

**Business Procedures**

**Load Resource Qualification**

**Non-Controllable Load Resource**

**Qualification and Testing Procedure**

**Version 1.1**

**April 1, 2011**

Document Revisions

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Version | Description | Author(s) |
| 8/15/08 | 0.01 | Initial draft | Steve Krein |
| 10/8/09 | 0.02 | Revised to incorporate retirement of Resources and changes to facilities | Steve Krein |
| 6/30/10 | 0.03 | Revised to incorporate remaining flow diagram elements | Steve Krein |
| 11/30/10 | 1.0 | Revised and Approved for Nodal Go Live | Paul Wattles, Mark Patterson |
| 4/1/2011 | 1.1 | Revised to Update Telemetry Test Plan | Steve |

Document Approvals

|  |  |  |
| --- | --- | --- |
| Date | Approved By | Approval Documented In (select) |
|  | <Mark Patterson><Manager Demand Integration> | \_\_\_ Approval email on file\_\_X\_ Signature |

Table of Contents

[1. Introduction 1](#_Toc278870979)

[1.1. Purpose 1](#_Toc278870980)

[1.2. Process Flow Diagram 1](#_Toc278870981)

[1.3. Protocols References Summary 1](#_Toc278870982)

[1.4. Operating Guide References 1](#_Toc278870983)

[1.5. Acronyms 2](#_Toc278870984)

[2. Initial Qualification 2](#_Toc278870985)

[2.1. Resource Asset Registration 2](#_Toc278870986)

[2.2. One Line Diagrams and Drawings 2](#_Toc278870987)

[2.3. Under-frequency Relay Requirements and Testing 2](#_Toc278870988)

[2.4. Provisional Qualification of Load Resources 3](#_Toc278870989)

[2.5. Qualification Testing for new Load Resources 4](#_Toc278870990)

[3. Periodic Testing and Recertification of Load Resources 7](#_Toc278870991)

[3.1 Annual Telemetry Testing 7](#_Toc278870992)

[3.2 Biennial Recertification of Load Resources 7](#_Toc278870993)

[3.3 Annual Recertification Testing of Load Resources 7](#_Toc278870994)

[4. Change Control and Retirement of Load Resources 10](#_Toc278870995)

[4.1. Change Control for Load Resources 10](#_Toc278870996)

[4.2. Retirement of Load Resources 10](#_Toc278870997)

[5. Documentation and Reports 11](#_Toc278870998)

[5.1. Request for Provisional Qualification and Affidavit 11](#_Toc278870999)

[5.2. Load Resource Qualification Test Report 12](#_Toc278871000)

[5.3. Qualification Test Affidavit 14](#_Toc278871001)

[5.4. Annual Telemetry Test Report 15](#_Toc278871002)

[5.5. Biennial Test for Non-Controllable Load Resource Under-Frequency Relays (UFRs) 15](#_Toc278871003)

# Introduction

## Purpose

This document contains the procedures for how ERCOT Staff will process applications for Non-Controllable Load Resources (NCLRs) that register to provide Ancillary Services to the ERCOT Market. A separate business procedure governs the qualification and testing of Controllable Load Resources (CLRs). NCLRs that are covered by this business procedure are those Loads that meet the requirements in the Protocols to register and qualify to provide Responsive Reserve Service (RRS) and Non-Spinning Reserve Service (NSRS). This procedure is intended to provide the detailed instructions that will be used to initially test the operability of NCLRs to provide those services and to document the results of any testing that is conducted by ERCOT Staff. Once qualified, NCLRs are subject to periodic testing that is specified in the ERCOT Protocols and Operating Guides and this procedure is intended to implement those requirements too.

##  Process Flow Diagram



## Protocols References Summary

|  |  |
| --- | --- |
| ERCOT Protocols affected Sections | [3.17 Ancillary Service Capacity Products](#_Toc205092644)[3.17.2 Responsive Reserve Service](#_Toc205092646)[3.17.3 Non-Spinning Reserve Service](#_Toc205092647)[3.18 Resource Limits in Providing Ancillary Service](#_Toc205092648)8.1.1.1 Ancillary Service Qualification and Testing 8.1.1.2 General Capacity Testing Requirements8.1.1.2.1 Ancillary Service Technical Requirements and Qualification Criteria and Test8.1.1.2.1.2 Responsive Reserve Service8.1.1.2.1.3 Non-Spinning Reserve 8.1.2.4 QSE Ancillary Service Energy Deployment Compliance Monitoring Criteria8.1.2.4.2 Responsive Reserve Service Energy Deployment Criteria8.1.2.4.3 Non-Spinning Reserve Service Energy Deployment Criteria |

## Operating Guide References

|  |  |
| --- | --- |
| [ERCOT](http://www.ercot.com/services/programs/load/eils/index.html) Operating GuideAffected Sections | 2.3.1 Responsive Reserve (RRS)2.3.1.2 Additional Operational Details for Responsive Reserve Providers2.3.2 Non-Spinning Reserve Service (Non-Spin)2.3.2.1 Additional Operational Details for Non-Spinning Reserve Service (NSRS) Providers3.4 Load Resource Testing Requirement8 Attachments8G Load Resource Tests |

##  Acronyms

IDR Interval Data Recorder

MIS Market Information System

NOIE Non-Opt-In Entity

NSRS Non-Spinning Reserve Service

QSE Qualified Scheduling Entity

RARF Resource Asset Registration Form

RRS Responsive Reserve Service

SAMR Special Action Modeling Request

TAC Technical Advisory Committee

UFR Under-Frequency Relay

VDI Verbal Dispatch Instruction

XML eXtensible Markup Language

Initial Qualification

## Resource Asset Registration

Resource Entities must first register their NCLRs using the RARF. The Demand Integration team will coordinate with other affected departments, including Network Modeling, EMMS Production Support, Data Aggregation and Wholesale Client Services, to insure that the Load Resource Registration information is valid.

##  One Line Diagrams and Drawings

Resource Entities must submit a simplified one-line diagram that shows the NCLR and the associated interconnecting hardware. The Demand Integration team shall review that drawing and insure that it contains at a minimum:

* Load Type, Name and Rated Capacity
* Interrupting Device (Circuit Breaker, Oil Switch, etc)
* UFR Type, Manufacturer, and Serial Number
* IDR Meter with ESI ID
* Transformer, including Hi and Lo Voltage
* Substation Name and TDSP
* Feeder and Bus ID’s

## Under-frequency Relay Requirements and Testing

NCLRs that are being registered to provide service for RRS are required to have an Under-frequency Relay (UFR). The UFR is required to be set so that it will initiate the trip of the load that it controls for frequency excursions below 59.7 hz with a delay time of 20 cycles. NCLRs are required to have these relays tested prior to being put in service and must submit a Relay Test Report showing the results of that testing. The test report shall show:

* Name, Manufacturer and Serial Number for the Relay
* Test Equipment Used to Test the Relay
* Date of the Test
* Settings for the Relay
* As Found Test Results
* As Left Test Results
* Name of the Person Performing the Test

## Provisional Qualification of Load Resources

Resource Entities may request that their NCLRs be provisionally qualified to provide one or more Ancillary Services. To request provisional qualification the Resource Entity must submit an Affidavit Requesting Provisional Qualification appropriate to the Service they intend to provide (RRS or NSRS). That Affidavit is attached to this procedure. The Provisional Qualification will be good for 90 days from the time it is approved and issued. During that time the NCLR will be required to perform an NCLR Qualification Test for the Services they plan to provide. The Demand Integration Team will review the application to insure that it is complete. The following checklist will be used to determine whether a Provisional Qualification will be approved.

* Resource Entity (RE) Registration is complete and has been filed with ERCOT Legal
* QSE Acknowledgement is complete and on file with Legal
* Partnerships established in ERCOT Settlements Systems between the RE and QSE
* RARF is complete and has been submitted using RE Digital Certificate. ERCOT Registration will confirm that the RARF has met key business rules and send an email to key ERCOT staff informing them that the RARF has been accepted and input into the ERCOT systems.
* Telemetry is in place and tested from the QSE to ERCOT showing:
* Load Resource net real power consumption (in MW)
* Any data mutually agreed to by ERCOT and the QSE to adequately manage system reliability
* Load Resource breaker status
* LPC (in MW)
* MPC (in MW)
* Ancillary Service Schedule (in MW) for each quantity of RRS and Non-Spin
* Ancillary Service Resource Responsibility (in MW) for each quantity of RRS and Non-Spin for all Load Resources
* The status of the high-set UFR, if required for qualification
* Resource Status (Resource Status shall be ONRL if high-set UFR is active)
* Affidavit for provisional qualification of Loads to provide RRS is executed and provided to the ERCOT Market Operation Support Team

The Demand Integration Team will then request that the Network Operations Modeling Group and EMS Production Support Group set up and complete telemetry testing of the new NCLR in the Network Operations Model and EMS System. Demand Integration staff will confirm via email from the EMS Production Support Team that the NCLR has been added and the telemetry tested in the EMS. Demand Integration staff will initiate a SAMR to add or delete an NCLR in the Network Operations Model and confirm that the SAMR has been completed.

Once the NCLR telemetry testing has been completed by the EMS Production Team, the Demand Integration Team will request the Data Aggregation Support team to have the Resource set up in the Settlements Database. Completion of this telemetry testing will be confirmed via email from the EMS Production Support Team. At this point the NCLR will have met all of its initial set up and qualification requirements. The Demand Integration Team will notify key personnel in System Operations, Wholesale Client Relations, Settlements and Data Aggregation that the NCLR has been provisionally qualified to provide RRS and/or NSRS in the ERCOT Ancillary Services Markets. They will also notify the Resource Entity and QSE that the NCLR has been provisionally qualified. The Demand Integration Team will update the Master Load Resource Qualification Spreadsheet showing the key operating parameters for the Resource.

##  Qualification Testing for new Load Resources

Once the NCLR is completely set up in the EMS and MMS Systems, the QSE is responsible for scheduling a Qualification Test by coordinating with the Resource Entity and ERCOT’s Demand Integration Team. The QSE will select a day to perform the test and provide an 8 hour window for ERCOT to perform the Qualification Test. If the NCLR is operating under a Provisional Qualification, the Qualification Test must be conducted within 90 days of the Provisional Qualification date. The Qualification Test is an Actual Interruption Test and the NCLR will be expected to shed at least 95% of its telemetered Load in order to pass the Qualification Test.

**Non-Controllable Load Resource Qualification Test Procedure Script for Load Resources with Hi-Set Under-Frequency Relays that intend to provide Responsive Reserve Service.**

“This is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with ERCOT System Operations and I will be serving as the ERCOT Testing Operator. I am talking to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ QSE and we will be conducting a Qualification Test on a Load Resource in order to fully qualify them to provide Responsive Reserve Service on the ERCOT System. The Load Resource in question is named \_\_\_\_\_\_\_\_\_\_\_\_ and the end use customer for this Load Resource is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“We will be doing an actual load interruption test today and in a minute I will be giving you an instruction to deploy this unit. First I’d like to confirm our telemetry readings for this Resource.

1. Can you tell me what you are currently showing as the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Resource Responsibility is? \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_\_\_\_\_\_MW
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the current status of the Under-frequency relay is? \_\_\_\_\_\_\_. ERCOT confirms that the status of the UFR is \_\_\_\_\_\_\_.
6. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_\_.
7. Now I’d like to make sure our system clocks are in synch at this time. I am showing the current time is \_\_\_\_\_\_\_\_\_\_\_\_. Can you confirm?”

Record the data on the test sheet.

“Do you have any questions at this time?

“At this time ERCOT is issuing a deployment instruction for the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_\_ to be deployed and will confirm the status changes through our telemetry here at ERCOT. You have 10 minutes to respond to this instruction. The official start time for this instruction is \_\_\_\_\_\_\_\_\_\_\_\_\_. I will contact you again once we have completed the test.”

Post Deployment Test Results

1. “Can you tell me what you are currently showingas the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Resource Responsibility is \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is?\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_MW.
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the current status of the Under-frequency relay is? \_\_\_\_\_\_\_. ERCOT confirms that the status of the UFR is \_\_\_\_\_\_\_.
6. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_.
7. I show that the official ERCOT time for this Load Resource to respond was \_\_\_\_\_\_\_\_.

“You are now cleared to restore this load. Once again ERCOT is issuing an instruction to recall the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_. The time of this recall notice is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“Time Load was restored \_\_\_\_\_\_\_\_\_\_\_.

“This concludes the Qualification Testing for the Controllable Load Resource known as \_\_\_\_\_\_\_\_\_\_\_\_\_.”

If all telemetry readings agree and the NCLR dropped at least 95% of its Load within 10 minutes from the issuance of the Verbal Dispatch Instruction, the NCLR will be deemed to have successfully passed its test. The ERCOT Operator can then tell the QSE Operator that “This Load Resource is now fully qualified to perform Responsive Reserve Service and/or Non-Spinning Reserve Service within the ERCOT system. This Non-Controllable Load Resource will be subject to an annual telemetry test that will be due one year from today. It is also subject to a biennial test that will be due in two years from the date it was last tested.”

If the NCLR successfully deploys within the 10 minute timeline, the Demand Integration Team will notify key personnel in System Operations, Wholesale Client Relations, Settlements and Data Aggregation that the NCLR has been fully qualified to provide RRS in the ERCOT Ancillary Services Markets. They will also notify the Resource Entity and QSE that the NCLR has been fully qualified.

The NCLR will be deemed to have failed the Qualification Test if it fails to deploy its Load within 10 minutes, has telemetry which produces unexpected results (e.g. breaker status does not change), or fails to deploy at least 95% of its Load. The ERCOT Operator will inform the QSE Operator that the Load Resource has failed its Qualification Test. If the Load Resource was operating under a Provisional Qualification, the Provisional Qualification will be revoked and the QSE informed that the Load Resource will not be allowed to participate in Market Activities until it has successfully passed a Qualification Test.

**NCLR Qualification Test Procedure Script for Load Resources that do not have Hi-Set Under-Frequency Relays and intend to provide Non-Spinning Reserve Service only.**

“This is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with ERCOT System Operations and I will be serving as the ERCOT Testing Operator. I am talking to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ QSE and we will be conducting a Qualification Test on a Load Resource in order to fully qualify them to provide Non-Spinning Reserve Service on the ERCOT System. The Load Resource in question is named \_\_\_\_\_\_\_\_\_\_\_\_ and the end use customer for this Load Resource is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“We will be doing an actual load interruption test today and in a minute I will be giving you an instruction to deploy this unit. First I’d like to confirm our telemetry readings for this Resource.

1. Can you tell me what you are currently showing as the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Resource Responsibility is? \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_\_\_\_\_\_MW
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_\_.
6. Now I’d like to make sure our system clocks are in synch at this time. I am showing the current time is \_\_\_\_\_\_\_\_\_\_\_\_. Can you confirm?”

Record the data on the test sheet.

“Do you have any questions at this time?

“At this time ERCOT is issuing a deployment instruction for the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_\_ to be deployed and will confirm the status changes through our telemetry here at ERCOT. You have 30 minutes to respond to this instruction. The official start time for this instruction is \_\_\_\_\_\_\_\_\_\_\_\_\_. I will contact you again once we have completed the test.”

Post Deployment Test Results

1. “Can you tell me what you are currently showingas the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Resource Responsibility is \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is?\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_MW.
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_.
6. I show that the official ERCOT time for this Load Resource to respond was \_\_\_\_\_\_\_\_.

“You are now cleared to restore this load. Once again ERCOT is issuing an instruction to recall the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_. The time of this recall notice is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“Time Load was restored \_\_\_\_\_\_\_\_\_\_\_.

“This concludes the Qualification Testing for the NCLR known as \_\_\_\_\_\_\_\_\_\_\_\_\_.”

If all telemetry readings agree and the NCLR dropped at least 95% of its Load within 30 minutes from the issuance of the Verbal Dispatch Instruction, the NCLR will be deemed to have successfully passed its test. The ERCOT Operator can then tell the QSE Operator that “This Non-Controllable Load Resource is now fully qualified to perform Non-Spinning Reserve Service within the ERCOT system. This Non-Controllable Load Resource will be subject to an annual telemetry test that will be due one year from today.”

If the NCLR successfully deploys within the 30 minute timeline, the Demand Integration Team will notify key personnel in System Operations, Wholesale Client Relations, Settlements and Data Aggregation that the NCLR has been fully qualified to provide NSRS in the ERCOT Ancillary Services Markets. They will also notify the Resource Entity and QSE that the NCLR has been fully qualified.

The NCLR will be deemed to have failed its Qualification Test if it fails to deploy its Load within 30 minutes, has telemetry which produces unexpected results (e.g. breaker status does not change), or fails to deploy at least 95% of its Load. The ERCOT Operator will inform the QSE Operator that the NCLR has failed its Qualification Test. If the NCLR was operating under a Provisional Qualification, the Provisional Qualification will be revoked and the QSE informed that the Resource will not be allowed to participate in Market Activities until it has successfully passed a Qualification Test.

#  Periodic Testing and Recertification of Load Resources

## Annual Telemetry Testing

All Load Resources are subject to an annual test of the telemetry associated with that Load Resource. The telemetry test will be based on the actual operation of the Load Resource and include a verification of the telemetry attributes. QSEs are allowed to use an actual Load Resource deployment to confirm that their telemetry is in agreement with the ERCOT system values. The results of this test will be documented on the Annual Telemetry Test Report shown in Section 4.4 of this procedure.

## Biennial Recertification of Load Resources

All NCLRs with Hi-Set Under-Frequency Relays will be required to have their UFRs tested every two years to verify that the relays are set correctly and will trip the NCLR if they are armed and see a frequency disturbance in which the frequency goes below 59.7 Hz for more than 20 cycles. If the relay responds to an actual frequency event and the Load trips as expected, that event may be used in lieu of an actual test of the relay. The results of this testing will be documented on the Biennial Test Report for NCLR Under-Frequency Relays (UFRs) shown in Section 4.5 of this procedure.

## Annual Recertification Testing of Load Resources

All NCLRs that are qualified to provide RRS and NSRS will be subject to an annual recertification test. If an NCLR has performed satisfactorily to a Load Resource deployment that was initiated by a Verbal Dispatch Instruction that performance may be used in lieu of an actual interruption test. The results of the testing will be documented on the Load Resource Qualification Test Report indicating that the test type was an Annual Recertification Test. That test report is shown in Section 4.2 of this Procedure.

**NCLR Annual Recertification Test Procedure Script for Load Resources with Hi-Set Under-Frequency Relays that intend to continue providing Responsive Reserve Service.**

“This is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with ERCOT System Operations and I will be serving as the ERCOT Testing Operator. I am talking to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ QSE and we will be conducting a recertification test on a Load Resource that is currently qualified to provide Responsive Reserve Service on the ERCOT System. The Load Resource in question is named \_\_\_\_\_\_\_\_\_\_\_\_ and the end use customer for this Load Resource is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“We will be doing an actual load interruption test today and in a minute I will be giving you an instruction to deploy this unit. First I’d like to confirm our telemetry readings for this Resource.

1. Can you tell me what you are currently showing as the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Resource Responsibility is? \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_\_\_\_\_\_MW
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the current status of the Under-frequency relay is? \_\_\_\_\_\_\_. ERCOT confirms that the status of the UFR is \_\_\_\_\_\_\_.
6. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_\_.
7. Now I’d like to make sure our system clocks are in synch at this time. I am showing the current time is \_\_\_\_\_\_\_\_\_\_\_\_. Can you confirm?”

Record the data on the test sheet.

“Do you have any questions at this time?

“At this time ERCOT is issuing a deployment instruction for the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_\_ to be deployed and will confirm the status changes through our telemetry here at ERCOT. You have 10 minutes to respond to this instruction. The official start time for this instruction is \_\_\_\_\_\_\_\_\_\_\_\_\_. I will contact you again once we have completed the test.”

Post Deployment Test Results

1. “Can you tell me what you are currently showingas the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Resource Responsibility is \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is?\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_MW.
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the current status of the Under-frequency relay is? \_\_\_\_\_\_\_. ERCOT confirms that the status of the UFR is \_\_\_\_\_\_\_.
6. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_.
7. I show that the official ERCOT time for this Load Resource to respond was \_\_\_\_\_\_\_\_.

“You are now cleared to restore this load. Once again ERCOT is issuing an instruction to recall the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_. The time of this recall notice is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“Time Load was restored \_\_\_\_\_\_\_\_\_\_\_.

“This concludes the recertification testing for the Non-Controllable Load Resource known as \_\_\_\_\_\_\_\_\_\_\_\_\_.”

If all telemetry readings agree and the NCLR curtailed at least 95% of its committed Load within 10 minutes from the issuance of the Verbal Dispatch Instruction, the NCLR will be deemed to have successfully passed its test. The ERCOT Operator can then tell the QSE Operator that “This Non-Controllable Load Resource has successfully passed this Annual Recertification Test and continues to be fully qualified to provide Responsive Reserve Service and/or Non-Spinning Reserve Service within the ERCOT system. This Non-Controllable Load Resource will be subject to an annual telemetry test that will be due one year from today. It is also subject to a biennial test that will be due in two years from the date it was last tested.”

The NCLR will be deemed to have failed its Recertification Test if it fails to deploy its Load within 10 minutes, has telemetry which produces unexpected results (e.g. breaker status does not change), or fails to deploy at least 95% of its Load. The ERCOT Operator will inform the QSE Operator that the NCLR has failed its Recertification Test. The NCLR will be given 30 days to take corrective action and remedy any defects in its operation. It will not be allowed to provide Ancillary Services until all defects have been corrected. At that point the NCLR will be subject to another test which it must pass or be subject to suspension.

**NCLR Recertification Test Procedure Script for Load Resources that do not have Hi-Set Under-Frequency Relays and intend to provide Non-Spinning Reserve Service only.**

“This is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with ERCOT System Operations and I will be serving as the ERCOT Testing Operator. I am talking to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ QSE and we will be conducting a recertification test on a Load Resource that is currently qualified to provide Non-Spinning Reserve Service on the ERCOT System. The Load Resource in question is named \_\_\_\_\_\_\_\_\_\_\_\_ and the end use customer for this Load Resource is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“We will be doing an actual load interruption test today and in a minute I will be giving you an instruction to deploy this unit. First I’d like to confirm our telemetry readings for this Resource.

1. Can you tell me what you are currently showing as the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Resource Responsibility is? \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is? \_\_\_\_\_\_\_\_\_\_ MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_\_\_\_\_\_MW
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_\_.
6. Now I’d like to make sure our system clocks are in synch at this time. I am showing the current time is \_\_\_\_\_\_\_\_\_\_\_\_. Can you confirm?”

Record the data on the test sheet.

“Do you have any questions at this time?

“At this time ERCOT is issuing a deployment instruction for the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_\_ to be deployed and will confirm the status changes through our telemetry here at ERCOT. You have 30 minutes to respond to this instruction. The official start time for this instruction is \_\_\_\_\_\_\_\_\_\_\_\_\_. I will contact you again once we have completed the test.”

Post Deployment Test Results

1. “Can you tell me what you are currently showingas the net real power consumption on this load? \_\_\_\_\_ MW. At ERCOT we indicate the consumption is \_\_\_\_\_ MW.
2. Can you tell me what the Ancillary Service Resource Responsibility on this Load Resource is? \_\_\_\_\_\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Resource Responsibility is \_\_\_\_\_\_\_\_\_\_MW.
3. Can you tell me what the Ancillary Service Schedule on this Load Resource is?\_\_\_\_\_MW. At ERCOT we show that the Ancillary Service Schedule is \_\_\_\_\_MW.
4. Can you tell me what the current status of the breaker for this Load Resource is? \_\_\_\_\_\_\_. ERCOT confirms the status of the breaker is \_\_\_\_\_\_\_.
5. Can you tell me what the current status of the Under-frequency relay is? \_\_\_\_\_\_\_. ERCOT confirms that the status of the UFR is \_\_\_\_\_\_\_.
6. Can you tell me what the Resource Status on this Load Resource is?\_\_\_\_\_. ERCOT confirms that the status is \_\_\_\_\_\_.
7. I show that the official ERCOT time for this Load Resource to respond was \_\_\_\_\_\_\_\_.

“You are now cleared to restore this load. Once again ERCOT is issuing an instruction to recall the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_. The time of this recall notice is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

“Time Load was restored \_\_\_\_\_\_\_\_\_\_\_.

“This concludes the Recertification Test for the Non-Controllable Load Resource known as \_\_\_\_\_\_\_\_\_\_\_\_\_.”

If all telemetry readings agree and the NCLR dropped at least 95% of its Load within 30 minutes from the issuance of the Verbal Dispatch Instruction, the NCLR will be deemed to have successfully passed its test. The ERCOT Operator can then tell the QSE Operator that “This Non-Controllable Load Resource has successfully passed this Annual Recertification Test and continues to be fully qualified to provide Non-Spinning Reserve Service within the ERCOT system. This Non-Controllable Load Resource will be subject to an annual telemetry test that will be due one year from today.”

The NCLR will be deemed to have failed its Recertification Test if it fails to deploy its Load within 30 minutes, has telemetry which produces unexpected results (e.g. breaker status does not change), or fails to deploy at least 95% of its Load. The ERCOT Operator will inform the QSE Operator that the NCLR has failed its Recertification Test. The NCLR will be given 30 days to take corrective action and remedy any defects in its operation. It will not be allowed to provide Ancillary Services until all defects have been corrected. At that point the NCLR will be subject to another test which it must pass or be subject to suspension.

# Change Control and Retirement of Load Resources

##  Change Control for Load Resources

If a Resource Entity makes a significant change to a Load Resource, it is required to submit a revised RARF indicating what changes are being proposed. Depending on the nature of the change, the Resource Entity may need to submit a new one-line diagram and UFR test reports. If it is adding an additional Load Point under the Load Resource, it will need to identify the telemetry that is associated with the change.

Demand Integration staff will coordinate with EMS Production Support and the Network Modeling groups to update the EMS and Network Operations Modeling systems. If the change involves a revision to the Net Dependable Capability of the Load Resource, a Qualification Test will be required to confirm the new Maximum Power Consumption value for the Load Resource.

##  Retirement of Load Resources

When a Load Resource decides to discontinue participation in the ERCOT Ancillary Service Market, its Resource Entity will submit a revision to the RARF that will indicate a new stop date for the Load Resource. Demand Integration staff will coordinate with the EMS, Network Model and Settlements staff to remove the Load Resource from the ERCOT software systems.

# Documentation and Reports

## Request for Provisional Qualification and Affidavit

**STATE OF TEXAS §**

 **§**

**COUNTY OF TRAVIS §**

**AFFIDAVIT**

**Request for provisional qualification of loads to provide Responsive Reserve Service (RRS) and/or Non-Spinning Reserve Service**

 **BEFORE ME,** the undersigned authority, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, being first duly sworn, deposes and states:

1. “My name is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. I am over the age of twenty-one and am competent to make the following statements.
2. I am employed as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at [Entity], having its principal place of business at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. [Entity] is requesting that ERCOT provisionally certify the load known to ERCOT as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (“the Load”) as a Resource, pursuant to Section 8.1.2.1 of the ERCOT Nodal Protocols.
4. I have reviewed and fully understand the performance and compliance provisions in Section 8 of the ERCOT Protocols.
5. I acknowledge that the provisional qualification to provide RRS and/or Non-Spinning Reserve Service which [Entity] is requesting, is valid for a period of ninety (90) days from the date provisional qualification is awarded.
6. I also acknowledge that if either (a) during the provisional qualification period the Load does not successfully provide responsive reserve service when required, or (b) after the provisional qualification period the Load has not successfully completed its Qualification Test, then in either event, the Load will no longer be qualified to provide RRS and/or Non-Spinning Reserve Service.

The foregoing statements offered by me are true and correct and the opinions stated therein are, in my judgment and based upon my professional experience, true and correct.”

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Affiant

 **SUBSCRIBED AND SWORN TO BEFORE ME** on this \_\_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 200\_\_, by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Affiant named herein.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Notary Public, State of Texas

## Load Resource Qualification Test Report

RESULTS of LOAD RESOURCE ANCILLARY SERVICE TESTING

Test Date**:** Asset Code:

Customer Common Name for the Load Resource:

Resource Entity: QSE:

TDSP:

Transmission Substation name:

Registered Capacity (MW):

Type of Ancillary Service Test:

**Pre-deployment Telemetry**

|  |  |  |
| --- | --- | --- |
|  | QSE Reported Value | ERCOT Reported Value |
| LR Net real power Flow(MW) |  |  |
| Resource Status Code |  |  |
| RRS Responsibility(MW) |  |  |
| RRS Schedule (MW) |  |  |
| NSRS Responsibility (MW) |  |  |
| NSRS Schedule (MW) |  |  |
| MPC |  |  |
| LPC |  |  |
| Breaker Status |  |  |
| UFR Status |  |  |

Time for XML Deployment Instruction from ERCOT: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Time for Verbal Dispatch Instruction from ERCOT: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Post-deployment Telemetry**

|  |  |  |
| --- | --- | --- |
|  | QSE Reported Value | ERCOT Reported Value |
| LR Net real power Flow(MW) |  |  |
| Resource Status Code |  |  |
| RRS Responsibility(MW) |  |  |
| RRS Schedule (MW) |  |  |
| NSRS Responsibility (MW) |  |  |
| NSRS Schedule (MW) |  |  |
| MPC |  |  |
| LPC |  |  |
| Breaker Status |  |  |
| UFR Status |  |  |

LR Schedule Change within 1 minute: Pass Fail

LR Deploys within 10 minutes of VDI: Pass Fail

LR Remains Deployed during Entire Deployment Period: Pass Fail

LR Time of Recall XML Instruction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

LR Time of Recall Verbal Dispatch Instruction: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Time Load Restored to Pretest Conditions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Limiting Factors if Any: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ERCOT Operator Ordering test: \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

QSE Representative Initiating Load Shed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

LR Authorized Representative: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Qualification Test Affidavit

**STATE OF TEXAS §**

 **§**

**COUNTY OF TRAVIS §**

**AFFIDAVIT**

**Load Qualification Tests for Load Resources providing Responsive Reserve Service (RRS) and/or Non-Spinning Reserve Service**

 **BEFORE ME,** the undersigned authority, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, being first duly sworn, deposes and states:

1. “My name is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. I am over the age of twenty-one and am competent to make the following statements.
2. I am employed as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, having its principal place of business at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. I have reviewed and fully understand the Load Resource Ancillary Service Qualification Test Procedures that govern load participation in the ERCOT Ancillary Service Markets.
4. I herby affirm and certify that the method used to dispatch and shed the load as part of that test is consistent with the method that will be used during an actual deployment of the Load Resource named \_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. I hereby affirm and certify that the facilities described in the Resource Entity’s Asset Registration, One-line diagram and if applicable the Under-Frequency Relay Test Report; attached hereto are to the best of my knowledge in compliance with all requirements specified in the ERCOT Protocols and Operating Guides.
6. The test results are attached to this Affidavit and represent an accurate assessment of the testing that was conducted and are a part of this Qualification Test documentation.

 The foregoing statements offered by me are true and correct and the opinions stated therein are, in my judgment and based upon my professional experience, true and correct.”

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Affiant

 **SUBSCRIBED AND SWORN TO BEFORE ME** on this \_\_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 200\_\_, by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Affiant named herein.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Notary Public, State of Texas

## Annual Telemetry Test Report

This test report is located in the ERCOT Nodal Operating Guides under Section 8G-1.

## Biennial Test for Non-Controllable Load Resource Under-Frequency Relays (UFRs)

This test report is located in the ERCOT Nodal Operating Guides under Section 8G-2.