



**FILED**

01/03/19  
04:59 PM

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Application of Pacific Gas and Electric  
Company (U 39-E) for Approval of Demand  
Response Programs, Pilots and Budgets for  
Program Years 2018-2022.

Application 17-01-012  
(Filed January 17, 2017)

And Related Matters.

Application 17-01-018  
Application 17-01-019

**PACIFIC GAS AND ELECTRIC COMPANY'S PREHEARING  
CONFERENCE STATEMENT AND RESPONSES TO ALJ QUESTIONS**

SHIRLEY A. WOO  
DARREN P. ROACH

Pacific Gas and Electric Company  
77 Beale Street, B30A  
San Francisco, CA 94105  
Telephone: (415) 973-2248  
Facsimile: (415) 973-5520  
E-mail: [shirley.woo@pge.com](mailto:shirley.woo@pge.com)

Attorneys for  
PACIFIC GAS AND ELECTRIC COMPANY

Dated: January 3, 2019

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Application of Pacific Gas and Electric Company (U 39-E) for Approval of Demand Response Programs, Pilots and Budgets for Program Years 2018-2022.	Application 17-01-012 (Filed January 17, 2017)
And Related Matters.	Application 17-01-018 Application 17-01-019

**PACIFIC GAS AND ELECTRIC COMPANY'S PREHEARING  
CONFERENCE STATEMENT AND RESPONSES TO ALJ QUESTIONS**

**I. INTRODUCTION**

PG&E respectfully submits its prehearing conference statement in response to ALJ Hymes' ruling issued November 30, 2018 setting a prehearing conference for January 10, 2019 and directing submission of Prehearing Conference (PHC) statements addressing questions contained in her ruling by January 3, 2019. In addition to responding to the questions in the ruling, PG&E provides background information and a historical update of events to assist the CPUC in gaining a better understanding of key issues in order to properly scope next steps.

**A. Recap of CAISO's ESDER Forums**

Thus far, the baseline issue has received attention on the wholesale side by the CAISO with the ongoing Energy Storage and Distributed Energy Resources (ESDER) stakeholder forum at the CAISO as its primary vehicle. By way of an overview, PG&E provides a table in Appendix A, depicting the different wholesale energy baseline options approved by the CAISO in ESDER Phase 2, as alternative baseline options in addition to the traditional 10 in 10.<sup>1/</sup> Also,

---

1/ The adopted baseline options include the following based on work undertaken by the Baseline Assessment Working Group in the ESDER 2 forum:

Control Groups: The two Control Group types include: 1) Randomized control groups, and 2) matched control groups. Both options evaluate the load of one group of program participants based on the load of another group of program participants. A randomized control group consists of comparable participants from the program, whereas a matched control group uses comparable

in Phases 1 and 3 of ESDER, the CAISO adopted the Meter Generator Output (MGO) framework that provides for an alternative performance evaluation methodology, which utilizes sub-metering for an individual behind-the-meter (BTM) energy storage or Electric Vehicle Supply Equipment (EVSE) device and applying a baseline in order to measure the demand response provided by that device separate from the facility load, and independent of other DR activity occurring on the premises.<sup>2/</sup>

The use of alternative baselines for demand response inherently involves complex analytical and policy issues, which are complicated by the fact that retail energy settlement occurs for the customer premise, which is not like wholesale energy settlement calculations. For

---

customers outside of the program. Both types of the control groups establish the baseline of what the load would have been, absent the dispatch. Due to third parties' lack of access to non-participant data, the CAISO does not allow the use of matched control groups by the IOUs. However, this may change if data privacy concerns are resolved thereby placing all parties on a level playing field.

Day Matching: Estimates what electricity use would have been in the absence of a dispatch, relying exclusively on the electricity-use data from the dispatched customers. The load patterns during a subset of non-event days are used to estimate the baseline for the dispatch day.

Weather Matching: The load patterns with the most similar weather conditions during a subset of non-event days are used to estimate the baseline for the dispatch day.

CAISO Approval:

[http://www.caiso.com/Documents/Decision\\_EnergyStorage\\_DistributedEnergyResourcesPhase\\_2\\_Proposal-Memo-Jul2017.pdf](http://www.caiso.com/Documents/Decision_EnergyStorage_DistributedEnergyResourcesPhase_2_Proposal-Memo-Jul2017.pdf).

FERC Approval: FERC approved CAISO's tariff update on October 24, 2018 with an effective date of November 1, 2018.

[https://elibrary.ferc.gov/idmws/file\\_list.asp?accession\\_num=20181024-3060](https://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20181024-3060)

- 2/ Load is registered as PDR/RDRR, a Behind-the-Meter (BTM) generator is registered as PDR/RDRR or both load and BTM generator are separately registered as PDR/RDRR. See Appendix B for a visual illustration for these three configurations.

CAISO Approval:

[https://www.caiso.com/Documents/Decision\\_EnergyStorage\\_DistributedEnergyResourcesProposal-Memo-Feb2016.pdf](https://www.caiso.com/Documents/Decision_EnergyStorage_DistributedEnergyResourcesProposal-Memo-Feb2016.pdf).

FERC Approval:

On August 16, 2016, FERC issued a letter order accepting the CAISO's [May 18, 2016](#) proposed tariff revisions to implement energy storage enhancements, effective October 1, 2016, as requested. <http://elibrary-backup.ferc.gov/idmws/common/opennat.asp?fileID=14330894> is a link to the letter as posted on FERC's website.

example, retail energy settlement uses customer premise baselines to calculate individual customer performance, whereas CAISO wholesale energy settlement uses CAISO resource level baselines to calculate performance at the aggregated resource level. In fact, Decision 12-04-045 favored individual customer baselines for retail settlement, noting that “a customer’s baseline calculation should be the same whether they enrolled in the Capacity Bidding Program through an aggregator or through a utility.” However, the Baseline Analysis Working Group (BAWG) as part of ESDER, Phase 2, did not analyze retail baselines or how they compare to the now adopted wholesale baselines.

Furthermore, from an operational standpoint, it is impractical for retail settlement to allow the use of all the new wholesale energy baseline options. The CAISO allows options which a DR Provider (DRP) can choose among, with the burden of the wholesale baseline calculation transferred from the CAISO to the DRPs and the Scheduling Coordinators (SCs).<sup>3/</sup> For wholesale settlement, a DRP or a SC may use the same baseline option every single month so as to reduce its administrative cost. Or the DRP / SC can elect to choose different baselines month-to-month based upon the composition of their resource.<sup>4/</sup> However, for retail settlement of its CPUC-approved portfolio of DR programs, the IOU, not the individual aggregator, is responsible for the baseline calculation which underlies payment of retail incentives. That said, PG&E is concerned that trying to make the utility’s business and IT systems support multiple baseline options to be used concurrently could be expensive, burdensome, confusing and difficult, if the scope were to include baseline changes for determining a resource’s retail energy performance, and possibly determination of capacity (kW) provided under CPUC established terms and conditions.

---

3/ For purposes of calculating payments and penalties under the utilities’ retail programs, responsibility for the calculation should remain with the utilities, and not shift to third-party aggregators.

4/ [CAISO Demand Response FAQ v.5](#), propose that a DRP/SC can elect to switch between baselines no less than 30 days.

PG&E notes that the CAISO baselines are for purposes of demand response wholesale calculations for energy. They are not for capacity, which is important for some of the utilities' retail demand response programs. For example, PG&E recently filed a motion summarizing PG&E's 2018-2019 DRAM RFO Audit Analysis, which indicated that it observed movement of customers across multiple DR resources dispatched throughout a month.<sup>5/</sup> Such movement of customers across resources may still deliver wholesale energy (kWh) at the resource level during each dispatch, but counting a customer's performance across multiple resources may not be appropriate for an assessment of retail capacity (kW) delivered in a Resource Adequacy (RA) contract.

Moreover, the CAISO's adopted MGO methodology raises new, complex issues which require much more factual investigation and identification of metering, data collection and management, system needs, standards, participant roles and responsibilities, as well as issues going to the fundamental question of whether DR should be at the device level or the premise level, (including impacts on other DR and energy management on the same premise). PG&E recommends including the MGO issues into the scope of this proceeding, but to be addressed in a later phase, or even in a different proceeding, recognizing that they would not be resolved within the time frame anticipated in the ALJ ruling (July 17, 2019).

## **B. Procedural Pathway**

Therefore, proposing the acceptance of alternative retail baselines is not as simple as adopting all the baseline options the CAISO allows for wholesale settlement. Moreover, the interlinked issue of the MGO requires additional consideration that is partially within the realm of DR and partially pertaining to issues inherent in sub-metering in a broad sense. As such, PG&E provides a table for how these intertwined issues might be disaggregated and procedurally considered. The common thread among these topics in the procedural roadmap may be feasible

---

<sup>5/</sup> PG&E filed a motion for inclusion of "PG&E Summary of 2018-2019 DRAM RFO Audit Analysis, Results as of December 4, 2018" in Energy Division's Final Evaluation Report of the Demand Response Auction Mechanism on December 12, 2018, in A.17-01-012 et al.

for development by mid-2019 (i.e., July 17, 2019); however, actual development and implementation would realistically occur beyond mid-2019.

Workstream(s)	Scope of Issues	Forum	Process	Duration Estimate
A. Development of retail baselines predicated on wholesale baselines	<ol style="list-style-type: none"> <li>1) Baseline options and adjustment cap <i>[See Section II(1)(a)]</i></li> <li>2) Interaction between wholesale and retail baselines <i>[See Section II(1)(b)]</i></li> <li>3) Funding <i>[See Section II(1)(e)]</i></li> <li>4) Baseline for determining provision of capacity for RA</li> </ol>	A. 17-01-012	Workshops and/or working groups	6 months to 1.5 years
B. Meter Generator Output – Policy  <i>[See Section II(1)(c)]</i>	<ol style="list-style-type: none"> <li>1) Should DR resources have a net impact to grid?</li> <li>2) Should DR permit and incentivize device specific participation? Current participation and incentives are calculated at the premise level.</li> <li>3) Can sub-metering be an acceptable data source?</li> <li>4) What is required to qualify and maintain sub-meters and related communication?</li> <li>5) Data, standards, systems, roles and responsibilities focused issues</li> <li>6) Impact and consequences for other DR (and other energy management) occurring on same premises, and dual participation questions</li> </ol>	New Models of DR OIR	Workshops and/or working groups with the potential for testimony and/or hearings	1.5 to 2.5 years
C. Meter Generator Output – Infrastructure  <i>[See Section II(1)(d)]</i>	<ol style="list-style-type: none"> <li>1) Sub-metering</li> <li>2) Data</li> <li>3) Systems</li> <li>4) Cost recovery</li> </ol>	Separate OIR	Testimony & Hearings	2.5 to 5 years

## II. DISCUSSION

PG&E responds to each of the four questions posed by the ALJ Ruling<sup>6/</sup> in order to assist the CPUC and parties to better assess and scope the effort associated with expanded retail baselines.

### 1. What issues should the commission consider in determining whether to revise the current baseline?

PG&E has identified the following distinct issues that should be considered as part of the retail baseline assessment as summarized and cross-referenced in the earlier table.

#### a. Baselines Options and Adjustment Caps

While the CAISO adopted three broad categories of baseline options (Day Matching, Weather Matching and Control Groups), the Commission should limit the number of options available on the retail side at this time until the IOUs gain a better understanding of the efficacy of the different options. By way of context, PG&E currently uses the 10 in 10 retail baseline. However, there may be good cause to assess whether wholesale baselines should be adopted “as is” or whether a modified version (e.g., individual baseline) would be more appropriate for retail settlement. Lastly, the provision for the adjustment caps should be assessed in the context of the different baseline options. The BAWG recommended either a +/- 20% or +/- 40% cap for the Day Matching options (See Appendix A containing Table 2 from the BAWG report issued in ESDER 2), which were adopted by the CAISO and approved by FERC.

#### b. Interaction between Retail and Wholesale Baselines

The Commission should not simply adopt the same set of baselines for retail settlement as that adopted by the CAISO in ESDER 2. For one, wholesale baselines are applied for energy measurement at the CAISO resource level, e.g. Proxy Demand

---

6/ ALJ Ruling dated 11/30/2018 posing questions the four questions along with establishment of a prehearing conference date (1/10/2019) and a due date for the prehearing conference statements (1/3/2019).

Resource (PDR), while retail baselines are assessed at the individual customer level for capacity measurement, (as well as energy where applicable). Therefore, understanding of individual customer versus aggregate CAISO resource baselines and their purposes is important before proposing alternative retail baselines, because a given baseline approach could differ in accuracy for retail incentive payments versus wholesale energy settlements. Furthermore, a day-of adjustment can be applied to each individual customer before the load reduction is aggregated for an individual baseline, whereas the day-of adjustment can only be applied to the aggregated load for the aggregate baseline developed for a whole CAISO resource. Also, if retail and wholesale settlements use different baselines, there may be potential discrepancies and financial implications that must be identified and weighed. Lastly, consideration is needed to distinguish baselines for capacity assessments versus energy.

The adopted and implemented performance calculation by the CAISO are used to measure the performance and payment of wholesale energy for participating resources. However, certain retail DR programs (i.e., Capacity Bidding Program) and pilot mechanism (i.e., DRAM), utilize the energy performance to calculate the retail Resource Adequacy (RA) capacity performance and incentives. Hence, before any party (including the IOUs) adopt and use wholesale energy baseline methodologies (including CAISO's MGO and the proposed ESDER Phase 2 alternative baselines) to settle retail RA capacity, the CPUC needs to provide rules, guidance and principles on this matter, at a minimum.

c. MGO Policy Considerations Impacting Current DR Retail Rules

CAISO's MGO poses several critical policy questions. Primarily, the fact that the current retail rule for DR programs and contracts is to settle at the customer premise level (e.g., house meter) and not at the individual device (i.e., behind-the-



meter DERs<sup>7/</sup> such as energy storage like batteries and EVSE) level. Departure from premise to device requires additional considerations that span across a variety of topics including but not limited to: (1) should DR have a physical net impact to the grid (at the point of connection between customer and grid), (2) should sub-metering be an acceptable form of data source, (3) what are the steps for qualifying and maintaining sub-meter equipment and related communication, and (4) data accuracy, synchronization, collection, preservation and handling issues, (includes quality assurance, role of third-parties, system needs, and operational procedures). Given third party interest to utilize alternative performance methodologies, PG&E foresees that the CPUC will need to resolve these questions, in order to determine whether MGO can be an acceptable retail settlement methodology, and how other DR and energy management programs would be impacted. These policy issues may be suitable for inclusion in this proceeding; although, PG&E also recognizes that due to the limited time provided until July 2019 that the CPUC could simply provide for a regulatory pathway for later determination.

d. MGO Infrastructure and Implementation Considerations

PG&E recognizes that not all MGO components should be addressed in the DR space, especially qualifying acceptable sub-meter equipment, configuration, data-related issues, and system and other implications, which impact behind-the-meter energy DERs (i.e., energy storage like batteries and EVs / EVSEs) participating as DR.<sup>8/</sup> These broader “Infrastructure” issues would require a comprehensive regulatory process that would merit having its own Order Instituting Rulemaking.

---

7/ DER stands for Distributed Energy Resources, which is an umbrella term for a multitude of resources, including energy storage devices that can potentially provide energy, capacity and ancillary services.

8/ MGO framework pertains to energy storage and EVSEs participating as DR into CAISO markets. Therefore, PG&E believes the MGO framework may have implications on a number of proceedings, including IDER, Energy Storage, Electric Vehicles, Rule 21 and other related initiatives.

e. Funding

Proper funding is necessary to support an expanded set of baselines. PG&E reminds the CPUC that as part of the ESDER 2 forum, the responsibility for calculating baseline performance was transitioned from the CAISO to the DRP, or more specifically the Schedule Coordinator (SC). For wholesale settlement, a DRP or a SC may use the same baseline option every single month which could reduce their administrative cost, or the DRPs can change their baseline option from month-to-month if they wish. However, for retail settlement, the IOU is responsible for the baseline calculation,<sup>9/</sup> yet the IOU's DR system cannot necessarily support multiple baseline options to be used concurrently, depending on the DRPs' various selections at the time. In order to scale the DR system and associated processes, incremental funding would be needed. Separately, deployment of the MGO infrastructure and related systems would require its own separate set of funding, which PG&E believes probably would be substantial.

**2. Will these issues result in the need for an evidentiary hearing?**

PG&E believes that evidentiary hearings may not be required for consideration of most baseline issues developed in ESDER Phase 2 (i.e., wholesale baselines). However, additional submissions (e.g., working groups, workshops, etc.) on Baseline Options and Adjustments Caps, and Interaction between Retail and Wholesale Baselines, may be needed. The question of how baselines should be developed for determining provision of RA capacity may require additional effort beyond workshops for baseline issues related to ESDER Phase 2

On the other hand, PG&E believes evidentiary testimony and hearings would be required for consideration of DR MGO policy issues and broader implementation of specific MGO issues from ESDER Phases 1 and 3, as discussed earlier in sections 1(c) and 1(d).

---

<sup>9/</sup> For the DRAM pilot, energy settlements are strictly between the CAISO and the DRAM seller. PG&E does not provide any energy related payments in the DRAM pilot. Therefore, PG&E does not perform baseline calculations for DRAM energy settlement. However, PG&E use the energy performance provided by the DRAM seller to determine the monthly RA incentive.

Finally, there may be good reason to consider non-DR specific MGO issues (i.e. MGO Infrastructure) outside of the DR forum due its broad implications to BTM energy storage and EVs/ EVSEs. This consideration due to the complexity and cost would most likely involve testimony and hearings.

**3. Is testimony needed or is a workshop followed by comments and reply comments the appropriate approach?**

Consistent with PG&E's response to question #2 and the table presented above, PG&E believes the proceeding can be organized and scoped to address these issues with workshops and a possible workshop report, along with associated opening and reply comments, to develop an adequate record for CPUC action on baselines for energy purposes. However, the question of baselines for capacity purposes may be more challenging and may require more time to build a record. Separately, MGO policy issues might be addressable through workshops and working groups but most likely would require further consideration that testimony and hearings could provide. Lastly, the broader MGO infrastructure issue to be handled outside of DR would require testimony based on the extensive complexity and cost involved.

**4. This proceeding has a statutory deadline of July 17, 2019. Do you feel the Commission can adopt a baseline for demand response programs by this deadline?**

Consistent with PG&E's responses to questions #2 and #3, and the table presented above, if workshops are held the CPUC might be able to address retail baseline issues by the statutory deadline of July 17, 2019. However, since organizing, holding and documenting workshops, and development of a Proposed Decision take time, PG&E recommends that the CPUC develop a contingency plan in case these issues cannot be resolved by the existing deadline. That said, the issues associated with MGO policy would take longer than mid-2019 to develop. Moreover, if changes in retail baseline require business and system changes, PG&E cautions that it may require one to two years from a final decision approving changes and provision of funding, to

make necessary system changes. Lastly, the MGO infrastructure issues would be a multi-year effort occurring beyond the mid-2019 period.

### III. CONCLUSION

There are a number issues impacting the development of a retail baseline framework. These issues need to be framed appropriately if the CPUC and stakeholders wish to address and resolve. Accordingly, PG&E recommends that the CPUC consider prioritizing the immediate retail baseline issues (ESDER 2) to be addressed now while deferring the broader MGO (policy and infrastructure) issues to a later point. That said, PG&E posits that the CPUC could develop a procedural road map by mid-2019 that establishes the pathways for addressing the three (A-C) workstreams identified in the earlier table.<sup>10/</sup>

Respectfully submitted,

SHIRLEY A. WOO  
DARREN ROACH

By: /s/Shirley A. Woo  
SHIRLEY A. WOO

Pacific Gas and Electric Company  
77 Beale Street  
San Francisco, CA 94105  
Telephone: (415) 973-2248  
Facsimile: (415) 973-5520  
E-Mail: [shirley.woo@pge.com](mailto:shirley.woo@pge.com)

Attorneys for  
PACIFIC GAS AND ELECTRIC COMPANY

Dated: January 3, 2019

---

10/ Workstream A = Retail Baselines; Workstream B = MGO Policy; Workstream C = MGO Infrastructure

## Appendix A

### Baseline Options

(BAWG Recommended and FERC Approved/CAISO Implemented)

Customer Segment <sup>11</sup>	Weekday	Baselines Recommended	Adjustment Caps
Residential	Weekday	Control group	+/- 40%
		4 day weather matching using maximum temperature	+/- 40%
		Highest 5/10 day matching	+/- 40%
	Weekend	Control group	+/- 40%
		4 day weather matching using maximum temperature	+/- 40%
		Highest 3/5 weighted day matching	+/- 40%
Non-residential	Weekday	Control Group	+/- 40%
		4 day weather matching using maximum temperature	+/- 40%
		10/10 day matching	+/- 20%
	Weekend	Control group	+/- 40%
		4 day weather matching using maximum temperature	+/- 40%
		4 eligible days immediately prior (4/4)	+/-20%

## Appendix B

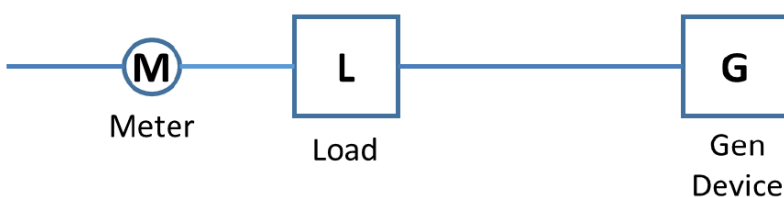
### CAISO's Meter Generator Output (MGO) (FERC Approved/CAISO Implemented)

[ESDER Phase 1 approved MGO for BTM ES, ESDER 3 approved MGO for BTM EVSE.](#)

#### Meter Configuration A

Figure 2

Meter Configuration A

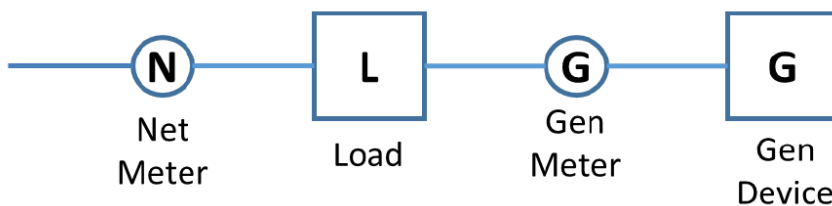


Consider meter configuration A illustrated in Figure 2 below. This is essentially identical to today's PDR/RDRR configuration other than the generation is recognized. However, just as with today's PDR/RDRR configuration depicted in Figure 1, the performance cannot be separated into the two response methods (i.e., actual load reduction versus load consumption offset by output from a behind-the-meter generator or device).

#### Meter Configuration B

Figure 3

Meter Configuration B



**Option B1 – Load Reduction Only.** This option would apply in instances where only the facility load is registered in the PDR/RDRR. The demand response performance would be evaluated using a baseline (B) determined from N-G values for comparable non-dispatch hours. The actual demand reduction of the load in response to an ISO dispatch interval (t) would be calculated as:

$$DRLOAD(t) = BN-G(t) - [N(t) - G(t)]$$

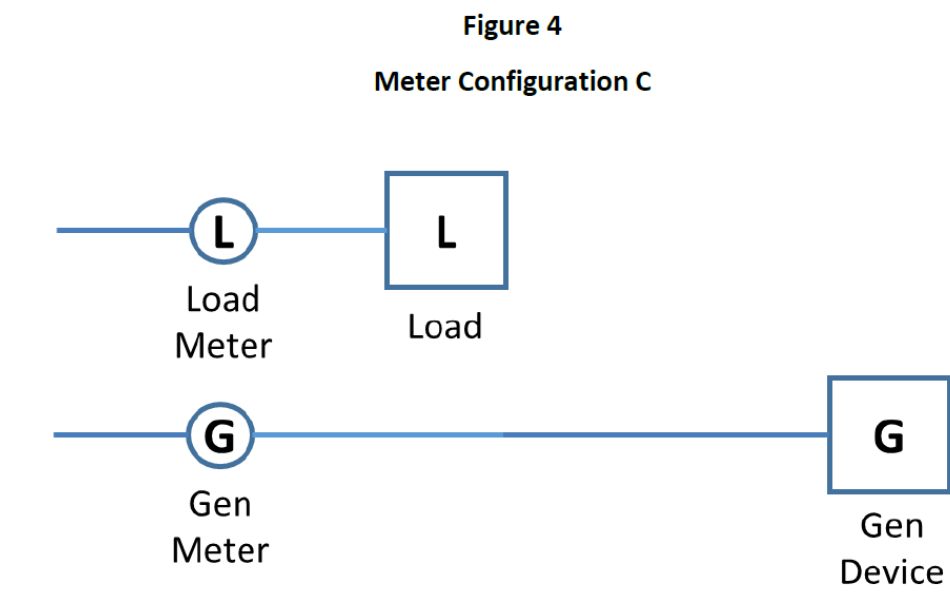
**Option B2 – Generation Offset Only.** This option would apply in instances where only the behind-the-meter device is registered in the PDR/RDRR (not the facility load as in B1). The demand response performance, referred to as DRSUPPLY(t) for purposes of this proposal, is the demand reduction resulting from the output of the behind-the-meter generation device for dispatch interval t. The demand response performance DRSUPPLY(t) would be evaluated based on the physical meter generator output G for dispatch interval t or G(t), adjusted by a quantity GLM which represents an estimate of the typical energy output used for retail load modifying purposes and benefits. The calculated value, GLM10, would appropriately remove an estimated quantity of energy delivered by the device to the facility for its retail load modifying purposes, i.e. energy not produced in response to an ISO PDR/RDRR dispatch. The performance evaluation introduces an adjusted MGO value calculated by taking the difference between G(t) and GLM, where the demand response performance attributed to a PDR/RDRR supply dispatch would be calculated as:

$$\text{DRSUPPLY}(t) = - [G(t) - \text{GLM}]$$

**Option B3 – Load and Generation.** This option would apply in instances where both the load and the behind-the-meter device together are registered as the PDR/RDRR resource. Under this option, the demand response performance would be the combined demand response performance attributed to DRLOAD(t) and DRSUPPLY(t), as previously detailed under options B1 and B2 respectively, resulting in a total demand response reduction calculated as:

$$\text{DRTOTAL}(t) = \text{DRLOAD}(t) + \text{DRSUPPLY}(t)$$

### Meter Configuration C



Lastly, consider meter configuration C illustrated in Figure 4 below. Here it is assumed that the utility has provided a separate service account for the generator or device, leaving

the load independently measured. This meter configuration provides the same information as meter configuration B, only with N-G replaced by the physical meter L. However, this configuration is required if separate participants are managing the load and the generation independent of one another. Because the load is not combined or affected by the generator or device as in meter configuration B, the generator or device alone cannot be a PDR/RDRR; it must be a Non-Generator Resource (NGR) or a Participating Generator (PG). Effectively, this configuration turns a Behind-the-Meter (BTM) resource into In-Front-of-the-Meter (IFTM) resource.