It is the **responsibility of the Market Participant seeking ADER qualification to be aware of and ensure compliance with its obligations under the ERCOT Protocols and the ADER Pilot Project Governing Document – Phase 2.**

**This procedure consists of three main elements:**

* **Telemetry Validation**
* **SCED Qualification**
* **Ancillary Service Qualification**

**The telemetry validation and SCED qualification can be done concurrently in which the ADER must also be under SCED dispatch control and follow the ramping UDBP signal from ERCOT.**

**It is possible that the information below may have omitted additional relevant information or contain incomplete information. The information below is provided “AS IS” and shall not be construed as waiving or altering any obligations under the ERCOT Protocols and the** **ADER Pilot Project Governing Document – Phase 2.**

[TELEMETRY ACRONYMS 2](#_Toc156810249)

[PREREQUISITIES FOR ADER QUALIFICATION 3](#_Toc156810250)

[TELEMETRY VALIDATION TEST 3](#_Toc156810251)

[SCED QUALIFICATION 4](#_Toc156810252)

[NON-SPIN QUALIFICATION 5](#_Toc156810253)

[ECRS QUALIFICATION 5](#_Toc156810253)

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| **DATE** | **VERSION** | **DESCRIPTION** | **Approval** |
| **7/10/2023** | **1.0** | **Initial Procedure for ADER Telemetry Validation, SCED Qualification and AS Qualifications** | **Mark Patterson** |
| **1/22/2024** | **1.1** | **General revisions for clarity. Phase 1** | **Mark Patterson** |
| **6/24/2024** | **2.1** | **Revised to align with Phase 2 Governing Document and add ECRS Qualification procedure.** | **Mark Patterson** |
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# **TELEMETRY ACRONYMS**

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| **ACRONYM** | **DESCRIPTION** |
| **BP** | **Base Point (analog value in MW)** |
| **LPC** | **Low Power Consumption** |
| **MPC** | **Max Power Consumption** |
| **NPF** | **Net Power Flow (same as Net Power Consumption)** |
| **NSRS** | **Non-Spin Responsibility**  |
| **NSSC** | **Non-Spin Schedule** |
| **ECRS** | **ECRS Responsibility**  |
| **ECSC** | **ECRS Schedule** |
| **RRSC** | **Responsive Reserve Schedule** |
| **RST** | **Resource Status Code** |
| **SCED** | **Security Constrained Economic Dispatch** |
| **UDBP** | **Updated Desired Basepoint** |

Aggregate Distributed Energy Resource (ADER)

Telemetry Validation, SCED Qualification and Ancillary Service Qualification Procedure

Version 2.1 Phase 2

# **PREREQUISITIES FOR ADER QUALIFICATION**

All ADERs requesting telemetry validation and qualification testing must have active telemetry in the Network Operations Model providing telemetry that is being updated every 2 seconds and capable of being validated as described in the ADER Pilot Project Governing Document – Phase 2 and this procedure.

ADERs in general will be treated like Controllable Load Resources but are not required to provide primary frequency response and will not be required to submit PFR test results into the Net Dependable Capability and Reactive Capability (NDCRC) application.

# **TELEMETRY VALIDATION TEST**

ADERs using Premise Level Telemetry

1. The ADER telemetry values are to be a reasonable representation of the aggregate sum of the import and export values of the ADER member Premises plus the established offset.
2. ERCOT will aggregate the Premise-level 15-minute interval meter data of all sites associated with the ADER and will compare this aggregate data to the QSE provided telemetry values for Net Real Power Consumption, averaged over each 15-minute interval during the period being evaluated, less the offset for the ADER.
3. ERCOT will conduct this telemetry validation as part of the ADER qualification process and periodically during the term of the Pilot Project. This process will encompass all 15-minute settlement intervals during the evaluation period. The initial evaluation period will consist of an 8-hour window mutually agreed upon by ERCOT and the QSE prior to the day of the test.
4. During the evaluation period, the QSE may request to concurrently conduct a SCED Qualification test. A successful SCED Qualification Test is required for ADER to participate in the ERCOT market. It is also a prerequisite requirement prior to the ADER providing any ancillary services. The QSE may request to conduct a SCED Qualification Test separately from its telemetry validation. See SCED Qualification Test section below.
5. The telemetry must validate to the following criteria:
	1. Condition 1: Only intervals where the aggregate premise-level data, averaged over each 15-minute settlement window, are greater than 10% of the Resource’s requested energy capability will be evaluated as follows:
		1. When the aggregate premise-level data shows as net injecting, the Resource’s injections must exceed 10% of the Maximum Injection Capability, OR
		2. When the aggregate premise-level data shows as net withdrawing, the Resource’s withdrawals must exceed 10% of the Maximum Withdrawal Capability.
	2. Condition 2: Of these intervals being evaluated, the telemetered value must be within 10% of the aggregate premise-level data averaged over each 15-minute Settlement interval.
	3. Condition 3: During the 8-hour evaluation period, at least 50% of the intervals must meet condition 1 above.

ADERs using Device Level Telemetry

1. If the ADER telemetry values represent the sum of the Devices under control, the QSE will be required to provide device-level sub-meter data for each site in the aggregation contributing to the device-level telemetry to ERCOT.
2. The device-level sub-meter data being submitted must meet the requirement specified in the ADER Device Level Telemetry Validation Instructions document found [here](https://www.ercot.com/mktrules/pilots/ader). The data will consist of one minute interval energy data for each device expressed in kWh.
3. ERCOT will conduct this telemetry validation as part of the ADER qualification process and periodically during the term of the Pilot Project with each test encompassing all 15-minute Settlement intervals during the evaluation period. The evaluation period for the initial validation will consist of an 8-hour window that is mutually agreed upon by ERCOT and the QSE prior to the day of the test.
4. During the evaluation period for telemetry validation, the QSE may request to concurrently perform a SCED Qualification test. A successful SCED Qualification Test is required for the ADER to participate in the ERCOT market. It is also a prerequisite requirement prior to any Ancillary Services qualification test The QSE may however request a SCED Qualification Test separately from its telemetry validation test. See SCED Qualification Test section below.
5. ERCOT will use the following 2-step validation process for the QSEs device-level telemetry.
	1. Step 1: The ADER Net Power Consumption (NPC) telemetered values minus offset averaged over each 15-minute interval must be within 10% of the aggregate of the device-level sub-meter (data recorder) data, averaged over each 15-minute interval during the period being evaluated.
	2. Step 2: All of the following conditions must be met for Step 1:
		1. Condition 1: Only intervals where the aggregate device-level data, averaged over each 15-minute Settlement window, are greater than 10% of the Resource’s requested energy capability will be evaluated as follows:
			1. When the aggregate device-level data shows as net injecting, the Resource’s injections must exceed 10% of the Maximum Injection Capability, OR
			2. When the aggregate device-level data shows as net withdrawing, the Resource’s withdrawals must exceed 10% of the Maximum Withdrawal Capability.
		2. Condition 2: Of these intervals being evaluated, the telemetered value must be within 10% of the aggregate device-level data averaged over each 15-minute Settlement interval.
		3. Condition 3: During the 8-hour evaluation period, at least 50% of the intervals must meet condition 1 above.

# **SCED QUALIFICATION**

As noted above a SCED qualification test can be either performed concurrently with the telemetry validation test or separately. To successfully complete a SCED qualification test, the ADER must be under SCED dispatch control. During the SCED test period, ERCOT will temporarily show the ADER as SCED qualified.

1. The ADER should telemeter its MPC and LPC so that the ADER has a response range of at least 80% of their registered dispatch capability as shown in the Details of the Aggregation (DOTA).
2. The QSE will need to set the Resource status to ONCLR which will put the ADER under SCED dispatch control and will need to have a Bid-to-Buy in the market system that will have SCED dispatch the ADER to their LPC (a Bid-to-Buy at a relatively lower price than the current energy price). The ADER should stay at this value for about 15 minutes, for example ramp from 12:30 to 12:45 and then stay at their LPC until 13:00.

*Note*: *for the status code changes to be effective this test must start at the half hour mark.*

1. The QSE will need to change the Bid-to-Buy before the end of the Adjustment Period for the next hour (HE14 in the example) so that when the time moves to the next hour, SCED will dispatch the ADER to its MPC. The QSE should set the ramp rate so that this occurs over three SCED intervals (or 15 minutes). In the example, the ADER would ramp from its LPC to MPC from 13:00 to 13:15 and then stay at its MPC from 13:15 to 13:30.
2. For this test ERCOT will evaluate the ADER, based on its ability to follow the UDBP signal and reach its BP at the end of each 15-minute period. ERCOT will use the current TAC approved performance parameters for a CLR for this test.
3. The SCED qualification test can be performed during the same test period as the Telemetry validation testing, or separately at the discretion of the QSE. Should the QSE conduct telemetry validation and SCED Qualification simultaneously, the ADER only needs to be showing a Resource Status Code of ONCLR during the SCED qualification test and can show a status of OUTL for the remainder of the evaluation period.

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# **NON-SPIN QUALIFICATION**

The ADER must be SCED qualified as a prerequisite for this test. The QSE will also need to request a Provisional Qualification for the ADER (and themselves if not already qualified) several days in advance of the test.

The test procedure will consist of the following steps:

1. The QSE needs to schedule the test about a week before with the Demand Integration Test Coordinator. A provisional qualification will go into effect the day before they are scheduled for testing.
2. ERCOT will contact the QSE prior to the start of the test to manually adjust Ancillary Service telemetry to facilitate a test. The ICCP points that need to be adjusted are NSRS, NSSC, and the RST. MPC and LPC should also be configured appropriately to current resource conditions.
3. As a CLR, the ADER should show a Resource Status of ONCLR and should have a Bid-to-Buy in the Market System. The ADER can be dispatched to their MPC or LPC, but the system will respect their AS Capacity, so the ADER may want to set their Bid-to-Buy, MPC and LPC accordingly.
4. The ADER will be dispatched manually by ERCOT as an Off-Line Resource. They should expect to get an XML instruction for their full Non-Spin Responsibility.
5. The ADER should change their NSSC within 20 minutes of the XML being issued and at that point needs to follow the BP and UDBP instructions.
6. The ADER must be available to SCED, and within 25 minutes following the deployment instruction must have a Real-Time Market (RTM) Energy Bid and the telemetered net real power consumption must be greater than or equal to the Resource’s telemetered LPC. (Depending on how they set their Bid-to-Buy, MPC and LPC, the Resource may not have to increase or decrease load.)
7. After about one hour the ERCOT Operator will issue a recall instruction via an XML instruction. The ADER should change their telemetry back to show their NSSC as required within 3 hours. If they don’t have a Non-Spin Responsibility, they should change their RST to OUTL and their NSRS and NSSC to 0 MW.

# **ECRS QUALIFICATION**

The ADER must be SCED qualified as a prerequisite for this test. The QSE will also need to request a Provisional Qualification for the ADER (and themselves if not already qualified) several days in advance of the test.

The test procedure will consist of the following steps:

1. The QSE needs to schedule the test about a week before with the Demand Integration Test Coordinator. A provisional qualification will go into effect the day before they are scheduled for testing.
2. ERCOT will contact the QSE prior to the start of the test to manually adjust Ancillary Service telemetry to facilitate a test. The ICCP points that need to be adjusted are ECRS, ECSC, and the RST. MPC and LPC should also be configured appropriately to current resource conditions.
3. As a CLR, the ADER should show a Resource Status of ONCLR and should have a Bid-to-Buy in the Market System. The ADER can be dispatched to their MPC or LPC, but the system will respect their AS Capacity, so the ADER may want to set their Bid-to-Buy, MPC and LPC accordingly.
4. The ADER will be dispatched manually by ERCOT as an Off-Line Resource. They should expect to get an ICCP instruction for their full ECRS Responsibility.
5. The ADER should change their ECSC within 1 minute of the ICCP instruction being issued and at that point needs to follow the BP and UDBP instructions.
6. The ADER must be available to SCED, and within 10 minutes following the deployment instruction must have a Real-Time Market (RTM) Energy Bid and the telemetered net real power consumption must be greater than or equal to the Resource’s telemetered LPC. (Depending on how they set their Bid-to-Buy, MPC and LPC, the Resource may not have to increase or decrease load.)
7. After about one hour the ERCOT Operator will issue a recall instruction via an ICCP instruction. The ADER should change their telemetry back to show their ECSC as required within 3 hours. If they don’t have an ECRS Responsibility, they should change their RST to OUTL and their ECRS and ECSC to 0 MW.