

# Issue 9

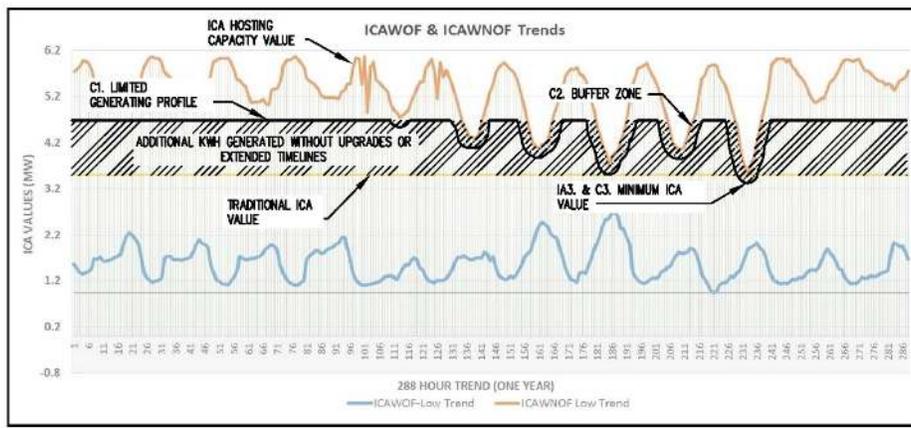
## Proposal: Allow Interconnecting DER to Be Evaluated and Operate Under Limited Generation Profile

**Summary:** Modify interconnection procedures to allow a DER customer to submit a “Limited Generation Profile” as part of their Interconnection Application, require that customer to enable generation profile limiting functionality, and allow utility limited future opportunity to alter that profile if circumstances warrant.

**Status:**  
Non-consensus

**Discussion:**  
Proposal 9 builds on Proposal 8.m and applies to DER which would accept certain conditions of operation, as detailed below.

The purpose of the proposal is to consider whether and how a generator may be allowed to interconnect generation capacity which exceeds the minimum annual ICAWNOF value while remaining below the maximum ICAWNOF at any given time. This scenario is illustrated in the following figure:



The proposal has three parts:

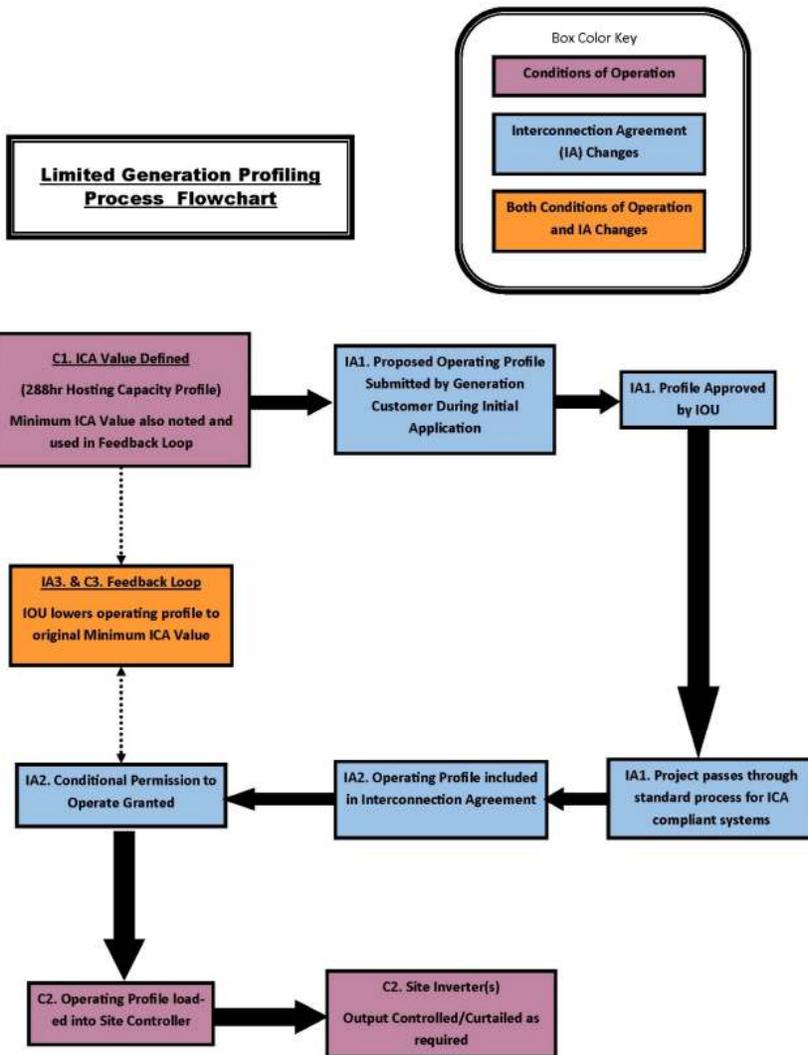
**Commented [Cal PA1]:** Based on the Public Advocates Office’s assessment, the Issue 9 proposal fits squarely within the ICA uses cases identified in the ICA Working Group’s Final Report; it makes the interconnection process less costly and allows for more sophisticated, potentially less expensive distribution planning on the part of the IOUs. It has the potential to avoid certain rate-based distribution upgrades. The Public Advocates Office supports the proposal while recognizing that there are numerous challenges facing its implementation.

Below are suggestions the Public Advocates Office would like to advocate for to address such challenges in future Working Group meetings.

- 1. Incorporate the findings of the Smart Inverter Working Group.** The IOUs have stated that grid operators would need real-time data from and potentially control over DERs for this proposal to be implemented. The Smart Inverter Working Group (SWIG), part of Rulemaking (R.) 14-08-013, has defined protocols to communicate with smart inverters, along with monitoring and control functions that should be able to support the Issue 9 proposal. The Working Group should comprehensively review the reports, decisions and resolutions issued to date and work with Energy Division and to ensure that any research and analysis is not duplicated in this working group unnecessarily.
- 2. Encourage IOUs to develop verification processes for generator profiles.** This proposal hinges on the ability of the IOUs to verify and have operational confidence in the generation profiles submitted by DERs. The Public Advocates Office recognizes that IOUs will be, at times, forced to rely on these profiles when ensuring safety and reliability. Any verification processes would need to be developed by IOUs to be effective. The Public Advocates Office encourages the IOUs to engage with the proposal and develop a draft generation profile verification process that would give them confidence implementing the proposal.

- Part 1: A DER customer submits a “Limited Generation Profile” as part of their Interconnection Application. The Limited Generation Profile may include generation up to the ICAWNOF value published by the IOU at the time of the application and would be submitted in a standard 288-hour format so that it can be easily superimposed on the ICA results.
  - o The submission of the Limited Generation Profile would be an option for all customers pursuing interconnection where an ICA has been published.
  - o The proposal acknowledges the need for a buffer between the published maximum ICAWNOF and the corresponding output in the Limited Generation Profile. A final determination on the size of the buffer has not been made.
  - o The source of the 288-hour format generation profile has not be determined. PV-watts may be an acceptable source, but no final determination has been made.
  
- Part 2: DER customer agrees to enable smart inverter functionality and local controls capable of ensuring actual operations conform with the submitted Limited Generation Profile.
  - o The Working Group generally agreed that the technology needed for a DER facility to implement a scheduled generation profile is already available. These technologies include smart inverter communications protocols allow for a standardized bridge between a localized DER controller, typically a Data Acquisition System (DAS), and inverters. The generation profile could be uploaded to the DAS, which would then send a communications signal to the inverters to adjust production based on the pre-defined schedule.
  
- Part 3: DER customer agrees to allow future reductions to generation profile up to the minimum ICAWNOF published by the IOU at the time of the application. Determination of such reductions would be made by IOUs under defined circumstances.
  - o The proposal acknowledges future grid conditions could result in actual hosting capacity being below the published ICAWNOF. Under such circumstances, the utility may need to reduce generation to ensure safe and reliable service without grid upgrades. Anticipating this possibility, the proposal suggests the interconnecting generator would agree to generations reductions down to a pre-defined static level. This level would be set as the lowest ICA value as identified at the time of the Interconnection Application.
  - o Whether and how the IOUs make the determination that reductions are necessary has not yet been determined.

The following Diagram Illustrates how this proposal would be implemented.



Proponents of this change assert this proposal has the potential to increase hosting capacity, thereby reducing interconnection challenges and cost. Further, the proposal should reduce the need for grid upgrades which are triggered by un-limited generation profiles.

IOUs raised several concerns in response to this proposal, including:

- Error in forecasting of generation: uncertainty as to whether an actual generator profile may be faithfully represented by the forecasted Limited Generation Profile;
- Error in ICA: uncertainty as to whether the ICAWNOF, the least conservative output of the ICA process, will reflect actual grid conditions;
- Lack of experience with generator controls: uncertainty as to whether the inverter and DAS controls will meet expectations; and
- Error in realizing needed generation reductions: recognize grid operations happen in real-time, whether and how the IOU would know with certainty if/when the generator's output needed to be reduced, be able to effectively communicate the needed change to the DER, and whether the DER would respond in a timely and accurate manner.

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