Resource Adequacy Deliverability for Distributed Generation

2020-2021 DG Deliverability Assessment Results

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1 Introduction

In accordance with the ISO tariff section 40.4.6.3, the ISO performed the 2020-2021 Distributed Generation Deliverability (DGD) assessment to determine MW quantities of Potential DGD at specific nodes of the CAISO Controlled Grid for assigning deliverability status to Distributed Generation (DG) Facilities.

Section 2 of this paper provides a high level summary of the study results for each participating transmission owner (PTO) service territory. The study model used by the ISO in conducting the annual DG deliverability assessment is described in section 3. Section 4 describes how the Potential DGD at each node is determined. Section 5 provides information intended to help make the detailed results easier to understand.

The detailed results are contained in worksheets attached to this report.

2 DG deliverability assessment results summary

The 2020-2021 renewable portfolios identified 0 MW distributed generation. Distributed generation has been included in the PG&E area related to potential plans to locate DG needed to reduce the impacts of public safety power shutoffs (PSPS) events. DG has also been included at one node in the SCE area[1]. The POUs provided DG forecasts for their territories. The 2020-2021 DGD study evaluated the deliverability of DG at the POU provided nodes.

The 2020-2021 DG deliverability assessment results indicate that a total of 57.045 megawatts of Potential DGD is available at nodes on the ISO grid for assignment of deliverability status to DG

[1] DG deliverability is allocated to distributed generation to provide them with FCDS or PCDS. The amount of Qualified Capacity associated with solar resources has been dropping as the need for resources shifts to later in the day, so in 2020 the CAISO's deliverability methodology was revised to align with this change. A one-time opportunity was provided to eligible generation to add storage with their solar resources at the same time that the deliverability methodology was changed. At one location a previous DG deliverability allocation customer that had already installed storage failed to transfer its deliverability to the storage. However, it is expected that existing deliverability is still available at that location, so some will be studied and allocated in this DG deliverability cycle.

resources[2] connected or requesting interconnection below those nodes. The total Potential DGD for each PTO service territory is summarized in the following table. Of these total quantities, some amounts of Potential DGD at specific nodes will be available to municipal utility distribution companies (UDC) for assignment of deliverability status to DG resources on their distribution systems.

PTO service territory	Total MW of Potential DGD
SCE	6.105
SDG&E	0
PG&E	50.94
GWT/VEA	0
Total	57.045

The detailed nodal amounts of Potential DGD within each PTO service territory are provided in worksheets attached to this report. The following three sections provide a summary of the results for each PTO service territory.

2.1 SCE service territory

There was no distributed generation identified in the 2020-2021 renewable portfolios for the SCE service territory. There were three nodes with updated distribution generator plan from POUs. However, these nodes are behind known deliverability constraints in Cluster 13 Phase I. At one location, Antelope 66kV, a previous DG deliverability allocation customer that had already installed storage failed to transfer its deliverability to the storage. 6.105 MW additional DG amount were studied at Antelope 66kV and is deliverable.

2.2 SDG&E service territory

There was no distributed generation identified in the 2020-2021 renewable portfolios for the SDG&E service territory, and therefore, there were no nodes studied for Potential DGD (see footnote 2).

[2] For purposes of this study, DG refers to generation resources connected to utility distribution systems. The ISO recognizes that, in some contexts, some parties use the term "distributed generation" to mean resources of certain technology types or below certain size thresholds, and may even include such categories of resources when they are connected to the transmission system. For purposes of this study, however, the term "distributed generation" refers to all generation resources connected to utility distribution systems, without regard to size or resource type.

2.3 PG&E service territory

There was no distributed generation identified in the 2020-2021 renewable portfolios for the PGE service territory. There were 29 additional nodes identified to be studied in the PGE service territory related to potential plans to locate DG needed to reduce the impacts of public safety power shutoffs (PSPS) events. The study determined that a total of 50.94 MWs of Potential DGD is available at 5 of the 29 nodes studied.

2.4 GWT/VEA service territory

There was no DG node in GWT/VEA service territory.

3 DG deliverability assessment study model

The study model used by the ISO in the assessment was developed from the most recent ISO generation interconnection deliverability assessment base case. The first step was to model the transmission systems and prior commitment of deliverability that generally included:

i. Generators that are operational and have obtained Full Capacity Deliverability Status (FCDS) or Partial Capacity Deliverability Status (PCDS)[3], including the ones obtained FCDS or PCDS in the previous DGD cycles;
ii. Active generation interconnection requests in the ISO's and Participating TOs' generation interconnection queues that requested Full Capacity Deliverability Status or Partial Capacity Deliverability Status in Queue Cluster 13 window or earlier;
iii. Generation projects that have obtained deliverability using the annual full capacity deliverability option;
iv. Generation projects that have obtained deliverability in the previous deliverability status assignment;
v. The MW amount of Potential DGD that was identified but not assigned in 2019-2020 DGD cycle, i.e. 2020 unassigned PDGD;
vi. Transmission upgrades that have been approved in ISO Transmission Planning Process;
vii. Network Upgrades required for any generation interconnection requests that are under construction or have received regulatory permits.

Next, target DG amounts were determined and added to the study model following the steps described below.

i. Identify all DG nodes that have non-zero distributed generation MW in one of 2020-2021 Transmission Plan renewable portfolios.

[3] These generators may not have achieved FCDS or PCDS due to required Network Upgrades not in service yet.

ii. At each DG node, determine the target additional DG amount. The target additional DG amount at each node was initially set to {*total existing Energy Only DG[4] + the greatest of the (a) and (b) below*}:

   a. Maximum DG MW at the node among all renewable portfolios
   b. Total MW amount of non-NEM WDAT or Rule 21 requests

   The target amount was set to 0 at a node if the following condition was true:

   - If the node is within an electrical area for which the Queue Cluster 13 Phase I interconnection studies have showed a need for a Delivery Network Upgrade;

   The total MW modeled at a node is equal to {max (target MW, 2020 unassigned PDGD)}.

iii. If a DG node is found to be behind a constraint for which there is an SPS/RAS, the node may be identified to have conditional PDGD:

   a. If the constraint is behind a future SPS/RAS, the DG node behind such constraint will be identified to have no PDGD.
   b. If the constraint is behind an existing load-dropping SPS/RAS, the DG node behind such constraint will be identified to have no PDGD if the SPS/RAS requires modification in terms of increasing required amount of load drop. If the SPS/RAS doesn't require modification in terms of increasing required amount of load drop, the DG node behind such constraint will be identified to have PDGD.
   c. If the constraint is behind an existing gen-dropping SPS/RAS, the DG node behind such constraint will be identified to have conditional PDGD subject to verification from PTO for whether or not any DG at that node needs to be included in the SPS/RAS from a reliability perspective and if it is feasible.

4 DGD determination

This ISO performed deliverability assessment determined the amount of deliverable MW at each node. Part or all of the deliverable MW amount determined was then identified as Potential DGD for assigning Deliverability Status to Distributed Generation Facilities. In general, the Potential DGD is the deliverable MW amount, minus any prior commitments, that does not exceed the sum of existing Energy Only DG and future Energy Only DG. If the initially identified Potential DGD is lower than the 2020 unassigned Potential DGD, the 2020 unassigned Potential DGD is preserved.

Potential DGD = max {2020 unassigned PDGD, min {deliverable MW, existing EO + max {base portfolio, EO interconnection requests} } }

[4] For the purpose of this study, Energy Only DG includes any DG that has requested Energy Only Deliverability Status and not previously obtained Full Capacity Deliverability Status or Partial Capacity Deliverability Status, as well as the portion of a DG that would bring the DG from Partial Capacity Deliverability Status to Full Capacity Deliverability Status.

5 Detailed DG deliverability assessment results

The detailed results are attached to this report. There is one worksheet for each PTO service territory. The following is a listing of the column headings used in the worksheet along with a brief explanation of each.

A. **DG Node—Substation Name**. Name of the substation representing the DG node.
B. **DG Node—Transmission Level kV**. The transmission level voltage at the transmission/distribution interface.
C. **DG in Base Portfolio**. The megawatts of DG at the node in the base portfolio utilized in the ISO's 2020-2021 Transmission Planning Process.
D. **WDAT/Rule 21 non-NEM DG—EO**. The total megawatts of non-NEM DG at the node in the WDAT queue that have requested Energy Only Deliverability Status and not obtained deliverability previously.
E. **WDAT/Rule 21 non-NEM DG—FC**. The total megawatts of non-NEM DG at the node in the WDAT or Rule 21 queue that have requested or obtained deliverability.
F. **Existing non-NEM DG—EO**. The total megawatts of non-NEM DG at the node already in commercial operation that have not obtained deliverability.
G. **Existing non-NEM DG—FC**. The total megawatts of non-NEM DG at the node already in commercial operation that have obtained deliverability.
H. **2020 Unassigned PDGD**. The total megawatts of Potential DGD identified but not assigned in the 2020-2021 DG deliverability cycle.
I. **Target DG Modeled**. The total megawatts of DG modeled at the node in the DG deliverability assessment.
J. **DG Deliverable**. The total megawatts of DG determined to be deliverable at the node.
K. **Potential DGD**. The total megawatt amount of Potential DGD at the node available for assignment of deliverability status to DG resources. Potential DGD is calculated as Max (Column H, Min (Column J, Column F + Max (Column C, Column D))).
L. **Notes.** Comments to help understand the results.