ADER Pilot Phase 4 –ADESR

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Revised draft	The revised Phase 4 Governing Document is posted with the meeting materials, now opening with a problem statement, target outcomes and goals for Phase 4.
Feedback	Written comments from five parties, and discussion at DSWG on October 19.
Today	1. Phase 4 problem statement, target outcomes and goals 2. Stakeholder comments and ERCOT responses 3. Summary of Phase 4 Governing Document revisions 4. Responses to questions from the October 7 WMS 5. Stakeholder process and timeline

Key Takeaway

The revised draft reflects stakeholder feedback and greater clarity on issue definition, goals, and metrics for Phase 4.

Phase 4 topics to explore

Phases 1 to 3 showed viable paths to integrating aggregated distributed resources into the ERCOT market. Some issues need to be addressed for the long term, and key improvements can be made.

Issue	What it means
Modeling and dispatch issues	ADERs are modeled as ALRs and dispatched on Load Zone Shift Factors, so SCED assumes their response is spread across the whole zone. ERCOT's 2024 and 2025 Pilot reports found that zonal and quasi-nodal Shift Factors can diverge significantly, sometimes in opposite directions. The approach using Load Zone Shift Factors thus has the potential to create a case in which the dispatch of these Resources could exacerbate rather than resolve congestion.
Resource characteristics	Every ADER is modeled as an ALR – a deliberate simplification. For aggregations of batteries, the ALR approach: • makes a battery appear as net load, so its bid/offer must be converted into an ALR bid to buy; • does not let SCED see state of charge; • leaves ADERs out of ERCOT's planning process as Resources that help with congestion and resource adequacy.
Distribution system impacts	Only recently have residential batteries become concentrated enough locally for distribution impacts to be studied and limits set. DSPs are managing the growth in connection requests and studies.

Phase 4 target outcomes

What Phase 4 is designed to achieve, as set out in the revised Governing Document.

Target outcome	What it means
Evaluate the system impacts of nodal dispatch	ADESRs map to one substation transformer and are dispatched on nodal Shift Factors, like other stand-alone distribution Resources. ERCOT analyzes their effect on congestion. Settlement stays zonal, with no make-whole payments. ERCOT will report on the difference between zonal and nodal prices for ADESRs, and on how distribution switching affects their capability.
Expand participation options consistent with Resource characteristics	The Pilot is technology-neutral; however, the ADESR participation model suits aggregations made up largely of storage systems, so their continuous bid/offer curve and state of charge can be reflected in RUC and SCED.
Explore and refine the registration and resource integration study process	Phase 4 uses the existing DESR registration and interconnection process for ADESRs, giving DSPs, Market Participants and ERCOT the chance to find issues and identify improvements.
Study distribution system impacts	ERCOT will meet DSPs quarterly to understand whether, where and how device growth is affecting distribution systems, and work with DSPs and the Commission to identify and help resolve any issues.

Phase 4 goals

What Phase 4 will explore and document, and how its progress will be measured.

Goal	What it involves
Impact on congestion	Explore and document how ADESRs dispatched on nodal Shift Factors affect congestion and cost, sharing the results periodically.
Impact of nodal dispatch with zonal Settlement	Track and measure the impact of dispatching nodally and settling zonally. ERCOT expects minimal to no uplift, since the Load Zone price always falls between the lowest and highest bus LMP in the zone, and participation is voluntary with no make-whole payment. ERCOT will study and report on any impacts periodically.
Nodal Settlement design	Explore and document the metering, data aggregation and settlement equations nodal Settlement would require, and evaluate its feasibility. This would inform any NPRRs – nodal Settlement would not occur until NPRRs are written, approved and implemented.
Viability of the ADESR	Evaluate the ADESR as a participation model, reporting regularly on participation and any barriers.
Distribution system impacts	Explore and document impacts on the distribution system and the DSP interconnection process – including operational and infrastructure risks, limitations and any DSP costs directly attributable to ADER participation – in a separate report with recommendations developed with DSPs, PUCT Staff and stakeholders.

Phase 4's outcomes will inform whether and how the participation models explored in the Pilot can be moved into the Protocols.

Overview of the ADESR participation option

An ADESR is an aggregation of distribution-connected energy storage behind one substation transformer, dispatched like a DESR – with targeted differences for an aggregated Resource.

Characteristics	Distribution Energy Storage Resources (DESRs)	Aggregate Distributed Energy Storage Resources (ADESRs)
Network Model	Mapped to the appropriate CIM Load in the network model	
Dispatch	SCED via nodal shift factor, bid/offer curves, SOC and base point following	
Telemetry & COP	DESR telemetry and Current Operating Plan data	
DAM & CRR	Standard Resource Node, biddable in DAM and CRR auctions	Resource Node is non-biddable in DAM and CRR
Metering & Settlement	Single physical meter at the Point of Interconnection and nodal settlement	No single physical meter and zonal settlement
Ancillary Services	Eligible if otherwise qualified	Ineligible; subject to future review

ADESRs need a non-biddable Resource Node, device-level telemetry and deferred Ancillary Service eligibility. Everything else follows existing DESR rules.

Participation as an ALR or NCLR is unchanged.

No new NPRR – only amendments to the Governing Document.

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Stakeholder review since the October 7 WMS update

The draft was posted for comment after the October 7 WMS update, ahead of the October 19 DSWG meeting. Comments closed on October 26, and the revised draft incorporating stakeholder feedback is posted with today's materials.

October 12	October 19	October 26	November 2
Draft posted redline and clean, on the DSWG page	**DSWG** discussion of the draft	**Comments closed** written comments from five parties	**Revised draft posted** with the WMS materials

All comments received to date have been posted on the ADER Pilot Project webpage under "Phase 4 Governing Document Comments."

Stakeholder comments and ERCOT responses

The main themes from the comment period and DSWG, with ERCOT's response to each.

Theme	What we heard	ERCOT's response
Nodal Settlement	Remove the study of nodal Settlement from the Governing Document, or carry it out separately from the Pilot, given potential costs to DSPs and customers.	No nodal settlement in the Pilot – ADESRs continue to be settled at Load Zone prices, with no make-whole payments. Alternatives to Load Zone dispatch and settlement have been part of the goals of the Pilot since initiation; this is the opportunity to explore these. Phase 4 explores the metering, data aggregation and settlement equations nodal Settlement would require**; it would not occur until NPRRs are written, approved and implemented.**
Distribution system impacts and costs	Understand the impacts on distribution systems, the costs involved, and who ultimately bears them.	ERCOT will meet DSPs quarterly and work with DSPs and the Commission to identify and help resolve any issues, including any distribution limitations and any DSP costs directly attributable to ADER participation. The outcome will include a separate report with recommendations.
The 1 MW minimum	Lower the minimum to 100 kW so smaller and dispersed fleets can take part, and clarify how it is measured.	Retained at 1 MW, now expressed as aggregate response capability – demand response plus injection – measured at the device level. Each ADESR is modelled individually, and at 100 kW could only be dispatched fully on or off. Aggregations from 100 kW can still participate as ALRs.

Stakeholder comments and ERCOT responses (continued)

The main themes from the comment period and DSWG, with ERCOT's response to each.

Theme	What we heard	ERCOT's response
Participation limits	Set an explicit, Pilot-wide cap on ADESR participation, tied to the Pilot's learning objectives, rather than relying on DSPs to limit participation.	No system-wide or QSE limits apply to ADESRs. Because ADESRs are local by definition, DSPs set any local limits, and every DOTA is reviewed, studied and approved by the DSP before it reaches ERCOT. How those limits work in practice is an important learning of Phase 4.
Technology neutrality and EVs	Make eligibility technology-neutral, including EV chargers and bidirectional EVs, and provide for devices that connect, disconnect and move between locations.	The Pilot is technology-neutral, but neutrality does not mean uniformity: the ADESR suits aggregations made up largely of storage devices, and the other options remain available. Nothing in the draft excludes EV systems; a specific configuration is assessed when its DOTA is submitted.
Path to the Protocols	Set a clear timeline and criteria for moving the Pilot into the Protocols.	The Governing Document now sets out Phase 4's target outcomes and goals. Its outcomes will inform whether and how the participation models explored in the Pilot move into the Protocols, through the NPRR process.
DOTA process and DSP coordination	Clarify the update cadence, give DSPs visibility of when ERCOT completes processing, and give participants clearer reasons when a DSP limits participation.	The first-of-the-month notice is removed, and only one DOTA update may be pending at a time. ERCOT returns the approved DOTA to the QSE, which closes the loop with the DSP. Clearer rejection reasons are being worked through the DOTA form.

Stakeholder comments and ERCOT responses (continued)

The main themes from the comment period and DSWG, with ERCOT's response to each.

Theme	What we heard	ERCOT's response
Telemetry validation	Align the ADESR test with the ALR procedure – 50% of intervals over 8 hours, rather than 100% over 4 hours.	Retained. An ADESR is a battery, typically a two-to-four-hour resource, should respond throughout the window; the ALR test lets an aggregation deploy portions of its fleet in turn.
Qualification and eligibility	Confirm that the SCED qualification test runs over the registered range, with an HSL of zero acceptable for a withdrawal-only aggregation, and that prior participation as an ALR is not a precondition for an ADESR.	Confirmed. An HSL of zero is acceptable, as it is for ESRs and DESRs today, and the qualification test reflects the range the Resource plans to provide. Participation as an ALR is not a precondition to registering as an ADESR.
Device security	Set baseline cybersecurity requirements for all participants, regardless of size.	Outside what the Governing Document's scope. The DOTA form already asks which communication standards each device is certified to meet.

Summary of Phase 4 Governing Document revisions – the ADESR

Phase 4 adds one participation option. Revisions made since the initial October 12 Governing Document posting are in teal.

What changed	Explanation
The ADESR	An aggregation of distribution-connected energy storage devices that map to the same CIM Load (substation transformer), modeled in substantially the same manner as a DESR and dispatched through SCED using nodal shift factors.
Size and limits	A minimum of 1 MW of aggregate response capability, with no cap imposed by the Governing Document unless set by the DSP or TSP. The Pilot's energy, Non-Spin and ECRS limits do not apply; TSP or DSP location-based limits may. **Since October 12:** the minimum is expressed as aggregate response capability rather than injection; the 10 MW large generator threshold as aggregate nameplate capacity, consistent with Planning Guide Section 5.2.1; and each Premise provides 1 MW or less of response.
Pilot characteristics and exceptions	A non-biddable Resource Node where newly created; not currently eligible to provide Ancillary Services; an ADESR-specific DOTA form covering one CIM Load per form; and not currently subject to Protocols § 3.8.6 or the ride-through requirements in Nodal Operating Guide Sections 2.6 and 2.9 – the DSP's requirements apply instead. **Since October 12:** the equipment ride-through attestation applies except as provided in 5.b, and the PFR exception is confirmed as applying to ALRs only – ADESRs follow the DESR requirements, which include PFR.

Summary of revisions – registration, telemetry and Settlement

How an ADESR is registered, validated and settled. Revisions since October 12 are marked in teal.

What changed	Explanation
Registration and the DOTA process	The Resource Entity registers the Resource through RIOO using the process designated by ERCOT for an ADESR, identifying it as an aggregation; existing TSP and DSP studies and registration reviews for a DESR continue to apply. Only one DOTA update may be pending at a time. **Since October 12:** the first-of-the-month DOTA notice is removed for ALRs and NCLRs.
Telemetry and validation	ADESR telemetry is derived from device-level data for all approved devices in the DOTA form. A two-step validation gives ERCOT assurance that Resource-level telemetry, including State of Charge, reasonably represents the aggregate behavior and capability of the devices.
Settlement	No single physical meter at a Point of Interconnection; an ADESR is settled at the applicable Load Zone price. Zonal Settlement is retained throughout Phase 4.
Purpose and evaluation	Evaluate the dispatch of ADESRs at a nodal level, including the effects on transmission congestion; explore the metering, data aggregation and settlement design nodal Settlement would require; and, with DSPs, evaluate how routine changes to distribution connectivity affect ADESR capability and mapping. **Since October 12:** the Introduction now sets out the problem statement, target outcomes and goals for Phase 4.

A large portion of the Phase 4 Governing Document changes are editorial. E.g., the Pilot's history/background has been consolidated into a phase progression table, provisions have been scoped to the participation option they apply to, defined terms aligned, and sections restructured for readability.

Responses to questions raised at the October 7 WMS

Questions raised by WMS members when ERCOT presented the Phase 4 approach on October 7.

Question	Response
Is an uplift or make-whole mechanism needed when an ADESR is dispatched nodally but settled zonally?	ERCOT expects minimal to no uplift: there is no make-whole payment, and participation is voluntary. ERCOT will report on the difference between zonal and nodal prices for ADESRs, measuring and analyzing it during Phase 4.
How is a Resource compensated if it is dispatched when the zonal price is negative but the nodal price is positive?	It is settled at the Load Zone price, with no make-whole payment – part of the trade-off a participant accepts by registering as an ADESR. ERCOT will report on the difference between zonal and nodal prices.
What are the advantages and drawbacks of zonal and nodal Settlement?	Zonal Settlement, retained in Phase 4, needs no changes to settlement systems, metering or the Protocols, but leaves dispatch and Settlement misaligned, with no compensation for locational value. Nodal Settlement would align price with dispatch, but needs settlement system and Protocol changes and a metering solution. Phase 4 explores what it would require; **it would not occur until NPRRs are written, approved and implemented.**
Is there a participation cap by Load Zone?	No. The Pilot's limits are system-wide – 500 MW of registered capacity, and 100 MW each of Non-Spin and ECRS, for ALRs and NCLRs. Given the local nature of Phase 4, it is more prudent to have DSP and TSP location-based limits apply and govern any Resource submissions.

Stakeholder process and timeline

ERCOT will seek TAC endorsement on November 18, ahead of Board consideration on December 7.

November 4	November 18	December 7
WMS Update, and possible vote	**TAC** Endorsement	**ERCOT Board** Approval

Please submit any comments using the Phase 4 Governing Document Comment Form located on the ADER Pilot Project webpage (https://www.ercot.com/mktrules/pilots/ader).

Please submit comments to RevisionRequest@ercot.com.

Questions concerning the Pilot or the Governing Document may be sent to pilotprojects@ercot.com.

Questions

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