The goal is to differentiate curtailment activity which is part of normal operations to save on the customer's retail electricity bill and curtailment activity only conducted because of revenue from the wholesale electricity market. It is expected, if retail electricity rate > mining revenue rate then the customer would likely not mine and therefore likely curtail electricity instead of losing money to mine. Therefore, the guideline is that PJM hourly settlements in the energy market will only be paid when retail electricity rate <= mining revenue rate.

Mining revenue rate = the estimated revenue in $/MWH that will be received for mining. This may be based on a publicly available formula for crypto revenue calculation or internal source where the CSP provides support for the calculation. Bitcoin may be used as the default reference for mining revenue calculation unless more detailed information is available for the specific crypto currency mined at the location. If there is a one-time cost associated with each load reduction ("shutdown cost"), the CSP may apply a consistent discount to revenue over the load reduction hours. CSP must provide support to PJM for the use of any shutdown cost. For example, if the shutdown cost is $100 and the location reduces 1 MW of load for 10 hours then the revenue may be discounted by $10 per MWh. PJM expects a change in estimated revenue will result in a change the CSP's energy market offer.

Retail electricity rate = the actual cost in $/MWH for retail electricity. This includes supply and distribution charges as well as any other applicable energy based adders where the CSP provides support for the calculation. This may be a simple fixed rate or more complicated block and index rate.

This guideline will evolve as there is more experience with these facilities in the market.

Settlement Process

In order to qualify for a PJM energy payment the CSP should submit only settlement hours when retail electricity cost is lower than mining revenue. If some hours do not qualify for settlement then CSP must notify PJM and PJM will remove such hours before the CSP submits the settlement.

If retail rate is block and index CSP should follow below rules:

1) Single tenant or Multi-tenant facility

Block and Index retail electricity rate: Retail cost used to determine settlement hour eligibility should be based on weighted average (see example 1 below) of index and fixed rate plus other KWH charges from the bill. Load reductions for an hour either qualify or do not qualify.

Example 1. Weighted average rate calculation for block and index rate

	A	B	C	D
1				
2		total load MW	120	
3		hedge MW	40	
4		index MW	80	=C2-C3
5		reduction	100	
6		DA LMP	$ 100.00	
7		fixed rate $/MWh	$ 50.00	
8		distribution rate $/MWh	$ 15.00	
9		mining revenue $/MWh	$ 100.00	
10		weighted rate	$ 105.00	=(MIN(C4,C5)*C6+MAX(0,(C5-C4))*C7)/C5+C8
11		outcome	does not qualify	=IF(C10>C9,"does not qualify","qualifies")

If some hours do not qualify for settlement then CSP must notify PJM and PJM will remove such hours before the CSP submits the settlement.

2) Multi-tenant facility where each tenant has a different retail electricity rate.

When there are multiple tenants (subloads) at the location (EDC account number) some of them may reduce load for PJM purposes and others as normal operations to reduce their electricity cost in the same hour. In such cases only part of the load reduction may qualify for DR compensation. Based on the current DR Hub configuration the only way to handle this type of scenario is to use a Manual CBL. Below is a step by step process for multi-tenant facility with block and index rate for manually handling settlements in DRHUB.

1. CSP calculates reduction based on 3+2 CBL methodology – please see Manual 11 for the calculation. Note the calculation will be based on the event and not limited to the day if an event spans more than 1 day;
2. CSP works with tenants to identify the tenant load, load reduction, block and index.
3. CSP calculates the weighted average rate for each tenant (see calculation guidance in example 1).
4. CSP calculates total qualified reduction which equals to the sum of all tenant reductions that have weighted avg rate < revenue (see calculation guidance in example 2).
5. CSP calculates Manual CBL values which equal to actual load plus calculated in step 4 reduction.
6. CSP enters hourly load and CBL values calculated in step 5 into Manual CBL template (https://pjm.com/-/media/etools/dr-hub/economic-energy-manual-example.ashx) and uploads to DR Hub. Note – the Manual CBL will reflect the actual load reductions that qualify.

Example 2. Calculate total qualified reduction with multiple tenants and block and index rate (this example is the guidance for the customer - do not need to provide tenant details to PJM)

	Load MW	block MW	index MW	Customer distributed total reduction between clients	Weighted average rate	Qualified reduction
1 subload	10	5	5	5	$ 90.00	0
2 subload	20	15	5	14	$ 64.29	14
3 subload	10	0	10	1	$ 90.00	0
total	**40**	**20**	**20**	**20**		**14**

LMP	fixed rate $/MWH	revenue $/MWH
$ 90	$ 50	$ 80

	A	B	C	D	E	F	G	H
1								
13			Load MW	block MW	index MW	Customer distributed total reduction between clients	Weighted average rate	Qualified reduction
14		1 subload	10	5	=C14-D14	5	=(MIN(E14,F14)*B$22+MAX(0,(F14-E14))*C$22)/F14	=IF(G14<D$22,F14,0)
15		2 subload	20	15	=C15-D15	14	=(MIN(E15,F15)*B$22+MAX(0,(F15-E15))*C$22)/F15	=IF(G15<D$22,F15,0)
16		3 subload	10	0	=C16-D16	1	=(MIN(E16,F16)*B$22+MAX(0,(F16-E16))*C$22)/F16	=IF(G16<D$22,F16,0)
17		**total**	**=SUM(C14:C16)**	**=SUM(D14:D16)**	**=SUM(E14:E16)**	**=SUM(F14:F16)**		**=SUM(H14:H16)**
18								
19								
20								
21	Table 3	LMP	fixed rate $/MWH	revenue $/MWH				
22		90	50	80				
23								

Above manual process is temporary and PJM may automate in DR Hub in the future.

For both options, CSP shall provide an attestation and revenue vs retail rate spreadsheet on an annual basis that they only submitted settlements that the load reductions were not done for normal operations (e.g.: manage their electricity cost). CSP bears full responsibility for any issues with the customer and PJM will refer any questionable activity to IMM and/or FERC OE as needed. Settlement hours may only be submitted for the portion of the load done for PJM and not done as part of normal operations.