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R.17-07-007

288-Value Limited Generation Profiles

SIWG Presentation

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Rulemaking Context

- The purpose of R.17-07-007 is to streamline interconnection of distributed energy resources (DERs) and improve Rule 21.¹
- The purpose of Limited Generation Profiles (LGPs) is to allow fuller use of the grid without grid upgrades.²
 - This likely entails interconnection of more DERs or larger DERs.

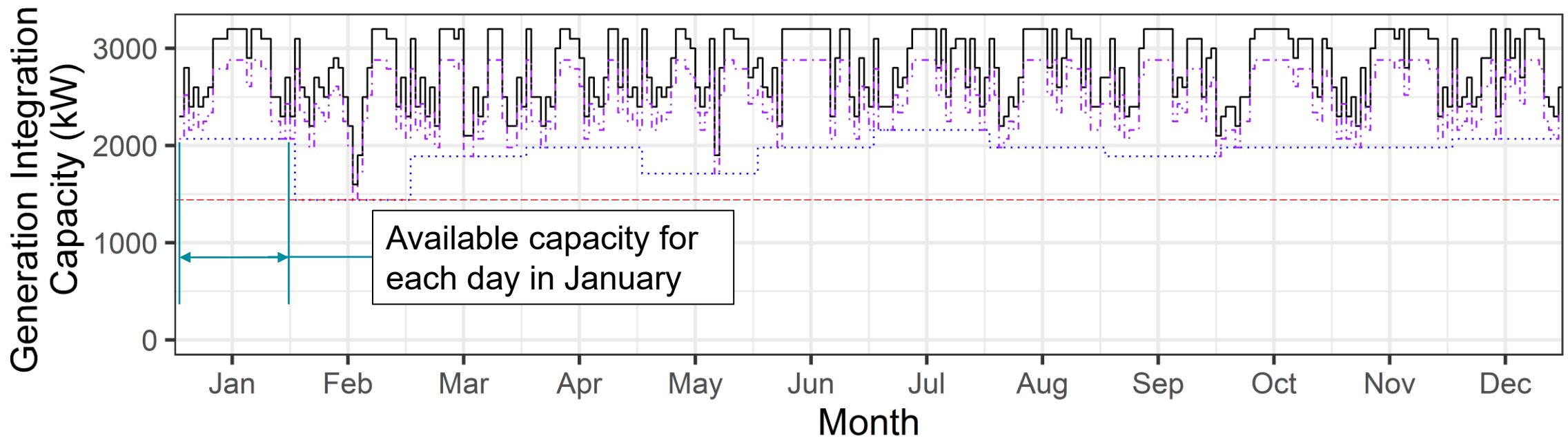
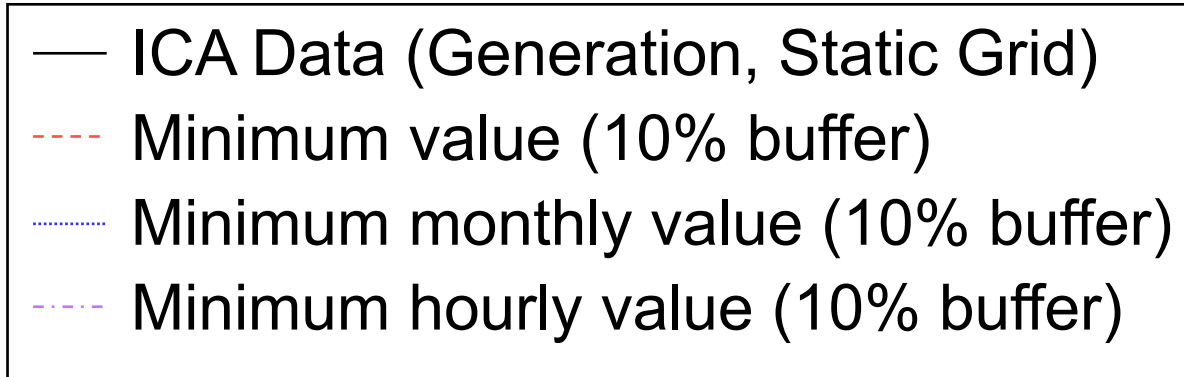
¹ See *Order Instituting Rulemaking to Consider Streamlining Interconnection of Distributed Energy Resources and Improvements to Rule 21*. June 21, 2017.

² LGP was introduced in response to Issue 9 which asked: "What conditions of operations should the Commission adopt in interconnection applications and agreements to allow distributed energy resources to perform within existing hosting capacity constraints and avoid triggering upgrades?" (Emphasis added). See Rulemaking (R.) 17-07-007. *Scoping Memo of Assigned Commissioner and Administrative Law Judge*, October 02, 2017 at 3. See also R.17-07-007. *Working Group Two Final Report*, October 31, 2018 at 119-125.

288-Value LGPs - Summary

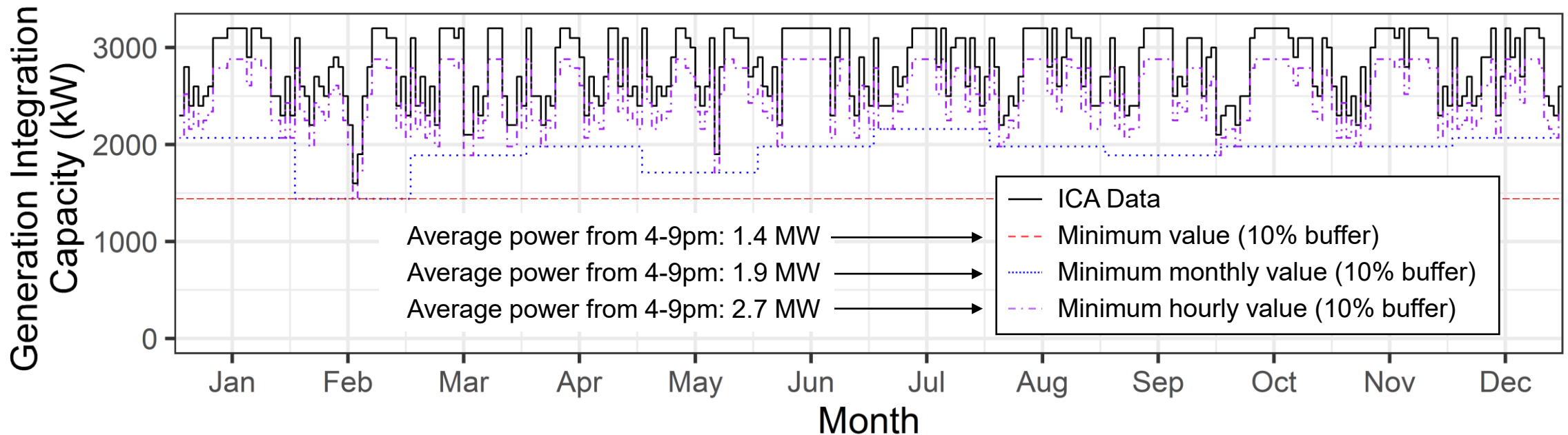
- In theory, increasing the allowed variation in LGPs increases the energy that can be exported over the course of the year and the power that can be delivered during peak hours (4pm~9pm).
- The following slides quantitatively test this theory for a small sample of feeders.
- The theory holds up: The potential value is large and worth pursuing either through:
 - A. A systematic study of feeder capacity; or,
 - B. Implementation of 288-value LGPs by the Utilities.

LGPs – Circuit Example



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- The existing LGP, wherein the integration capacity is set by the minimum monthly (12-value) static grid value enables more energy and power capacity but is not particularly beneficial during the times of greatest need (4~9pm).
 - Average power from 4-9 pm increases from 1.4 to 1.9 MW with 12-value LGP.
- A monthly-hourly (288-value) profile enables more exports during peak hours: to 2.7 MW.
- Using this capacity could benefit all parties.



LGPs – Circuit Sample

- What is the total energy that 12-value LGP unlocks over the course of a year?
- What is the average power that 12-value LGP unlocks during the 4-9pm window?
- How do these compare to 288-value LGP?
- Integration capacity analysis data can answer these questions.
 - 9,701 segments (convenience sample): 20 from SDG&E and balance from PG&E.

Export Constraint	Total Annual Energy Exports Possible (TWh)	Average Power Possible (4-9pm, GW)	Energy Ratio	Power Ratio
Current Limit	77	8.7	1.0	1.0
12-value LGP	115	13.1	1.5	1.5
288-value LGP	157	17.7	2.0	2.0

- 12-value LGP unlocks significant potential; 288-value LGP unlocks twice as much.