



PG&E Residential Digital Rate Study Webinar

Robert Anderson, Albert Chiu | Date: June 23rd, 2021

DIGITALRATE STUDY

Webinar Speakers



Robert Anderson

CTO – Olivine, Inc.



Albert Chiu

Expert Project Manager – PG&E



Webinar Agenda

- Safety Talk
- Demand Response Emerging Technologies (DRET)
- Study Background, Overview & Purpose
- Participation Benefits
- Ideal Participants
- Participation Requirements
- Study Scope & Timeline
- Engagement & Customer Acknowledgment
- Price Delivery
- Q&A
- Additional Resources & Next Steps



Demand Response Emerging Technologies

California's Demand Response Emerging Technologies (DRET) programs fund research on innovative technologies, software, and products that can enhance Demand Response (DR) participation and grid reliability.

- The DRET programs are designed to accelerate developments in markets and technologies faster than traditional DR customer programs can adopt as innovation is often unscheduled and unexpected.
- The DRET research provides critical information, for utilities, policy makers, and industry partners to advance the envisioned energy future with rapid deployment of proven, cost-effective technologies.
- DRET is an approved California Public Utilities Commission (CPUC) strategy that can assist DR programs so that proven enabling technologies can be scaled and thereby expand the customer participation required to enable new forms of DR in the future.

ABOUT OLIVINE

Introduction to Olivine, Inc.

- Olivine is assisting PG&E in the implementation of this study
- Olivine provides infrastructure and program management to utilities and other service providers
- Olivine’s mission is to help its clients meet their renewable energy and greenhouse gas reduction goals



Background

- Current price-optimized load shifting of customer premises typically requires manually programming rate or rate details into smart devices
- Issues with manual programming
 - Requires customer to maintain correct and current rates
 - Unable to handle tiered and baseline-credit rates
 - » Tiered rate: Total price / kWh changes based on the total net billing cycle consumption
 - » Current solutions ignore this rate element by only considering the 'shape' of pricing or defaulting to a single tier, limiting optimization use cases
 - Potential for user error
 - Places burden on the customer or manufacturer on every rate change
 - Does not support dynamic/Real Time Pricing (RTP) rates

Study Overview

- Provides a standards-based approach for third-parties to receive accurate and estimated pricing for their residential customers using OpenADR 2.0b
- Third-parties will utilize data to accomplish price-optimized load shifting at customer premises through their method of choice to provide customer services such as
 - Reduce the customer bill
 - Allow customer to reduce energy usage to earn points or money
 - Reduce customer's carbon footprint
 - Achieve overall customer and grid benefits

Study Purpose

- Ensures “true rate” with “true price” available transparently through OpenADR 2.0b
- Removes need for customer to manually program and maintain current rates
- Addresses tiered rates by providing a customized rate
 - Leverages data from PG&E Green Button Connect & other systems to allow the projection of pricing tier, enabling the delivery of the true price
- Facilitates or amplifies third parties’ ability to provide improved customer experience & eliminate user error
- DRET study helps PG&E make informed decisions on digital rate related activities in the future

Participation Benefits



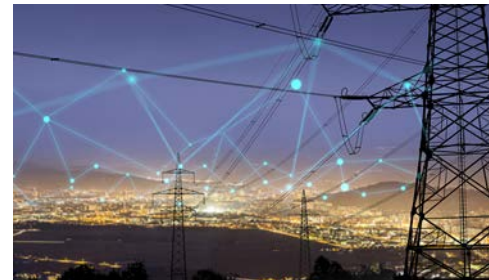
Accurate and Estimated Pricing

Receive accurate and estimated pricing for your residential customers. Prices are available through a standard interface and support tiered rates, improving the customer experience and eliminating user error.



New Offerings to Your Customers

Ability to leverage price data to provide new and enhanced offerings to your customers.



Inform Direction of Price Delivery

Opportunities to provide feedback during the study and at the end of the study. Inform the future direction of price data delivery, helping PG&E take informed decisions on digital rate related activities in the future.

Ideal Participants

- Electrical Vehicle Supply Equipment (EVSE) providers
- Electric Vehicle (EV) manufacturers
- Residential battery and solar providers
- AC/heat pump thermostat vendors
- Electric water heater (EWH) / heat pump water heater (HPWH) vendors
- Third-party energy efficiency pay-for-performance (EE P4P) providers
- Platform service providers
- Home automation manufacturers/vendors

Participation Requirements

- Be integrated with PG&E ShareMyData (SMD)
- Have existing customer authorizations
- Agree to enroll customers into the study
- Be OpenADR2.0b certified & have an OpenADR production digital certificate
- Be able to receive price signals through OpenADR
- Agree to the study terms & conditions (T&Cs)
- Request your customers to complete an online customer authorization form and agree to the study customer T&Cs

Study Scope

- Bundled residential electric rates: E-1, E-6, E-TOU-B, E-TOU-C, E-TOU-D, EVA, EVB, EV2A
- Rate options: SmartRate, California Alternate Rates for Energy (CARE), Family Electric Rate Assistance Program (FERA), Net Energy Metering (NEM), Medical Baseline
- Prices will capture the following characteristics:
 - Seasonal energy prices, including Time of Use (TOU) periods, tiers, and baseline credits
 - Seasonal tier quantities by baseline region and service type (i.e., for basic versus all-electric service)
 - Rate effective dates
- Community Choice Aggregation (CCA) customers will initially be treated as bundled customers; will support CCA rates later in 2021

Study Timeline

Phase	Description	Functionality
1	Basic Price Delivery	<ul style="list-style-type: none"> • Focuses on rate structure and signal delivery • Full functionality for E-TOU-B, E-TOU-D, EVA, EV2A, and EVB • Partial functionality for E-1, E-6, E-TOU-C, provide the highest energy price (i.e. highest tier or without baseline credit applied) • Includes CARE and FERA discounts
2	Full Price Delivery	<ul style="list-style-type: none"> • Supports tiered rates utilizing metered usage, billing cycles, and enables tier change forecasting • Full functionality for E-1, E-6, E-TOU-C • Includes SmartRate

- Study will run through the end of 2022. We will reassess continuation of the service beyond the end of the study and will provide details once available.

Engagement Steps

1

Submit Declaration of Interest Form by July 9th

Form is available for download on the [study webpage](#). Submit it to pge-ratestudy@olivineinc.com.

2

Participants Notified by July 23rd

PG&E / Olivine will notify third-parties of acceptance into the study.

3

Receive Project Documentation Set

Olivine will provide a Documentation Set which includes an architectural overview, terms of service, OpenADR Virtual End Node (VEN) registration information, example pricing payloads, etc.

4

Register OpenADR VEN

Register a certified OpenADR VEN with Olivine's Virtual Top Node (VTN).

5

Complete Customer Acknowledgements

Complete customer acknowledgement for each service agreement (SA) you would like to enroll in the study. (discussed further on next slide)



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Customer Acknowledgements

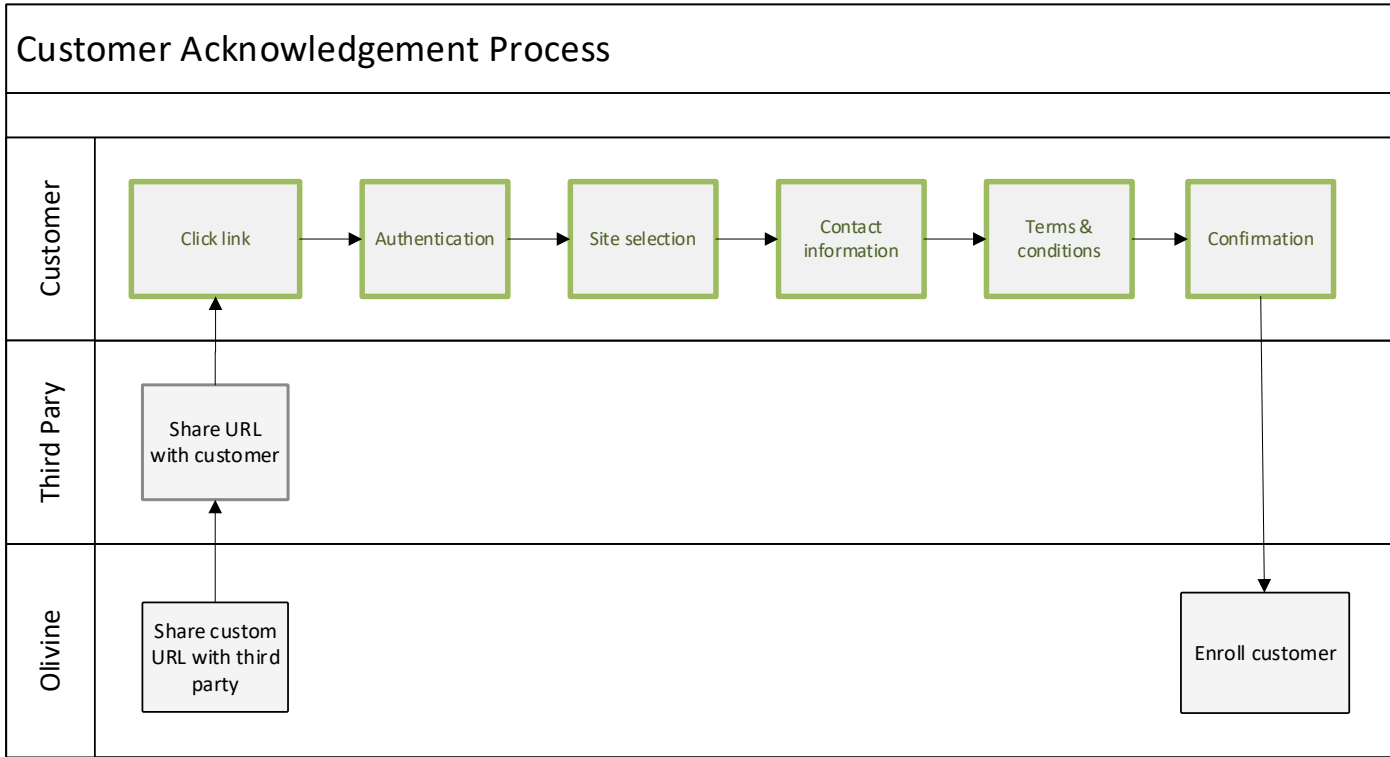
- Customers must acknowledge participation in the study before third-parties can receive price data
- Customer Acknowledgement Process
 - Olivine will provide third-parties with a link customized
 - Third-parties will share the link with their customers they would like to receive price data for
 - Customers will click the link and complete the acknowledgement
- Customer can acknowledge multiple third-parties to receive their price data, but it requires separate acknowledgments
- Customer may cancel their acknowledgment



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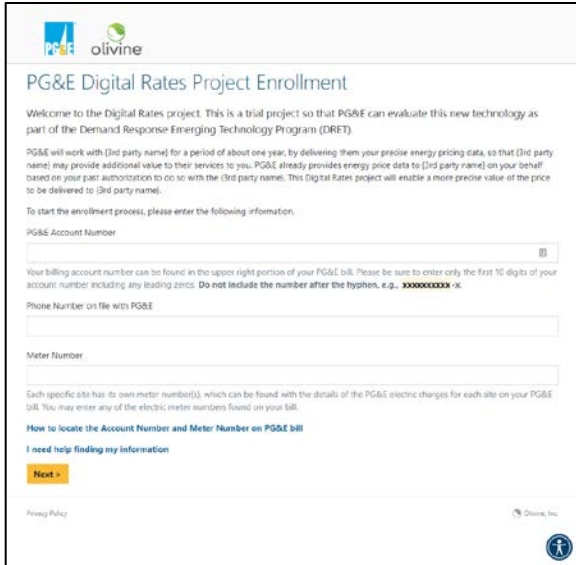
Customer Acknowledgement Process



Implies customer user experience

Customer Acknowledgement User Interface

Note: screens are not finalized



PG&E Digital Rates Project Enrollment

Welcome to the Digital Rates project. This is a trial project so that PG&E can evaluate this new technology as part of the Demand Response Emerging Technology Program (DRET).

PG&E will work with (3rd party name) for a period of about one year, by delivering them your precise energy pricing data, so that (3rd party name) may provide additional value to their services to you. PG&E already provides energy price data to (3rd party name) on your behalf based on your past authorization to do so with the (3rd party name). This Digital Rates project will enable a more precise value of the price to be delivered to (3rd party name).

To start the enrollment process, please enter the following information.

PG&E Account Number

Your billing account number can be found in the upper right portion of your PG&E bill. Please be sure to enter only the first 10 digits of your account number including any leading zeros. Do not include the number after the hyphen, e.g., XXXXXXXXXX-XX.

Phone Number on file with PG&E

Meter Number

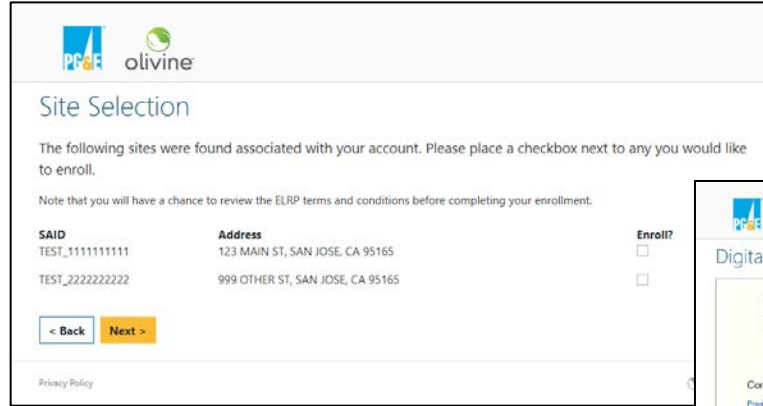
Each specific site has its own meter number(s), which can be found with the details of the PG&E electric charges for each site on your PG&E bill. You may enter any of the electric meter numbers found on your bill.

How to locate the Account Number and Meter Number on PG&E Bill

I need help finding my information

[Next >](#)

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Site Selection

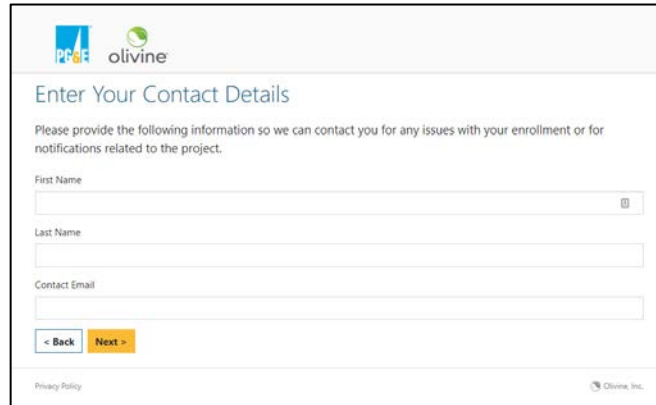
The following sites were found associated with your account. Please place a checkbox next to any you would like to enroll.

Note that you will have a chance to review the ELRP terms and conditions before completing your enrollment.

SAID	Address	Enroll?
TEST_1111111111	123 MAIN ST, SAN JOSE, CA 95165	<input type="checkbox"/>
TEST_2222222222	999 OTHER ST, SAN JOSE, CA 95165	<input type="checkbox"/>

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Privacy Policy



Enter Your Contact Details

Please provide the following information so we can contact you for any issues with your enrollment or for notifications related to the project.

First Name

Last Name

Contact Email

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Digital Rates Project Participation Terms & Conditions

Pacific Gas & Electric Company Demand Response Emerging Technology Program Digital Rates Project June x, 2021

Contents

- Program Overview
 - 1.1 Program Description and Enrollment
 - 1.1.1 Program Description
 - 1.1.1.1 Sub-Group A.1 - Non-Residential Customers
 - 1.1.2 Sub-Group A.2 - State Intervention Program Applicants
 - 1.1.3 Sub-Group A.3 - State 21 Supporting Distribution Energy Resources
 - 1.1.4 Sub-Group A.4 - Local Project Sites
- Program Parameters
 - 2.1 Program Availability

I, Pankaj Tintas, agree to the above terms to enroll the following sites into the ELRP and attest that I have the authority to bind ACME Inc to these terms.

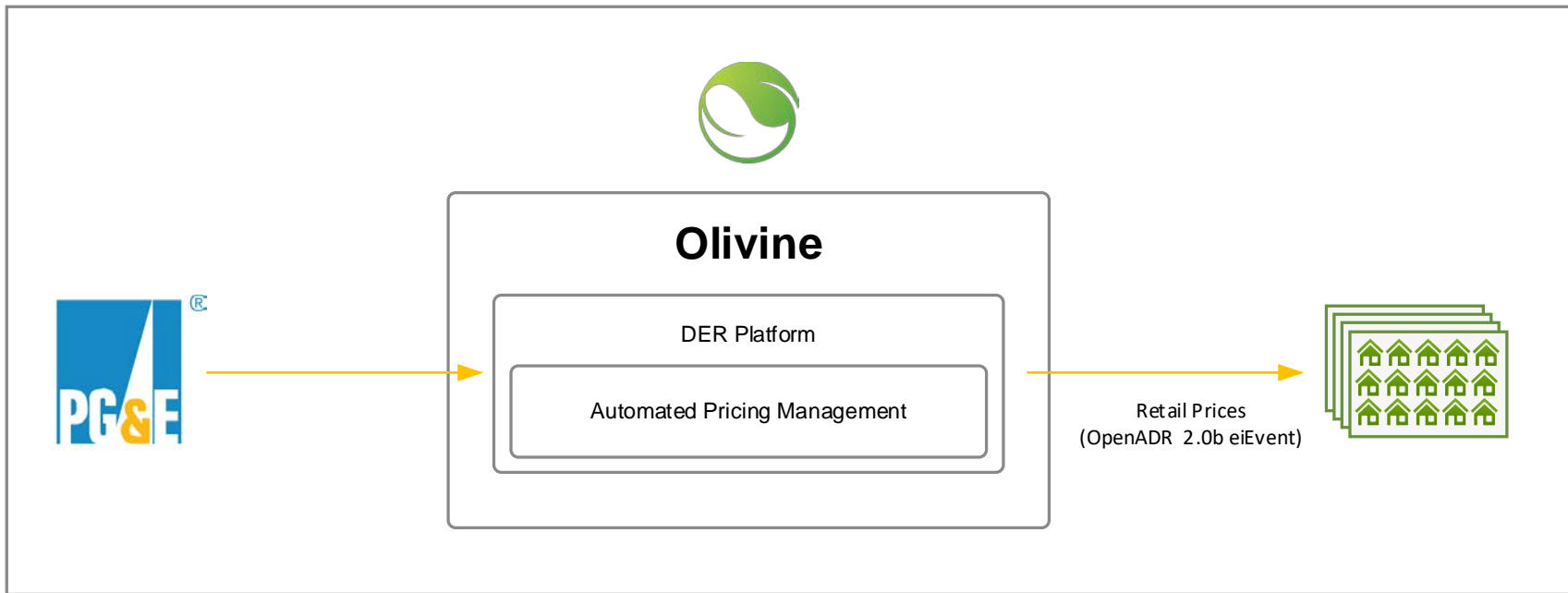
SAID: TEST_1111111111, TEST_2222222222 | Address: 123 MAIN ST, SAN JOSE, CA 95165, 999 OTHER ST, SAN JOSE, CA 95165

Contact Information: Name: Pankaj Tintas, Email: tintas@fouweb.com

[< Back](#) [Submit Enrollment](#)

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Price Delivery Overview



Format & Timing of Price Delivery

- Single price per hour in \$/kWh
- Service Agreement (SA)-specific prices will be available by 5pm for following day
- Payloads will span midnight to midnight
- Price will be forecasted for SAs on tiered rates
- Olivine DER™ will utilize OpenADR 2.0b eiEvent for digital price delivery
 - Third-party services will interface as a certified OpenADR Virtual End Node (VEN) using eiRegisterParty
 - Third-party's VEN will register against Olivine's Virtual Top Node (VTN)
 - Delivery will occur through OpenADR push or pull semantics as opted by the VEN

```

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api.olivineinc.com/Voe/pricing/signals/pgs/etou-b

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Additional Resources & Next Steps

- Next Step: Complete the Declaration of Interest Form
 - Download from study webpage
 - Submit to pge-ratestudy@olivineinc.com by **Friday, July 9th**
- Check out the study webpage at olivineinc.com/pge-digital-rate-study/
- If you have any additional questions about the study, contact pge-ratestudy@olivineinc.com

Questions?