**LOADS IN SCED Version 2**

**Preserving LMP Minus G**

*Prepared by the Loads in SCEDv2 Subgroup*

*of the ERCOT Demand Side Working Group*

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**EXECUTIVE SUMMARY**

Background

In 2011, TAC voted to endorse “LMP-G” rather than “Full LMP” as the settlement mechanism for direct participation in the real-time market by DR QSEs (i.e. CSPs). As presented at TAC, LMP-G establishes the principle that a customer should not get the benefit of the curtailment twice -- i.e., LMP plus avoided cost of energy. TAC endorsed ‘volumetric’ LMP-G (LMP-VG), which requires assignment of the estimated curtailment MW back to the specific customer. Through significant discussion and presentations from stakeholders, the LRISv2 Subgroup has determined that customer-specific curtailment cannot be estimated for the vast majority of customers, including all residential, with a sufficient level of accuracy.

What the LRISv2 Subgroup has learned about LMP-G

Residential customers must be aggregated to allow for accurate baseline estimation of curtailment quantity. A minimum size of an aggregation can be defined. Some mid-to-large commercial/industrial customers may have site-level curtailment quantity estimated with sufficient accuracy. Residential customers account for over 50% of the ERCOT peak, and therefore represent the greatest untapped market segment potential for price responsive load. Depending on control systems, residential aggregations may be well-suited to follow SCED base point instructions. LRISv2 Subgroup recommends that customers on fixed price contracts (which includes most of the residential market) should be eligible for LRIS settlement based on LMP-Proxy $G. This method relieves the lingering significant concerns associated with implementation of LMP-VG.



* LMP-VG enables LSEs to bill customers for consumption that didn’t occur, which is a potential PURA violation
* LMP-VG presumably targets larger customers which may be interested in other ERCOT programs (i.e. ERS, LR-RRS).
* It isn’t clear that there is enough of a market need to spend time on this path.



Accordingly, the LRISv2 Subgroup has focused the second phase of Loads in SCED on enabling participation by fixed price customers, including most residential, via implementation of **LMP-Proxy $G**.

What is LMP-Proxy $G?

“Retail customers that reduce their consumption should not be paid as if they generated the electricity they merely declined to buy. Instead, retail customers should be compensated as if they had entered into a long-term contract to purchase electricity at their retail rate but instead, during a peak demand period, resold the electricity to others at the market rate (LMP).”[[1]](#footnote-1)

“In other words, they should be paid “LMP-minus-G,” where G is the rate at which the retail customer would have purchased the electricity. Simply put, the customer must be treated as if it had first purchased the power it wishes to resell to the market.”[[2]](#footnote-2)

Proxy $G = A proxy for the “purchase price” or “contract price” that is generally representative of what retail customers paid for their energy adjusted for risk.

The LRISv2 Subgroup recommends that Proxy $G should be set using PUCT approved POLR rates.

Remaining Issues

Numerous issues remain to be addressed for LMP-$G to be implemented. Recent discussion at LRISv2 Subgroup has revealed that true LMP-G may not achievable without significant complexity and impact to the existing wholesale and retail markets. The LRISv2 Subgroup and the DSWG agreed that a Concept Paper should be drafted to capture these remaining policy and implementation issues. The LMP-G Concept Paper will then be presented to WMS and TAC for further direction.

CONCEPT PAPER OUTLINE

1. LMP-G seeks to replicate end-use customer purchasing energy at their retail rate and then reselling at market price. Two distinct LMP-G concepts have been discussed:
	1. Volumetric G
		1. Concept
			1. ERCOT settles REPs as if the customers actually had purchased energy—adds curtailed MW back to REP’s load in settlement, and must be directly assigned to the individual customer (ESI ID)
			2. REP then has data necessary to bill customer for that (unused) energy at retail rate
		2. Challenges:
			1. Accuracy of baselines for individual customers, especially residential and small commercial
			2. Legal issues with REP billing customer for consumption that didn’t occur
			3. How to ensure REPs directly assign LMP-VG to the appropriate customers

Policy Decision: LMP-VG vs. LMP-Proxy $G, or both

* 1. Proxy $G
		1. Concept
			1. ERCOT seeks to replicate the transaction structure proposed under volumetric G without creating the need for the REP to bill the customer for unused energy
			2. Eliminates requirement to estimate customer level curtailment. ERCOT can baseline aggregations of sufficient size to ensure a level of accuracy
			3. ERCOT charges REP for estimated curtailment at LMP and pays REP Proxy $G—where $G is proxy for retail rate—for curtailed MW.
			4. ERCOT pays DR QSE LMP-$G for estimated curtailment.
			5. This results in the cbeing
		2. Challenges:
			1. Must determine Proxy $G
			2. May pose eligibility issues for customers not on fixed-price contracts
			3. Creates questions about billing a REP for power not consumed
1. LMP-Proxy $G details
	1. What to use for Proxy $G?
		1. Proxy $G is meant to represent a conservative, risk adjusted retail rate
		2. What are the costs of getting it wrong?
			1. Too high—you get sub-optimal quantities of demand response (customers don’t face full LMP as opportunity cost, may not curtail when they’d otherwise be willing to)
			2. Too low—too much curtailment + REPs left in worse financial position during curtailment events
			3. Negative impact of both scenarios is limited in ERCOT market, with large delta between $G and realized LMP
		3. One statewide $G versus different $G for different zones, customer types—subgroup recommends simplicity of single ERCOT-wide $G
		4. Options to determine $G
			1. Average LMP over several year period + risk premium
			2. Posted prices on power to choose
			3. POLR rates—subgroup recommends this option because:
				1. Calculated by independent regulatory authority
				2. Updated on regular basis

Policy Decision: Use of POLR rate structure for Proxy $G

Policy Decision: Single, ERCOT-wide Proxy $G, Simple Average of TDUs

* 1. Which customers are eligible to be settled under $G?
		1. Customers eligible for LMP-Proxy $G must not receive compensation for DR capability through a REP rate or other means. $G is expected to cover the majority of customers on fixed price retail contracts.
		2. If $G is applied to customers already on event driven DR retail rate or if the customer is exposed to varying retail prices that are substantially higher than $G during curtailment events you get the “too low” problem described above—too much demand response, missing revenue for REP
			1. Creates the “double payment to the customer,” potentially over-incentivizing DR and creating market inefficiencies
			2. Cost of the double payment is borne by REPs
		3. Explored several approaches to qualification:
			1. Option 1: Allow all residential customers to participate

Pending Policy Decision: Can LMP-G settle most but not all customers

* + - * 1. Pros:

Simplest solution

Encourages maximum participation

* + - * 1. Cons:

Could/Would lead to some customers receiving a payment that is greater than what the “LMP-G” formula would suggest. For example, the customer might get LMP-G from its participation in SCED, but also get some added payment from a REP contract incentivizing load drops at certain times.

ERCOT study shows increasing penetration of customers on DR retail rates, especially Peak Time Rebates

However, any payment to customers in excess of “LMP-G” under this option would be paid for by the REP, not via “the market” or an “uplift”-type payment allocated to load

If a customer is on PTR with his REP and joins a DR QSE ALR and both the REP and the DR QSE call a simultaneous event, both entities *could* pay the customer, but the REP will have the customer’s curtailed kW added back in settlement and will derive no benefit from the PTR event for that customer

Similar logic extends to customers on real-time pricing and other indexed rates. REP’s settlement with ERCOT will look like REP was paid Proxy $G for curtailed MW when retail contract would have dictated higher payment for those MW (e.g., LMP in the case of RTP). REP likely would not expect this event as RTP customers do not require hedging.

Thus, REPs are fully incentivized to ensure customers do not double benefit

Might state in contract that customer cannot participate in a DR QSE’s ALR while on a real time rate

Might withhold PTR payments when customer simultaneously participates in DR QSE event

May need separate solution to qualify C&I loads where DR rates are more prevalent

Could apply Option 2 below to C&I loads while maintaining Option 1 for residential

* + - 1. Option 3: DR Provider of Record (DRPOR)
				1. DRPOR concept more accurately implements LMP-G while allowing DR QSEs and REPs to compete for customers to offer DR products and eliminate the potential for DR blocking or DR cramming
				2. Use TX SET or similar formal infrastructure to establish a DRPOR (DRPOR could be DR QSE or REP)
				3. Only the DRPOR can enroll a customer in an ALR
				4. There is a check to ensure customers with a DR QSE DRPOR are not on DR rates or customers with a DR QSE as DRPOR are not signed up by a REP on a DR rate. Options for implementing this include:

REP must identify whether a customer is on a DR rate or not (potentially through a y/n flag or population of DRPOR). PUCT rules will be established which require REPs to label customers accurately, define DR customer enrollment rules, etc. Or

* + - * 1. Pros—most accurate in terms of avoiding double payment

Consistent with the concept of customer choice

Leverages existing structure and design of the retail energy market, rules, and implementation

Avoids all issues of defining which rates qualify as DR

As compared to Option 1, more protection for REPs—provides REPs a more formal way to ensure that when they put customer on DR rate their efforts won’t be undermined by customer joining a DR QSE’s ALR

Can be leveraged to manage duplication or DR providers for capacity products such as ERS, LRS RRS, and TDSP LM programs

* + - * 1. Cons:

Complex implementation

PUCT rules required to define enrollment process, switching, and ensure accurate representation and management of customer DR capability (mitigate DR blocking and DR cramming)

“DR QSE Blocker” possibility: REP buries provision in contract claiming it is the DRPOR. PUCT rules must be defined to manage.

“REP Offer Blocker” possibility: DR QSE as DRPOR would prohibit REP from offering customer its full suite of products (ie, dynamic pricing option). PUCT rules must be defined to manage.

Default electric service rate must be defined for customers switched away from REPs to a DR QSE or leave it up to REP

* 1. Other details
		1. Minimum size of ALR
			1. Given settlement structure, DR QSE must establish a separate ALR for each REP that its customers use
			2. Minimum size will be imposed on each of these ALRs
			3. May create “ALR creep” challenges where DR QSE can’t keep a customer if that customer switches to a REP for which the DR QSE doesn’t have a sufficiently sized ALR
			4. Could potentially be resolved by different baselining method (i.e., mimic how a REP would compensate an individual customer after a PTR event)
			5. Example: Weather-Sensitive ERS offers must be ≥500 kW
		2. Rules for NOIE territories
		3. Management of bounce back issues
		4. Others?

APPENDIX

1. Full LMP
	* 1. FERC-jurisdictional ISOs have implemented full LMP concept under order 745
			1. Court challenge may be resolved at SCOTUS
		2. Criticisms of full LMP approach
			1. Economists brief: “constitutes double payment”
			2. Creates imbalance of payments that ERCOT must resolve via Load-Ration uplift or other undefined mechanism
		3. Arguments in favor of full LMP approach:
			1. Easier to implement than LMP-G
			2. For fixed-price customers, difference between Full LMP and LMP-Proxy$G is minimal in ISO with $9,000 SWCAP
			3. Market “clears” at full LMP, so pricing is transparent.
			4. If DR is cost-effective, then any uplift associated with DR payments actually result in lower customer allocation than had no DR been in the market. (i.e., in a scenario without DR, all customers settling in real-time might pay $5,000 per MWH. If you overlay a market clearing DR offer, which would be lower than $5,000 per MWH, that would lower the clearing price and customers settling in real-time market would pay lower clearing price.)
			5. LMP vs. LMP – G is really a policy determination. There is no right or wrong economic answer to the question.
1. <http://www.hks.harvard.edu/fs/whogan/Economists%20amicus%20brief_061312.pdf> [↑](#footnote-ref-1)
2. Id at 1 [↑](#footnote-ref-2)