

# 2023 Distribution Investment Deferral Framework Request for Offers (2023 DIDF RFO)

***Bidders' Conference  
September 26, 2023  
1:00 PM – 2:30 PM***

***Microsoft Teams Live Stream***

***Please utilize the Q&A chat function to pose any questions***

*Note: SCE will check and answer questions in the Q&A periodically during the live stream;  
Attendees do not have microphone capabilities and will have to exclusively utilize the Q&A chat function*

# Agenda

## 1. Overview

- Introduction
- Independent Evaluator
- Executive Summary & Overview of RFO
- Schedule of RFO

## 2. Products & Eligibility

- Product Types and Eligibility Criteria
- Purchase & Sale Agreement – Technology Neutral Pro Forma
- In Front of the Meter Deposit
- SCE Termination Right in the event of change in need
- General Notes & Preferences

## 3. Project Locations and Needs Assessment

## 4. Distribution Resources Plan External Portal (DRPEP)

- Integration Capacity Analysis

## 5. Interconnection Process

## 6. Customer Composition

## 7. Incrementality

- Category Definitions

## 8. Offer Valuation and Selection

## 9. Final Q&A Session

**A Q&A session will follow each section presentation.**

# Bidders Conference and Overview of DIDF RFO

*Brian Mendoza*

# Webinar Purpose

- In this webinar, SCE will provide information to help potential bidders in understanding the purpose and identified need for the 2023 DIDF RFO, as well as understanding the RFO processes and how to submit bids
- There is time allotted for Q&A after each major topic
- After the webinar, SCE will post this presentation and a recording of this webinar on the 2023 DIDF RFO website at:

<https://www.sce.com/procurement/solicitations/didf>

- This presentation is intended to be a summary level discussion of the information and requirements established in the 2023 DIDF RFO and does not include all the detailed information that can be found in the documents posted to the 2023 DIDF RFO website
- To the extent that there are any inconsistencies between the information provided in this presentation and the information contained in the documents posted to the website, the information in the documents posted to the websites govern

# Power Advocate Details

- SCE will use PowerAdvocate® to host the RFO website
  - Again, this is where detailed information about the 2023 DIDF RFO is available to prospective bidders
- Offerors intending to submit Offers, but who do not yet have an existing PowerAdvocate® account must first register and create username/password log in credentials with PowerAdvocate® in order to receive access to these events (Event 174053)
- Offerors with an existing PowerAdvocate® account may request access at:

## **2023 DIDF RFO (Event Code: 174053)**

- <https://www.poweradvocate.com/pR.do?okey=174053&pubEvent=true>
- For additional information on registering on PowerAdvocate®, please visit:
- [https://www.poweradvocate.com/WebHelp\\_Sourcing\\_Intel\\_Supplier/Content/Resources/Sourcing\\_Intel\\_Supplier\\_Guide.pdf](https://www.poweradvocate.com/WebHelp_Sourcing_Intel_Supplier/Content/Resources/Sourcing_Intel_Supplier_Guide.pdf)

# Independent Evaluator ("IE")

- Requirement for an IE are mandated through CPUC Orders
- The IE performs an independent review of the proposals and a detailed review of the utility evaluation and selection process
- The IE monitors communications between SCE and Offerors and is copied on all correspondence
- The IE has access to all bid data
- Merrimack Energy Group, Inc. has been retained as the IE for this solicitation
  - The principal contacts with the IE are Keith Oliver and Mark Smith, who can be reached at: [DIDF@MerrimackEnergy.com](mailto:DIDF@MerrimackEnergy.com)

# DIDF RFO

Brian Mendoza

# 2023 DIDF RFO Overview: High Level Summary

- Pursuant to CPUC Decisions 18-02-004 and 21-02-006, SCE is seeking to **procure distributed energy resources (“DERs”) to defer the need for capital expenditures for traditional distribution infrastructure** upgrades within this 2023 Distributed Investment Deferral Framework (“DIDF”) RFO. The following six (6) traditional distribution infrastructure upgrade projects were identified for deferral need in this RFO through the Distribution Deferral Opportunities Report (“DDOR”) process
- DERs include the following resources connected to SCE’s distribution system or at customer locations:
  1. Demand Response
  2. Renewable Distributed Generation (“DG”) – In Front of the Meter (“IFOM”) and Behind the Meter (“BTM”)
  3. Energy Storage – IFOM and BTM
  4. Renewable DG paired with Energy Storage – IFOM and BTM
  5. Permanent Load Shift
  6. Energy Efficiency
- Deployed DERs will alleviate infrastructure strain and may allow distribution upgrades to be made later



# 2023 DIDF RFO Overview (Cont'd)

- The 2023 DIDF RFO will use a one-step bid process:
  - Offers are due *November 15, 2023*
  - SCE will evaluate the offers and, for those that satisfy the identified deferral needs in a cost-effective manner, SCE will provide final selection notification on *January 5, 2024*
  - SCE may execute agreements with those bidders with whom agreement terms and conditions have been negotiated
  - There will not be a pricing refresh step
- Please thoroughly review all provisions of the Purchase and Sale Agreement, Term Sheets, RFO Instructions, and all other supporting documentation
- Bidders are responsible for being fully aware of all requirements and obligations of the contractual terms and conditions prior to submitting an offer
- Upon execution of a Non-Disclosure Agreement, SCE will share a list of addresses that are served by the qualifying substations or circuits

# Public Service Power Shutoff ("PSPS")

- SCE has a preference for BTM projects that can provide resiliency to support Public Safety Power Shutoffs ("PSPS")
- SCE encourages Bidders to take advantage of any available incentive programs to support this preference and incorporate such incentives into their offer pricing
  - Example: The Self-Generation Incentive Program (SGIP) Equity Resiliency Budget, detailed in CPUC Decision 19-09-027 ("D.19-09-027")
- SCE encourages offers to aggregate customers in areas that have a high likelihood of being impacted by PSPS to participate in the SGIP Resiliency Budget
- Basic Requirements:
  - Any offers need to be able to be completely disconnected from the grid in the event of PSPS
  - The project and aggregated customers would need to be located in Tier 2 or Tier 3 High Fire-Threat Districts (HFTD's) listed on the California Public Utility Commission's Fire Threat Map (<https://ia.cpuc.ca.gov/firemap/>)
  - For other specific eligibility criteria, please see Decision 19-09-027

# Executive Summary: DIDF Deferral Project

The following traditional distribution infrastructure upgrade projects were identified for deferral needs in the DIDF RFO through the Distribution Deferral Opportunities Report (DDOR) process

Substation/ Subtransmission Line	Project Description	Location(s) of Need(s)	Distribution Service Required	Operating Date	Cost of Traditional Mitigation (\$)	Max 10- year Capacity Need (MW)	Max 10- year Energy Need (MWh)
<b>Valley 115/12kV</b>	New 12kV Circuit at Valley Substation	Ethanac 12kV Jerry 12kV	Capacity	6/1/2026	2.59M	4.0	17.9
<b>Washington 66/12 kV</b>	Upgrade 2 Transformers at Washington Substation	Washington 66/12 kV	Capacity	6/1/2026	4.14M	12.1	69.1
<b>Vail 66/12 kV</b>	Upgrade Transformer at Vail Substation	Vail 66/12 kV	Capacity	6/1/2026	2.14M	15.0	76.9
<b>Aqueduct 115/12 kV</b>	New Transformer at Aqueduct Substation	Aqueduct 115/12 kV	Capacity	6/1/2027	4.88M	19.1	93.7
<b>Chino 66/12 kV</b>	New 12kV Circuit at Chino Substation	Phantom 12kV	Capacity	5/1/2026	4.29M	3.4	23.3
<b>Mira Loma 66/12 kV</b>	New 12kV Circuit at Mira Loma Substation	Danish 12kV	Capacity	6/1/2026	3.85M	10.7	96.4

# DIDF Schedule *(subject to change)*

<b>Event*</b>	<b>DIDF Dates</b>
RFO Launch	September 15, 2023
RFO Bidders' Conference	September 26, 2023
Offer Submittal Deadline	November 15, 2023 12:00 PM (Noon) PPT
Final Selection Notification	By January 5, 2024
Contract Execution/Close of RFO	By March 15, 2024

\*Based on the operational needs for the 2023 DIDF deferral projects during the RFO, SCE may file an extension request to the CPUC's Energy Division for the RFO schedule pursuant to R.14-08-013, Reform No. 43. SCE will inform Respondents, as soon as reasonably practicable, of any change to the schedule.

# DIDF Product & Eligibility Overview

*Gene Lee*

# DIDF Product Types

- SCE is soliciting the following products:
  1. Demand Response ("DR") - *(100 kW minimum)*
  2. Renewable Distributed Generation ("DG")
    - a. BTM DG *(100 kW minimum)*;
    - b. IFOM DG *(250 kW minimum)*
  3. Energy Storage -
    - a. IFOM ES (RA Only) - *(500 kW minimum)*
    - b. IFOM ES (RA with Financial Settlement) - *(500 kW minimum)*
  4. Renewable DG paired with Energy Storage
    - a. BTM DG-ES *(100 kW minimum)*
    - b. IFOM DG-ES *(250 kW minimum)*
  5. Permanent Load Shift ("PLS") - *(100 kW minimum)*
  6. Energy Efficiency ("EE") - *(100 kW minimum)*
- Eligible projects must be new build or otherwise incremental to existing installations and use proven, commercially available technology that is scalable to the project size

# Product & Eligibility Overview: Eligibility Criteria for All Resources

All offers must demonstrate that the Project will:

1. Either connect to the qualifying substation/circuit or be located at customer sites that take service from the qualifying substation/circuit
2. Project Start Date – the Expected Initial Delivery Date requirement:
  - No earlier than December 1, 2025, but no later than March 1, 2026 for Offers to defer the Valley Project, Washington Project, Vail Project, Phantom Project, or Danish Project
  - No earlier than December 1, 2026, but no later than March 1, 2027 for Offers to defer the Aqueduct Project
3. Deliver at a minimum for one month within the identified peak season for each location

# Product & Eligibility Overview: All Behind the Meter Resources

All BTM Resource (DR, BTM DG, BTM DG-ES, PLS, EE) offers must:

- Be no longer in term length than 15 years, and if an offer greater than or equal to 10 years is provided, must also provide an offer shorter than 10 years (exception is EE which has a 5-year delivery period)
- Be greater than or equal to 100 kW
- For distribution deferral, be able to reduce customer load at a minimum for one hour within the deferral time-period





# Product & Eligibility Overview: In Front of the Meter DG and DG-ES

In Front of the Meter DG and DG-ES resource offers must:

- Be no longer in term length than 20 years, and if an offer greater than or equal to 10 years is provided, must also provide an offer shorter than 10 years
- Be greater than or equal to 250 kW
- Have demonstrable site control by contract execution date
- Be able to deliver at a minimum for one hour within the deferral time period



# Product & Eligibility Overview: In Front of the Meter Energy Storage

In Front of the Meter Energy Storage Resource offers must:

- Be no longer in term length than 20 years, and if an offer greater than or equal to 10 years is provided, must also provide an offer shorter than 10 years
- Be greater than or equal to 500 kW
- Be capable of discharging at a minimum for 4 consecutive hours for three consecutive days (Resource Adequacy requirement) with at least one of those hours within the deferral time period
- Achieve Full Capacity Deliverability Status and a Net Qualifying Capacity (Resource Adequacy requirement)
- Have demonstrable site control by contract execution date



# Technology Neutral Pro Forma – RA Only vs. RA with Financial Settlement\*

- SCE currently has two IFOM Energy Storage contract types:
  - RA only
  - RA with Financial Settlement
- The RA with Financial Settlement structure is essentially a RA Only contract, with the addition of a financial settlement of CAISO market energy
  - “Monthly Energy Capacity Price” is the price that is bid
  - Seller delivers monthly RA and pays an energy settlement amount approximate to energy revenue for no more than a single daily charge/discharge cycle, accounting for the project’s round trip efficiency factor
    - Energy Settlement only includes the energy value, all other products, such as Ancillary Services, are retained by Seller
  - Energy Settlement may not be a negative value (i.e., SCE does not pay Seller)
  - SCE expects pricing for this product to be below a comparable full offtake toll or SCE’s previous RA with put option product

\* This summary is intended to provide a high-level description of the energy storage products SCE is soliciting in this RFO, not to provide guidance on, or interpretation of, the DIDF Pro Forma. In calculating Offer pricing, Offerors are responsible for carefully and thoroughly reviewing the entire DIDF Pro Forma applicable to the product(s) they are offering to understand all of the obligations and expected costs associated with their Offer(s).

# Technology Neutral Pro Forma – Purchase and Sale Agreement

- SCE has updated the form of contract to be used in the 2023 DIDF RFO from what was used in the previous DIDF RFO
- SCE has developed a single contract that will be used for all products
  - The “Base Agreement” contains provisions that are generally common for all of the product types
  - The “Attachments” contain provisions that are specific to each technology type (e.g. measurement and verification)
  - Final form of any contracts will contain the appropriate Attachment and remove provisions that are not applicable to that technology

# SCE Termination Right for Changes in Deferral Need

- SCE is requesting a termination right in any Final Agreement if the distribution system needs change and the project is no longer necessary, with the Seller to be compensated for such right
  - For specific language, please see “SCE Termination Right – Changing Deferral Need” in Section 10.05(b) of the pro forma
  - Additionally, each Offer Workbook contains an input field titled “Changing Deferral Need Cost”
  - In this field, Offerors must provide the cost and date associated with such early termination right for each project Offered; provided, the early termination right should occur no earlier than 12 months after contract execution
  - Offeror may provide multiple termination dates throughout the course of Delivery Term for SCE to select from in its discretion.

# Q&A

To ask a question, please type into the Q&A chat box

# Project Locations and Needs Assessment

*Patrick Varuzza*

# Tools to Determine Interconnection Point for DERs

## Distribution Resources Plan External Portal (DRPEP) ([www.sce.com/drpep](http://www.sce.com/drpep))

- DRPEP is a publicly accessible interactive web portal with substation and circuit level information.
- Integration Capacity Analysis:
  - Quantifies the maximum amount of power that can be injected into and drawn from the distribution system without triggering upgrades or operational restrictions based on existing system conditions.
  - Is useful as a guide for DER developers to identify locations on the distribution system that are less likely to require system upgrades.
  - Does not account for queued interconnection applications.

## OMS

- Where there is a specific circuit need, a minimum interconnection point (MIP) is identified. DER interconnection must occur downstream of this point to effectively defer the grid need.
- Connecting downstream of the MIP does not guarantee that distribution upgrades will not be needed.

## Pre-Application Report ([www.sce.com/GridInterconnection](http://www.sce.com/GridInterconnection))

- Provides technical information regarding the electric system around a potential interconnection site.

## Typical conductor rating limitation guide<sup>1</sup>

SCE Line Voltage (kV)	Typical Limiting Conductor Rating (MW)
12	10
16	13
25	19
33	27

<sup>1</sup>The limiting conductor rating is shown here for reference. If a new interconnection request triggers an excess to these limits, the project may be required to change its requested point of interconnection or pay for required upgrades.



# Definitions

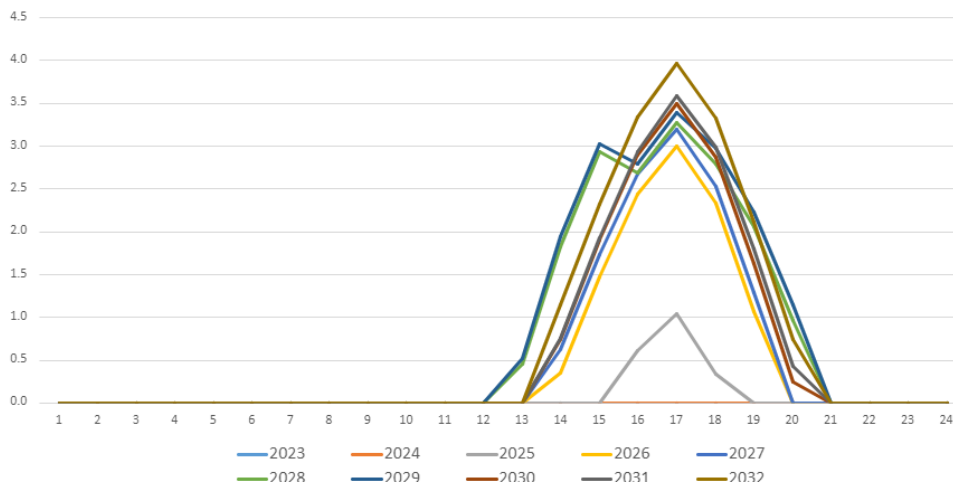
- **Year:** Year in which the need is forecasted to occur.
- **Capacity:** Forecasted peak capacity (MW) need for the specified "Year."
- **Energy:** Total forecasted energy (MWh) need in the specified "Year."
- **Time of Year:** Seasons in which the need is forecasted to occur for a specified "Year." Seasons are defined as follows:
  - Winter: beginning of November to the end of February
  - Spring: beginning of March to the end of May
  - Summer: beginning of June to the end of October
- **Monthly Frequency:** Total forecasted number of times the procured resource will be required to serve the forecasted need during a given month within a specified season during a specified "Year."
- **Yearly Frequency:** Total forecasted number of times the procured resource will be required to serve the forecasted need during a specified "Year."
- **Peak Hour Need:** Forecasted peak capacity need at the specified hour during a specified "Year."
- **Minimum Interconnection Point:** Specifies that interconnection must occur downstream of this point to effectively defer the grid need.
- **Capacity Limit:** An equipment's capacity for serving demand.

*Note:* All forecasted Need and Planning Assumption values are cumulative, meaning that the quantity identified in the specified "Year" including the sum of the value(s) for the previous years

# DIDF Project Overview

# DER Attribute Requirements: Valley 115/12kV - Ethanac 12kV

Ethanac Requirement

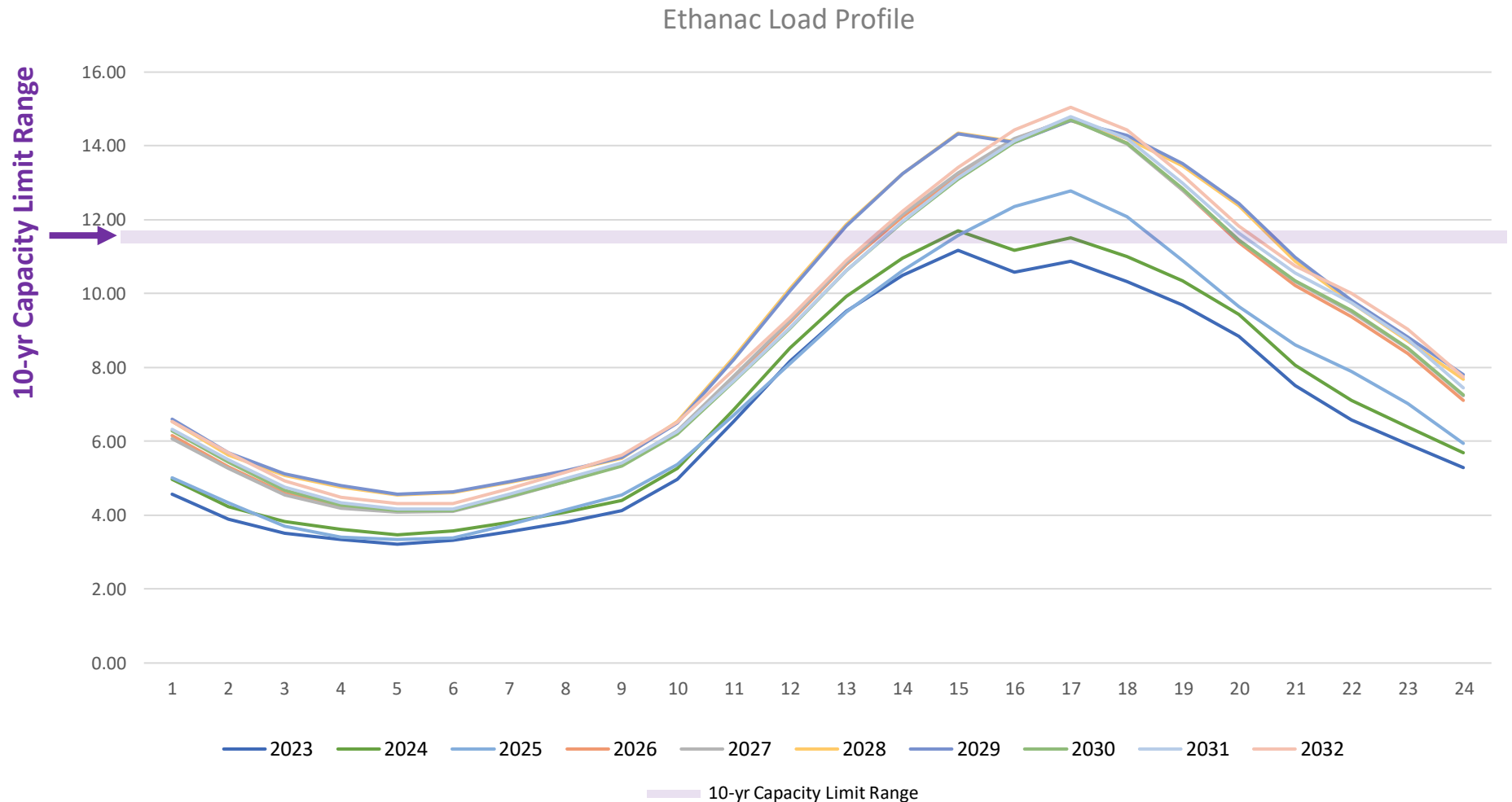


Capacity (MW)	Energy Need (MWh)	Season	Monthly Frequency	Yearly Frequency	Year
0.0	0.0	N/A	0	0	2023
0.0	0.0	N/A	0	0	2024
1.0	1.9	Summer	5	15	2025
3.0	10.6	Summer	21	50	2026
3.2	12.0	Summer	21	50	2027
3.3	17.1	Summer	21	50	2028
3.4	17.9	Summer	19	40	2029
3.5	13.7	Summer	23	55	2030
3.6	14.4	Summer	23	55	2031
4.0	16.8	Summer	26	60	2032

Year	Peak Hourly Need (MW)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5	2.4	3.0	2.3	1.1	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.7	2.7	3.2	2.5	1.3	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.8	2.9	2.7	3.3	2.8	2.1	1.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.9	3.0	2.8	3.4	3.0	2.2	1.1	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.9	2.9	3.5	2.9	1.6	0.2	0.0	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.9	2.9	3.6	3.0	1.8	0.4	0.0	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.3	3.3	4.0	3.3	2.1	0.7	0.0	0.0	0.0	0.0

- A new 12kV circuit at Valley 115/12kV substation is planned to relieve the Ethanac & Jerry 12kV circuits, served from Valley 115/12kV, which are projected to exceed underground cable temperature limits.

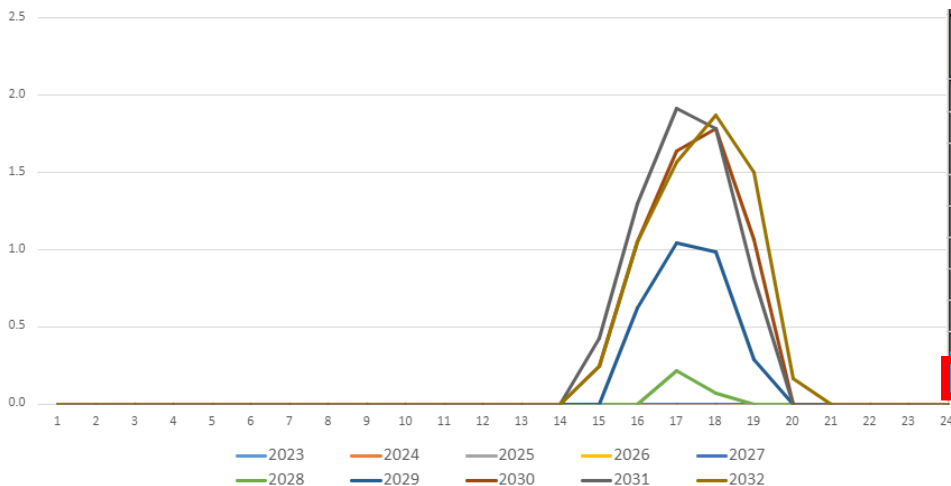
# DER Attribute Requirements: Valley 115/12kV - Ethanac 12kV



- This graph represents the general shape of the circuit load profile. Each line on this graph is the approximate forecasted peak 24-hour profile for a given year. The lines on this graph do not represent the exact loading on this circuit on any given day.

# DER Attribute Requirements: Valley 115/12kV – Jerry 12kV

Jerry Requirement

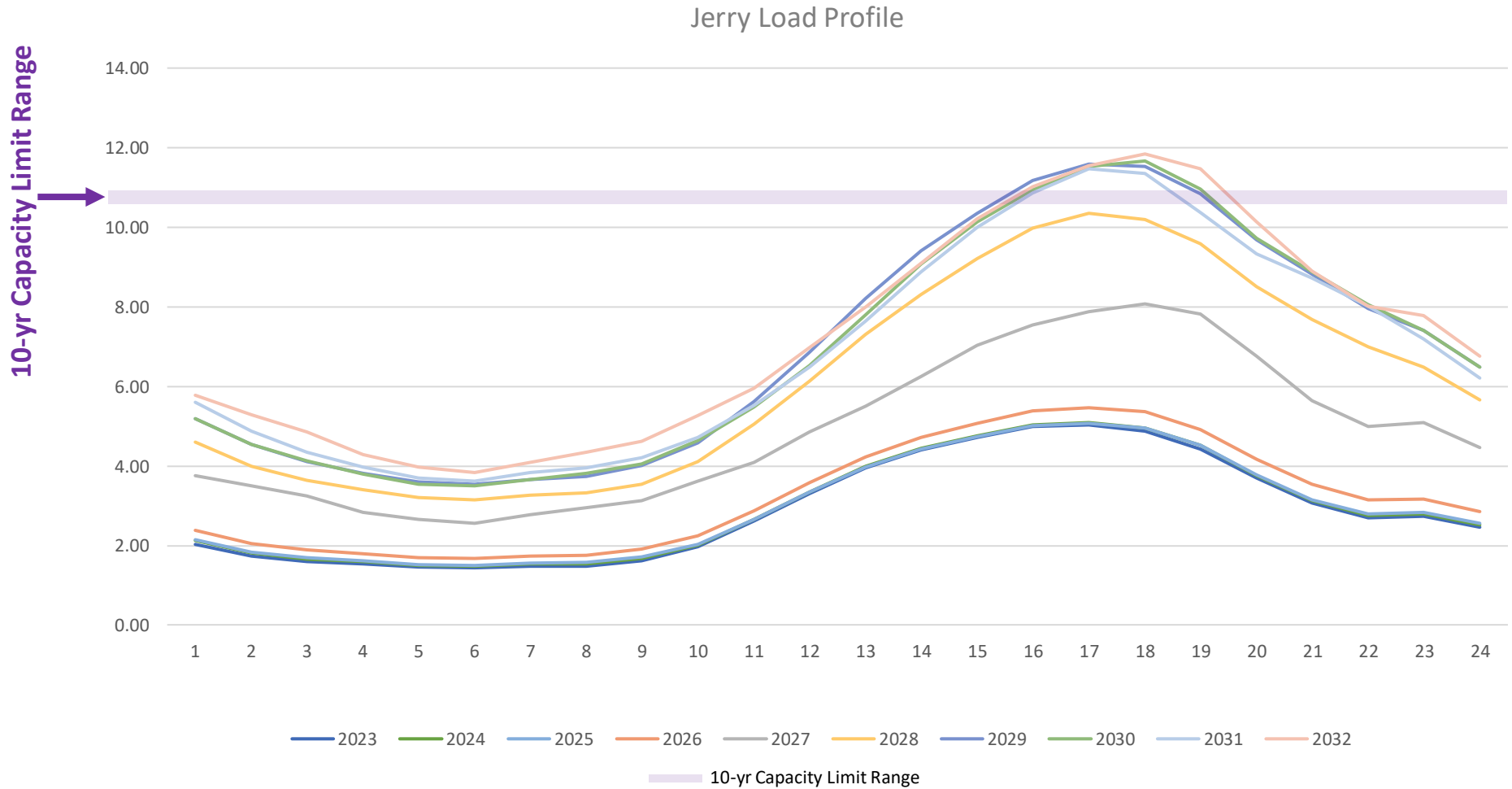


Capacity (MW)	Energy Need (MWh)	Season	Monthly Frequency	Yearly Frequency	Year
0.0	0.0	N/A	0	0	2023
0.0	0.0	N/A	0	0	2024
0.0	0.0	N/A	0	0	2025
0.0	0.0	N/A	0	0	2026
0.0	0.0	N/A	0	0	2027
0.2	0.3	Summer	5	15	2028
1.0	2.9	Summer	5	15	2029
1.8	5.7	Summer	14	30	2030
1.9	6.2	Summer	20	45	2031
1.9	6.4	Summer	18	30	2032

Year	Peak Hourly Need (MW)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	1.6	1.8	1.1	0.0	0.0	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3	1.9	1.8	0.8	0.0	0.0	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	1.6	1.9	1.5	0.2	0.0	0.0	0.0	0.0

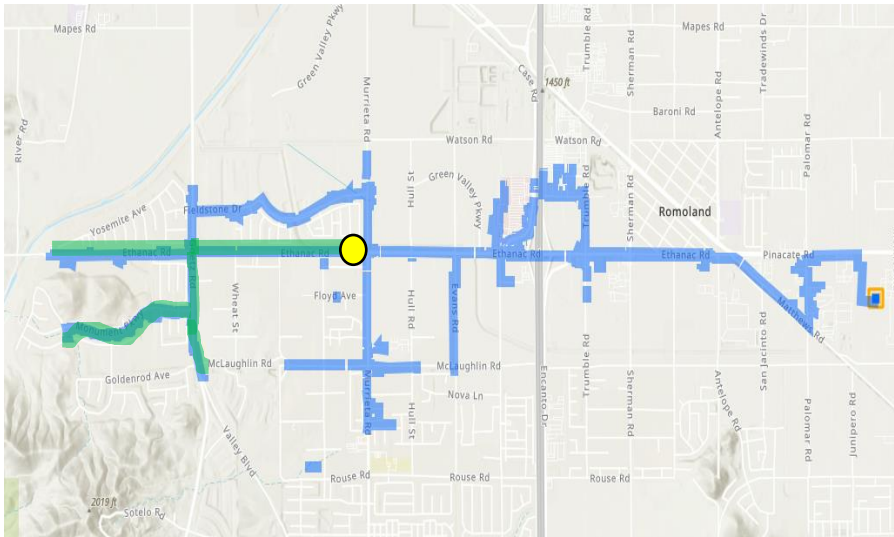
- A new 12kV circuit at Valley 115/12kV substation is planned to relieve the Ethanac & Jerry 12kV circuits, served from Valley 115/12kV, which are projected to exceed underground cable temperature limits.

# DER Attribute Requirements: Valley 115/12kV – Jerry 12kV

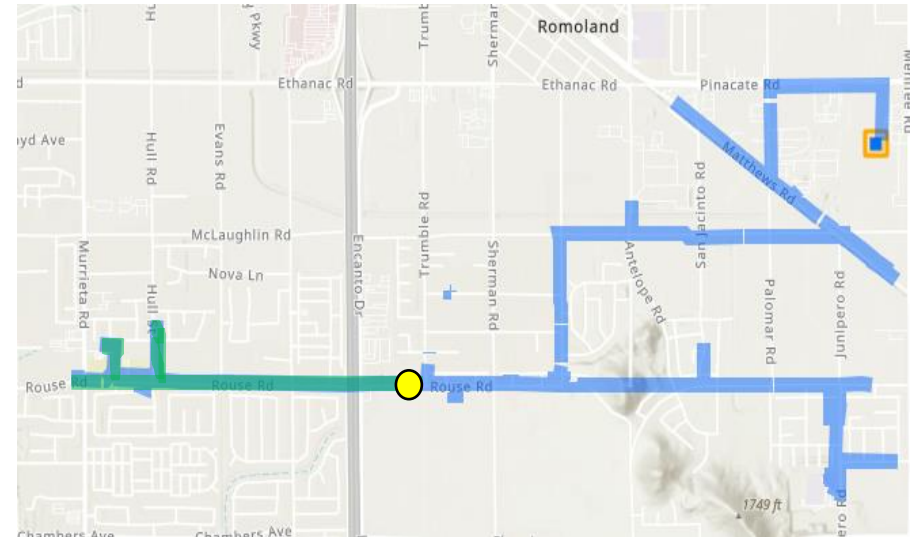


- This graph represents the general shape of the circuit load profile. Each line on this graph is the approximate forecasted peak 24-hour profile for a given year. The lines on this graph do not represent the exact loading on this circuit on any given day.

# Valley Project Need Area Aerial View – Romoland, CA



*Ethanac 12kV*



*Jerry 12kV*

■ Meets Distribution Need    ■ Minimum Interconnection Point

## Valley Project - DER Requirements

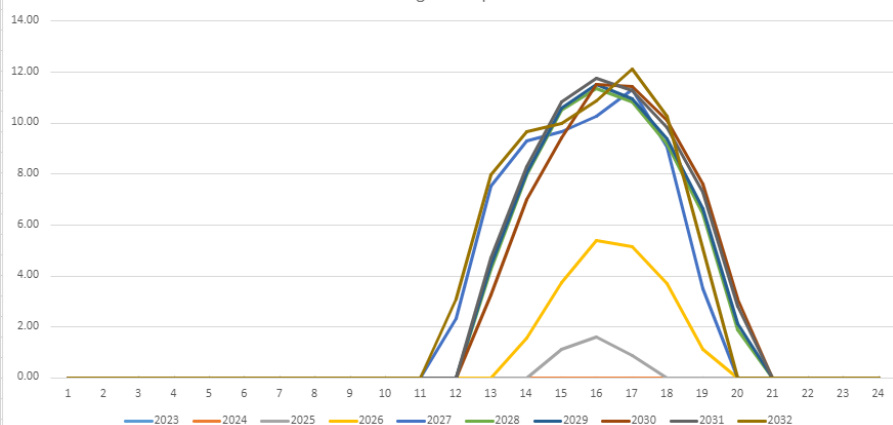
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- To defer the need for a new 12 kV circuit, DERs must interconnect at or downstream of the specified minimum interconnection point (MIP) and meet the distribution needs on the Ethanac and Jerry 12 kV circuit, served from Valley 115/12 kV substation, which is forecasted to exceed capacity and underground cable temperature limits.
- To successfully defer the Valley Project, the specific circuit needs at both Ethanac and Jerry 12 kV must be met.



# DER Attribute Requirements: Washington 66/12kV

Washington Requirement



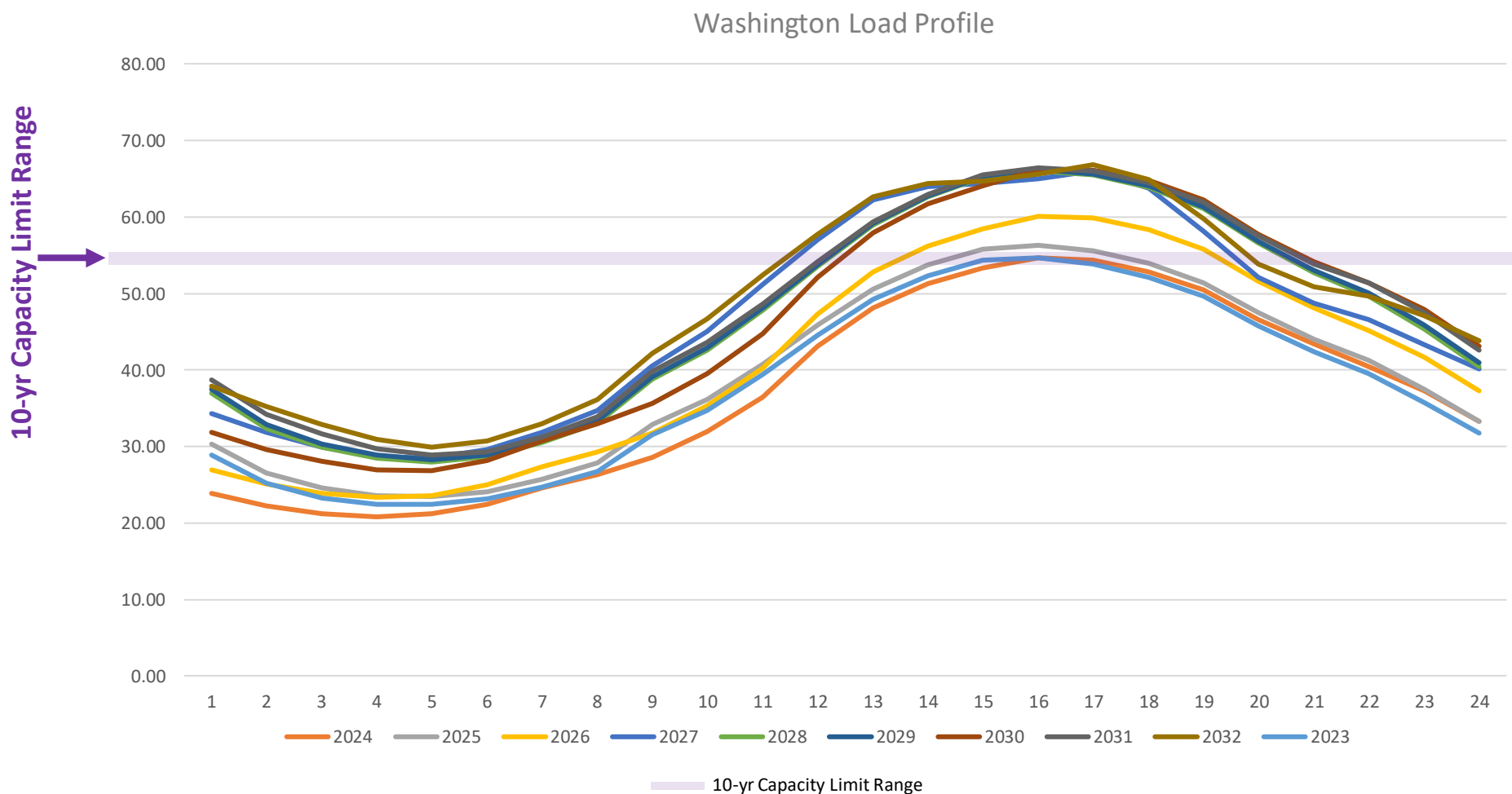
Capacity (MW)	Energy Need (MWH)	Season	Monthly Frequency	Yearly Frequency	Year
0.0	0.0	N/A	0	0	2023
0.0	0.0	N/A	0	0	2024
1.6	3.6	Summer	5	15	2025
5.4	20.7	Summer	5	15	2026
11.3	63.0	Summer	9	20	2027
11.4	62.5	Summer	8	20	2028
11.5	63.8	Summer	8	20	2029
11.5	63.4	Summer	6	15	2030
11.8	66.8	Summer	7	15	2031
12.1	69.1	Summer	9	20	2032

Peak Hourly Need (MW)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	3.7	5.4	5.2	3.7	1.1	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	7.5	9.3	9.7	10.3	11.3	9.1	3.5	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	8.0	10.5	11.4	10.8	9.2	6.4	1.9	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	8.1	10.6	11.5	11.0	9.4	6.7	2.1	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	7.0	9.4	11.5	11.5	10.1	7.6	3.1	0.0	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	8.3	10.8	11.8	11.3	9.8	7.3	2.8	0.0	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	8.0	9.6	10.0	10.9	12.1	10.3	5.1	0.0	0.0	0.0	0.0	0.0

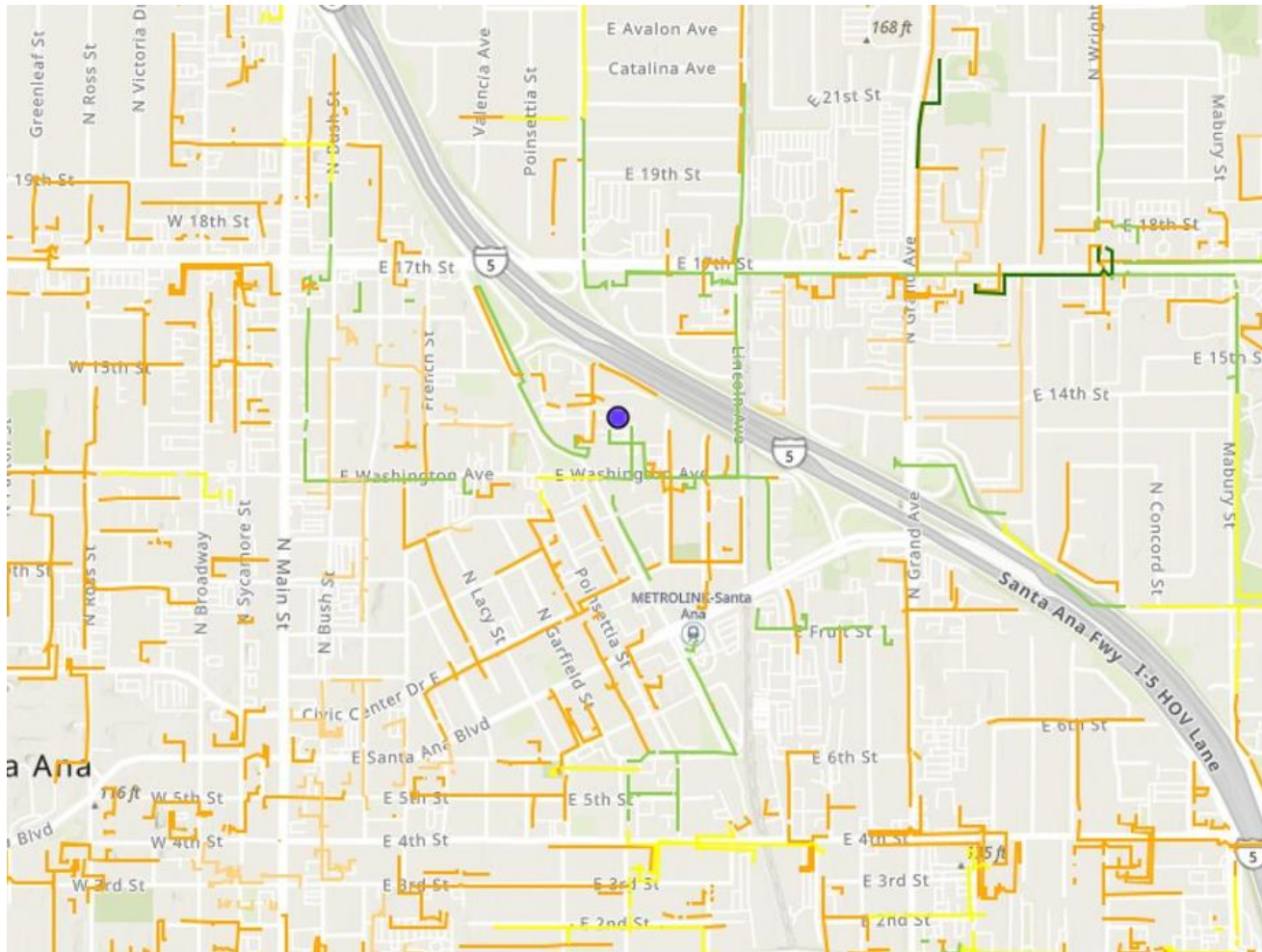
- Two new transformers at Washington 66/12kV substation are planned to relieve the Washington 66/12kV substation, which is projected to exceed capacity limits.

# DER Attribute Requirements: Washington 66/12 kV



- This graph represents the general shape of the Washington sub load profile. Each line on this graph is the approximate forecasted peak 24-hour profile for a given year. The lines on this graph do not represent the exact loading on this substation on any given day.

# Washington Project Need Area Aerial View – Santa Ana, CA



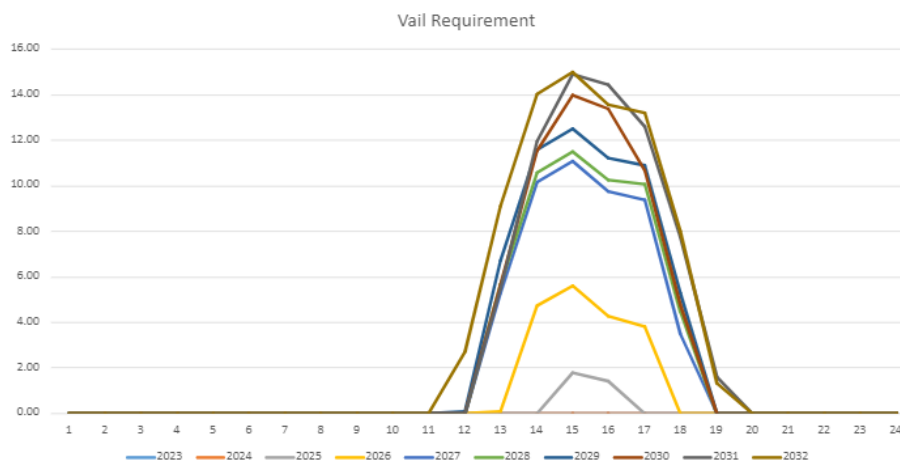
**Washington Substation 66/12kV**

## Washington Project - DER Requirements

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- To defer the need for substation transformer upgrade, DERs must interconnect at one of the circuits that is fed by the Washington 66/12 kV substation, which is forecasted to exceed capacity.

# DER Attribute Requirements: Vail 66/12 kv



Capacity (MW)	Energy Need (MWH)	Season	Monthly Frequency	Yearly Frequency	Year
0.0	0.0	N/A	0	0	2023
0.0	0.0	N/A	0	0	2024
1.8	3.2	Summer	5	15	2025
5.6	18.6	Summer	5	15	2026
11.1	49.3	Summer	5	15	2027
11.5	52.7	Summer	6	15	2028
12.5	58.3	Summer	6	15	2029
14.0	60.2	Summer	5	15	2030
14.9	68.8	Summer	6	20	2031
15.0	76.9	Summer	6	15	2032

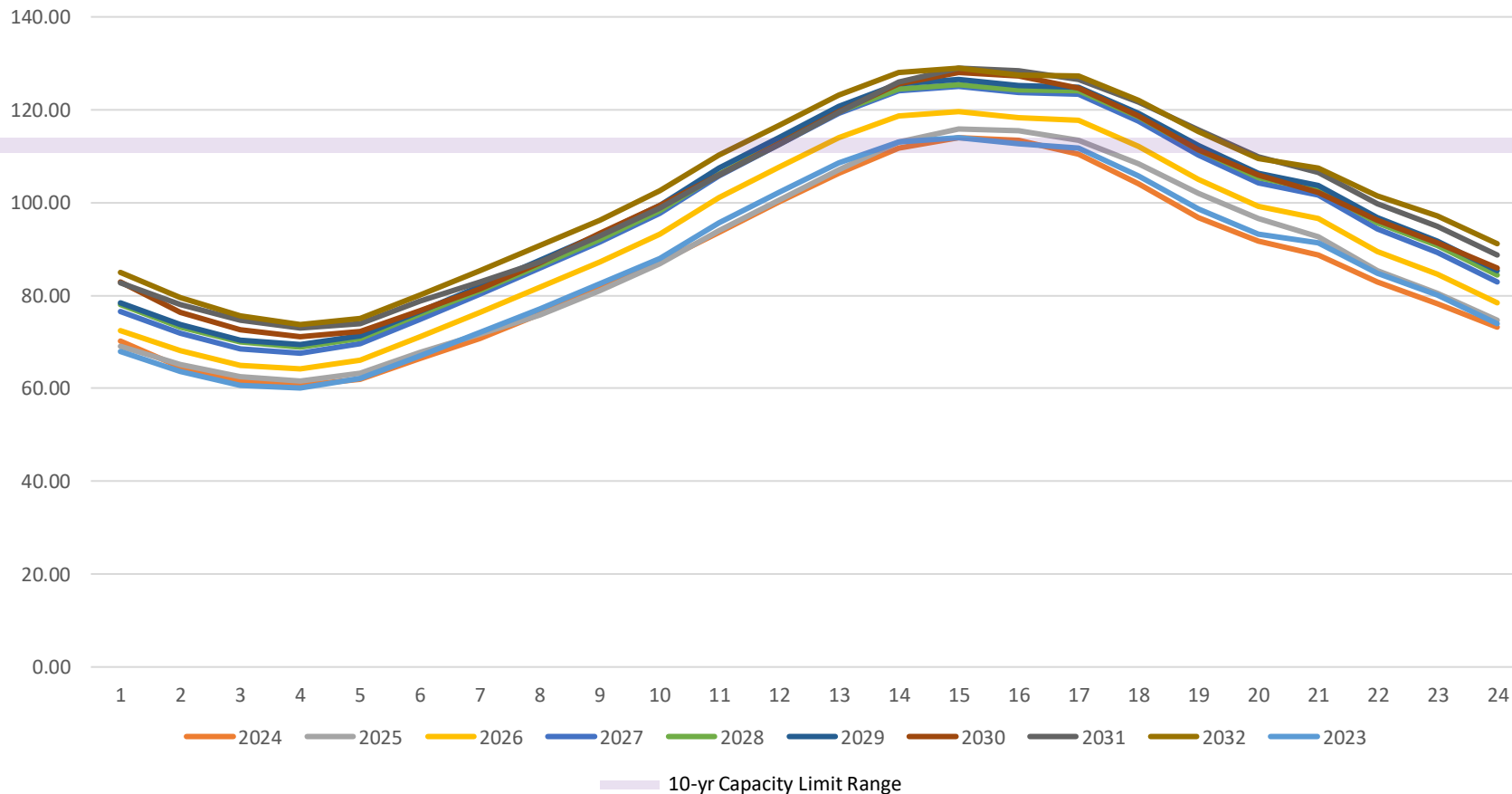
Year	Peak Hourly Need (MW)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	4.8	5.6	4.3	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	10.2	11.1	9.8	9.4	3.5	0.0	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	10.6	11.5	10.3	10.1	4.5	0.0	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.7	11.6	12.5	11.2	10.9	5.3	0.0	0.0	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	11.6	14.0	13.4	10.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	12.0	14.9	14.4	12.6	7.8	1.6	0.0	0.0	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	9.1	14.0	15.0	13.6	13.2	8.0	1.3	0.0	0.0	0.0	0.0	0.0

- A new transformer at Vail 66/12kV substation is planned to relieve the Vail 66/12kV substation, which is projected to exceed capacity limits.

# DER Attribute Requirements: Vail 66/12 kV

10-yr Capacity Limit Range

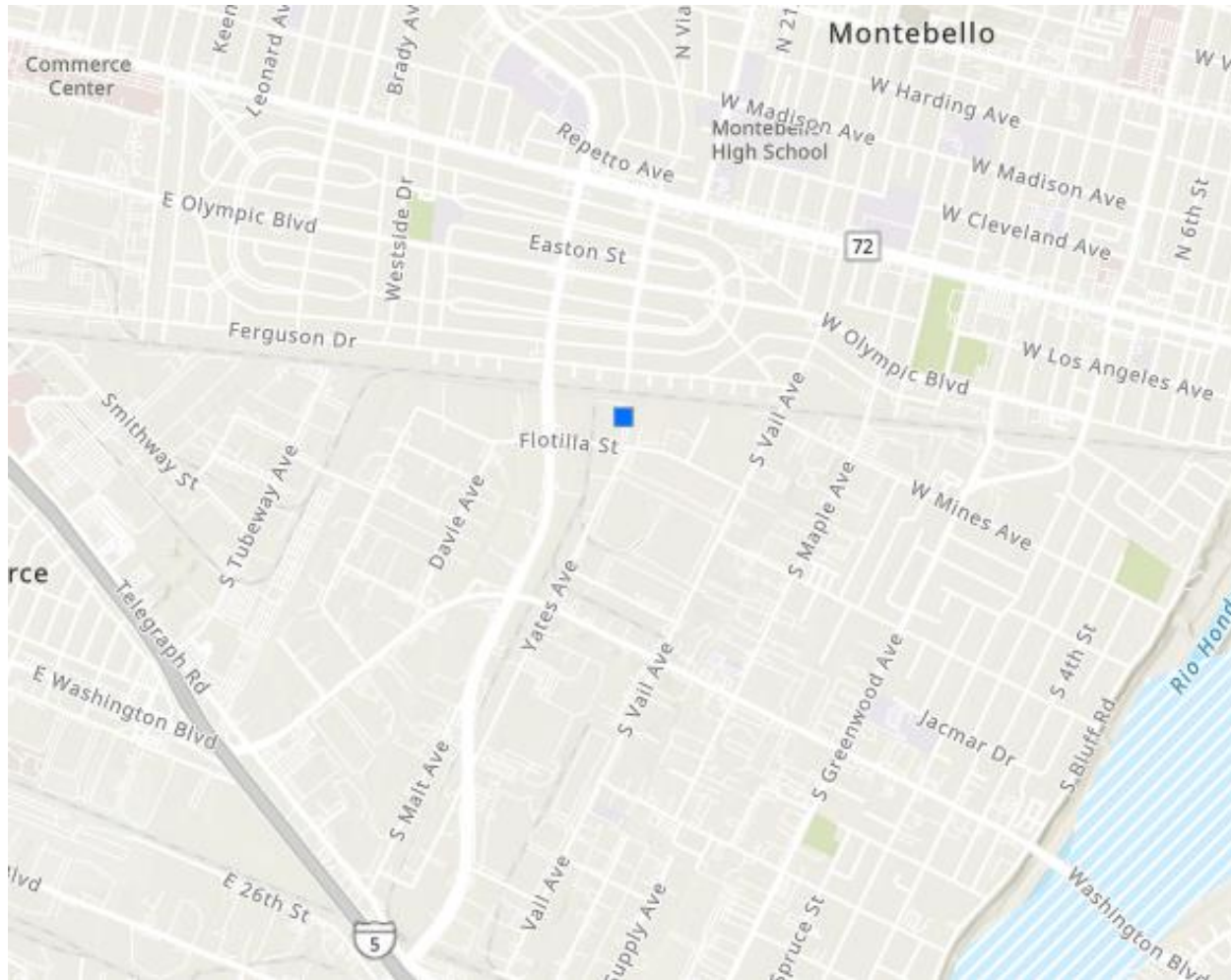
Vail Load Profile



- This graph represents the general shape of the Vail substation load profile. Each line on this graph is the approximate forecasted peak 24-hour profile for a given year. The lines on this graph do not represent the exact loading on this substation on any given day.



# Vail Project Need Area Aerial View – Montebello, CA



**Vail Substation 66/12kV**

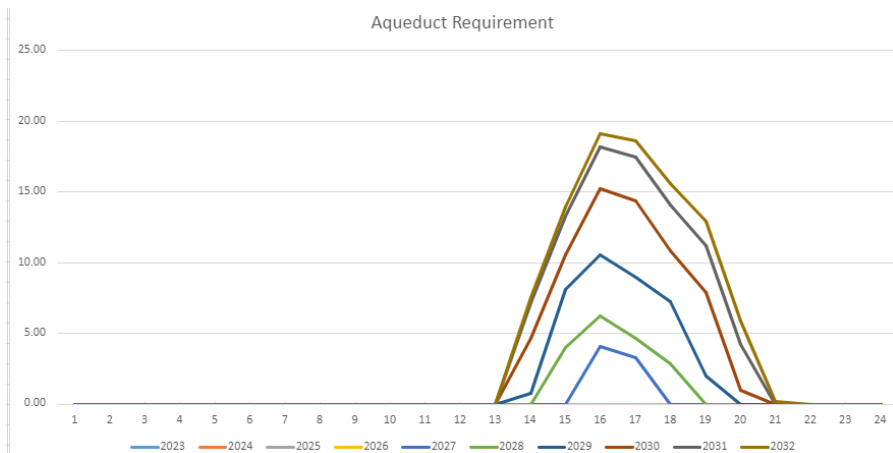
## Vail Project - DER Requirements

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- To defer the need for substation transformer upgrade, DERs must interconnect at one of the circuits that is fed by the Vail 66/12 kV substation which is forecasted to exceed capacity.



# DER Attribute Requirements: Aqueduct 115/12 kV

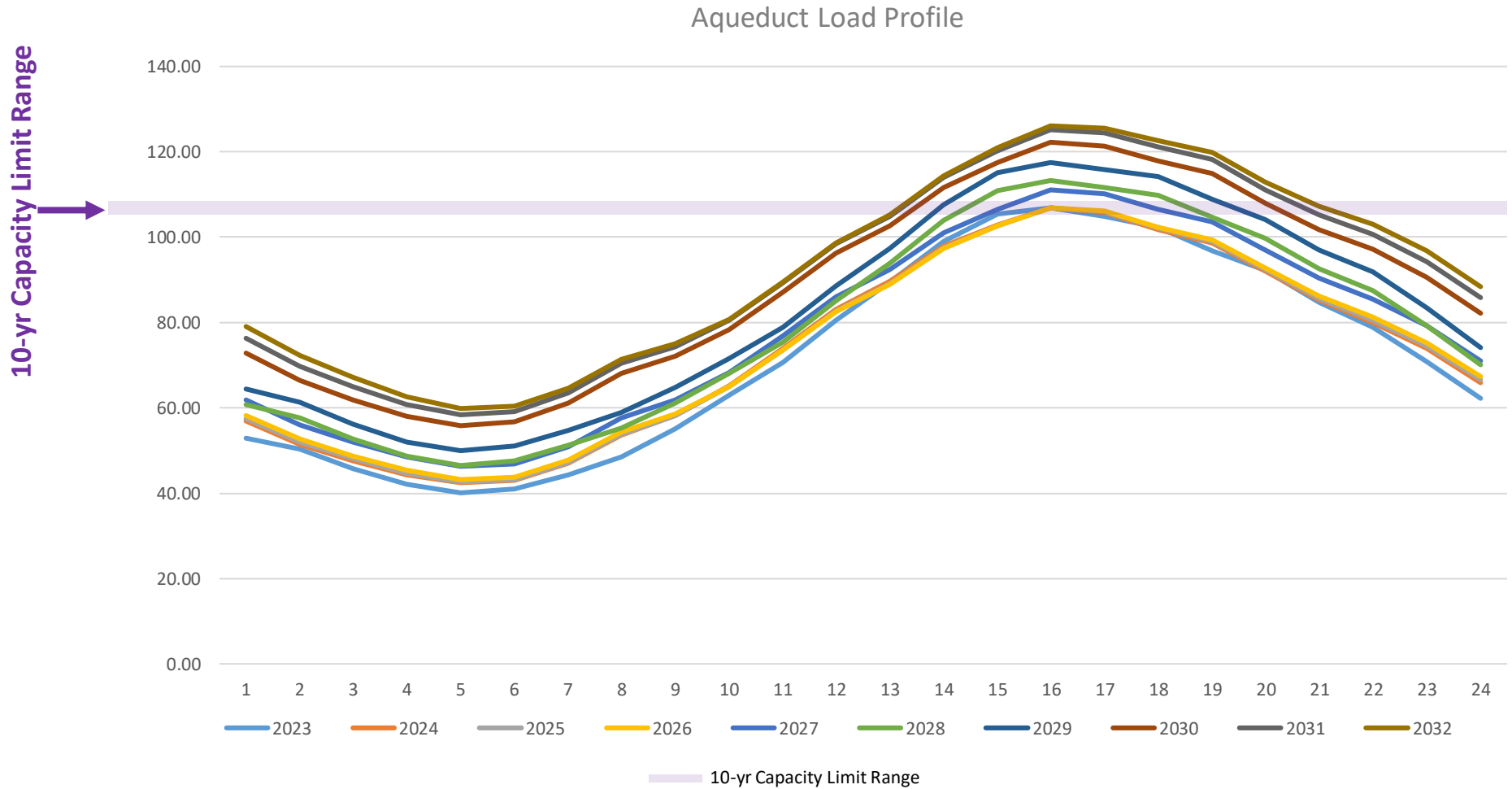


Capacity (MW)	Energy Need (MWH)	Season	Monthly Frequency	Yearly Frequency	Year
0.0	0.0	N/A	0	0	2023
0.0	0.0	N/A	0	0	2024
0.0	0.0	N/A	0	0	2025
0.0	0.0	N/A	0	0	2026
4.1	7.4	Summer	5	15	2027
6.3	18.0	Summer	5	15	2028
10.5	37.6	Summer	6	15	2029
15.2	64.6	Summer	10	20	2030
18.2	85.7	Summer	11	30	2031
19.1	93.7	Summer	14	35	2032

Year	Peak Hourly Need (MW)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	6.3	4.7	2.9	0.0	0.0	0.0	0.0	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	8.1	10.5	9.0	7.2	2.0	0.0	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	10.6	15.2	14.4	10.8	7.9	1.0	0.0	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	13.3	18.2	17.5	14.1	11.2	4.2	0.0	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	13.9	19.1	18.6	15.6	12.9	5.9	0.2	0.0	0.0	0.0

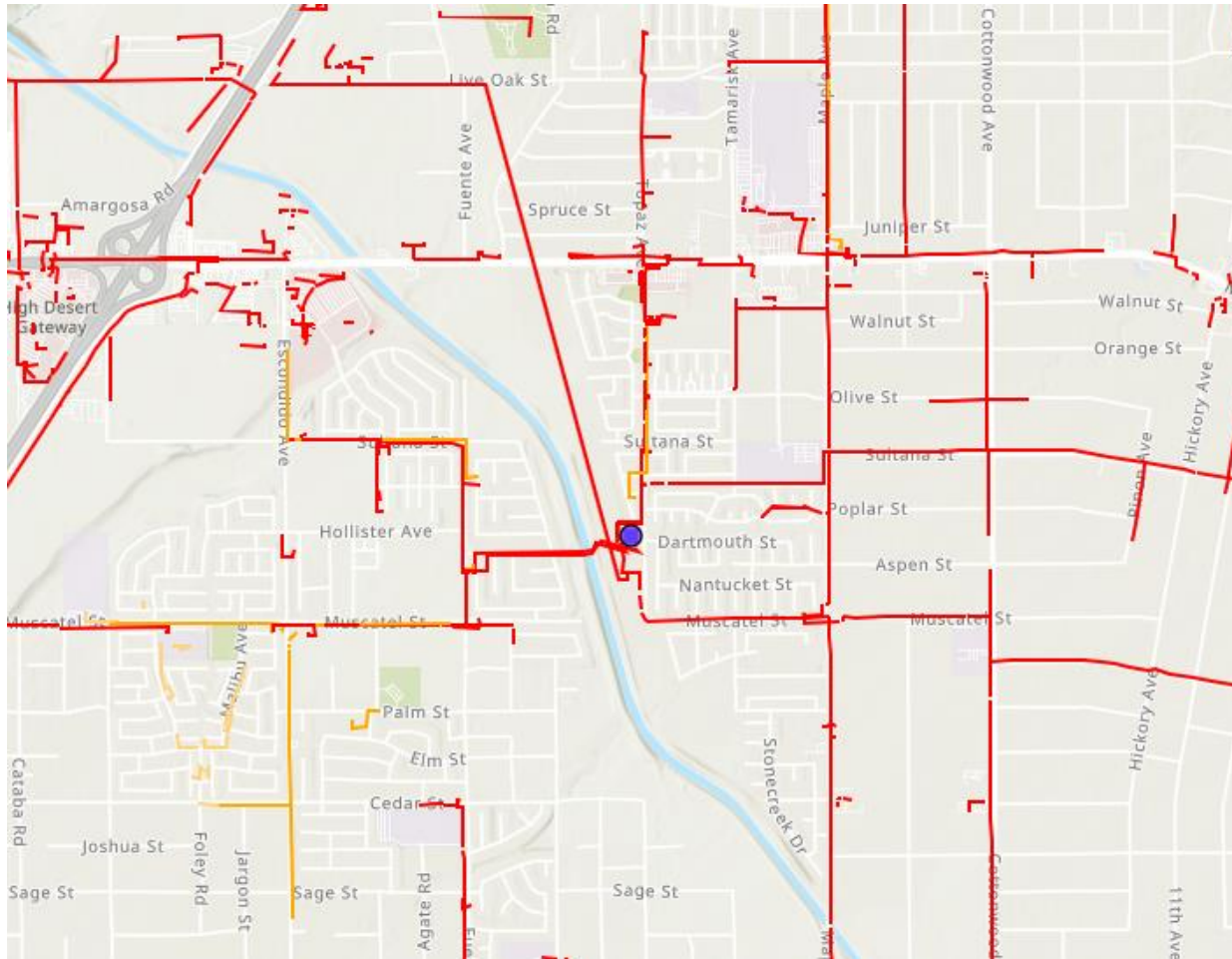
- A new transformer at Aqueduct 115/12kV substation is planned to relieve the Aqueduct 115/12kV substation, which is projected to exceed capacity limits.

# DER Attribute Requirements: Aqueduct 115/12 kV



- This graph represents the general shape of the circuit load profile. Each line on this graph is the approximate forecasted peak 24-hour profile for a given year. The lines on this graph do not represent the exact loading on this circuit on any given day.

# Aqueduct Project Need Area Aerial View – Hesperia, CA



***Aqueduct Substation 115/12kV***

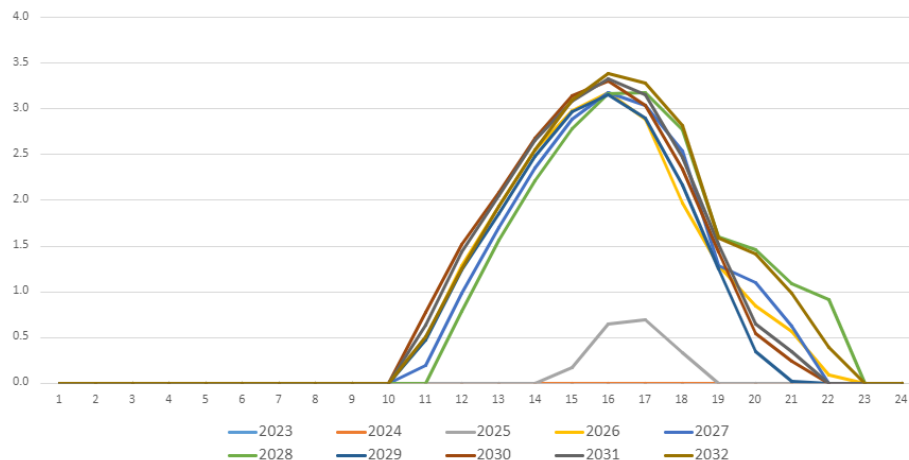
## Aqueduct Project - DER Requirements

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- To defer the need for substation transformer upgrade, DERs must interconnect at one of the circuits that is fed by the Aqueduct 115/12 kV substation which is forecasted to exceed capacity.

# DER Attribute Requirements: Chino 66/12 kV - Phantom 12 kV

Phantom Requirement

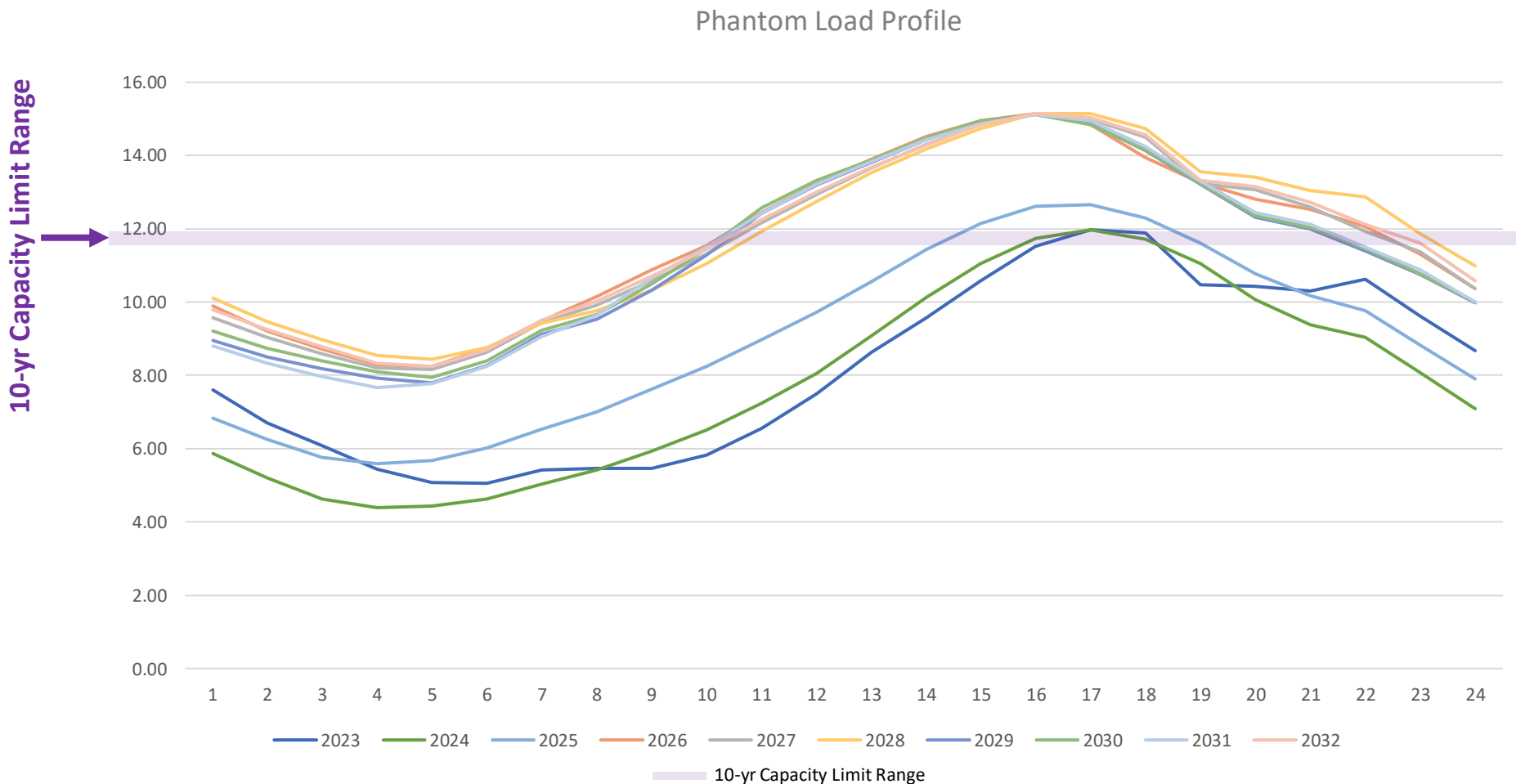


Capacity (MW)	Energy Need (MWh)	Season	Monthly Frequency	Yearly Frequency	Year
0.0	0.0	N/A	0	0	2023
0.0	0.0	N/A	0	0	2024
0.7	1.8	Summer	5	15	2025
3.2	20.3	Summer	25	65	2026
3.2	19.9	Summer	24	60	2027
3.2	21.7	Summer	29	80	2028
3.2	18.9	Summer	27	75	2029
3.3	20.9	Summer	27	75	2030
3.3	21.3	Summer	30	80	2031
3.4	23.3	Summer	27	70	2032

Year	Peak Hourly Need (MW)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.3	1.9	2.6	3.0	3.2	2.9	2.0	1.3	0.9	0.6	0.1	0.0	0.0
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0	1.7	2.4	2.9	3.2	3.0	2.5	1.3	1.1	0.6	0.0	0.0	0.0
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.6	2.2	2.8	3.2	3.2	2.8	1.6	1.5	1.1	0.9	0.0	0.0
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.2	1.9	2.5	3.0	3.2	2.9	2.2	1.2	0.3	0.0	0.0	0.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.5	2.1	2.7	3.1	3.3	3.0	2.3	1.4	0.5	0.2	0.0	0.0	0.0
2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.4	2.1	2.6	3.1	3.3	3.2	2.5	1.5	0.7	0.3	0.0	0.0	0.0
2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.3	1.9	2.6	3.1	3.4	3.3	2.8	1.6	1.4	1.0	0.4	0.0	0.0

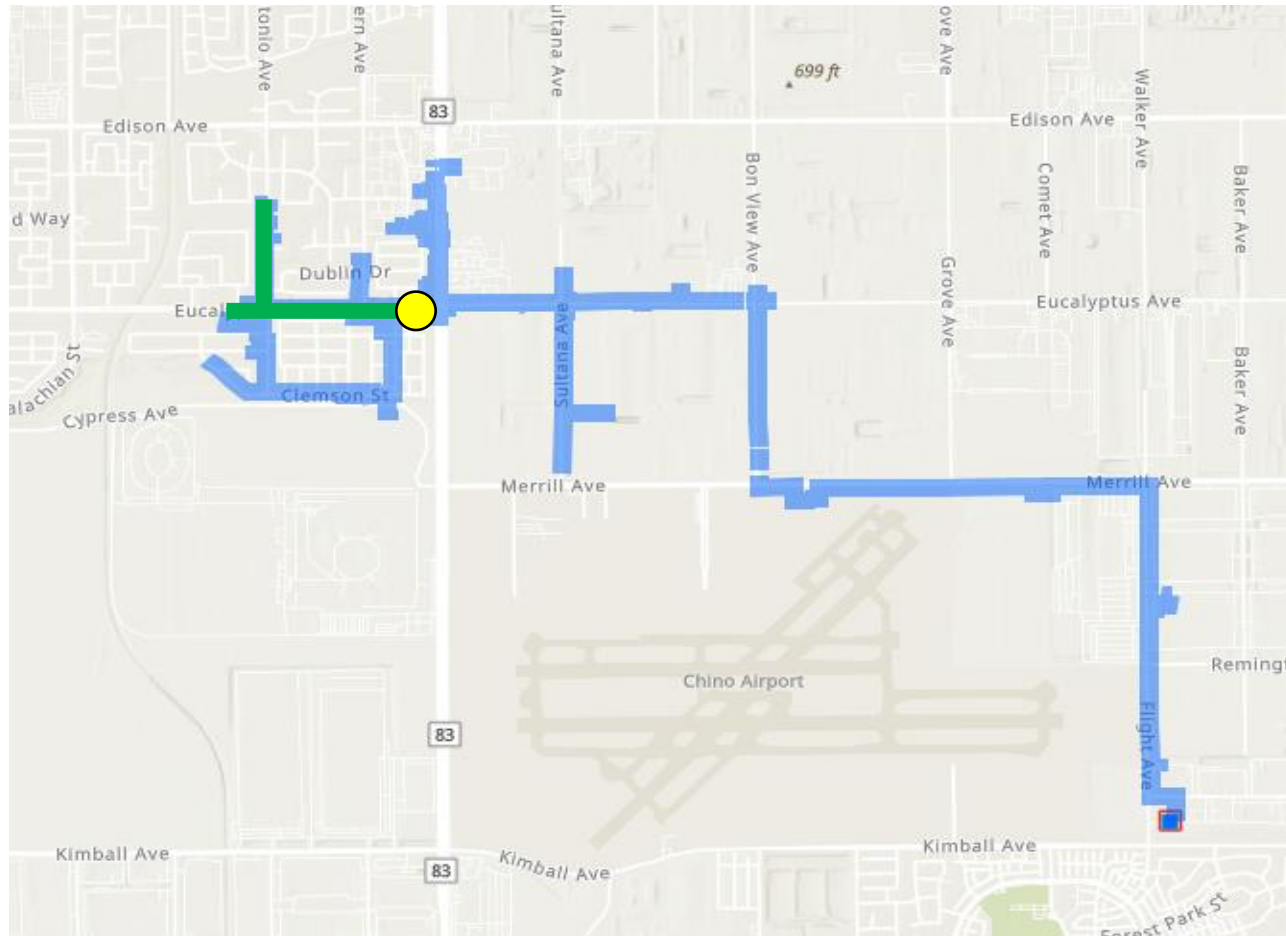
- A new 12kV circuit at Chino 66/12 kV substation is planned to relieve the Phantom 12 kV circuit, served from Kimball 66/12 kV, which is projected to exceed capacity limits.

# DER Attribute Requirements: Chino 66/12 kV - Phantom 12 kV



- This graph represents the general shape of the circuit load profile. Each line on this graph is the approximate forecasted peak 24-hour profile for a given year. The lines on this graph do not represent the exact loading on this circuit on any given day.

# Phantom Project Need Area Aerial View – Chino, CA



**Phantom 12kV**

 **Minimum Interconnection Point**

 **Meets Distribution Need**

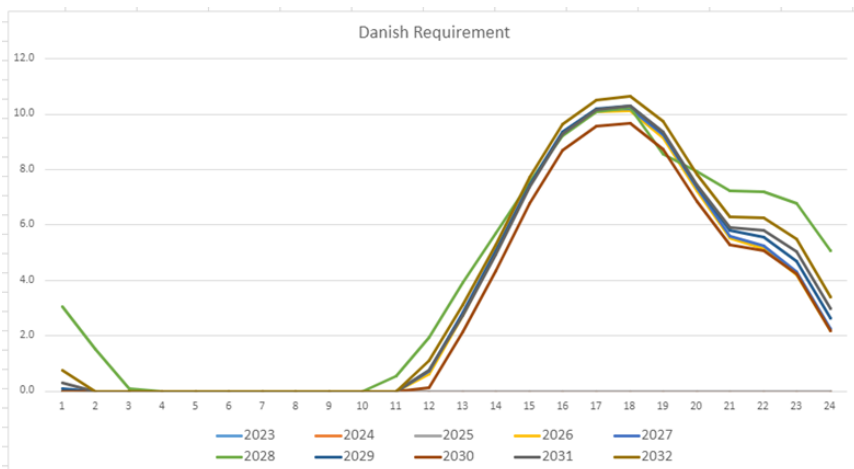
## Phantom Project - DER Requirements

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- To defer the need for a new 12 kV circuit at Chino 66/12 kV, DERs must interconnect at or downstream of the specified minimum interconnection point (MIP) and meet the distribution needs on the Phantom 12 kV circuit, which is forecasted to exceed capacity and underground cable temperature limits.
- To successfully defer the Phantom Project, the specific circuit needs at Phantom 12 kV must be met.



# DER Attribute Requirements: Mira Loma 66/12 kV - Danish 12 kV



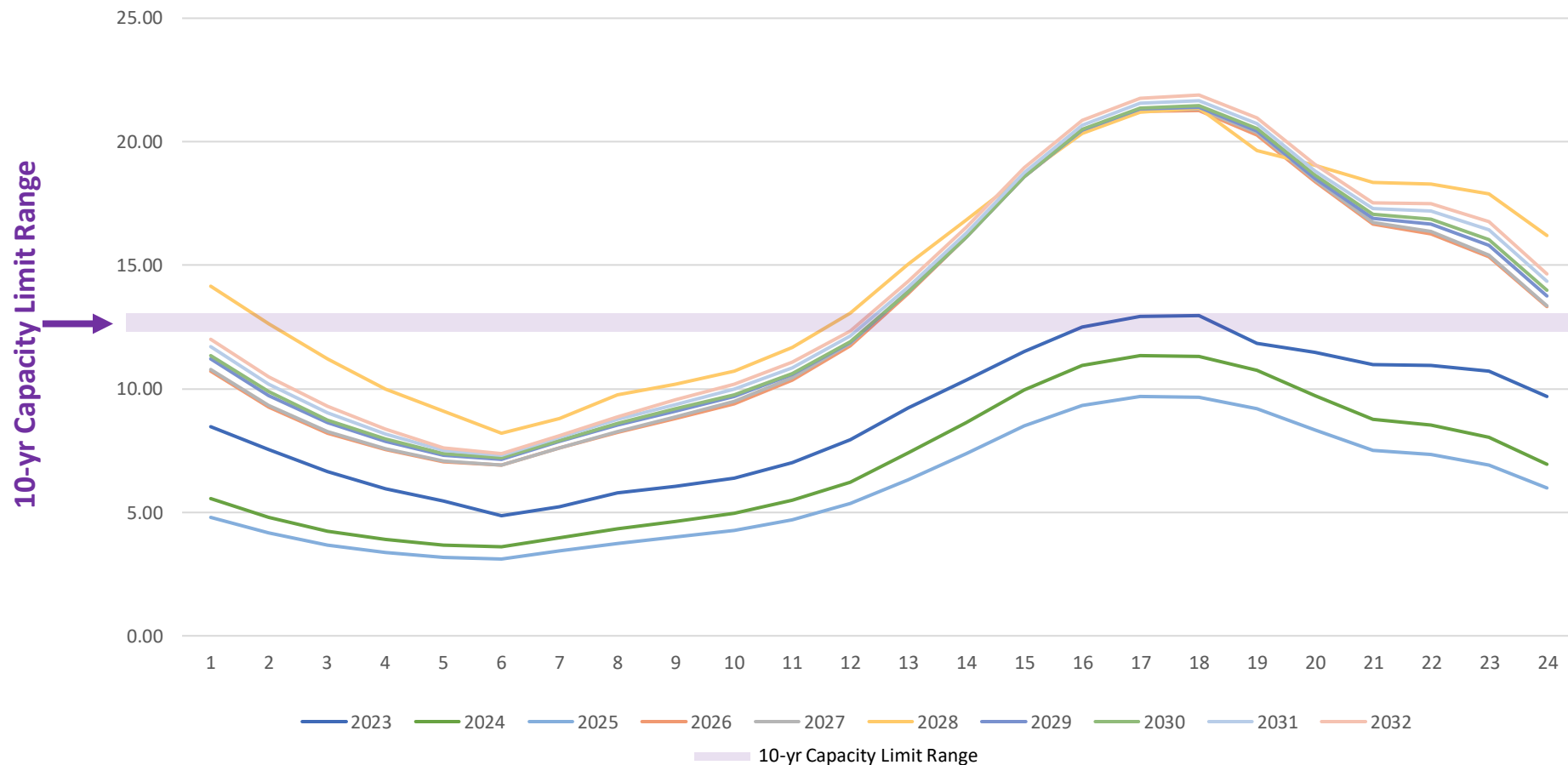
Capacity (MW)	Energy Need (MWh)	Season	Monthly Frequency	Yearly Frequency	Year
0.0	0.0	N/A	0	0	2023
0.0	0.0	N/A	0	0	2024
0.0	0.0	N/A	0	0	2025
10.1	78.5	Spring, Summer	31	110	2026
10.2	79.8	Spring, Summer	31	110	2027
10.2	96.4	Spring, Summer	31	115	2028
10.3	81.5	Spring, Summer	31	120	2029
9.7	73.8	Spring, Summer	31	105	2030
10.3	82.4	Spring, Summer	31	120	2031
10.7	87.7	Spring, Summer	31	120	2032

Year	Peak Hourly Need (MW)																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.7	5.0	7.4	9.3	10.1	10.1	9.1	7.2	5.5	5.1	4.2	2.2
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.8	5.1	7.5	9.4	10.1	10.2	9.2	7.3	5.6	5.3	4.3	2.3
2028	3.0	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.9	3.9	5.7	7.5	9.2	10.1	10.2	8.5	7.9	7.2	7.2	6.8	5.1
2029	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.8	5.0	7.5	9.4	10.2	10.3	9.3	7.4	5.8	5.6	4.7	2.6
2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.2	4.3	6.8	8.7	9.6	9.7	8.7	6.9	5.3	5.1	4.2	2.2
2031	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.7	4.9	7.4	9.3	10.2	10.3	9.3	7.5	5.9	5.8	5.0	3.0
2032	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	3.1	5.3	7.7	9.6	10.5	10.7	9.7	7.8	6.3	6.2	5.5	3.4

- A new 12kV circuit at Mira Loma 66/12kV substation is planned to relieve the Danish 12kV circuit, served from Archibald 66/12kV, which is projected to exceed capacity limits.

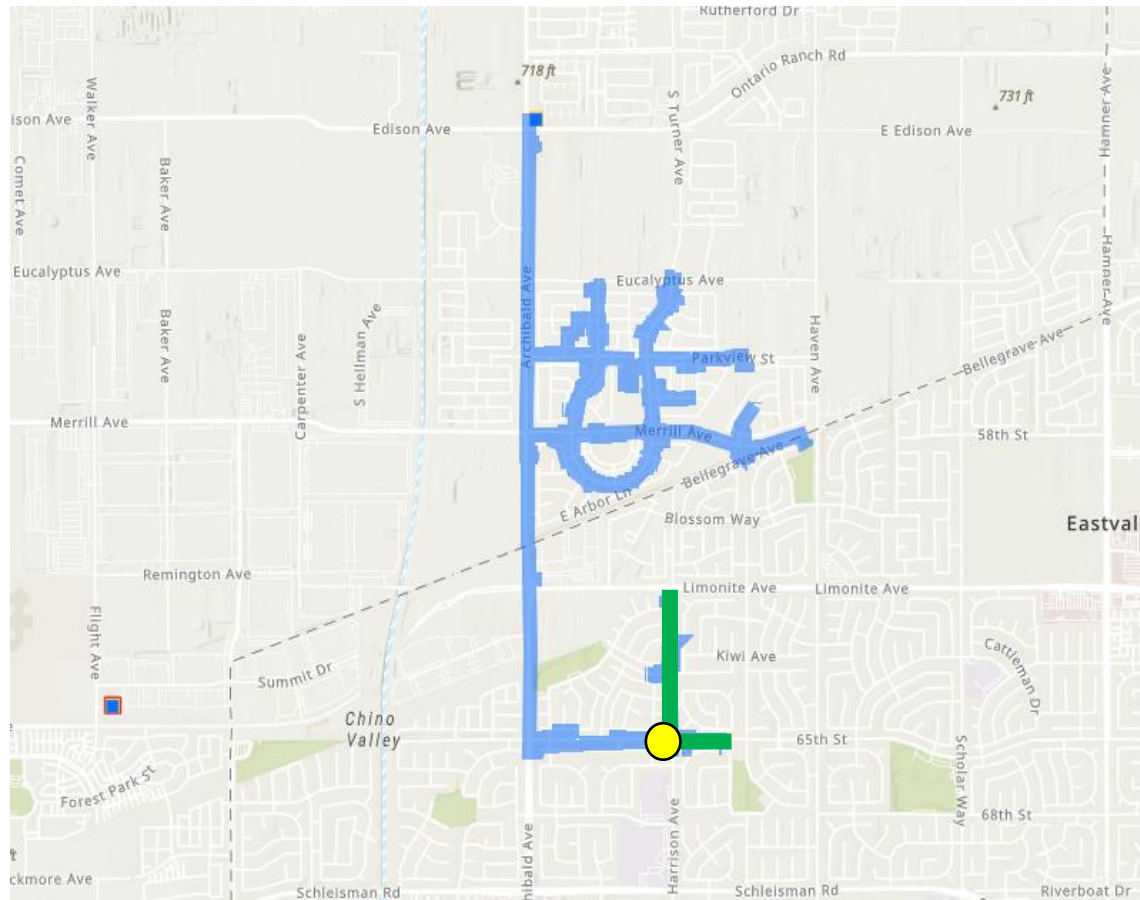
# DER Attribute Requirements: Mira Loma 66/12 kV - Danish 12 kV

Danish Load Profile



- This graph represents the general shape of the circuit load profile. Each line on this graph is the approximate forecasted peak 24-hour profile for a given year. The lines on this graph do not represent the exact loading on this circuit on any given day.

# Danish Project Need Area Aerial View – Eastvale, CA



**Danish 12kV**

- Minimum Interconnection Point**
- Meets Distribution Need**

## Danish Project - DER Requirements

---

- To defer the need for a new 12 kV circuit at Mira Loma 66/12 kV, DERs must interconnect at or downstream of the specified minimum interconnection point (MIP) and meet the distribution needs on the Danish 12 kV circuit which is forecasted to exceed capacity and underground cable temperature limits.
- To successfully defer the Mira Loma Project, the specific circuit needs at Danish 12 kV must be met.

# Q&A

To ask a question, please type into the Q&A chat box

# DRPEP Demo

[www.sce.com/drpep](http://www.sce.com/drpep)



DRPEP interactive web map

# Q&A

To ask a question, please type into the Q&A chat box

# Interconnection Process

## *Marcus Lotto/Nathan Smith*



# Interconnection – Introduction

Due to RFO locational requirements, generation projects wanting to participate fall under the following tariffs when interconnecting to SCE's electrical system:

- **RULE 21 Tariff - CPUC Jurisdictional:**

- Non-Export Projects: Projects built for use on-site with no export for sale use Rule 21 Form 14-732 (Except for NEM) to apply for interconnection.
- Export Projects: Projects selling 100% of exported power to SCE and can be certified as a Qualifying Facility (QF) use Rule 21 Form 14-918 to apply for interconnection.

Note: Most "stand-alone" energy storage projects cannot be certified as a QF (refer to FERC Qualifying Facilities page for certification requirements: <https://www.ferc.gov/industries/electric/gen-info/qual-fac.asp> )

- **Wholesale Distribution Access Tariff (WDAT) - FERC Jurisdictional:**

Any export project selling to SCE or a 3rd party can interconnect via SCE's Wholesale Distribution Access Tariff Attachment I ("Generator Interconnection Procedures", or GIP).

- **Each tariff has: "fast track", "independent" (or "detailed"), and a "cluster" study process**

There are variations and qualifications for each study process (i.e., requirements, timelines, study scope, agreements, etc.). Please consult each tariff for specific details.

# Fast Track Process

- Fast Track interconnection requests can be submitted any time during the year.
- Intended for projects that can be interconnected without system upgrades.
  - Rule 21 Fast Track is limited to 3 MW of export at interconnection voltages of up to 33 kV
  - WDAT GIP Fast Track is limited to 5 MW depending on distance to distribution substation and interconnection voltage).
- High Level Process:
  - After all required information is submitted, a “fast track screen” review is performed (approx. 15 business days, depending on tariff).
  - If all screens pass, then an Interconnection Agreement is drafted and signed.
  - If one or more screens fail, then SCE may propose additional reviews/modifications.
  - SCE may propose a “supplemental review” to evaluate alternate configurations that may allow the project to pass the fast track process (approx. an additional 20 business days, depending on tariff).
  - If project cannot pass the fast track process, SCE may recommend to move the project to the independent/detailed study process, or to the cluster process.

# Rule 21- Distribution Group Study (DGS)

- The Rule 21 DGS process is an alternative to the standard 2 yr. WDAT Cluster Process.
  - Projects that fail Fast Track or ISP are provided an opportunity to be “moved” into the next DGS.
  - A new project can directly apply during the DGS window (typically opened during the months of March and September).
  - Requirements:
    - Qualify for Rule 21 (i.e., renewable and QF projects selling 100% of energy to SCE).
    - Electrically independent from the “transmission system”.
    - Fund a “system impact study”, and an optional “facilities study” to identify the necessary system upgrades.
    - Execute the Detail Study Agreement prior to the start date of the DGS Phase I Interconnection Study
  - Analysis will be completed within 30 business days of the close of the window for each grouping in the DGS Study Group using the best available information about the projects that have entered the DGS Group Study process
  - After the study(ies) are completed, an Interconnection Agreement is drafted and executed.
  - **DGS Application Window #19 Opened on Sept 1 and will close on October 2, 2023.**

# Rule 21- Distribution Group Study (DGS)

- Rule 21 Section G. 3.a. requires SCE to determine electrical independence for the CAISO Controlled Grid as set forth in the applicable CAISO Tariff in effect at the time the Electrical Independence Test begins.
- FERC accepted CAISO's revision to Open Access Tariff for Cluster 14 and 15 on August 1, 2023
  - Cluster 15 will not progress or be subject to typical study requirements until CAISO validates them, which effectively puts Cluster 15 on hold until September 26, 2024.
- SCE's Application of Screen Q for Rule 21 Projects on or after April 17 QC15 closure date has been [posted in SCE webpage](#)
  - SCE will be using the [CAISO's Cluster 15 Interconnection Request List](#) to determine if a Rule 21 project may have an interdependency with a project that submitted an interconnection request to the CAISO as part of Cluster 15.

## Challenges:

- Applications are likely to Fail
- Rule 21 has no provision for a project to be parked
- Refunding of Fees is not immediate
- Developers are likely to complain to CPUC

## Rule 21 – DGS (continued)

- **There may be a delay issuing DGS #19 Reports due to interdependencies with the CASIO study process which are necessary to determine project electrical independence from the CAISO Controlled Grid.**

### Background/ Reasoning

- Section G. 3.a. of Rule 21 (“Screen Q”) states that SCE, as the Distribution Provider, in consultation with the CAISO, is to determine, based on knowledge of the interdependencies with earlier-queued interconnection requests under any tariff, whether the Interconnection Request to the Distribution System is of sufficient MW size and located at a point of interconnection such that it is reasonably anticipated to require or contribute to the need for Reliability Network Upgrades. In addition, Section G. 3.a. states that **SCE will make a determination of electrical independence for the CAISO Controlled Grid as set forth in the applicable CAISO Tariff in effect at the time the Electrical Independence Test begins.**
- Given FERC’s acceptance of the CAISO’s revised schedule for Cluster 15 and SCE’s obligations under Rule 21 Section G. 3.a., for projects submitting a Rule 21 interconnection request to SCE after the close of Cluster 15 (April 17, 2023), **SCE will, for purposes of determining electrical interdependence from the CAISO Controlled Grid, use the [CAISO's Cluster 15 Interconnection Request List](#) to determine if a Rule 21 project may have an interdependency with a project that submitted an interconnection request to the CAISO as part of Cluster 15.**

# WDAT GIP Cluster Study Process

- Intended for export projects that do not pass the Fast Track process and do not pass the “independence” test because they are affected by other projects earlier in the interconnection queue.
- “No” size limit.
- Requests for interconnection can only be submitted during their respective “cluster window” (typically during April for WDAT and CAISO).
- Process:
  - Once Customer submits/resubmits a complete Interconnection Request package free of all deficiencies, a Scoping Meeting will be held.
  - A Study Agreement is tendered and executed by both parties (ie. SCE and Customer)
  - A “Phase I Study” and/or a “Phase II Study” are performed to identify the necessary system upgrades.
  - Each study can take from 5 to 8 calendar months (please review each tariff for expected study timelines).
  - Typically there is a “Results Meeting” after each study to discuss the results.
  - After the study(ies) are completed, an Interconnection Agreement is drafted and tendered.
- **SCE WDAT Queue Cluster Window #15**  
**Opening Date: April 1, 2023 / Closing Date: May 1, 2023**
- **WDAT system impact/ cluster studies will be conducted in two Phases**  
**Phase 1 – Impacts to Distribution System/ distribution circuit level analyses (Pwr Flow & Charging)**  
**Phase 2 – Impacts to Transmission (interdependencies) & short circuit duty contribution**  
**Note: dependent on CAISO study process**
- **CAISO Cluster Window #15**  
**Opening Date: April 1, 2023 / Closing: April 15, 2023, or as otherwise stated in the CAISO market notice. Note: CAISO study schedule has not been released**

# CAISO/WDAT Deliverability Options

- Transmission Plan Deliverability Allocation (TPD)
  - ISO Interconnections
  - Completed following the Phase II Study
- Distributed Generation Deliverability Allocation (DGD)
  - WDAT and Rule 21 Interconnections
  - Allocations follow the TPD study
  - **2023 DGD Market Notices containing dates are issued by CAISO. The DGD Results Report is typically available in February of 2023. The results report is typically followed by the market notice indicating the dates of the DGD request window.**
- Interconnection Customers must select an option when submitting the WDAT interconnection request:
  - Energy Only Deliverability Status
    - Avoids cost of delivery network upgrades
    - Cannot qualify as a Resource Adequacy resource in PPA
  - Full Capacity Deliverability Status
    - Allocated delivery network upgrades in interconnection studies
    - Can qualify as a Resource Adequacy resource in PPA
  - Partial Capacity Deliverability Status
    - Allocated delivery network upgrades in interconnection studies
    - Can qualify as a Resource Adequacy resource in PPA

# Cluster Study Schedule – SCE Distribution Interconnections

- WDAT Queue Cluster 15 - kick-off April 2023
- The SCE WDAT's **QC15 Phase I study** consist of a two-part approach as follows:
  - **QC 15 Phase I Study Part 1:**

A localized power flow study that will identify the IFs and DUs necessary to interconnect the project.

    - Perform the applicable ACDS/Firm/Partial Firm study for each of the QC15 Phase I WDAT projects.
    - SCE will start Part 1 in September 2023 and publish a study report sometime in Spring 2024.
  - **QC 15 Phase I Study Part 2:**
    - Short Circuit Duty Study Dynamic Study
    - Transmission system power flow analysis and Deliverability Analysis (CAISO does deliverability study)



# Cluster Study Schedule – CAISO/ Transmission Interconnections

- Cluster Study Cycle
  - Queue Cluster 13
    - Phase I Study Report Publication issued January 2021
    - Phase II Study Report Publication issued November 2021
  - Queue Cluster 14
    - Phase I Study Report Publication issued September 2023
    - Phase II Study Report Publication expected January 2024
  - Queue Cluster 15
    - Phase I Part A Study Report Publication expected March 2024
    - Phase I Part B Study Report Publication expected TBD\*
    - Phase II Study Report Publication expected TBD\*

- \*The QC15 Phase I part B and Phase II Studies are dependent on the outcome of CAISO's 2023 IPE

# “Estimated” Execution Scheduling

- Interconnection Facilities Typical Engineering Procurement and Construction Schedule Estimates
  - 12 kV, 16 kV, and 33 kV line and circuitry work: 9 – 18 months
  - 12 kV and 16 kV substation work: 27 months
  - 66 kV line or substation work: 27 months or more
  - 220 kV into existing SCE substation: 27 months
  - 220 kV into a new SCE substation: 60 – 88 months
- Engineering and Procurement Agreement
  - Drafting 1 month
  - Review – 1 month
  - Signing – 1 month

# Interconnection – Finding Information

- Visit our Grid Interconnections Website
  - Go directly to it: [on.sce.com/gridinterconnections](http://on.sce.com/gridinterconnections)
  - Go to [sce.com](http://sce.com) and browse

Home > Your Business > Generating Your Own Power > Grid Interconnections



## Generation Project Types

- [Generating Power for Sales](#)
- [Programs for Self-Generation at Home or Business](#)
- [Backup Systems](#)
- [Qualifying Facility Conversions](#)

## Rules and Regulations

- [Rule 21](#)
- [Wholesale Distribution Access Tariff \(WDAT\)](#)
- [Transmission Owner Tariff](#)
- [Interconnections to California Independent System Operator \(CAISO\)](#)

## Additional Information

- [Distribution Resources Plan External Portal \(DRPEP\)](#)
- [Electrical Service Requirements \(ESR\)](#)
- [Interconnection Handbook](#)
- [Interconnection Queue](#)
- [Inverter Manufacturer Attestation Form Phase 3 Functions 1 and 8](#)
- [Redacted Interconnection Study Reports](#)
- [Request Base Case Data](#)
- [Rule 21 Unit Cost Guide](#)

Information relevant depending on the purpose of your project

Distribution System Maps

How to learn about the interconnection process for each tariff

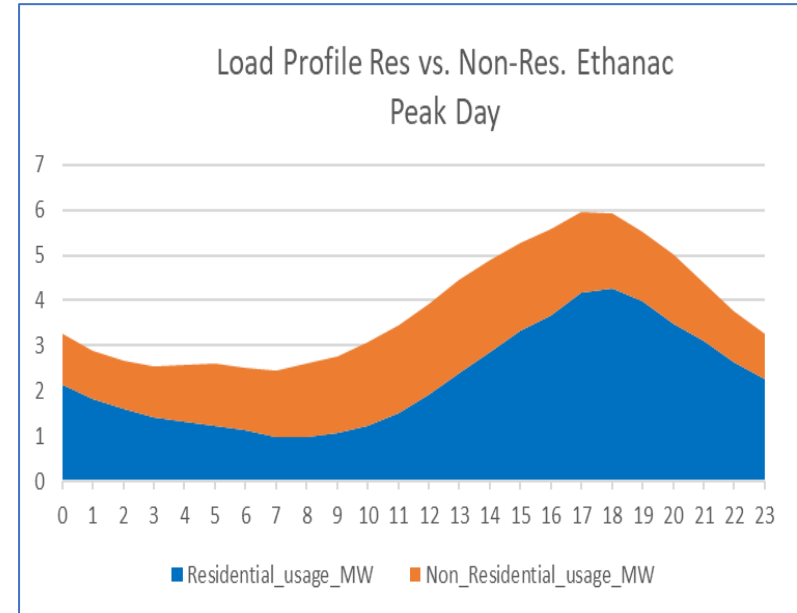
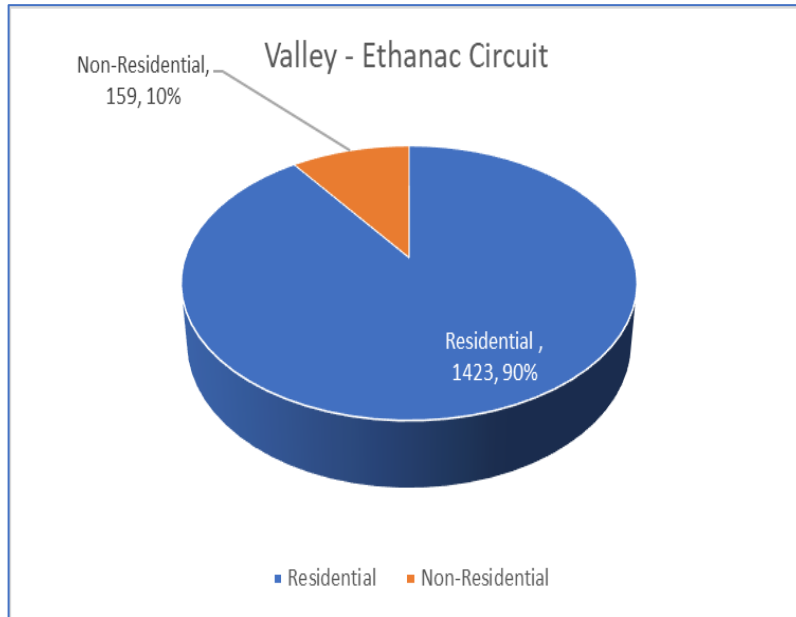
# Q&A

To ask a question, please type into the Q&A chat box

# Customer Composition

## *Kathryn Mickaliger*

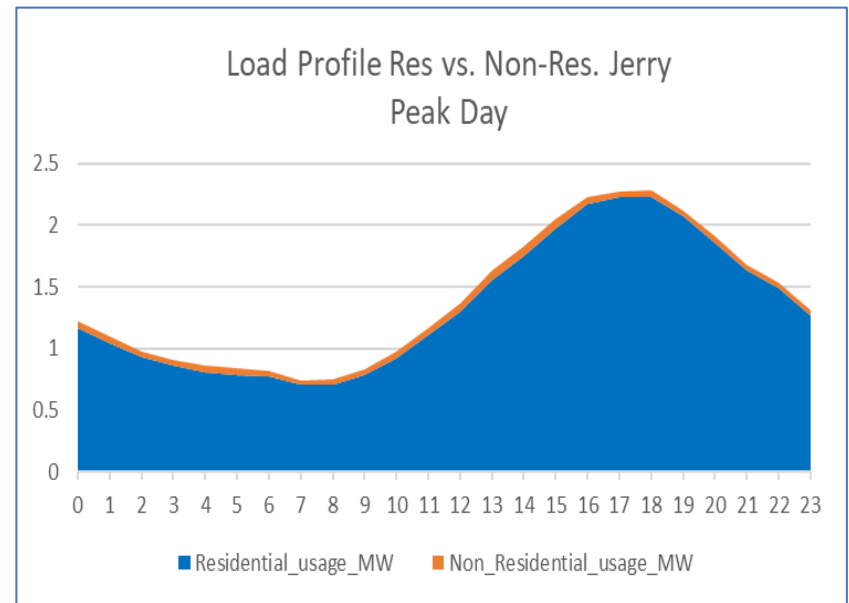
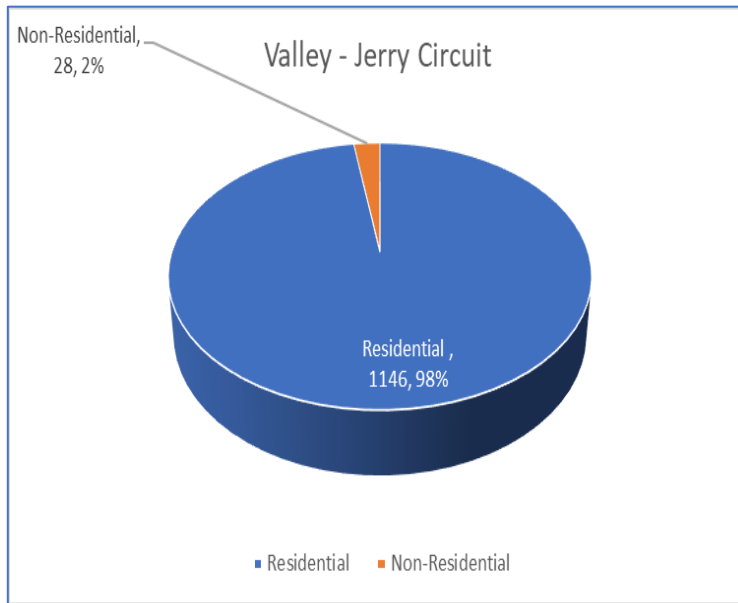
# Valley 115/12kV Project – Ethanac Circuit 12kV



## Customer Participation in Existing Programs

	NEM (Net Energy Metering)	NEM + Storage	DR Programs (Demand Response)
# of Service Accts.	682	15	189

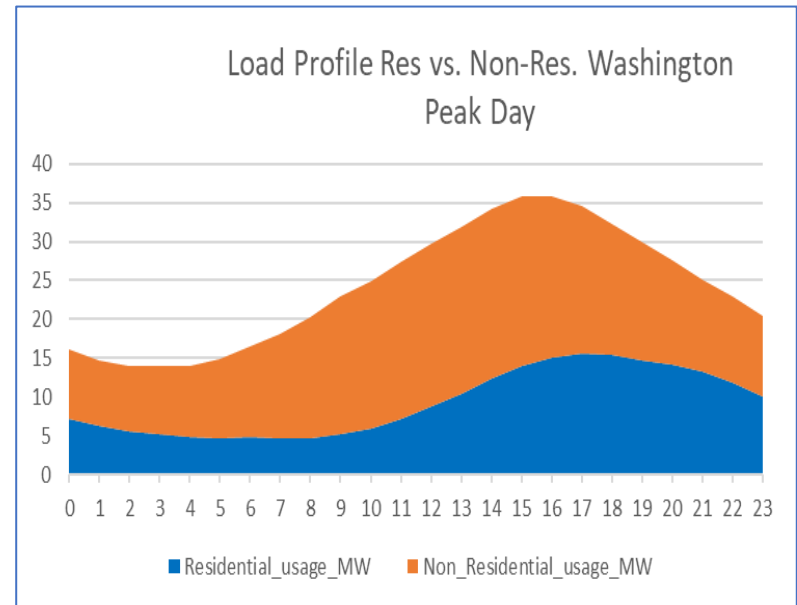
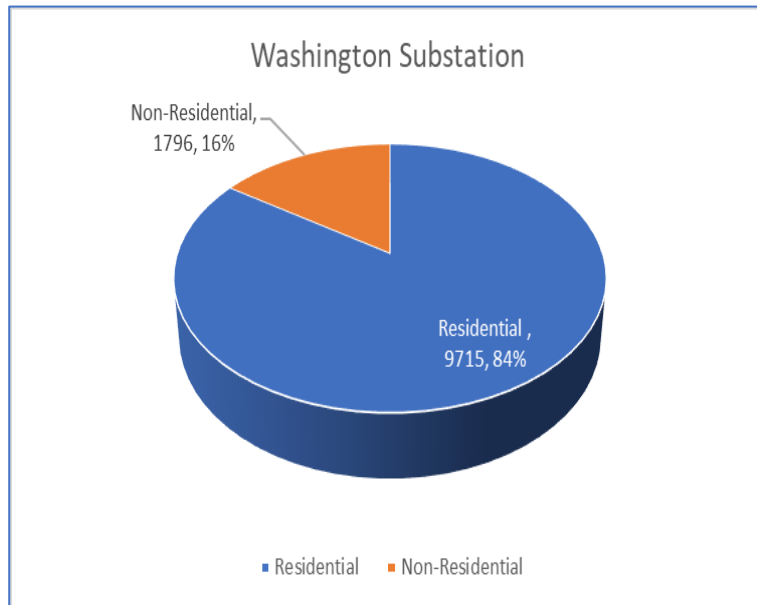
# Valley 115/12kV Project – Jerry Circuit 12 kV



## Customer Participation in Existing Programs

	NEM (Net Energy Metering)	NEM + Storage	DR Programs (Demand Response)
# of Service Accts.	640	< 15	147

# Washington 66/12kV Project – Washington Substation

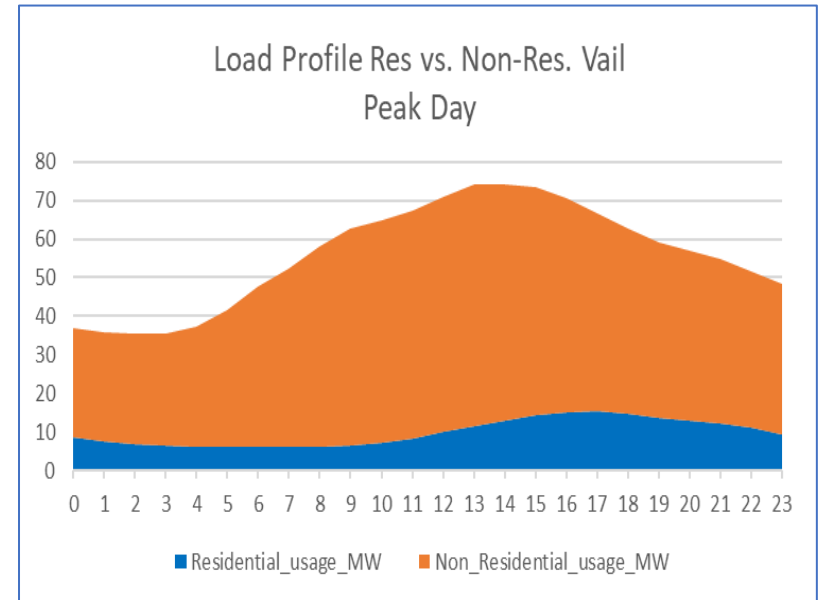
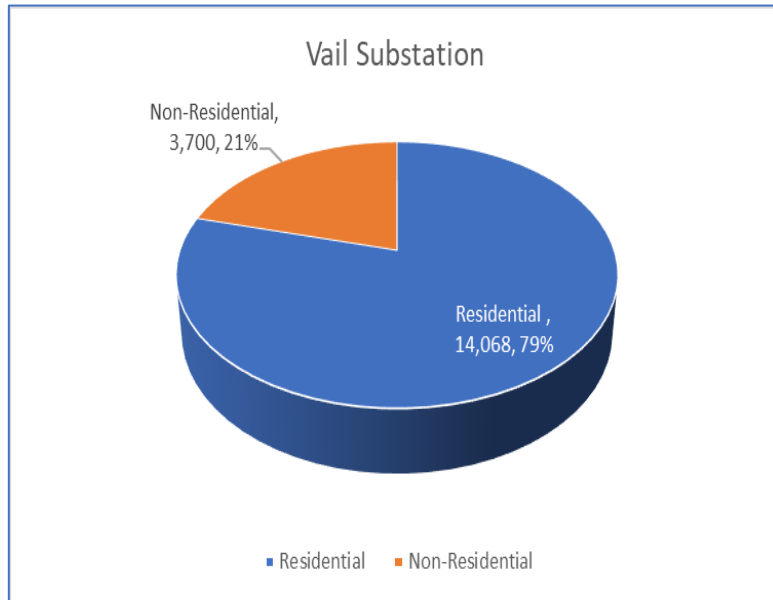


## Customer Participation in Existing Programs

	<b>NEM (Net Energy Metering)</b>	<b>NEM + Storage</b>	<b>DR Programs (Demand Response)</b>
<b># of Service Accts.</b>	<b>568</b>	<b>24</b>	<b>1347</b>



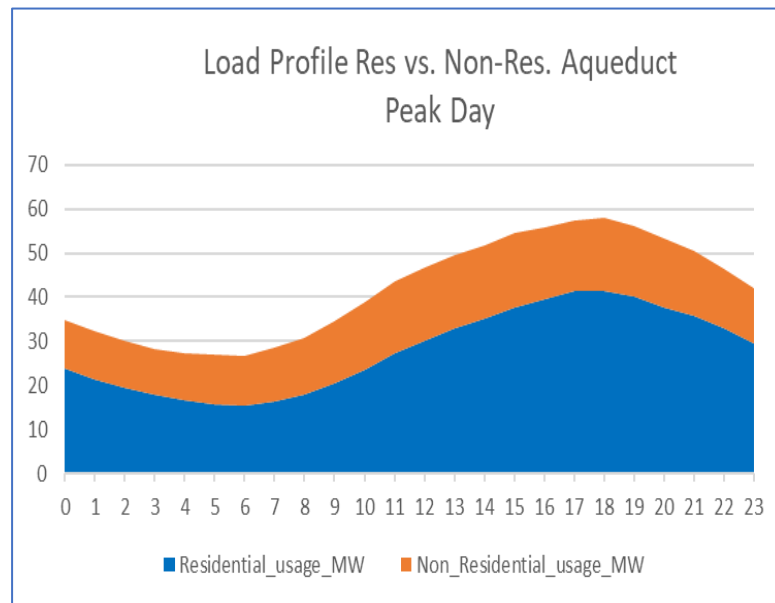
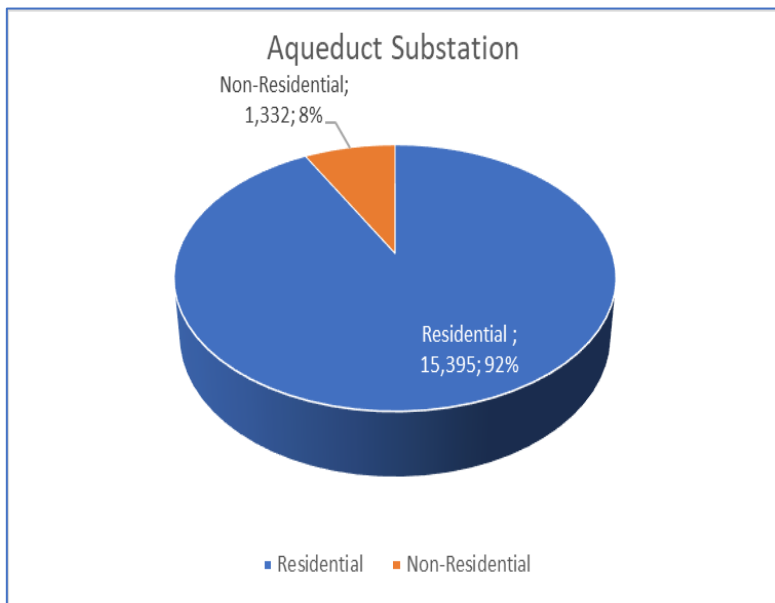
# Vail 66/12kV Project – Vail Substation



## Customer Participation in Existing Programs

	<b>NEM (Net Energy Metering)</b>	<b>NEM + Storage</b>	<b>DR Programs (Demand Response)</b>
<b># of Service Accts.</b>	<b>379</b>	<b>20</b>	<b>2,194</b>

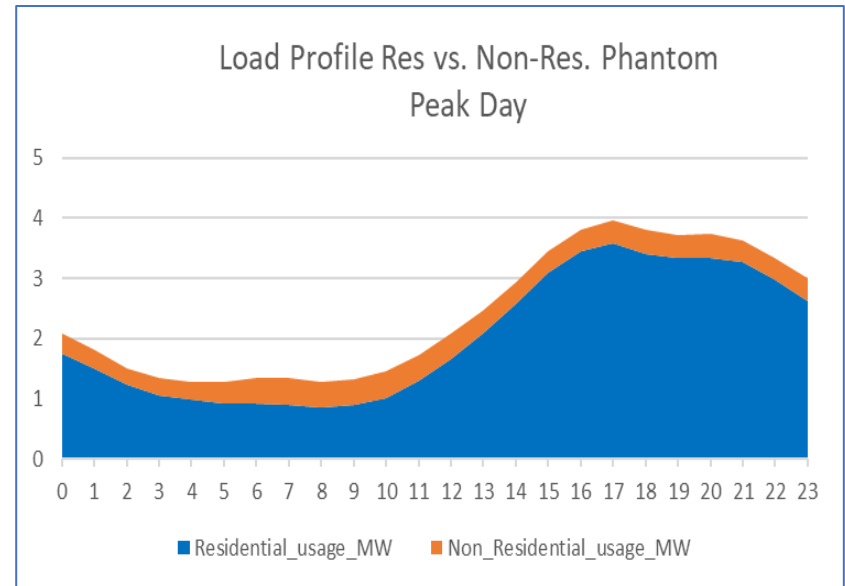
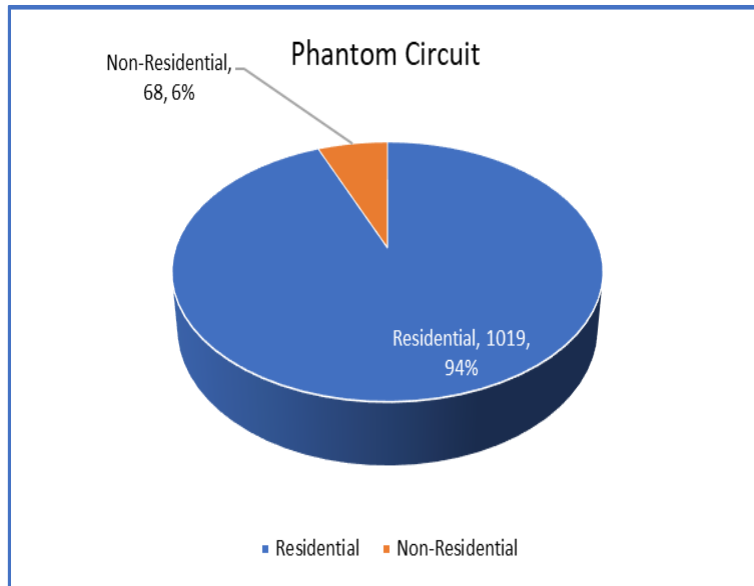
# Aqueduct 115/12kV Project – Aqueduct Substation



## Customer Participation in Existing Programs

	<b>NEM (Net Energy Metering)</b>	<b>NEM + Storage</b>	<b>DR Programs (Demand Response)</b>
<b># of Service Accts.</b>	<b>3,474</b>	<b>136</b>	<b>1,916</b>

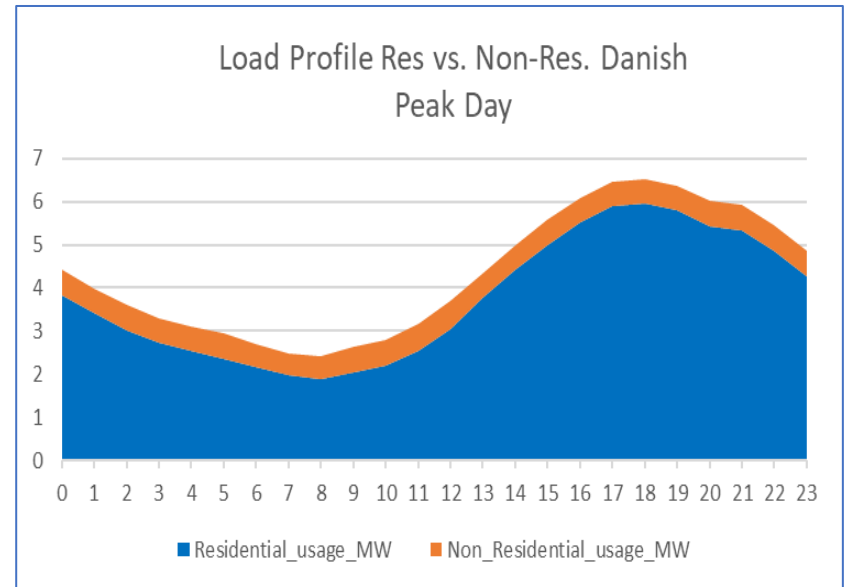
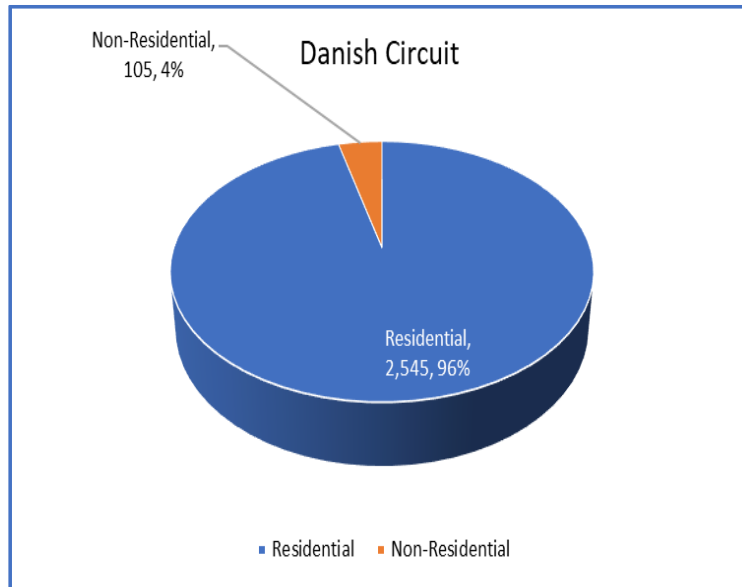
# Chino 66/12kV Project – Phantom Circuit 12 kV



## Customer Participation in Existing Programs

	<b>NEM (Net Energy Metering)</b>	<b>NEM + Storage</b>	<b>DR Programs (Demand Response)</b>
<b># of Service Accts.</b>	<b>373</b>	<b>&lt;15</b>	<b>163</b>

# Mira Loma 66/12kV Project – Danish Circuit 12 kV



## Customer Participation in Existing Programs

	<b>NEM (Net Energy Metering)</b>	<b>NEM + Storage</b>	<b>DR Programs (Demand Response)</b>
<b># of Service Accts.</b>	<b>1,311</b>	<b>43</b>	<b>315</b>

# Q&A

To ask a question, please type into the Q&A chat box

# Incrementality

Gene Lee

# Incrementality Guiding Principles

- As established by the CPUC in D.16-12-036:
  - Ensure that customers are not paying twice for the same service
  - Ensure the reliability of a service( i.e. ensure it is not counting on a service to be there when the service might be deployed at another time or place)
  - Not be unduly burdensome to participants
  - Be technology neutral
  - Be fair and consistent
  - Recognize that DERs are eligible to provide multiple incremental services and be compensated for each service
  - Be flexible and transparent to bidders

# Incrementality Framework

## Wholly Incremental

Offers which provide technologies and services not (1) already being sourced or (2) reasonably expected to be sourced through another utility procurement, program, or tariff, and that meet specific solicitation needs. These Offers will be assessed full incremental value.

## Partially Incremental

Offers in which some portion of the technology or service is already incentivized through another authorized utility procurement, program, or tariff, and that meet specific solicitation needs. Only the portion of the Offer that provides material enhancements to the existing project will be considered incremental. Bidders must provide feasible method of measuring and quantifying the incremental value to justify additional compensation.

## Not Incremental

Offers which provide technologies or services already sourced under another authorized utility procurement, program, or tariff, that meet the identified solicitation needs, and that provide no clearly discernable incremental value beyond current offerings. These Offers are not incremental and will not be included in the valuation and selection process.

**Capturing all contractual obligations for all incremental projects in single pro forma is not practical, as such agreements may need to be modified on a project by project basis, using this framework as a guide**

*Bidders will be required to provide robust and convincing supporting documentation of incrementality*



# Incrementality Framework\* (Products)

Category	What part of the Offer is Incremental?
<p>Not already sourced/subsidized through another utility procurement, program, or tariff and available to meet the identified solicitation needs</p>	<p>The entire Offer is Wholly Incremental.</p> <p>Yes, if the existing resources, without the <b>new</b> material enhancement, were not capable of providing or meeting the specific identified RFO need. This would also include the addition of <b>new</b> dispatchable storage to an existing, non-dispatchable BTM solar resource (i.e. existing NEM), or the dispatchable distribution service from a <b>new</b> SGIP<sup>1</sup> storage resource that is not dispatchable under its current tariff and meets the identified solicitation needs.</p>
<p>Partially sourced/subsidized through another utility procurement, program, or tariff and available to meet the identified solicitation needs</p>	<p>A portion of the Offer is Partially Incremental<sup>2</sup>.</p> <p>Yes, but only the portion (if any) that is not currently being compensated for by an already sourced/subsidized utility procurement, program, or tariff.</p> <p>The Offeror will need to demonstrate that the Offer will modify the operation delivery or behavior of the already sourced/subsidized project and is available to meet the identified solicitation needs.</p>
<p>Wholly sourced through another utility procurement, program, or tariff.</p>	<p>No part of the Offer will be considered.</p> <p>The Offer is already sourced through an existing utility procurement, program, or tariff and does not demonstrate a modification to operation or behavior that is able to meet the identified solicitation needs.</p>

\* For a complete guide (includes footnote references), please refer to the RFO instructions Energy for What's Ahead<sup>SM</sup>

# Incrementality Framework - Examples

## **Self-Generation Incentive Program (SGIP)**

- Considered fully incremental if the provider commits to meeting the dispatch requirements in the contract for the utility-solicited deferral services (applies to both new and existing SGIP).

## **Net Energy Metering (NEM)**

- Projects compensated through NEM are fully incremental if the distributed energy resources provider makes a material enhancement to provide the utility-solicited deferral services (e.g., the addition of storage that commits to meeting the dispatch requirements)
- NEM projects without material enhancement are not be considered incremental .

## **Energy Efficiency Resources (Not in the Portfolio)**

- New energy efficiency projects are allowed to either demonstrate incrementality subject to the energy efficiency program administrator review or elect to use a pre-specified "overlap factor" method.
- Providers that choose energy efficiency program administrator review would describe their proposed energy efficiency measures and targeted market segments and demonstrate that the projects do not overlap with the energy efficiency program administrator's existing energy efficiency programs.
- Alternatively, providers can use a pre-specified "overlap factor" method that does not require an explicit demonstration of incrementality. With this approach, a proposed energy efficiency program is assumed to be 80 percent incremental.

## **Energy Efficiency Resources (In the Portfolio)**

- Projects already included in SCE's energy efficiency program portfolio would not be considered incremental without a material enhancement. The enhancement must be clearly demonstrable above and beyond the scope of the original energy efficiency measures and installations.

## **Demand Response Resources**

- Fully incremental as long as the provider commits to meeting the dispatch requirements pursuant to the contract for solicited deferral services and the commitment does not conflict with the Demand Response programs to which the provider is already subscribed.

# Q&A

To ask a question, please type into the Q&A chat box

# Offer Valuation and Selection

## John Schlenz

# Valuation Methodology

Selection of DERs for distribution deferral will be based on the offers' ability to defer the traditional solution and a net present value (NPV) analysis which assesses the cost of each DER offer or a portfolio of DERs against the project deferral value.

1. Determining the net present value (NPV) of each DER offer
  - The NPV of a DER offer is the present value of benefits of the DER offer less the present value of the DER costs
  - NPV will be determined by using SCE's latest price forecasts to assess the value or cost of each NPV component
2. Creating a DER portfolio that can solve the distribution needs for both power (MW) and energy (MWh) for each deferral project
  - Qualitative benefits will be assessed when creating a DER deferral solution
  - The DER portfolio can be a portfolio of one or more DER offers
  - The DER portfolio can defer the traditional solution for 1 year, or up to 7 years (depending on the needs at each project location)
3. Assessing the cost effectiveness of the DER portfolio
  - DER portfolio NPV is the sum of deferral project's deferral value and Offer NPVs and less the administration costs (Portfolio NPV = Deferral Value + Offer NPV – Admin Costs)
  - A cost-effective DER portfolio is when the DER portfolio NPV is greater than 0
  - Will assess cost effectiveness under various deferral period lengths if necessary

# DIDF Quantitative Valuation Components

## Methodology

- SCE will develop price forecasts (P) for various market attributes like capacity, energy, compliance and will calculate the forecasted quantity (Q) of the respective attribute provided by an offer over the contract delivery period. Then, the benefits stream will be estimated by  $P \times Q$
- Valuation assumptions are subject to change based on, but not limited to, updated information relating to any regulatory and market design decisions and/or proceedings
- The table below highlights the components considered for each Contract Type

Contract	BENEFIT COMPONENT				COST COMPONENT					
	Resource Adequacy Capacity	Energy	Ancillary Services/ Real Time	Deferral Value <sup>1</sup>	Contract Payments	Debt Equiv.	Reimbursable Network Upgrade	Renewable Integration	Demand Service Fee	Put Option Cost
Demand Response	x	x		x	x	x				
Permanent Load Shift	x	x		x	x	x				
Energy Efficiency	x	x		x	x	x				
Renewable Generation (BTM)	x	x		x	x	x		x		
Renewable Generation (IFOM)	x	x		x	x	x	x	x		
Renewable Generation/ Energy Storage Hybrid (BTM)	x	x		x	x	x		x		
Renewable Generation/ Energy Storage Hybrid (IFOM)	x	x	x	x	x	x	x	x	x	
Financially Settled Toll (IFOM)	x	x		x	x	x	x			

<sup>1</sup>Deferral value is attributed to a portfolio (one or more Offers) if and only if the power and energy needs are fully met for a deferral project

# Qualitative Valuation Components

May include but not limited to:

- Project viability
- Interconnection viability
- Voltage and other power quality services
- Permitting and interconnection
- Pre-Development and Development Milestones
- Modifications to PSA
- Contributions towards other SCE procurement targets
- Congestion, negative price, and curtailment considerations not captured in the quantitative valuation
- Portfolio fit of energy, capacity, deliverability, and contract term
- Offeror concentration
- DER deferral solution viability
- Technology concentration
- Dispatchability and curtailability
- Others

# Q&A

To ask a question, please type into the Q&A chat box



Thank you for attending the  
2023 DIDF RFO Bidders Conference.

SCE looks forward to your participation!