**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 acts as if customer actually had purchased energy—adds curtailed MW back to REP’s load in settlement, and must be tied 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 happen
	2. Proxy $G
		1. Concept
			1. ERCOT seeks to replicate the transaction structure proposed under volumetric G without creating the need for the REP to bill the customer for unused energy
			2. ERCOT charges REP LMP-$G—where $G is proxy for retail rate—for curtailed MW (to simulate REP’s financial position if it had paid ERCOT LMP and then collected retail rate from customer)
			3. ERCOT pays DR QSE LMP-$G for curtailed amount
			4. Customer is treated as if it would have purchased the energy at $G and then sold the unused energy back to market at LMP
		2. Challenges—more workable than Volumetric G, but:
			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
2. LMP-Proxy $G details
	1. What to use for Proxy $G?
		1. Proxy $G is meant to proxy the retail rate most customers are paying
		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 statewide $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
	2. Which customers are eligible to be settled under $G?
		1. $G is designed to work for customers on standard, flat retail pricing
		2. If $G is applied to customers on time varying pricing where retail rate is 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
				1. Pros:

Simplest solution

Encourages maximum participation

* + - * 1. Cons:

Could 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 time varying 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)

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 2: ERCOT screens each ESI ID in an ALR, asks REP to confirm whether customer is on qualifying (non-DR) rate
				1. Pros—potentially greater accuracy (avoids double paying customers who are on DR pricing)
				2. Cons:

Requires market rules establishing which rate structures count as DR and would disqualify a customer from LMP-Proxy $G

Some rates are clear—real time pricing is disqualified, standard fixed-price contracts are qualified

In between cases are the challenge

PTR poses particular problem—clearly a double payment when a PTR event is triggered, but what if events are being triggered infrequently or not at all?

Also difficult for market rules to keep up with evolving product offerings

Requires regular data collection with ESI ID-specific rate designations and real-time or near real-time updates to ERCOT

Potential for REPs to “DR-block” by claiming customers are on DR-like rate when they’re not or by putting customers on PTR type rate that’s rarely called

“ALR creep”—ALRs may shrink as customers opt into DR-like rates or change REPs; challenge for DR QSE to track

* + - 1. Option 3: DR Provider of Record (DRPOR)
				1. Use TX SET or other regular communication mechanism to establish a DRPOR (could be DR QSE or REP)
				2. Only the DRPOR can enroll a customer in an ALR
				3. ERCOT conducts some type of check to ensure customers with a DR QSE DRPOR are not on DR rates. ERCOT either:

Does not allow a REP to offer DR rate to customer if the REP is not the customer’s DRPOR

OR—if DR QSE registers as customer’s DRPOR, ERCOT checks to ensure that customer is not on DR rate

* + - * 1. Pros—might be most accurate in terms of avoiding double payment
				2. Cons:

Requires market rules establishing which rate structures count as DR (same challenge as Option 2)

Complex implementation

PUCT rules required

“DR QSE Blocker” possibility: REP buries provision in contract claiming it is the DRPOR)

“REP Offer Blocker” possibility: DR QSE as DRPOR would prohibit REP from offering customer its full suite of products (ie, dynamic pricing option)

* + - 1. Option 3B: DR Provider of Record without rate monitoring
				1. Same structure as Option 3 but ERCOT performs no check to ensure customer is not on DR rate
				2. Leaves it up to REPs who want to offer DR rate to take precautions to ensure that they aren’t double paying customer

REP can simply register as customer’s DRPOR in this case before switching customer to DR rate

* + - * 1. Pros:

As compared to Option 3, 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

* + - * 1. Cons:

As compared to Option 1, complex implementation

REP and DR QSE Blocker issues still apply

As compared to Option 3, removes extra check to ensure no double payment

Mitigated by fact that any double payment would have to be borne by 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. 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)