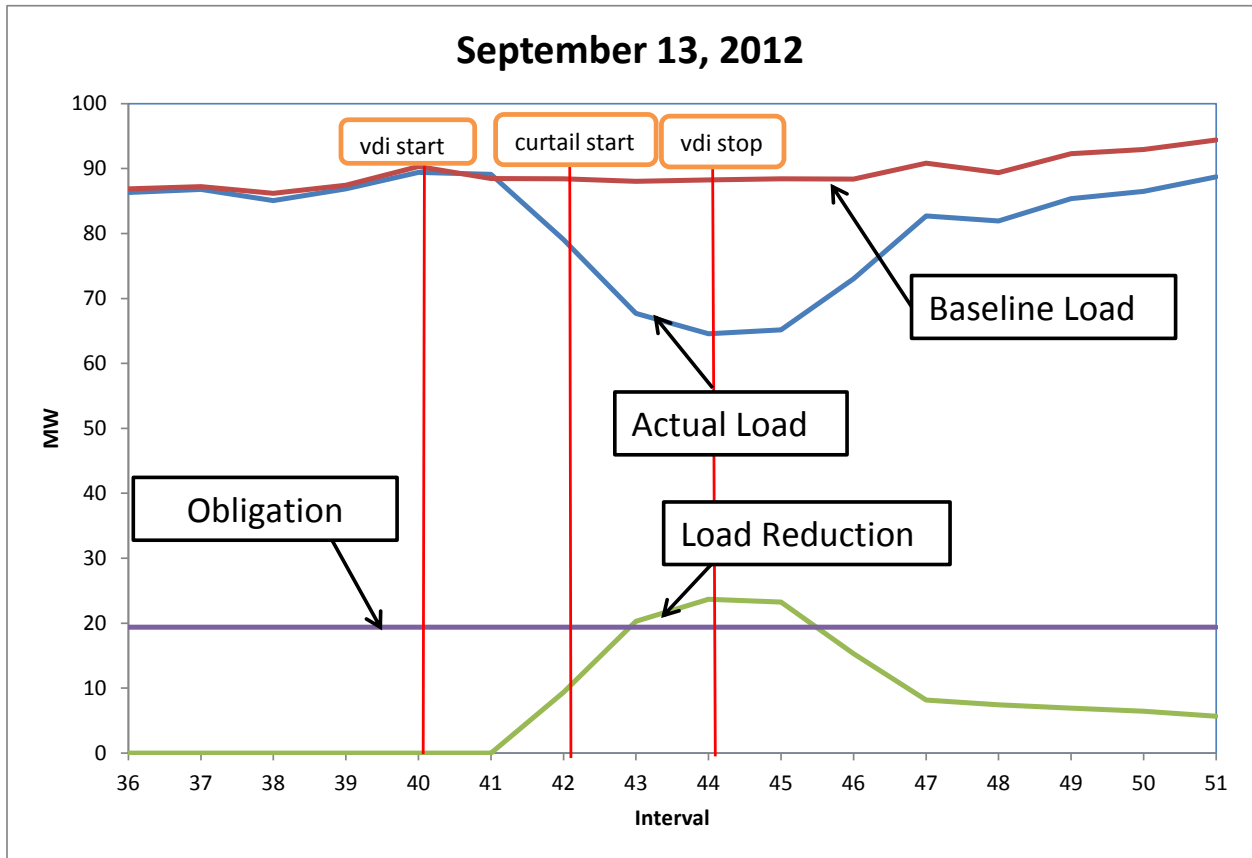
Graph #1: September 5, 2012 Test Deployment

Test 2 and 3 Results

The second and third test deployments more clearly demonstrated the demand response capability of the 30-Minute ERS fleet. The September 13, 2012 test deployment occurred entirely in the Business Hours 1 Time Period. The overall fleet obligation was 19.4 MW and the overall load reduction observed was 24.13 MW (a 24% over-provision). Results for the September 26, 2012 test deployment were somewhat similar. The test deployment occurred in the Business Hours 2 Time Period, with an overall fleet obligation of 16.25 MW. ERCOT observed an overall load reduction of 22.44 MW, or an overprovision of 38%.

Test # 2 - 9/13/2012			
Resource	Event Performance Factor *	First Full Interval	
		Obligation (MW)	Load Reduction (MW)
Resource1	1.000	0.30	0.37
Resource2	1.000	8.60	12.43
Resource3	1.000	0.40	0.50
Resource4	1.000	6.00	6.77
Resource5	1.000	0.20	0.30
Resource6	0.545	0.10	0.18
Resource8	0.624	0.20	0.11
Resource9	0.482	2.00	0.83
Resource10	1.000	1.00	1.80
Resource11	1.000	0.30	0.48
Resource12	1.000	0.30	0.35
Fleet	1.235	19.40	24.13
* Includes First Partial Interval			

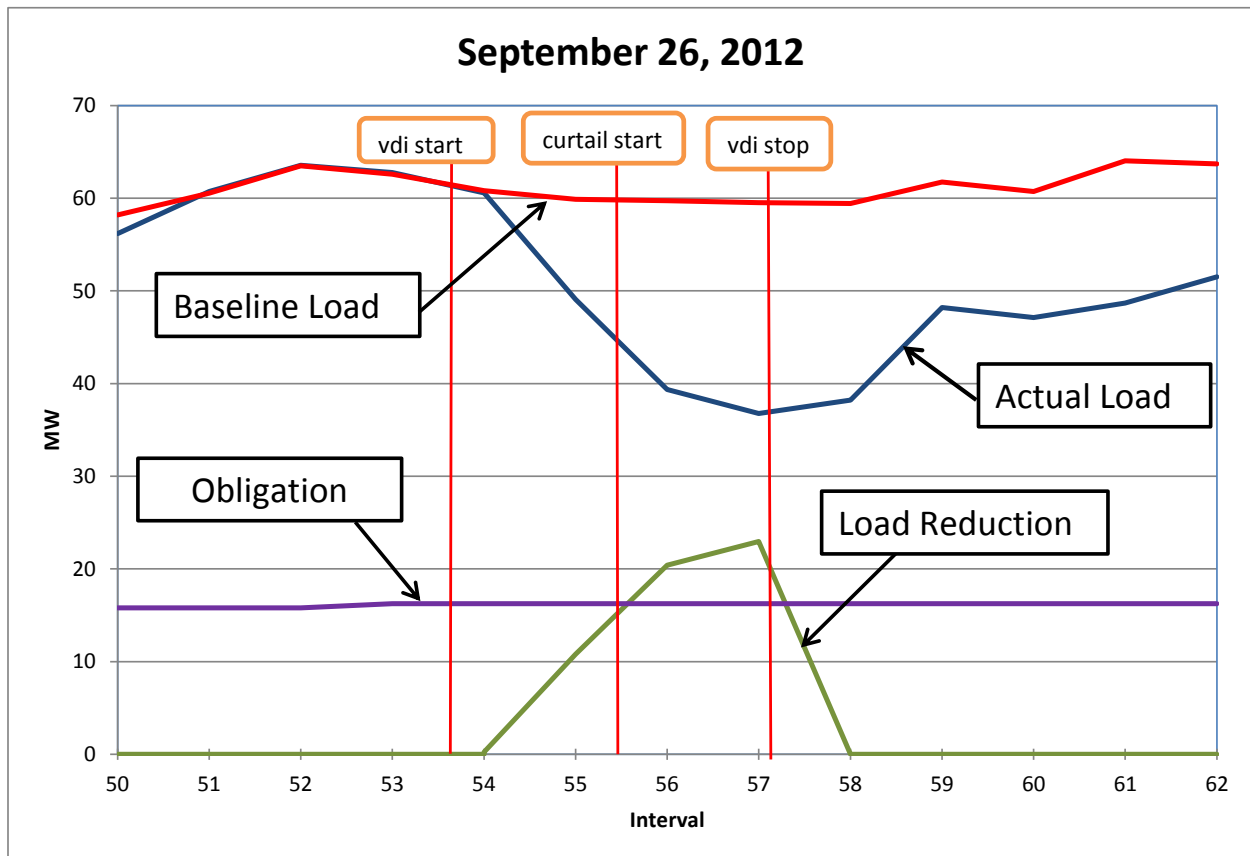
Table C: Resource and Fleet level Test Deployment data for September 13, 2012



Graph #2: September 13, 2012 Test Deployment

Test # 3 - 9/26/2012			
Resource	Event Performance Factor *	First Full Interval	
		Obligation (MW)	Load Reduction (MW)
Resource2	1.000	8.60	14.63
Resource3	1.000	0.50	0.60
Resource4	1.000	6.00	7.25
Resource5	0.000	0.20	-0.03
Resource6	1.000	0.10	0.27
Resource7	0.400	0.35	0.12
Resource8	0.798	0.20	0.13
Resource11	0.389	0.30	-0.53
Fleet	1.638	16.25	22.44
* Includes First Partial Interval			

Table D: Resource and Fleet level Test Deployment data for September 13, 2012



Graph #3: September 26, 2012 Test Deployment

Test 4 Results

ERCOT conducted the fourth test deployment on October 30, 2012, during the second 30-minute ERS Contract Period; for this Contract Period, both the overall capacity (as high as 95.58 MW in Business Hours 2) and the number of resources participating (30 in Business Hours 1 and 2) was significantly greater than in the first Contract Period. At the time of this report, however, ERCOT only had meter data available for about 60% of the load, and, therefore, this analysis considers only those Pilot Resources for which data was available.

The fourth test deployment occurred entirely within the Business Hours 2 Time Period. During this Time Period, the total obligation for the sixteen Pilot Resources for which ERCOT has received data was 59.13 MW, and the overall Load reduction was 71.09 MW representing an over-provision of about 20%.

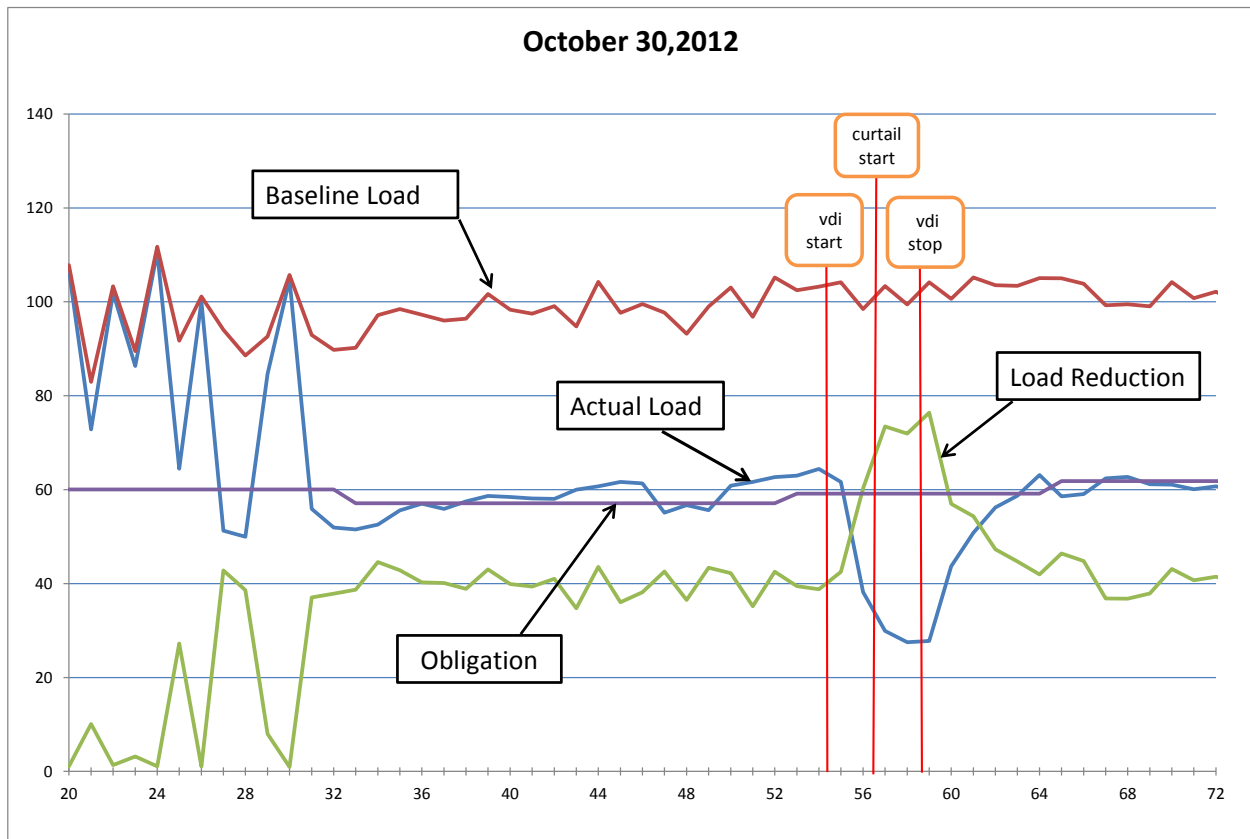
Of the sixteen resources in this data set, one (Resource28) had an obligation of 34 MW and accounted for 57.5% of the overall obligation. This resource was assigned to the alternate baseline, which is the metric used for Resources with highly variable daily Load profiles.

Resources on the alternate baseline are required to curtail below an established MW threshold (a “maximum base load”) rather than provide a specific MW reduction, as with ERS Resources on a default baseline. Resource28 had a maximum base Load of 5 MW. At the time of the test, had an actual load of 1.96 MW and thus met (and actually exceeded) its test performance obligations as an alternate baseline resource. Nonetheless, a comparison of the actual load on the day of the test to the average load indicated that the resource curtailed its Load by about 50 MW starting at 6:30 AM (well before the Dispatch Instruction was issued for the test) and remained below average until about 8:15 PM on that day. Consequently, the Load reduction attributed to this resource, for purposes of this report, was not determined based on a comparison to the resource’s demand immediately prior to the deployment, but was instead based on a comparison to the resource’s average daily weekday Load over the September 1 to November 15 period. Using this approach, the resource’s expected Load at the time of the test was 51.6 MW. Based on its actual Load at the time of the test, its estimated Load reduction during the test was therefore 49.65 MW.

In the aggregated figures provided in its presentation to TAC, ERCOT had calculated the Load reduction attributable to Resource28 as approximately 12 MW. This figure was based on Resource28’s demand just prior to the test (approximately 14 MW). After further consideration, ERCOT believes that the 49.65 MW figure stated above is a more accurate indicator of the demand response provided. For highly fluctuating resources on the alternate base line, such as Resource28, the most appropriate basis for computing a load reduction estimate is to use the average load rather than the load immediately prior to the test. This updated treatment of the event analysis for this one resource accounts for the difference between these results and those provided in the TAC presentation on November 29, 2012.

Test # 4 - 10/30/2012			
Resource	Event Performance Factor *	First Full Interval	
		Obligation (MW)	Load Reduction (MW)
Resource1		4.50	
Resource2		0.80	
Resource3		0.80	
Resource4		0.20	
Resource5		0.10	
Resource6	0.470	0.15	0.18
Resource7		0.18	
Resource8	1.000	0.55	0.42
Resource9	0.451	0.85	0.17
Resource10		2.20	
Resource11		1.70	
Resource12		2.00	
Resource13		1.00	
Resource14	0.728	0.60	0.39
Resource15		4.73	
Resource16		1.60	
Resource17	1.000	0.20	0.20
Resource18	0.061	0.20	0.00
Resource19	1.000	0.20	0.26
Resource20	0.995	0.30	0.30
Resource21		0.80	
Resource22	1.000	0.20	0.29
Resource23	1.000	0.30	0.38
Resource24	0.925	18.00	15.70
Resource25		2.60	
Resource26	1.000	0.43	0.35
Resource27	1.000	0.55	0.43
Resource28	1.000	34.00	49.65
Resource29	0.081	0.10	0.00
Resource30	0.972	2.50	2.38
Fleet		59.13	71.09

Table E: Resource and Fleet level Test Deployment data for October 30, 2012



Graph #4: October 30, 2012 Test Deployment

Test Results Findings

Except for the first test, the deployments of 30-Minute ERS during the first two Contract Periods were successful, with the fleet over-providing during each test. The performance characteristics of these Pilot Resources are similar to those of conventional 10-minute ERS Resources observed during the February 2, 2011, and August 4, 2011, ERS deployments.

Availability Results

As with the conventional ERS product, 30-Minute ERS Resources are evaluated (and paid) based on both their event performance and their availability during their committed hours. Availability for each resource is first calculated for each Time Period within a Contract Period; the individual availability factors for each Time Period are subsequently combined across Time Periods on a time- and capacity-weighted basis to provide a single availability factor for the Contract Period. Resource-level availability results for the July 15 through September 2012 Contract Period are shown in Table E below; for those Time Periods when the ERS Resource does not have an obligation, the fields are left blank.

For an ERS Load on a default baseline, the Load must be greater than 95% of its contracted ERS MW capacity to be deemed available for that interval. For ERS Loads on the alternate baseline, availability is equal to the average Load (less the maximum base Load) for the time-period, divided by its contracted MW offer. If the result of this calculation is greater than or equal to 95% the ERS Load on is deemed to have been available for that Contract Period.

July - September 2012 Availability		Bus_hrs1	Bus_hrs2	Bus_hrs3	Non_Bus_hrs	Combined	
Qse1	Resource1	offer_mw	0.40	0.50	0.40	0.20	
		availability	98.85	87.00	92.00	92.45	92.85
		status	Pass - Time Period	Fail - Time Period	Fail - Time Period	Fail - Time Period	Fail - Combined
	Resource2	offer_mw	0.30			0.30	
		availability	96.83			97.80	97.63
		status	Pass - Time Period			Pass - Time Period	Pass - Combined
	Resource3	offer_mw	8.60	8.60	8.60	4.30	
		availability	100.00	100.00	100.00	100.00	100.00
		status	Pass - Time Period	Pass - Time Period	Pass - Time Period	Pass - Time Period	Pass - Combined
	Resource4	offer_mw	6.00	6.00	6.00	3.00	
		availability	96.77	99.10	94.67	100.00	98.29
		status	Pass - Time Period	Pass - Time Period	Fail - Time Period	Pass - Time Period	Pass - Combined
	Resource5	offer_mw	0.20	0.20	0.20		
		availability	100.00	100.00	100.00		100.00
		status	Pass - Time Period	Pass - Time Period	Pass - Time Period		Pass - Combined
Qse2	Resource1	offer_mw		0.35			
		availability		100.00			100.00
		status		Pass - Time Period			Pass - Combined
Qse3	Resource1	offer_mw	0.10	0.10	0.10	0.10	
		availability	100.00	100.00	100.00	100.00	100.00
		status	Pass - Time Period	Pass - Time Period	Pass - Time Period	Pass - Time Period	Pass - Combined
Qse4	Resource1	offer_mw	0.20	0.20	0.20		
		availability	100.00	100.00	100.00		100.00
		status	Pass - Time Period	Pass - Time Period	Pass - Time Period		Pass - Combined
Qse5	Resource1	offer_mw	1.00				
		availability	88.93				88.93
		status	Fail - Time Period				Fail - Combined
	Resource2	offer_mw	2.00			1.00	
		availability	100.00			100.00	100.00
		status	Pass - Time Period			Pass - Time Period	Pass - Combined
Qse6	Resource1	offer_mw	0.30			0.30	
		availability	94.60			96.42	96.10
		status	Fail - Time Period			Pass - Time Period	Pass - Combined
	Resource2	offer_mw	0.30	0.30	0.30	0.30	
		availability	100.00	100.00	48.67	100.00	94.14
		status	Pass - Time Period	Pass - Time Period	Fail - Time Period	Pass - Time Period	Fail - Combined

Table F: Resource level Availability data for July 15 through Sept 2012 Contract Period

Table G below shows a QSE-level summary of the availability for the July 15 through September 30, 2012, Contract Period.

July - September 2012 Availability	
QSE1	1.08
QSE2	1.00
QSE3	1.00
QSE4	0.99
QSE5	1.43

Table G: Availability for July 15 through September 2012

Purpose 2: Study the optimal means of deploying 30-Minute ERS in an EEA

Since there have been no EEA level events since the inception of the 30-Minute pilot project, ERCOT has not had the opportunity to assess the deployment of a demand response product with a 30-Minute ramp in conjunction with other ERCOT operator actions during an actual EEA event. However, based on the demonstrated capability of Pilot Resources to deploy within the required ramp period, ERCOT finds that the appropriate time to deploy a 30-Minute product is in EEA level 1, given the availability of a 10-Minute ERS product in EEA level 2,. This timing would allow time for a 30-Minute ramp product to start responding and provide reasonable opportunity to minimize the risk of firm Load shed in EEA level 3.

Purpose 3: Gather data to analyze the execution and benefits of a clearing price mechanism

Under current Protocols, ERCOT procures 10-Minute ERS on a “pay-as-offer” basis using the criteria defined in the Process for Determining Cost Limits & Reasonableness of Offers, located on the ERCOT website.⁴ As part of the procurement process, a cross-departmental ERCOT team (procurement committee) convenes to analyze the offer stacks for each ERS Time Period. In evaluating competing offers, the committee considers a number of factors, including historical ancillary services prices, historical and projected natural gas prices, projected demand during the upcoming Standard Contract Term, and spreads in the offers versus capacity. Once the

⁴Available at:

http://www.ercot.com/content/services/programs/load/eils/ERS_k/Process_for_Determining_Cost_Limits_&_Reasonableness_of_Offers.pdf

committee determines the appropriate quantity and price, all ERS Resources offering below this price are awarded their respective offer prices—not the price offered by the marginal Resource.

During the 30-Minute ERS Pilot Project, however, ERCOT tested a simplified clearing price methodology to assess the use of a clearing price as a viable pricing mechanism and the benefits of the clearing price relative to the pay-as-offer methodology. The results of the clearing price are discussed in the next section.

As implemented during the pilot project, the clearing price approach did not substantially differ from the procurement process used for conventional ERS. This approach still required the procurement committee to determine the appropriate marginal price to pay based on the considerations described above. The only substantial difference is that the offer price associated with the last offer procured determined the price to be paid to all resources with offers below the clearing price.

While this methodology does provide a clearing price solution, it still relies on the procurement committee's subjective judgment about the appropriate price, and thus can be difficult to predict. ERCOT is currently reviewing alternative approaches that could reduce the subjectivity involved and deliver a more predictable solution.

Purpose 4 and 5: Gather data to assist ERCOT in determining the appropriate price to pay for 30-Minute ERS and to costs and benefits relative to 10-Minute ERS

ERCOT has compared the clearing prices for 30-Minute ERS for the first two Contract Periods to the prices offered and paid for 10-Minute ERS. Table H below shows both the highest price cleared as well as the average price paid for 10-Minute ERS as well as the clearing price for 30-Minute ERS for each time period of the two Contract Periods. Based on these comparisons alone, it appears that ERS providers value the two services roughly equally.

It should be noted, however, that the prices offered for the 30-Minute ERS pilot are likely skewed somewhat higher due to the 100% probability of being deployed. The Governing Document allows ERCOT to test Pilot Resources up to 4 times per Contract Period, whereas 10-Minute ERS Resources are subject to testing only once per year. For the first Contract Period, prices may have been higher than they otherwise would be for the additional reason that the ERCOT procurement committee decided to procure all 30-Minute ERS capacity offered due in large part to the low amount offered. For the second pilot Contract Period, the number of offering Resources increased significantly, resulting in a lower clearing price. There were also a few instances where QSEs offered the same ERS Resources into both services in the same Time

Periods; in each of these cases, the ERS Resources were offered in at the same price per MW capacity. This is another indication, despite the limited amount of procurement data available, that the providers may be valuing of the two services similarly.

	Time Period	Bus. Hrs 1 HE 0900-1300 M-F except holidays	Bus. Hrs 2 HE 1400-1600 M-F except holidays	Bus. Hrs 3 HE 0700-2000 M-F except holidays	Non-Bus. Hrs All other Hours
10-Minute ERS June – Sept 12	Highest Offer Accepted	\$16.00	\$16.00	\$16.00	\$12.75
	Average Price Accepted	\$8.70	\$9.67	\$9.97	\$8.83
30-Minute ERS Pilot July15th – Sept12	Clearing Price	\$11.00	\$16.00	\$16.00	\$11.00
10-Minute ERS Oct 12 – Jan 13	Highest Offer Accepted	\$8.75	\$9.75	\$9.75	\$8.75
	Average Price Accepted	\$8.22	\$8.77	\$9.06	\$8.15
30-Minute ERS Pilot Oct 12 – Jan13	Clearing Price	\$8.10	\$9.20	\$9.50	\$8.20

Table H: Price Comparison Table, all prices are \$/MW/Hr

Purpose 6: Determine overall market interest in 30-Minute ERS before making appropriate ERCOT rule changes.

One of the primary reasons for a new ERS product with a 30-Minute ramp period is that numerous ERS providers communicated to both ERCOT and the PUCT that a product with a longer ramp than the existing 10-minute product would have the potential to bring additional Demand Response into ERS. As Table I, below, shows, the MW capacity offered for the second Contract Period ranges from a low of just over 75 MW in the Non-Business Hours to a high of just over 95 MW in Business Hours 2. It should also be noted that the relatively low amount of capacity offered into the initial contract term was not unexpected. Many of the ERS providers communicated to ERCOT during the 30-Minute ERS Pilot approval process that the June 19 approval date by the ERCOT Board would not provide them adequate time to broadly market and sign up participants and therefore would probably result in a low offering for the initial Contract Period.

	Bus. Hrs 1 HE 0900-1300 M-F except holidays	Bus. Hrs 2 HE 1400-1600 M-F except holidays	Bus. Hrs 3 HE 0700-2000 M-F except holidays	Non-Bus. Hrs All other Hours
Jul 15-Sep 2012	19.4 MW	16.25 MW	15.80 MW	9.5 MW
Oct 2012-Jan 2013	93.68 MW	95.58 MW	89.01 MW	75.15 MW

Table I: Capacity Offered in each Time Period for both 30-Minute ERS Contract Terms

The 30-Minute ERS pilot has not only attracted more total capacity, but four new QSEs and 532 new sites, including the first ever ERS residential aggregations. A residential aggregation that included 284 sites participated in the first Contract Period, and had grown to 347 sites by the second Contract Period. It should also be noted that, since residential loads are very sensitive to temperature and other weather related conditions, QSEs have had difficulty attracting significant residential capacity to ERS under current program requirements. ERCOT has submitted an NPRR to address many of the issues for weather sensitive loads with the aim of promoting greater participation by residential and other similar Loads. Nonetheless, due to the limitations on payment in that proposed program, ERCOT expects that some Loads may prefer to participate in a conventional ERS program with a longer ramp period.

Finally, ERCOT Staff has also communicated directly with a number of ERS providers who have indicated that a significant amount of ERS capacity would be willing to participate in a 30-Minute ERS product with the assurances that the program would continue to be available beyond the limited duration of a pilot program.