

Distribution Resources Plan

LNBA Working Group Meeting
October 27, 2016



Agenda

- CSFWG Final Report and DER Services
- DER Services in Demo B
 - Types of System Need and Examples
- Non-Deferrable Project Types in Demo B
- IOU Project Overview for Demo B
 - PG&E
 - SCE
 - SDG&E

CSFWG Final Report and DER Services

- As part of the IDER proceeding, the CSFWG published a final report on August 1, 2016
- This report identified three services that DERs can provide:

Service	Definition
Distribution Capacity	The dispatch of power output (MW) for generators or reduction in load that reliably reduces net load on desired distribution infrastructure
Voltage Support	Dynamic voltage management that corrects voltage limit excursions and supports future conservation voltage reduction strategies with utility power control systems
Reliability (back-tie) and Resiliency (microgrid)	<p>Load modifying or supply service that improves reliability and/or resiliency by providing a fast reconnection and excess reserves to reduce demand when restoring customers during abnormal configurations</p> <p>In addition, resiliency (microgrid) services for systems with enabling technology that provides power to islanded end use customers when central power is not supplied, reducing the duration of outages</p>

DER Services, Types of System Need, and Examples for Demo B

- The three services inform the types of deferrable projects

Services	Types of System Projects	Example Equipment
Distribution Capacity	- Thermal Capacity Upgrade Projects	- Transformers - Line conductors
Voltage Support	- Voltage/VAR Projects - Conservation Voltage Reduction (CVR) - Voltage/VAR Optimization (VVO)	- Capacitor banks - Load tap changers - Line voltage regulators
Reliability (back-tie) and Resiliency (microgrid)	- Capacity upgrade projects driven by outage contingencies	- Incremental equipment associated with projects

Non-Deferrable Project Types for Demo B

Project Type	Reason why not deferrable
Repair/Replacement (e.g., electrical equipment, structural repair)	End of life cycle replacements, equipment necessary to support electrical service
Reliability (Non-capacity related)	DERs don't reduce outage duration, sectionalize circuits, detect faults
Operations and Maintenance (e.g. equipment testing and inspections managing vegetation and animals)	Function not provided by DERs
Emergency Preparation and Response	Short timeframe to replace/repair damaged equipment to restore electrical service
New Business / Work at Request of Others	Responsibility to serve

DRP Track 3

- Deferrable projects were determined for Demo B using current knowledge of DER services
- Further discussion on a deferral framework will be addressed in Track 3, Sub-track 3
 - “Sub-track 3 would address the process to identify opportunities for DERs to provide distribution-level services”
 - Example: downsizing replacement equipment

PG&E Deferral Project Overview

- Preliminary, 2016 Updates Pending
- Chico DPA
 - 3 Distribution Capacity Projects
 - New Transformer Bank at Substation (0-3 yrs.)
 - Two New Feeders (0-3 yrs.)
 - New transformer Bank at Substation (5-10 yrs.)
- Chowchilla DPA
 - 2 Distribution Capacity Projects
 - New Transformer Bank at Substation (0-3 yrs.)
 - New Feeder (0-3 yrs.)
 - Reconductor Section of Existing Feeder (0-3 yrs.)
 - 1 Voltage Support Project
 - Install Voltage Support Equipment on Existing Feeder (0-3 yrs.)

SCE Deferral Project Overview

- Project Identification (Planning Scenario)
 - 2 Distribution Planning projects
 - 3 Sub-transmission Planning projects
 - 36 Circuit Reliability Improvement projects
 - 735 Sub-transmission Maintenance projects
 - 13,398 Circuit Maintenance projects
- Deferrable Projects Identification (Planning Scenario)
 - 4 deferrable projects have been identified in the Rector DPA
 - 1 distribution capacity project (0-3 yrs.)
 - 2 sub-transmission capacity projects (0-3 yrs., 5-10 yrs.)
 - 1 sub-transmission voltage control project (5-10 yrs.)

SDG&E Deferral Project Overview

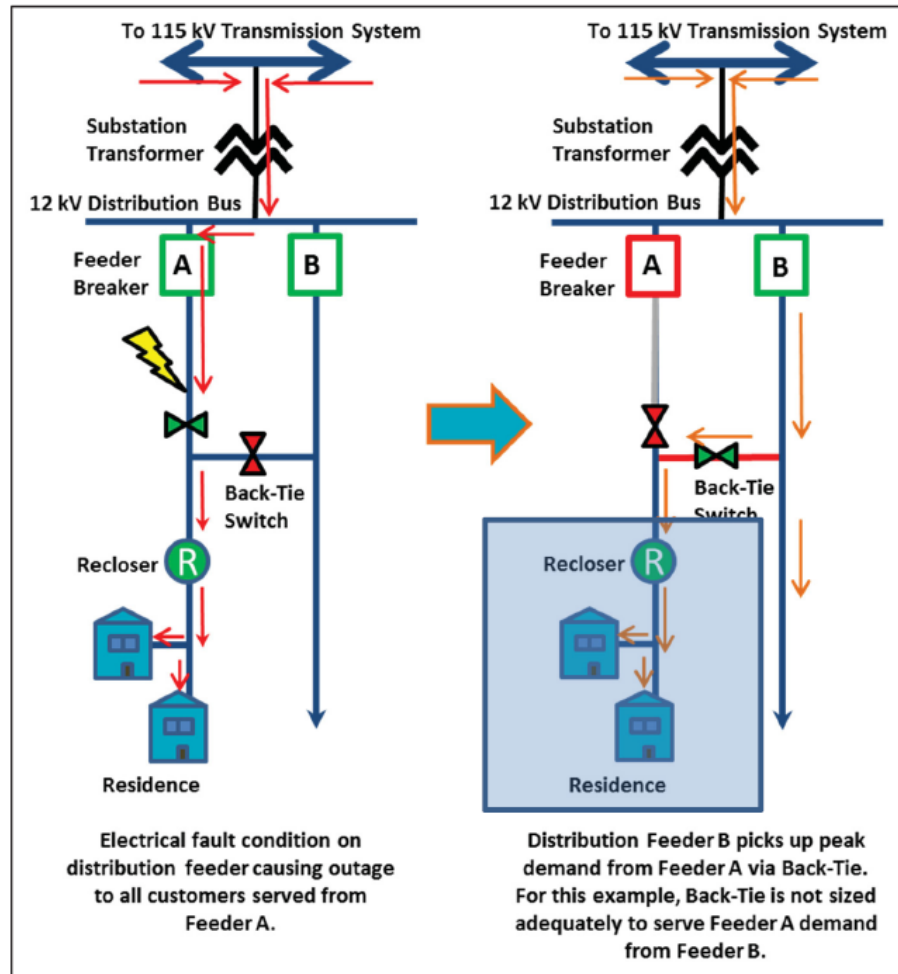
- Project Identification in North East DPA
 - 10 distribution planning projects
 - 6 cutovers, 1 reconductor, 1 circuit extension, 1 new feeder, 1 voltage regulator installation
 - 62 circuit reliability improvement projects
 - 1,903 system maintenance projects
- North East DPA Deferrable (Demo B) Projects
 - 3 Capacity/Thermal
 - One feeder/circuit extension project to offload two existing circuits. (0-3 yrs.)
 - One reconductor (0-3 yrs.)
 - One new feeder/circuit extension (3-5 yrs.)
 - 1 Voltage Support
 - Install voltage regulating equipment on existing feeder (0-3 yrs.)

Appendix

Relevant Sections of 5/2 ACR

- Section 4.1: “evaluate one near-term (0-3 year lead time) and one longer term (3 or more year lead time)... at least one voltage support/power quality- or reliability/resiliency related deferral opportunity in addition to one or more capacity-related opportunities [for possible deferral].
- Section 6.1: “[LNBA working group] Activity Related to Demonstration Project B... Consult to the IOUs on further definition of grid service, as described in requirement (1)(B)(iv-v) of Section 4.1.1 above, and in coordination with the IDER proceeding.”
- Section 4.4.1(1)(A): “The IOUs shall identify the full range of electric services that result in avoided costs for all locations within the DPA selected for analysis.”

Back-tie Example



Definitions

- Conservation Voltage Reduction (CVR) – Static voltage management that controls voltage to achieve improved energy savings or greater energy efficiency typically across a large geographic footprint
- Voltage/VAR Optimization (VVO) - Voltage management that controls the reactive power and voltage to address distribution grid needs such as energy, capacity, voltage, and VAR typically across a circuit or substation