**DREAM / TAC Report**

**January 2016**

**Introduction:**

As directed by TAC, the DREAM task force reviewed the current landscape for DER participation in ERCOT, as well as proposed enhancements to the existing DER landscape. The task force reviewed current and potential (1) enable DER to participate in wholesale markets in a method similar to that of traditional resources(2) Inclusion of DER Settlement Points in CRR markets (3) allowances for a DER associated with a resource node to take an “economic outage” (4) allowances for aggregation at a zonal and system-wide basis (5) enhancements to DER visibility and dispatch control to ERCOT for improved system reliability, (6) improvements to the existing settlement timeline for DERs. and (7) compliance metrics appropriate for DERs. The Task Force also considered perceived impediments presented by a DER market participant.

**Details:**

*Current DER abilities to be associated with a Resource Node*

Numerous market participants expressed interest in participating in both ancillary service offerings and an ERCOT/SCED dispatch. Currently, to participate in Ancillary Services and/or a SCED dispatch, a Generation Resource must be associated with a resource node (CLR can participate in AS and SCED, LR with high set under frequency relay can participate in RRS without Resource Nodes). There are no explicit rules prohibiting a DER from registering as a Generation Resource and get assigned a resource node. However, current business practices lack specificity to model and represent a distribution connected resource with a transmission location in ERCOT models. Market participants also questioned the appropriateness of including potential DER resource nodes in CRR markets.

1. Current Business Practices for developing a Resource Node

ERCOT maintains a Business Practice “Procedure for Identifying Resource Nodes” (Last updated 7/23/2008.) The existing Business Practice does not consider the potential physical and electrical distance between Resource Nodes and Connectivity Nodes that may be unique to DERs. Specifically, DERs may have miles of distribution line (not currently modeled by ERCOT) between its physical interconnection at distribution voltage and a transmission level representation of that resource at a Resource Node. ERCOT protocols also lack guidance on how to represent a DER at a transmission level resource node. DREAM generally agreed that if TAC were to support an allowance for DERs to be associated with a Resource Node, then stakeholders would develop practices to model DERs. The DER would be modeled at a transmission bus (associated with a Common Identifier Model (CIM)) and metered at the DER’s connectivity node, with a logical adjustment to the CIM load (to avoid double counting associated with distribution load served by the DER.)

Allowing DERs to be associated with a Resource Node creates a level playing field for DER and traditional resources. A Resource Node allowance enables a DER to participate in all ERCOT market activities, including DAM three-part offers, ancillary service offer, DAM offers/bids, CRR Offers and Bids, and/or QSE to QSE transactions. Such an allowance would allow DERs to (1) participate in price formation (rather than reversal) in a meaningful way (2) represent their willingness to sell in an organized market (3) be visible to ERCOT in forward and/or real-time reserve metrics (4) obtain the locational value their resource provides to the ERCOT system and (5) subject DERs to the same compliance/performance standards currently applicable to traditional resources. Currently, DERs injecting to the grid are paid the Load Zone price associated with their Meter Location. This arrangement allows DERs to deliver energy “under the radar” in real time, with no compliance metrics or ERCOT knowledge of their presence / intent to deploy. Additionally, DERs are currently awarded a “free hedge to their load zone,” regardless of their location within that load zone or impact to congested elements.

***Proposed Vote: To enable DERs to participate in the DAM with a three-part offer, ancillary service offer, DAM offers/bids, CRR Offers and Bids, and/or QSE to QSE transactions, TAC directs DREAM to develop protocol revisions to achieve these ends. Revisions should include detailed practices for registration, mapping, metering, and compliance metrics associated with DER participation.***

1. Inclusion of DERs in CRR markets

As mentioned above, development of a Resource Node for a DER would enhance the ability for DERs to participate in the ERCOT market. A market participant questioned the appropriateness of an allowance for DERs to be associated with CRR markets.

The Market Participant was concerned with the relative mobility of a DER compared to that of a traditional resource, and corresponding opportunity to game the CRR market. This game would require that a DER maintain multiple interconnection points, a mobile resource, and a CRR position that would benefit from a long/short position while moving the resource to a different node.

***Proposed Vote: Direct CMWG to review the concern and report back to DREAM/TAC.***

1. Allowance for Economic Outages of DERs

A market participant suggested that a DER that is formally associated with a Resource Node have an allowance to reduce the availability of that DER to the marketplace by way of a COP update. The COP outage would not necessarily correspond to resource unavailability. Rather, the DER owner could self-service a portion of their load, rather than settle the output on a nodal basis. This would increase optionality and value for the DER resource, which could optimize the injection of their resource and withdrawal for load based upon nodal and load zone pricing. The load / resource combination could effectively chose between load zone and nodal pricing by virtue of a COP update. Certain market participants warned that introducing two price signals at an electrically equivalent location could be problematic.

***Proposed Vote: Direct QMWG/DREAM to develop protocol revisions to allow DERs registered with a Resource Node to allow for self-service economic outages.***

1. Provisions for Aggregations:

Numerous market participants expressed support for allowances for aggregations of resources. Currently, Aggregated Load Resources must all be located within the same load zone. Once qualified, ALRs can participate in Energy and Ancillary Service Markets. Energy market participant is currently limited to a Load Zone Dispatch with a bid-to-buy (rather than an offer to sell) represented in SCED. Accordingly, ALRs may participate in ancillary service offerings. Proponents of aggregation allowances for DERs have suggested the following options: (1) Create aggregations of DERs with nodal identity at a resource level and a corresponding portfolio with weighted shift factors (2) Create aggregations of DERs with a load zone-level identity and (3) Create aggregations of DERs with similarly situated electrical locations (defined by a shift factor cut-off.)

Each aggregation offers a nuanced approach to allow DERs to participate in Energy and Ancillary Services markets. Option 1 and Option 3 provide DERs a nodal dispatch, which accurately assesses the marginal benefit of energy delivered to the resource node associated with the portfolios of DERs. Option 3 would impose an additional limitation on aggregations, that is, each resource participating within the aggregation must have an electrically similar shift factor relative to system constraints. Option 2 is comparable to the existing treatment for ALRs, where DERs would be dispatched on a load-zone portfolio basis. Option 2 would preserve the existing treatment for DERs responding to energy prices, but enable compliance guidelines for dispatch and participation in ancillary service markets.

***Proposed Vote: Direct QMWG and DSWG to update the ALR business practices and associated protocols to reflect Option #\_\_\_\_***

1. Improvements to the Settlement timeline for DERs

Because meter data from Interval Data Recorder (IDR) meters is submitted by TDSPs to ERCOT via TX SET on a monthly basis, DERs that are IDR-metered and that inject to the grid typically must wait up to 59 days (i.e., Final Settlement) to receive their settlement payments.  Comparatively, resources with an ERCOT polled settlement meter (EPS) as well as AMI-metered Loads are settled within 7 business days (Initial Settlement).  ERCOT has authored an NPRR to leverage the AMI infrastructure by allowing registered DG units to be metered with AMI meters, thus improving their settlement timeline.

**Proposed Vote: Endorse the initiative to improve the settlement timeline of DERs.**

1. Reliability Concerns:

Currently, DERs are not considered in the ERCOT CDR, are not required to register, and are not subject to participate in SCED. Numerous stakeholders questioned when the aggregate amount of DER capacity on the ERCOT system may present a reliability threat. Specifically, when price-responsive DER exceeds the maximum amount of SCED UP/DOWN, then ramping constraints could be violated, and SCED would not directly be aware of the violation. Additionally, the location, fuel, availability, and size of DERs is not consistently reported or registered with ERCOT.

**Proposed Vote: Direct WMS / QMWG /DWSG to require that all DERs participate in either a nodal dispatch or an alternative load-zone based approach where every dispatchable DER may represent their individual willingness to sell to SCED. Passive DERs (e.g. solar, wind, or other non-price responsive resource) may still receive negative load zone pricing without further action.**

1. Compliance Requirements:

In the January DREAM meeting, in advance of TAC, participants will review compliance metrics for DERs.