Rule 21 Working Group Three
Issue 27 – Smart Inverters

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January 11, 2019

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smart local energy

Goals of Issue 27 Proposal

Issue 27: What should be the operational requirements of smart inverters? What rules and procedures should the Commission adopt for adjusting smart inverter functions via communication controls?

Goals:

- Identify priority use cases
- Define procedures and rules for services anticipated from IDER tariffs
- Set target deployment of DERMS

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Voltage Functions

- DERs can provide voltage support as a routine management tool or in response to abnormal conditions.
- Proposals for tariffs to facilitate this activity are due in the IDER proceeding (R.14-10-003) on February 15.
- Smart inverters have three voltage functions. Changing from the default settings can provide grid support.
  - Volt/Var
  - Volt/Watt
  - Fixed Power Factor (in place of Volt/Var)

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Voltage Support Use Cases

- Change settings of voltage functions in response to feeder reconfiguration
  - Procedure: Customer agrees to tariff (available in all locations) as part of interconnection application. When exercised, utility sends a command to facility or aggregator.
  - Rule: Range of adjustability and frequency of use to be determined in IDER tariff.
- Schedule changes to settings of voltage functions to address seasonal differences
  - Procedure: Utility determines locations where this is valuable. Customer agrees to tariff as part of interconnection application. Settings included in interconnection agreement or tariff agreement.
  - Rule: Customer obligation to maintain schedule.
- Ongoing adjustments to settings of voltage functions in place of other voltage regulators
  - Procedure: Utility offers agreement during interconnection review. When exercised, utility sends command to facility or aggregator.
  - Rule: Aggregators use functionality as currently defined in Rule 21. Terms contained in IDER tariff.

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Interconnection Use Cases

- Schedule changes to Limit Maximum Active Power (Function 3) in response to seasonal or hourly hosting capacity constraints
  - Procedure: Customer proposes operational profile in interconnection application. Utility compares profile to hosting capacity in Screen M. Schedule contained in interconnection agreement.
  - Rule: Customer obligation to maintain the schedule.
- Curtailment using DER Disconnect and Reconnect (Function 2) in response to abnormal grid operations to address operational flexibility constraints
  - Procedure: Range of adjustability proposed by customer in interconnection application according to ICA-OF. Utility compares to hosting capacity in Screen M. When exercised, utility sends a command to facility or aggregator. Range of adjustability contained in interconnection agreement.
  - Rule: Customer obligation to perform on command.

Other Use Cases

- System restoration – When service is restored to a circuit after a grid outage, communication with smart inverters can stagger the timing of DERs coming back online to avoid voltage spikes
  - Procedure: Utility sends a command to facility or aggregator prior to system restoration, or alternative start time is agreed to ahead of time.
  - Rule: Customer obligation to perform, subject to coordination with IDER tariff.
- Storage dispatch as a capacity resource
  - Procedure: Customer agrees to resource adequacy or demand response obligation. When exercised, utility sends command to facility or aggregator.
  - Rule: Customer obligation to perform contained in tariff or solicitation.

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DERMS Are Part of This Issue

- In order to utilize Phase 3 functions, utilities need to build communications systems on their end.
- Customers are required to deploy capabilities. Utilities should also be required to deploy capabilities.
- Utilities have built DERMS for pilot projects ordered by the CPUC.
- In Issue F, Working Group 4 will discuss the relationship of DERMS and the Operational Flexibility ICA constraint. That is only one use case.
- CALSSA requests that utility DERMS managers give an update on the Jan 31 SIWG call.

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