1. **Telemetry Issue Presented:**

 As the penetration levels of distributed energy resources increase, what changes to telemetry requirements should the Commission adopt to ensure adequate visibility while minimizing cost?

1. **Telemetry/Telemetering Definition:**

 In accordance with Rule 21 Section C (Definitions), telemetry/[telemetering] is the electrical or electronic transmittal of [m]etering data on a real-time basis to Distribution Provider.

1. **Telemetry Issue Background:**

 The importance and need for Information gathered through telemetry has continuously grown with the proliferation of Distributed Energy Resources (DERs) on the grid. The current 1 megawatt (MW) threshold was established during at a time which very few DERs were installed on the grid and the overall DER penetration was not significant in comparison to total load. In addition, equipment along with system methods supporting telemetry available at the time the 1 MW threshold was developed were viewed as cost prohibitive for smaller sized projects. Therefore, the 1 MW threshold was viewed as an appropriate threshold to allow the Distribution Provider to require the use of telemetry for a proposed 1 MW or greater project.

 Since the establishment of the 1 MW threshold, DER growth has dramatically increased and is expected to continue in growth. Thus, the need for telemetry to provide project visibility in support of grid safety and reliability increasingly becomes a critical need. Without telemetry, the utility has no real-time oversight or situational awareness of projects connected to the utility’s grid. Furthermore, it is not an uncommon thought for a potential project developer to size their project slightly under the 1 MW threshold to avoid the triggering of the 1 MW telemetry requirement.

 The IOUs appreciate that a potential driving factor in developer preferred avoidance of the 1 MW threshold for project sizing are costs associated with the telemetry requirement. As noted above, past costs associated with telemetry have been viewed as cost-prohibitive and were not supportive of a lower requirement threshold.

1. **Current Telemetry Environment:**

 As noted within Section (III) above, the utilities have continued to review and develop lower cost solutions in support of telemetry requirements. In particular, additional efforts have been made to provide more effective cost solutions in support of telemetry requirements. Inverter advancements also remain under development as part of the CEC-California Public Utilities Commission sponsored Smart Inverter Working Group (SIWG). As part of the SIWG efforts, work is underway to look at initial capability functions could be utilized with a this communication capabilities. In particular, the following relevant functions are called for as part of the Phase 3 SWIG efforts:

*1/ Whether the system is on or off;*

2*/ Production or consumption of active power;*

*3/ Production or consumption of reactive power; and*

 *4/ Voltage and frequency at the AC port of the inverter*

1. **Utility Telemetry Proposal:**

 As highlighted in Section III above, the utilities in the majority of cases have no system visibility or situational awareness to DERs under 1MW. The promulgation of DER and increased percentage in relation to system load necessitates that the existing 1MW tariff requirement be revisited. In addition, as discussed within Exhibit A (operational use cases), the lack of system visibility impedes accurate system planning as the difference between “true” load versus actual net load is no longer a de minimis amount. The IOUs appreciate that legacy costs associated with telemetry would be viewed as cost-prohibitive by developers and contributed to projects being sited right below the existing 1 MW telemetry requirement. However, the inverter advancements put forward within the SIWG combined with continued utility improvement of traditional telemetry solutions, the time is ripe to have the current 1 MW revisited and replaced with the following:

* ***Reduce Rule 21 Telemetry Requirement from 1 MW or Greater to 250 kW or Greater***

 As the approval of Phase 3 functions is pending Commission approval along with the development of appropriate tariff revisions and related forms in support of aggregator (or aggregator akin like) Smart Inverter capabilities are anticipated for review within R.17-07-007 Working Group Two, the utilities propose the following working implementation plan for satisfaction of 250 kW telemetry requirement:

* ***Utilities will continue to review development of lower cost solutions in support of telemetry requirements; utilities propose to supplement existing telemetry reporting to provide annual data reporting to the Commission for telemetry solutions that total more than $20,000 per project (utilities are reviewing how to incorporate how to best capture if utility work is performed during life of customer asset and recovery mechanism);***
* ***Telemetry may be satisfied by Smart Inverter function capability after approval of SunSpec (or other industry standard) communication standard; Utilities also anticipate that additional discussions regarding aggregator forms and agreement will be discussed further within this Rulemaking and to determine if any additional tariff revisions should be made to existing Rule 21 provisions (including communications);***
* ***Future State - beyond Working Group 2 and 3 along with continued advancement for Smart Inverters, look to future scoping of telemetry required for all inverters***
* ***Disclosure Note: No changes are being proposed to the existing 1MW telemetry requirement for transmission level DERs connections***

***Exhibit A***

***Operational and Distribution Planning Telemetry Uses***

***In accordance with Section C of Rule 21, telemetry refers to the*** technology that transmits generator or DER resource data to the utility. This information is provided on a real time basis primarily for operations related purposes as highlighted below:

* **Temporary Connection** – In some cases, generators are granted permission to operate with operational conditions. Telemetry information is used to monitor the generator’s compliance and whether any reliability concerns may surface.

 Switching – Circuits a generator is tired into may need to be switched with currently limits a DER’s operations. Telemetry information may facilitate the Distribution Provider’s allowance of a DER to remain operational in an abnormal configuration

* **Diagnostics** – In the event of an outage of system disturbance, telemetry information along with grid operational data can be analyzed to diagnose what may have triggered the event. Without telemetry, utility personnel may need to physically diagnose the situation.
* **Planning** – With the growth of DERs, the difference between true load vs the net load is becoming a non-trivial amount. The utility needs to understand the amount of load that aggregate DERs on a feeder are serving or often termed as “masking” to plan for total load. A utility have an obligation to serve and in the event a DER is not available as the utility must provide “standby service” to be able to serve the load that particular DER is offsetting
* **Blackstart** – When a feeder experiences a disturbance, DERs on the feeder trip offline momentarily (DERs have historically been d designed to trip offline momentarily once a system disturbance is detected vs. riding through). Upon correction of the system disturbance, the line is re-energized but there typically is a delay before DERs comes back online. During this time, the load the aggregate DERs were serving is no longer “masked.” The utility leverages telemetry data to plan and reserve capacity for this atypical scenario. The absence of this planning can lead to further system disturbances.
* **Operation Switching** – For planned or unplanned maintenance work, feeders or line sections must be de-energized to allow work to be performed. Telemetry information is utilized to determine total load, including load that may be “masked” by local DER, and determine if that load can be adequately served from a different source.