

Program will start at 09:30 am



ETCC TRIO SYMPOSIUM & ROUNDTABLE: *TECHNOLOGY INNOVATION AND UTILITY ENGAGEMENT*

June 9, 2017
Pacific Energy Center, San Francisco
HOSTED BY: Pacific Gas & Electric

Wi-Fi: geco Wi-Fi code: 48254508

Welcome, Safety and ETCC Overview

Tarun Kapoor

Expert Product Manager, Emerging Technologies |
Pacific Gas & Electric

WELCOME!

Before we get started....
safety and housekeeping

SAFETY MESSAGE

- In the event of an emergency:
 - Earthquake
 - Fire
 - Other evacuation
- Meeting point
- 911
- CPR

FOR OUR ONLINE MEETING PARTICIPANTS

- Quick logistics
 - Phone lines are muted
 - Please use question field to ask questions during Q&A or if any technical issues

HOUSEKEEPING FOR ALL PARTICIPANTS

- Please **turn off** or **silence** your phone, and **step outside** for any non-program conversations
- Audio recording today's session
 - Will be posted on www.etcc-ca.com
- Slides will be posted to www.etcc-ca.com
- Don't forget to fill out evaluations!

TODAY'S AGENDA

09:30 AM	Welcome, Safety & ETCC Overview
10:00 AM	New Technology, New Delivery Models
11:45 PM	LUNCH (provided)
1:00 PM	IOU 101 and the new regulatory environment
1:45 PM	BREAK
2:00 PM	Panel: Utility Presentations and Roundtable
3:00 PM	Utility Breakout Session
3:30 PM	WRAP UP

EMERGING TECHNOLOGIES COORDINATING COUNCIL (ETCC)

The ETCC supports ETP efforts in the advancement of energy efficiency and demand response initiatives through its leadership, impact and influence in the emerging technology domain. It pursues this objective by strategically engaging with a wide range of external ET stakeholders and effectively and efficiently managing coordination among ETCC members.

Members include:



EMERGING TECHNOLOGIES PROGRAM MISSION

“...to increase energy efficiency market demand and technology supply through evaluation of *emerging* and *underutilized* advanced technologies to increase customer savings...”

Emerging Technologies

Programs

Codes and Standards

Zero Net Energy



LED Lighting



EE Rebates



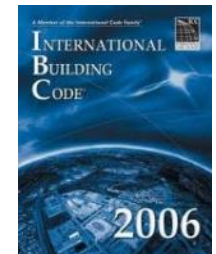
Retail and Manufacturer Strategy



Appliance Standards



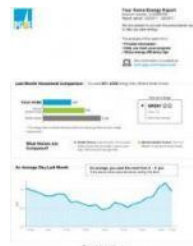
Building Codes



HVAC



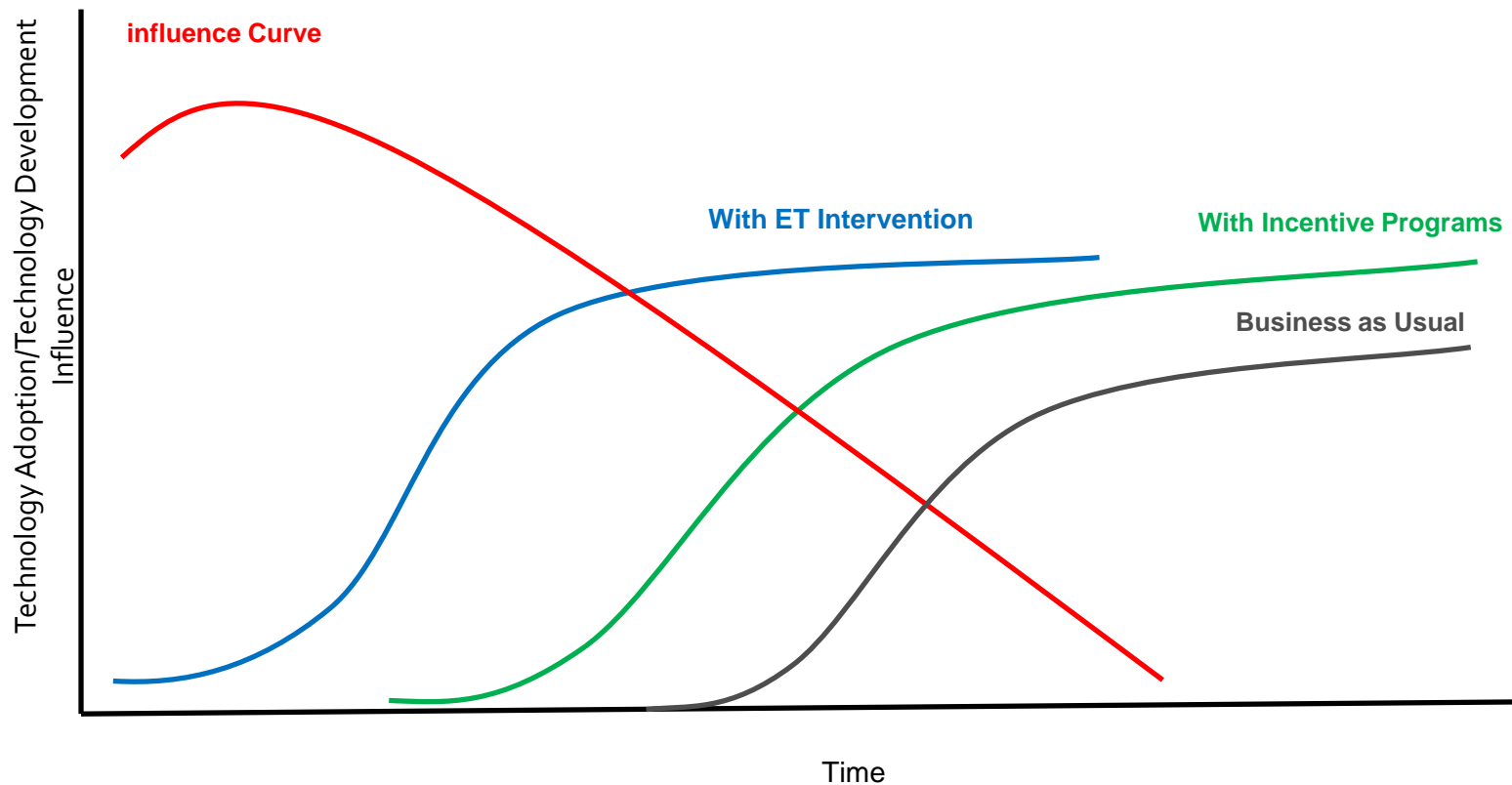
Home Energy Report



Contractor Training and outreach

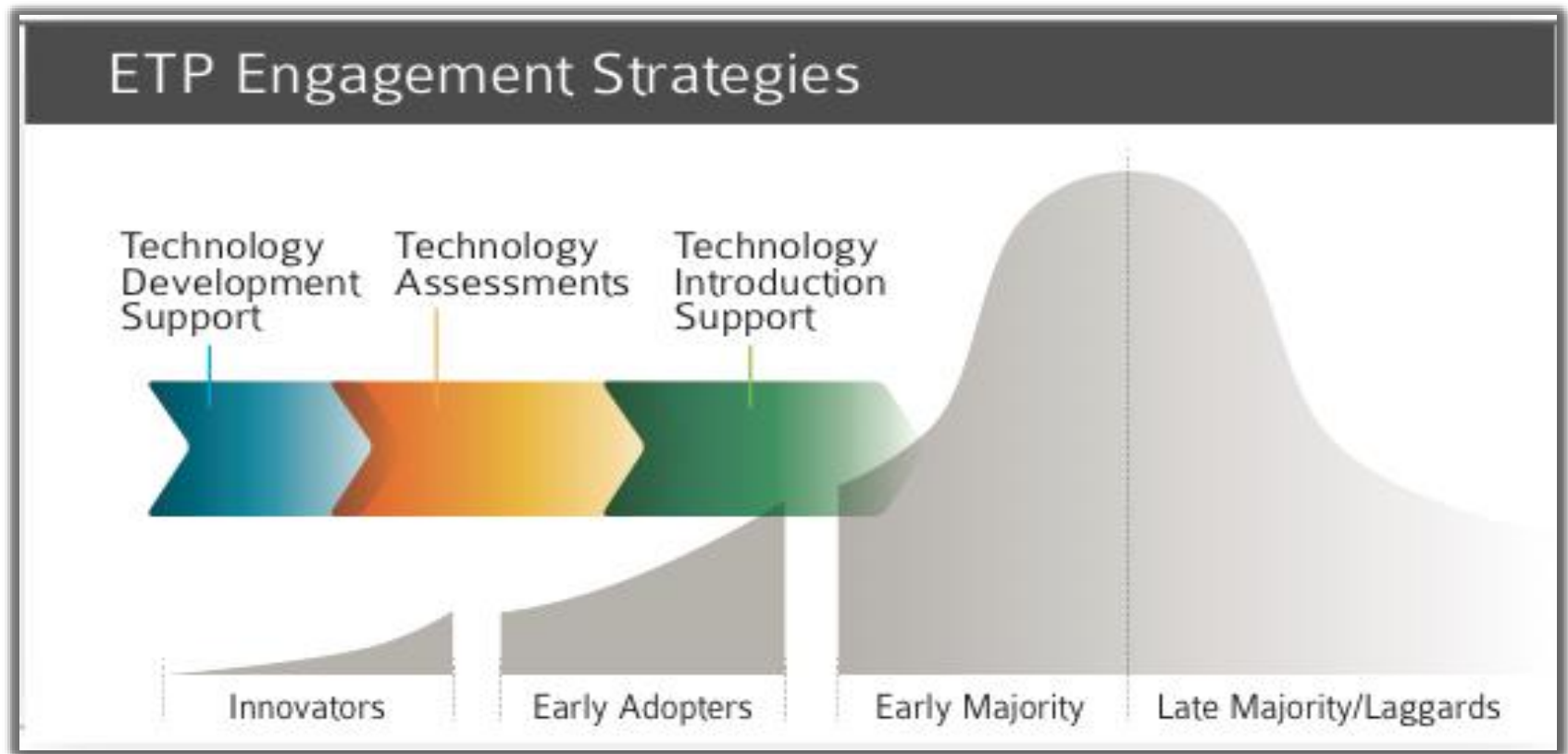
EMERGING TECHNOLOGIES PROGRAM

Technology Influence and Adoption Life Cycle – Conceptual



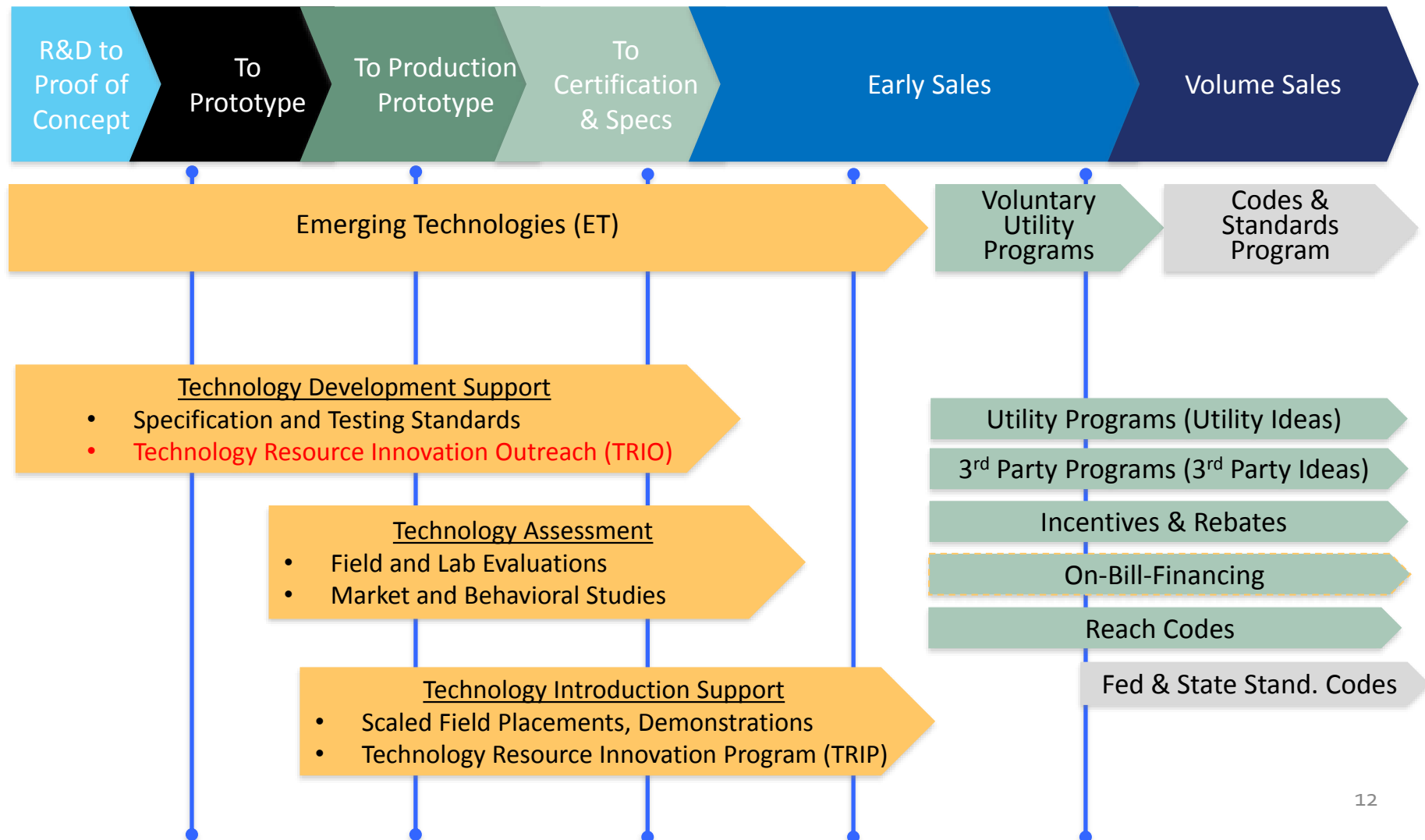
EMERGING TECHNOLOGIES PROGRAM

Adoption Curve Timeline



EMERGING TECHNOLOGIES PROGRAM

The Value Chain



IDEA SUBMISSION PROCESS

- <http://etcc-ca.com/idea-proposal-form>
 - any or all ETCC members
- Submission form includes:
 - product / program / service description
 - desired outcome of a utility review
 - product stage

ETCC OUTREACH FORUMS

- ETCC Quarterly Meetings (SoCal/NoCal)
 - Customer segment focused public outreach events to highlight innovation and trends
- Annual TRIO Symposium & Roundtable
- Annual TRIP
 - Submitted ideas that are feasible for 3rd party self-implementation
- ET Open Forums
 - Outreach to early stage companies collaborating with US DOE First Looks West (FLoW)
 - Innovative companies pitching session - early market availability
- ET Summit (Every two years)
 - ~500 participant event with panels, roundtables, keynotes, etc.

UPCOMING ETCC EVENTS

Date	Event	Location & Host
September 20, 2017	Q3 Meeting: Industrial	Bay Area, PG&E
December 6, 2017	Q4 Meeting: Residential	San Diego, SDG&E
February 13, 2018	Q1 Meeting: Commercial	Los Angeles, SCE

To sign up for the ETCC Insight newsletter, check the box on the sign-in / registration sheet or sign up online at: www.etcc-ca.com/subscribe

Check the ETCC website for updates: <http://www.etcc-ca.com/events>

Emerging Technology TRIO Summit

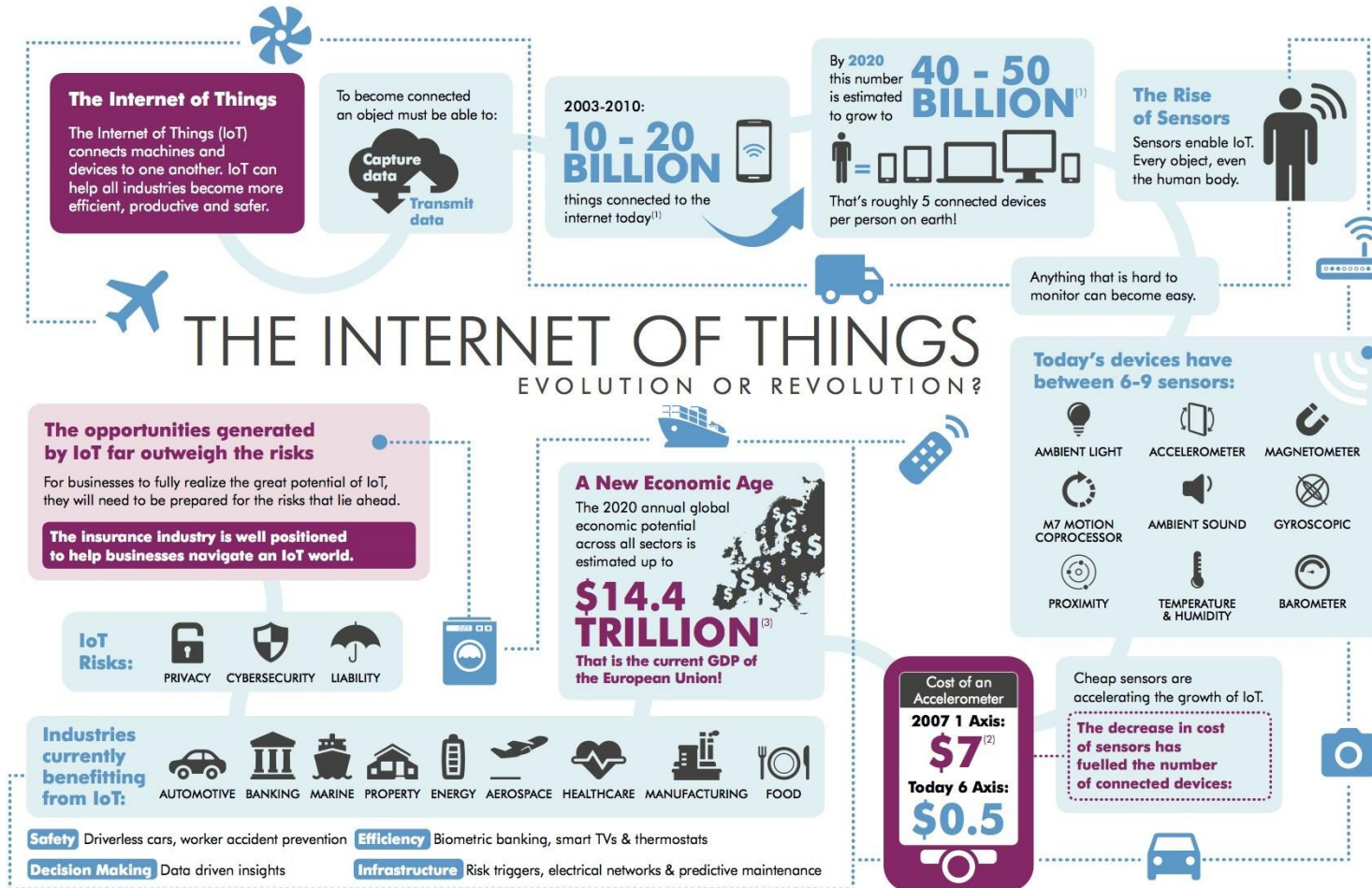
June 9, 2017

Kari Binley-EE Product Innovation



Together, Building
a Better California

Emerging Technology

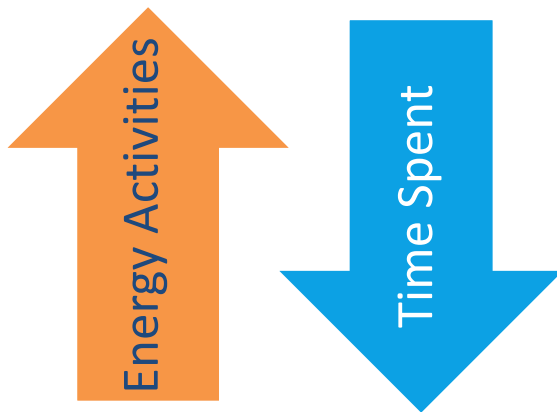


Visit www.aig.com/iot

Source: (1) Dubravac, Shawn. "Digital Destiny." (2) CISCO: The Internet of Things How the Next Evolution of the Internet Is Changing Everything, 2011 (3) RAND: Europe's policy options for a dynamic and trustworthy development of the Internet of Things, American International Group, Inc. (AIG) is a leading global insurance organization serving customers in more than 100 countries and jurisdictions. AIG companies serve commercial, institutional, and individual customers through one of the most extensive worldwide property-casualty networks of any insurer. In addition, AIG companies are leading providers of life insurance and retirement services in the United States. AIG common stock is listed on the New York Stock Exchange and the Tokyo Stock Exchange. Additional information about AIG can be found at www.aig.com | YouTube: www.youtube.com/aig | Twitter: @AIGinsurance | LinkedIn: www.linkedin.com/company/aig AIG is the marketing name for the worldwide property-casualty, life and retirement, and general insurance operations of American International Group, Inc. Products or services may not be available in all countries, and coverage is subject to actual policy language. Non-insurance products and services may be provided by independent third parties. All products and services are written or provided by subsidiaries or affiliates of American International Group, Inc. Certain property-casualty coverages may be provided by a surplus lines insurer. Surplus lines insurers do not generally participate in state guaranty funds, and insureds are therefore not protected by such funds. © American International Group, Inc. All rights reserved.

What it COULD mean for Utilities

Create opportunities for 3rd party providers to deliver grid and customer benefits by enabling the market to aggregate multiple energy benefits through a single interaction with the customer.

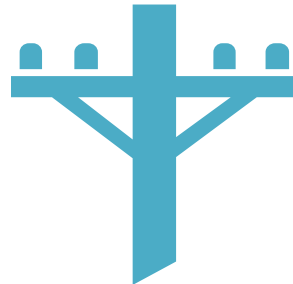


CUSTOMER

- Enable New Functionality
- New Business Models
- Seamless Integration



BUSINESS



- Request Load
- Provide load shape demand

UTILITY

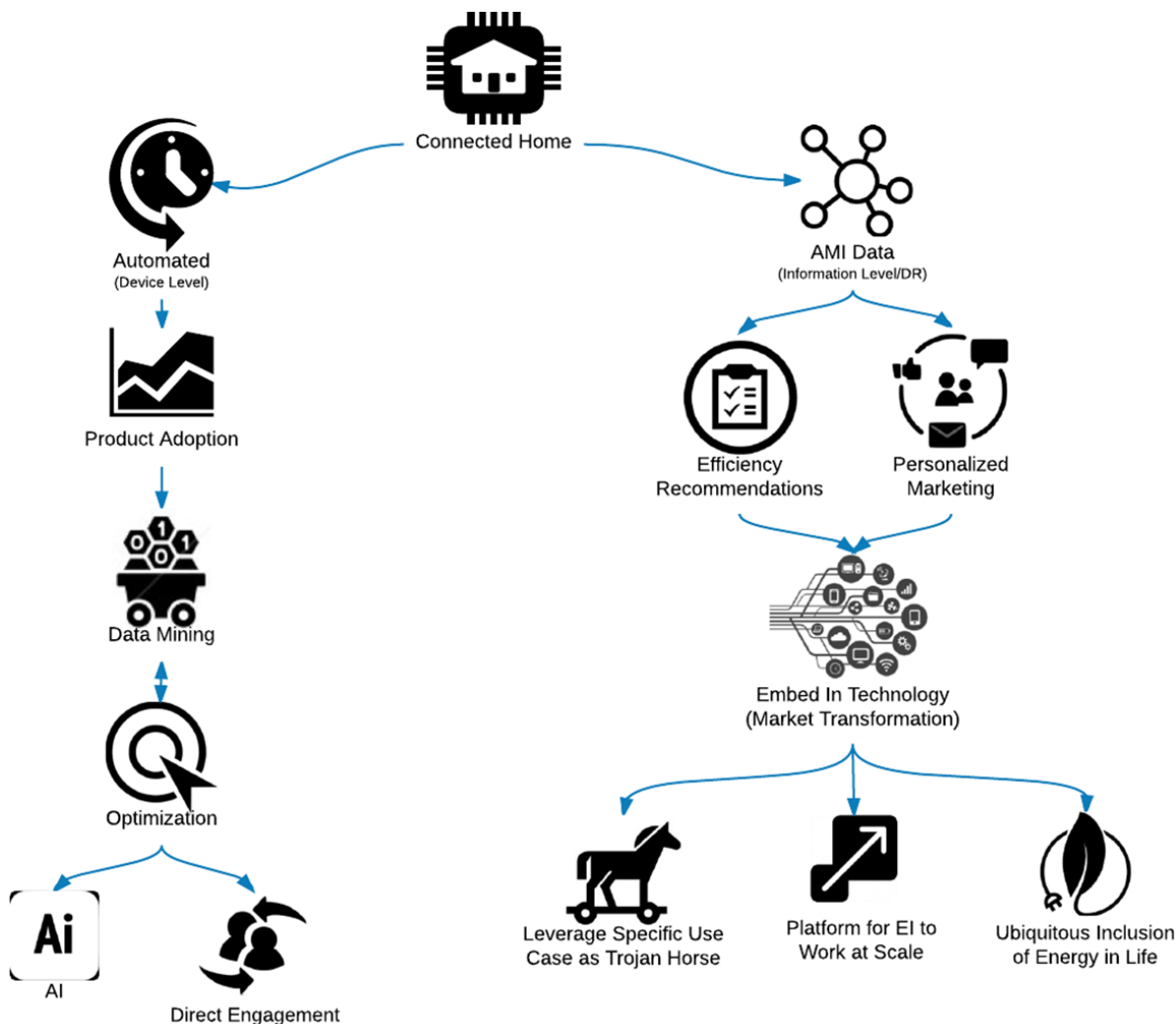
Imagine...



What if there are multiple houses on a single feeder doing the same thing?

- ❖ Lights dim depending on incoming natural light-Optimization for **EE**
- ❖ Customer sets budget (**Rate** engine) and house optimizes end uses to achieve budget
- ❖ Appliances run according to utility's requested load shape (Flatten **Load**)
- ❖ Customer creates preference for house to automatically respond to **DR**
- ❖ Technology recognizes EV charging and suggests **EV rate**.

What it means for Energy Efficiency



Optimization:

Begin testing various capabilities for optimization. Conduct market characterization study for delivery of optimization.

Data Mining:

Support Product adoption and collect data that supports customer use cases, how customers use the products, and the associated energy usage.

Market Enablement-Data:

Support industry needs to leverage AMI data

Customer

Product Adoption
Support the adoption of multiple use cases.

Insert Energy Journey
Control Strategies and Operational Compatibility

Customer Benefit
Bill impact, or increase of customer comfort and security.

Technology at Scale
Proliferation of energy journeys throughout multiple product offerings.

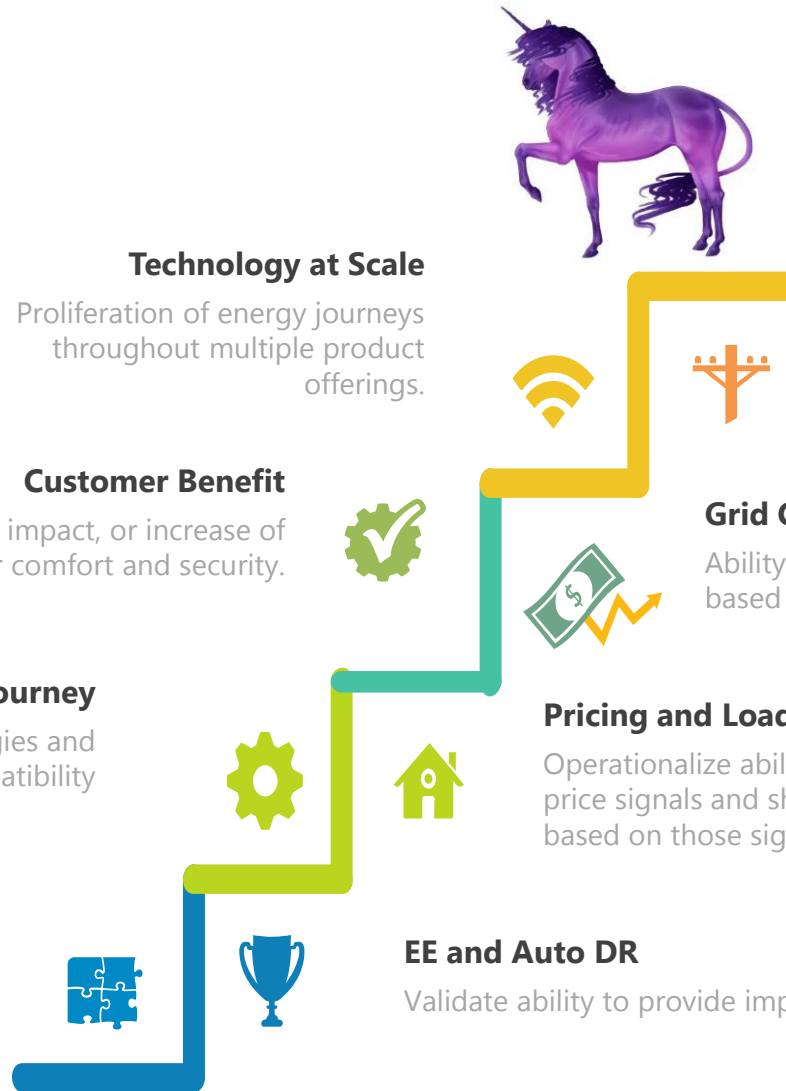
EE and Auto DR
Validate ability to provide impacts

Pricing and Load Shape
Operationalize ability to send price signals and shape load based on those signals

Grid Control
Ability to call for and shape load based on grid needs

Market Based
Create market based system to drive innovation from third parties

Grid





How to Participate

Residential Pay for Performance

- RFP Fall 2017
 - **Partner** to provide comprehensive solutions
- **Partner** with existing P4P implementers

Product Bundle RFP

- RFP Q3 2017
- EE and Auto DR Beyond the Thermostat
- Innovate around Share My Data
- Control Strategies
- Customer Engagement-App

TRIO Symposium

Accessing AMI Data



John Lin
Sr. Product Manager
Stream My Data
Data Governance & Products
john.lin2@pge.com
June 9, 2017

Enable better engagement with users of DATA

- Demand side management of energy (DR / EE) and distributed energy resources (DER)
- 3rd Party DR / EE Aggregators and Programs
- Solution and services leveraging data

Figure 5: Market ecosystem





Why access to AMI data?

Policy/Program Changes

- RPS: 50% Renewables by 2030
- Doubling incremental energy efficiency savings by 2030
- Deemed savings to paying for meter based savings
- IOUs providing incentives for energy management technologies
- Opening up the CAISO wholesale market to 3rd party demand response providers

Technology

- AMI Infrastructure
- Growth of DERs, including solar and EVs
- Rising plug load energy usage in the residential sector
- Growth of smart devices that enable awareness and optimization of energy usage

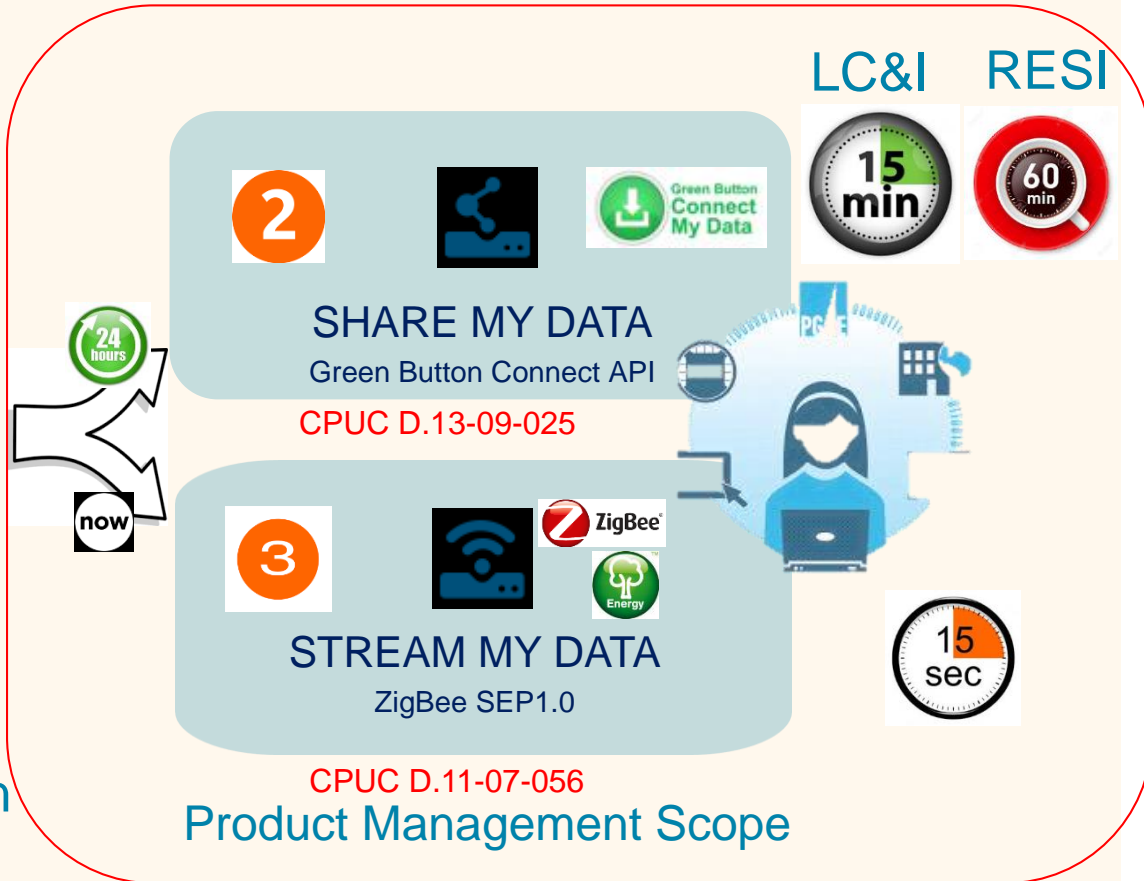
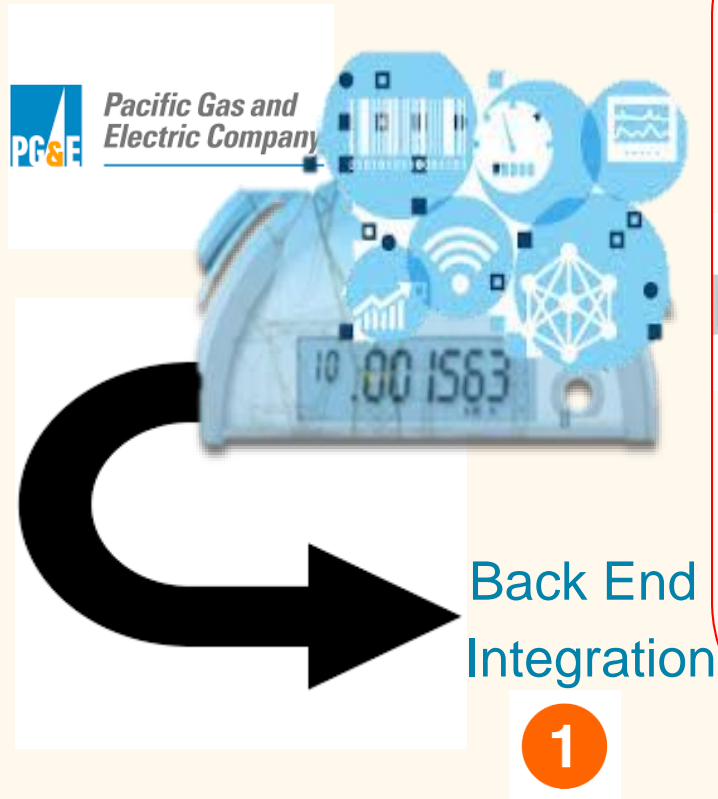
Increasing role of 3Ps

- Moving from 20% to 60% of EE budget being devoted to programs that are proposed, designed, and implemented by third parties
- Growth of 3rd party demand response providers
- Pay-for-Performance Aggregator Program

ENABLED BY ACCESS TO AMI DATA



AMI Data Platforms



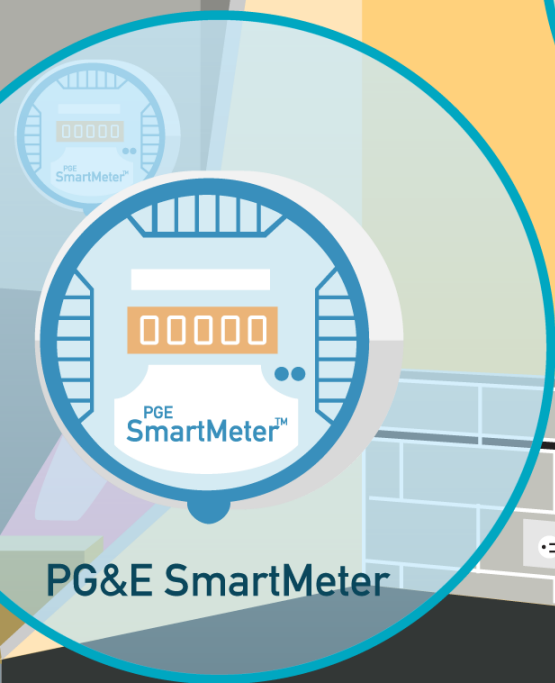
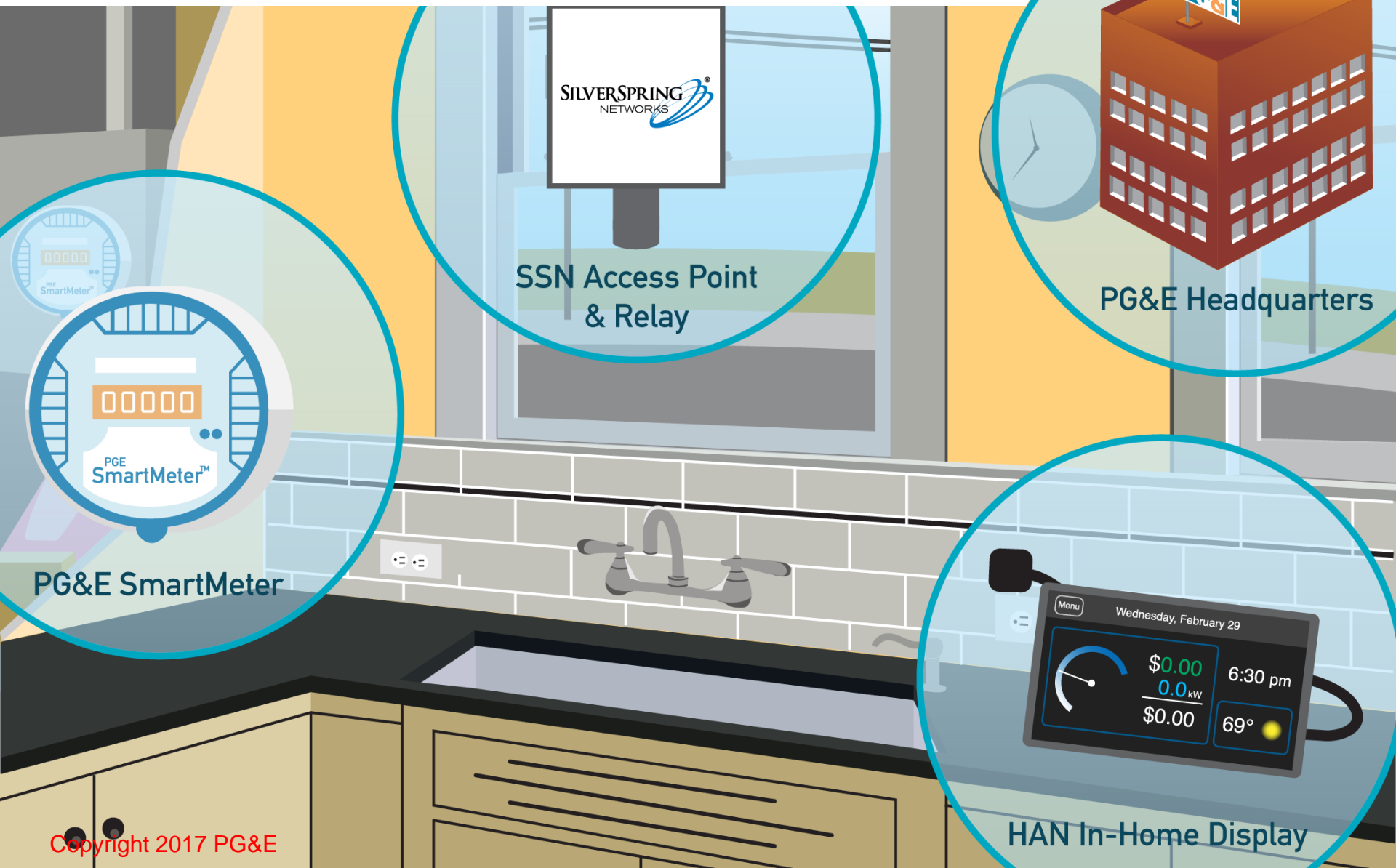


Access Summary

Access Category	Method	Data	Customers	Req. Spec
1) Integration	Back End Project specific	15, 60, daily kwh data 24 hour delay, VEE	All	D.11-07-056
2) Share My Data	API access with OAUTH2 and ESPI data model	15, 60, daily kwh data 24 hour delay, VEE	All	D.13-09-025 NAESB REQ.21 ESPI OpenADE Green Button
3) Stream My Data	ZigBee Smart Energy Profile 1.0 wireless direct connect	15 second KW demand data 0 delay, RAW	Res, SMB, and some LC&I	D.11-07-056 OpenHAN 2.0 ZigBee SEP1.x



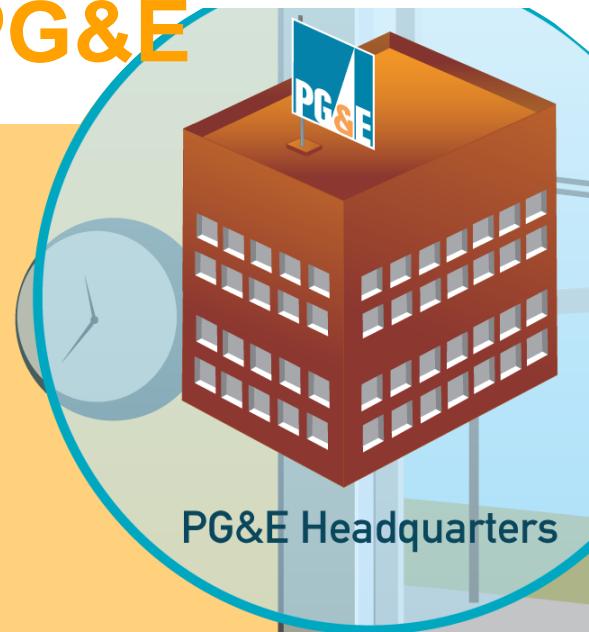
Real-Time Energy Data at PG&E



PG&E SmartMeter



SSN Access Point
& Relay



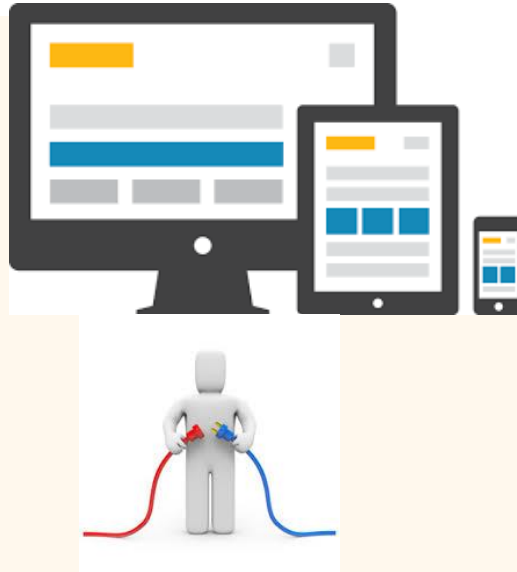
PG&E Headquarters



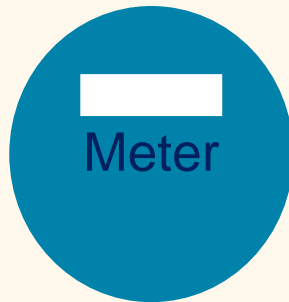
HAN In-Home Display



Provisioning: Bind MAC / Install Code



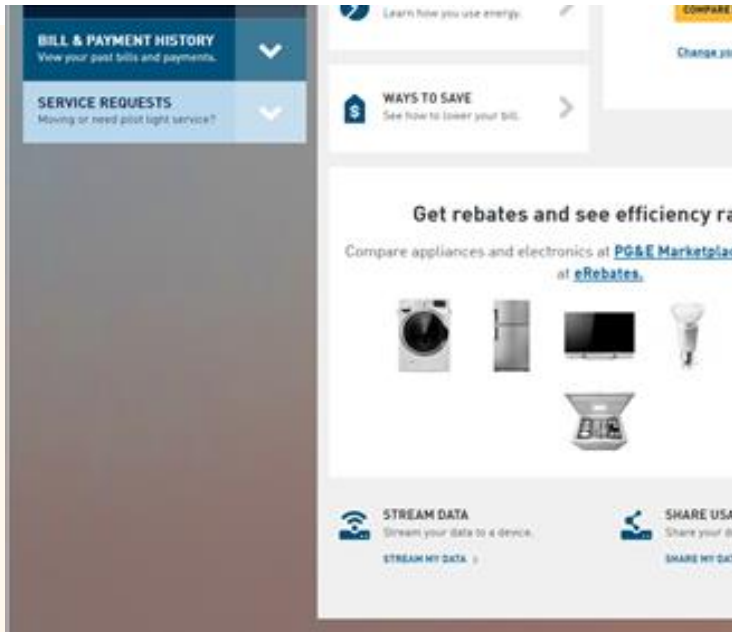
Utility
Account
Meter



ZigBee SEP 1.x
MAC ID
Install Code



Self-Provisioning of HAN devices



Stream My Data Dashboard

Welcome to your Stream My Data dashboard. Stream My Data is a wireless technology that provides information about your electricity in real time.

Before Getting Started

- Confirm you are able to install an energy monitoring device within 75 feet of the SmartMeter™.
- Confirm your PG&E account is eligible for Stream My Data, see below.
- Purchase an energy monitoring device. [View list of PG&E-validated devices.](#)

Confirm Eligibility

- Select your account and address, below, to see a list of eligible SmartMeter™ electric meters.
- Choose **Register New Device**, at the bottom right, to continue.

Choose Account: ?

Choose Address: ?

 CA 941

SmartMeter™ electric meters [1 available] ?			Previous << Page 1 of 1 >> Next	
Meter Badge ID ?	Associated energy monitoring device(s) ?	Actions ?		
1005	5 devices	+ Register New Device		
		Connect	Edit	
	AZTECH	Connect	Edit	
		Connect	Edit	
	Rainforest	Disconnect	Edit	
		Connect	Edit	

[Privacy](#) [Accessibility](#) [About PG&E](#)

© Pacific Gas and Electric Company



Turn on the SmartMeter radio

- 1 Register
- 2 Configure (first energy monitoring device only)
- 3 Connect

1. Register

Enter the information, below, to register your device to the following account, address and SmartMeter™.

Account :

Address :

Meter Badge ID :

[View Stream My Data frequently asked questions.](#)

Important! Make sure that the MAC Address and Install Code are correct, checking for numbers and letters that look similar such as zero or before submitting your registration.

Name Your Device ?

Max of 32 characters

Make & Model ?

Choose One

MAC Address / EUI ?

Install Code ?

By selecting **Next**, you are acknowledging that you have read and agree to our [Terms & Conditions](#).

[Cancel](#)

[Privacy](#) [Accessibility](#) [About PG&E](#)

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Together, Building
a Better California

[Contact Us](#)

[Sign Out](#)



< My Account

Register

Configure

Connect

Success

Step 3: Connecting your Energy Monitoring Device.

(Step 2: The configure step was skipped because the meter is already configured.)



Please wait while your device is being connected to the SmartMeter™. This may take up to four attempts. Each attempt may last up to four and a half minutes. Please do not navigate away from this screen.

Device Information:

Name Your Device: AZTECH

Make & Model: Aztech IHD

MAC Address: 9:44:13

Install Code: 88

Meter Information:

Account:

Address:

Meter Badge ID:

Waiting for www.pge.com...

Feedback



SCE Self-provisioning I

Step 1

Log into your My Account at sce.com and click on the **Device Management** tab.

My Account > My Account

Profile Management **Device Management**

> My Account Home > Overview

My Account Savings Center Usage

Overview Understand My Bill

Balance Due as of Mar 12, 2013 Projected Next Bill

Step 2

From the Device Management screen: Enter your **Device ID** and click **Next**.

The Device ID is also known as the MAC Address or EUI64 Address. It is usually found on the back of the device or the outside of the original packaging.

My Account Profile Management **Device Management**

Home and Business Area Networks

Registering a ZigBee-enabled device to your smart meter can enable you to:

- View your real-time energy usage data
- Access daily refreshed energy cost and price information
- Enroll in new programs and services which help you reduce your energy use and may reduce your usage and energy cost

We're here to help! You can learn more about device registration and programs by visiting our FAQ page.

Customer Name: RIVAS, MANUEL Service Account: 3-007-0590-03

Address: 8045 ROCK RD. Name: DOMESTIC

PICO RIVERA CA 90620

Please complete the required fields below to submit your device registration request. If you are registering a new device, you must enter the device ID and click Search.

Please Note: To ensure there is proper communication between the device and the smart meter, it is recommended that the distance between the meter and the HAN device not exceed 75 feet.

Step 1: Enter Device Information.

Meter: 222813-139030

Device ID: 12345678901234567890

Next

Step 3

If your device information is already filled in, proceed to **Step 4**.

Otherwise, enter **Install Code** and select **Device Type, Manufacturer, and Model****.

** If your device is not listed in the dropdown menu, you can manually type in your Device Type, Manufacturer, and Model.

My Account Profile Management **Device Management**

Home and Business Area Networks

Registering a ZigBee-enabled device to your smart meter can enable you to:

- View your real-time energy usage data
- Access daily refreshed energy cost and price information
- Enroll in new programs and services which help you reduce your energy use and may reduce your usage and energy cost

We're here to help! You can learn more about device registration and programs by visiting our FAQ page.

Customer Name: RIVAS, MANUEL Service Account: 3-007-0590-03

Address: PICO RIVERA CA 90620 Name: DOMESTIC

Please complete the required fields below to submit your device registration request. If you are registering a new device, you must enter the device ID and click Search.

Please Note: To ensure there is proper communication between the device and the smart meter, it is recommended that the distance between the meter and the HAN device not exceed 75 feet.

Step 1: Enter Device Information.

Meter: 222813-139030

Device ID: 12345678901234567890

Step 2: Additional Device Information.

Install Code: 1234567890

Device Type: ZigBee

Manufacturer: X

Model: X



SCE Self-provisioning II

Step 4

Read the **Terms and Conditions** of Device Registration. If agreeable, please click the box "I agree to the Terms and Conditions of Device Registration to the SCE smart meter."

After checking the box agreeing to the Terms and Conditions, click **Register Device** to activate registration of your device.

I agree to the Terms and Conditions of Device Registration to the SCE smart meter.

Back Clear Selection Register Device

Step 5

Confirmation message will appear. Then, select **Return to Device Registration and Program Enrollment**.

Home and Business Area Networks

Have questions about devices and programs? Visit our FAQ.

Customer Name: RIVAS, RAHUEL Service Account: 3-007-0009-02
Address: 3042 RED RD. RIVERA CA 94555 Email: 00000000

Click here to return to device registration request has been received and is in progress. Please ensure that your device is turned on, in range for registration and is powered within 10 feet of the meter. The registration process should be completed within 24 hours.

Return to Device Registration & Program Enrollment

Step 6

You should now be back to the Device Management tab. Scroll to the bottom of the page to **Program Enrollment**.

Enroll in HAN Programs one at a time by completing steps 6-8 for each. Click on either:

- (1) **Save Power Day Incentive Plus** or
 - (2) **Daily Cost Snapshot**
- depending on which program you would like to enroll in.

Program Enrollment

To enroll in a program, select the radio button of the eligible program and click Enroll. You may only enroll in one program at a time.

HAN Program	Enrollment Status	Status Date
Save Power Day Incentive Plus	Unenrollment Pending	06/26/2013
Daily Cost Snapshot	Unenrolled	06/26/2013

Enroll

Step 7

Click **Enroll**.

Program Enrollment

To enroll in a program, select the radio button of the eligible program and click Enroll. You may only enroll in one program at a time.

HAN Program	Enrollment Status	Status Date
Save Power Day Incentive Plus	Unenrollment Pending	06/26/2013
Daily Cost Snapshot	Unenrolled	06/26/2013

Enroll

Step 8

The program enrollment confirmation message will appear.

NOTE: To enroll in more than one program, select **Return to Device Registration and Program Enrollment**, and repeat steps 6-8.

Home and Business Area Networks

Registering a HAN requires enrollment of your smart meter controller (scc).

- View your meter and smart meter controller (scc).
- Review the enrollment status of your smart meter controller (scc).
- Enroll in new programs and services which help you understand and manage your energy use and may reduce your energy and energy cost.

We're here to help! The customer team about device registration and programs by visiting our FAQ page.

Customer Name: RIVAS, RAHUEL Service Account: 3-007-0009-02
Address: 3042 RED RD. RIVERA CA 94555 Email: 00000000

Click here to return to device registration request has been received and is in progress. Please ensure that your device is turned on, in range for registration and is powered within 10 feet of the meter. The registration process should be completed within 24 hours.

Return to Device Registration & Program Enrollment



SDG&E Self-provisioning Step 1

Log into My Account

- If the customer does not have an account they can create one.

CEIVA Entryway x Welcome to My Account x

Sempre Energy [US] | <https://myaccount.sdge.com/security/signin.fc?TYPE=33554433&REALMOID=06-000453b5-00eb-1448-92e2-2455ac12900c&GUID=&SMAUTHREASON=0&METHOD=GET&S...>

Apps Getting Started New Tab Entryway - PROD CEIVA - QA CEIVA - DEV

SDGE
A Sempra Energy company

[SDGE.com](#) | [Contact Us](#)

Welcome to My Account

An easy and secure way to manage your account online.

Log In

User ID:

Password:

Password is case sensitive

☐ Remember my User ID

[Log In >](#)


Please remember to log out once you're finished.

[Forgot User ID or Password?](#)

New to My Account?

With My Account, you can pay bills online, analyze your bill, view your energy use and sign up for paperless billing.

[Register to Begin >](#)





SDG&E Self-provisioning Step 2

Choose the “My Energy” tab

- Then click on “Provision/De-provision HAN Devices”
- Agree to the terms and conditions and click next






* Terms and Conditions:

Terms and Conditions

Customer hereby acknowledges the receipt of the [SDG&E Home and Business Area Network Customer Guide published in www.sdge.com/han] (the "Customer Guide"). Without limiting the generality of the [MyAccount and General Website T's and C's] and the Customer Guide, each incorporated herein by this reference, Customer acknowledges and agrees that:

☒ By clicking the checkbox, you acknowledge that you have fully reviewed and agree to the terms and conditions.

[Cancel](#) [Next >](#)

 [Terms & Conditions](#) [Privacy Policy](#) [Privacy Notice](#) [About Accessibility](#) [Contact Us](#)    



SDG&E Self-provisioning Step 3

The site will then take you to the Ceiva portal

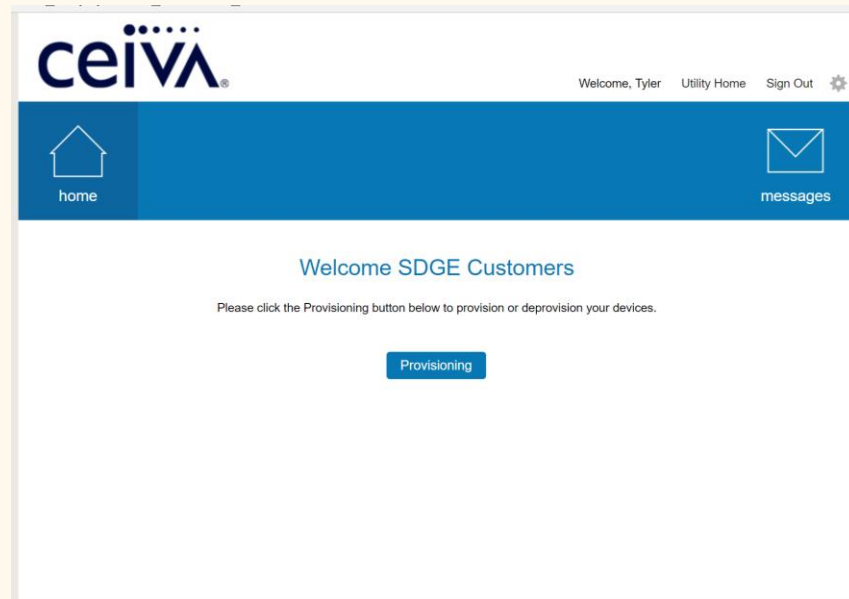
Confirmation

By clicking OK, you will be logged out of My Account and transfer directly to the website of CEIVA which is not part of SDG&E.

CEIVA is the authorized contractor for provisioning HAN devices. The Terms and Conditions and Privacy Policy on that website will apply.

Cancel

OK

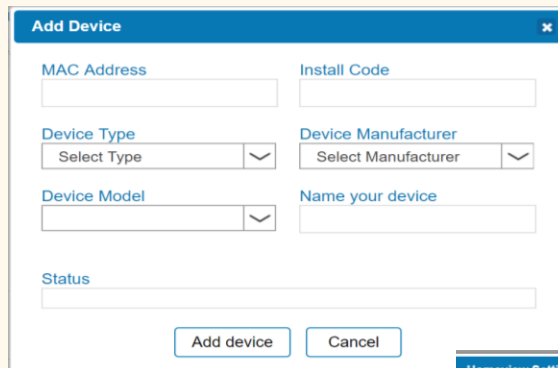




SDG&E Self-provisioning Step 4

You then click on the “Add/Remove Devices” tab and click on Add Device to add the device information

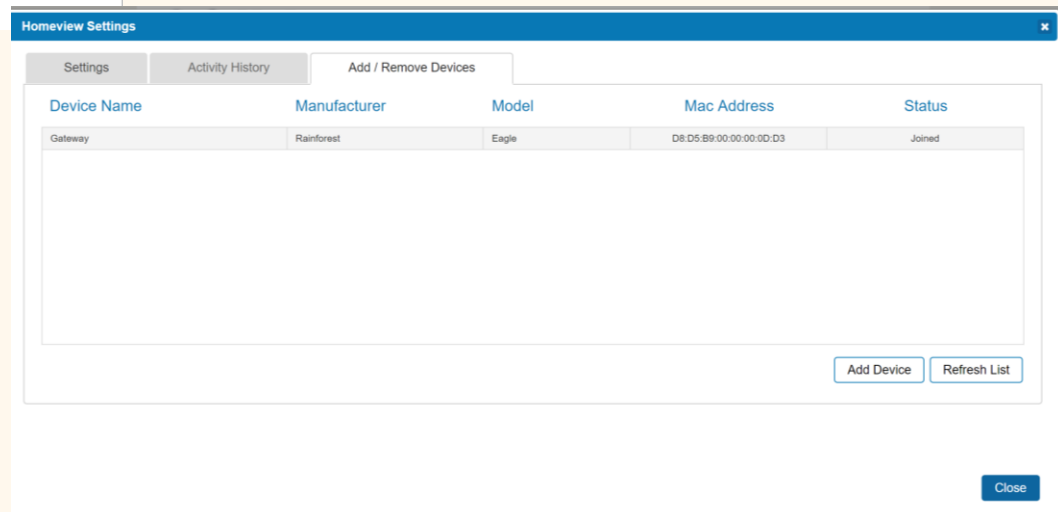
Once complete it will show up in the table with the current status.



The "Add Device" dialog box contains the following fields:

- MAC Address:
- Install Code:
- Device Type:
- Device Manufacturer:
- Device Model:
- Name your device:
- Status:

Buttons:



The "Homeview Settings" window shows the "Add / Remove Devices" tab. It contains a table with the following data:

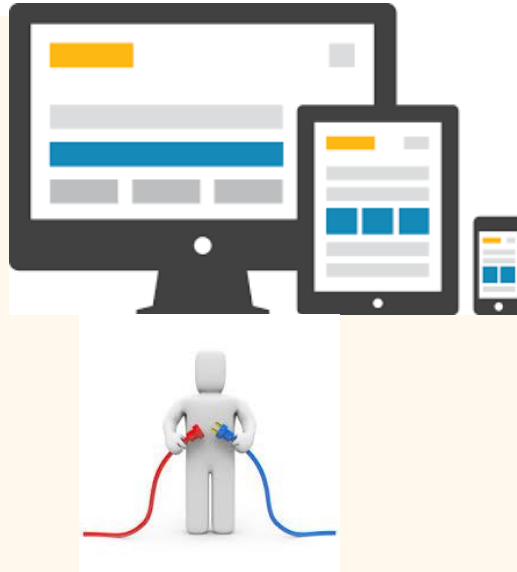
Device Name	Manufacturer	Model	Mac Address	Status
Gateway	Rainforest	Eagle	D8:D5:B9:00:00:00:D3	Joined

Buttons:

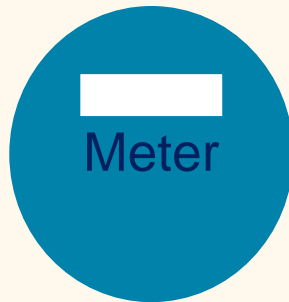
Close button:



Individual Data Access Authorization



Utility
Account
Meter



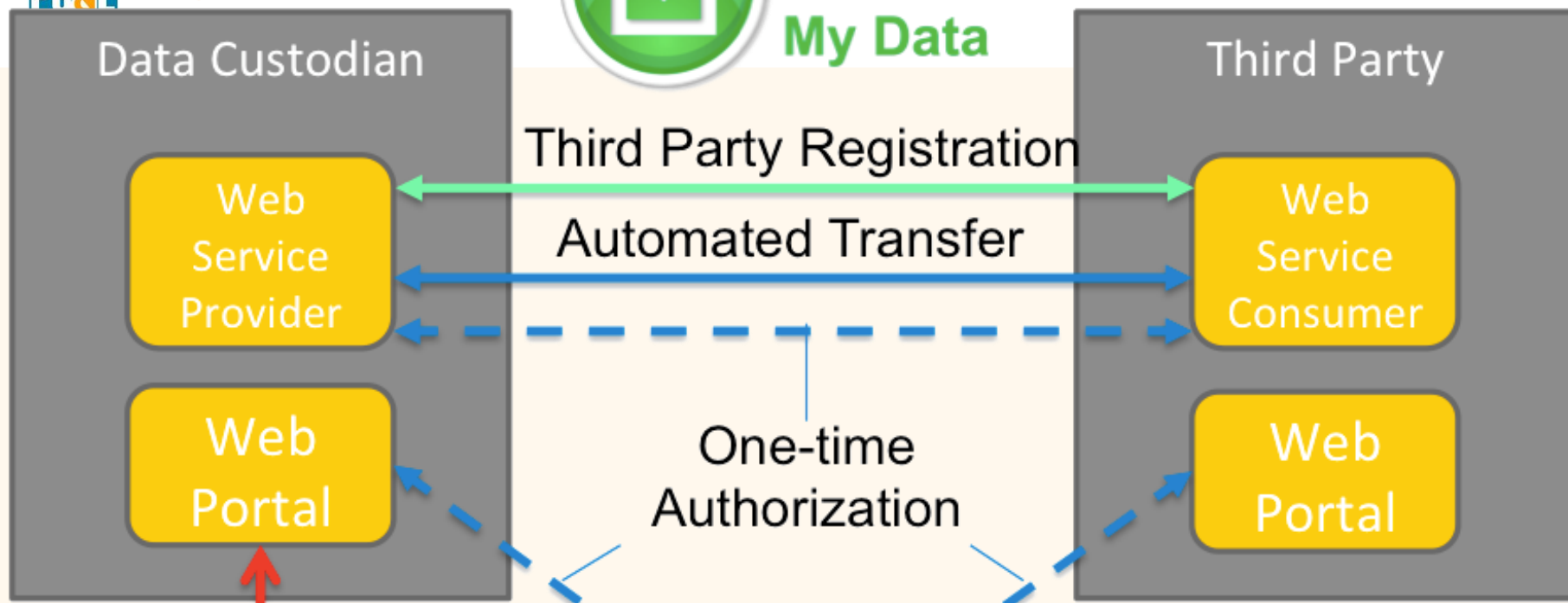
CCA
Energy Services
DR Aggregators
Solar Companies



OAuth2



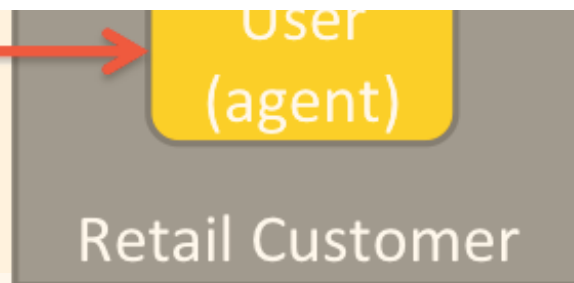
Green Button
Connect
My Data



The Green Button API provides flexible access to Energy Usage Information through a set of RESTful interfaces. Green Button represents energy usage information as a set of resources as defined in the ESPI standard and uses RESTful APIs to provide standard access to information for metered resources such as electricity, gas, and water. These interfaces may be used to access and manage the metered data by using atom+xml based streams of Energy Usage Information (EUI) encapsulated within an Atom Feed.



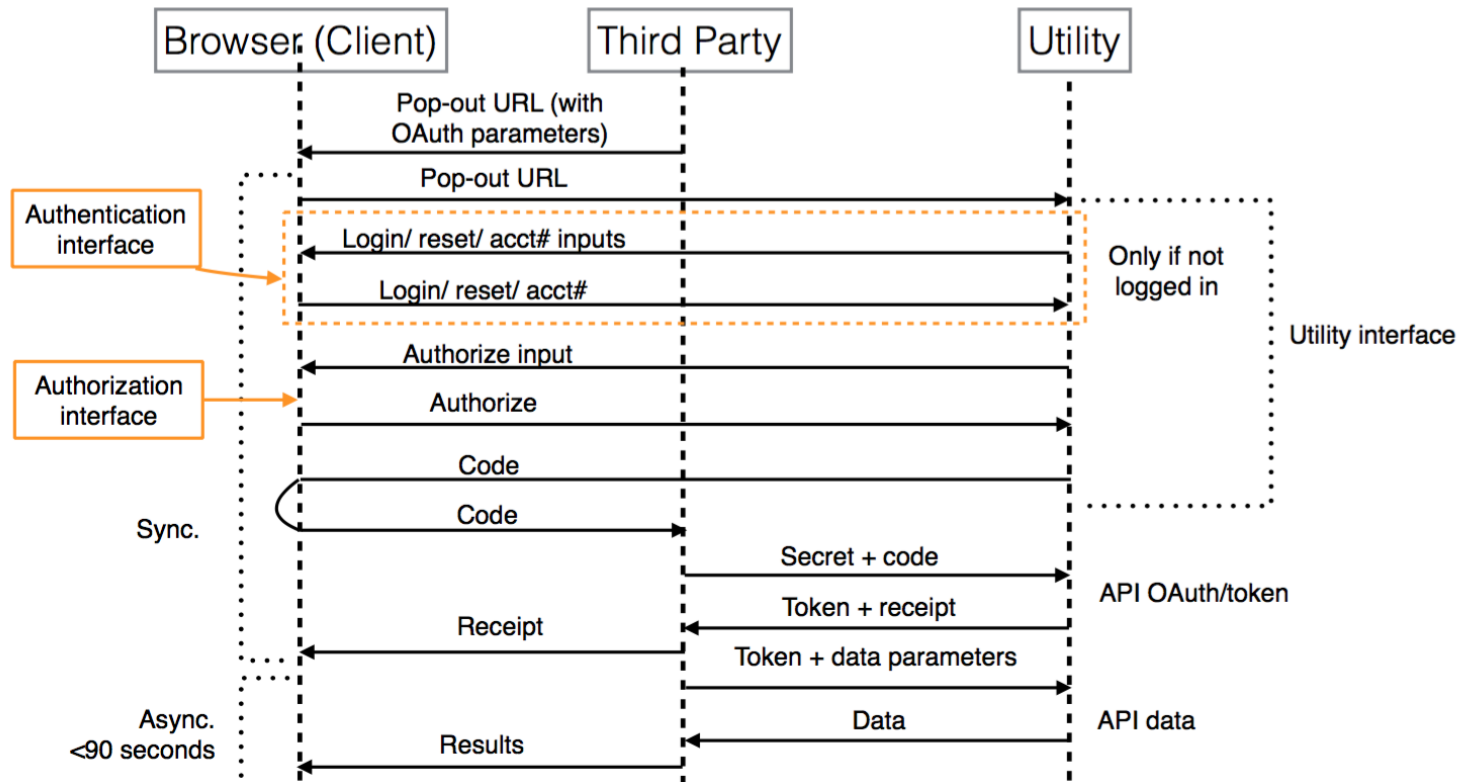
Green Button
Download
My Data





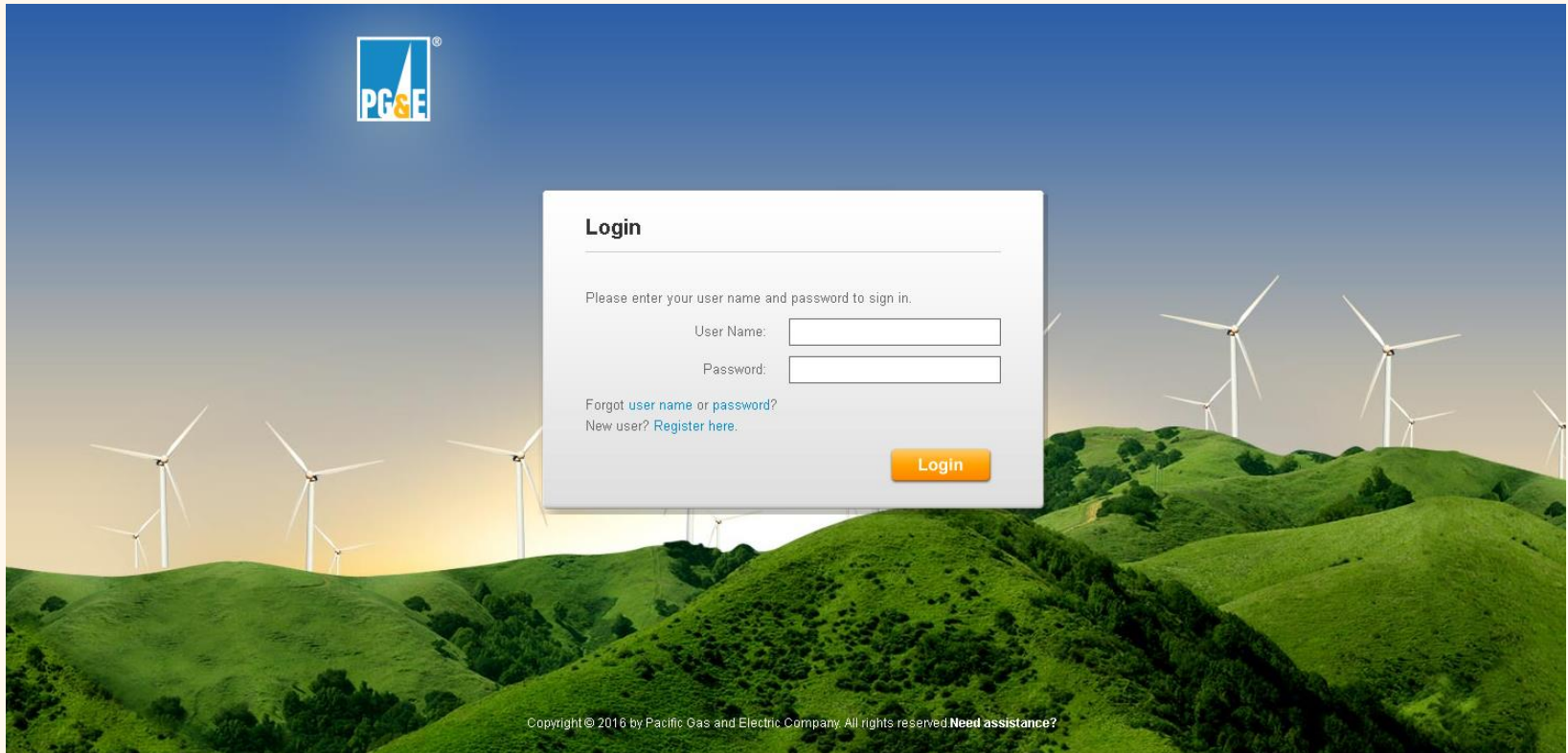
Example from Click-thru Rule 24

Pop Out or iFrame (OAuth) - Pop-out to Utility website, Utility authenticates - either via login, account # or cookie





OAuth 2.0 for Customer Authentication

A screenshot of the PG&E login page. The background is a scenic image of green rolling hills with several white wind turbines under a clear blue sky. In the top left corner, the PG&E logo is displayed. Centered on the page is a white login form with a grey border. The form has a title 'Login' and a subtitle 'Please enter your user name and password to sign in.' Below this are two input fields: 'User Name:' and 'Password:'. To the left of the 'Password:' field, there are two links: 'Forgot user name or password?' and 'New user? Register here.' At the bottom right of the form is an orange 'Login' button. At the bottom of the page, there is a small copyright notice: 'Copyright © 2016 by Pacific Gas and Electric Company. All rights reserved. Need assistance?'

Login

Please enter your user name and password to sign in.

User Name:

Password:

Forgot [user name](#) or [password](#)?
New user? [Register here](#).

Login

Copyright © 2016 by Pacific Gas and Electric Company. All rights reserved. [Need assistance?](#)



Implementation

[Return to My Energy](#) | [Logged in as UserName](#) | [Contact Us](#) | [Logout](#)

Share My Data

powered by

Step 1: Authorize Access | **Step 2: Confirm Authorization**

Authorize Solar Company, Inc. to Access Your Data

Customer Information

Customer Name:

My Energy User Name:

Customer Email:

Authorize all requested informational data elements for all Accounts and Service IDs listed below

Quick authorization

Share information for all accounts, review and submit.

Continue

Select Shared Information

Solar Company, Inc. is requesting to access the following:

☐ Select All

☐ **Basic Information**
Includes name and service address

☐ **Billing Information**
Includes billing records, billing history, billing and meter read dates, rate schedule, and voltage class

☐ **Account Information**
Includes account number(s), service agreement number(s), and service start date

☐ **Usage Information**
Includes Electric and/or Gas usage data used for bill calculations, and when available, interval usage and interval time-of-use indicators

Select Service IDs

Use the blue triangle to expand an account and see all Service IDs. To authorize a new Service ID check the box next to it.
Note: Most recent Service IDs may not be reflected. Please allow up to 24 hours for updated Service IDs to be displayed.

Filter

☐ Select all Service IDs for All Accounts

<input type="checkbox"/> Jae Tru	Account UUID: 34573			
Address	Service ID	Service UUID	Service	
<input type="checkbox"/> 210096 Loop	336	904	23456	Electric
<input type="checkbox"/> 210096 Loop	336	905	23457	Gas

Set Date Range

Please select how long you authorize the company ongoing access to your daily usage data.
Note: The company will automatically have access to up to 24 months of historical data prior to today's date.

Ongoing Usage Access Until: ☒ Indefinitely ☐ 06/11/2017

[Cancel](#) [Next](#)



Implementation

[Return to My Energy](#) | [Logged in as UserName](#) | [Contact Us](#) | [Logout](#)

Share My Data

powered by

Step 1: Authorize Access

Step 2: Confirm Authorization

Authorize Solar Company, Inc. - Review & Submit

Review your information below, and make any necessary edits. Once you agree to PG&E's Terms & Conditions and submit your request, we'll authorize access to your data. You may change your authorization at any time by logging into My Energy.

Customer Information

Customer Name: Jae [REDACTED]

My Energy User Name: Reg [REDACTED]

Customer Email: jdk@ [REDACTED].com

Authorized Shared Information

You are allowing Solar Company, Inc. to access the following:

Basic Information Includes name and service address	Billing Information Includes billing records, billing history, billing and meter read dates, rate schedule, and voltage class	Account Information Includes account number(s), service agreement number(s), and service start date	Usage Information Includes Electric and/or Gas usage data used for bill calculations, and when available, interval usage and interval time-of-use indicators
---	---	---	--

Authorized Service IDs

▼ Jae [REDACTED], Account # 0123456789-1 - Account UUID: 34573

Address	Service ID	Service UUID	Service
21008 [REDACTED]	2345678904	23456	Electric
21008 [REDACTED]	2345678905	23457	Gas

Authorized Date Range

Historical Usage Access: Last 24 months

Ongoing Usage Access Until: Indefinitely

Share My Data Authorization and Agreement *Indicates required field

This is a legally binding agreement. Please read carefully.

The purpose of this form is to allow you to exercise your right to choose whether to disclose your personal electricity and gas usage data, total billed usage and monthly billing data to a Company and grant permission to the Company to investigate missing or potentially incorrect metering data on your account(s). Once you authorize a Company to access your personal information, you are responsible for ensuring that the Company safeguards the personal information from further disclosure without your consent. By checking the box below, you attest that you have read, understood and authorize PG&E to release the requested information on your account(s) to the designated Company, and you hereby release, hold harmless and indemnify PG&E from any liability, claims, demands, causes of action, damages or expenses resulting from:

1. Any release of information to your designated Company pursuant to this Authorization and Agreement
2. The unauthorized use of this information by the designated Company
3. Any actions taken by the Company pursuant to this Authorization and Agreement

You also understand that you may cancel this authorization at any time by returning to My Energy. Finally, you consent to receive transactional emails regarding this authorization.

☐ * I authorize the designated Company to access my personal energy usage data from the designated accounts in accordance with these terms and conditions.

Cancel

Edit

Submit



Implementation

Authorize Solar Company, Inc. - Review & Submit

Review your information below, and make any necessary edits. Once you agree to the Terms & Conditions and submit your request, we'll authorize access to your data. You may change your authorization at any time by logging into My Energy.

Customer Information

Customer Name	Jas. Truesdell
My Energy User Name	Regency2
Customer Email	jtk@gn


Authorized Shared Information

You are allowing Solar Company, Inc. to access the following information:

Basic Information Includes name and service address	Usage Information Includes billing records, usage history, rating and meter read data, rate schedule, and voltage class	Usage Information Includes account number(s) and service agreement number(s)	Usage Information Includes Electric and/or Gas usage data used for bill calculations, interval usage, and manual time of use initiatives
---	---	--	--

Authorized Service ID(s)

Jas. Truesdell - Account # 0123456789-1 - Account UUID: 34573



Authorization Confirmed!

You have granted Solar Company, Inc. access to your data.

To complete the authorization process, click **OK** to proceed to their website.

OK

After confirmation -- Share My Data uses Restful APIs for exchange of data



Links to useful resources

Some useful links

<http://www.pge.com/data>

<http://www.pge.com/ShareMyData>

<http://www.pge.com/streammydata>

<http://www.greenbuttonalliance.org/>

https://www.naesb.org/ESPI_Standards.asp

PG&E Data Platform contact

hanprogram@pge.com

sharemydata@pge.com

Click-thru DRP Registration

<http://www.cpuc.ca.gov/General.aspx?id=8314>



NOTES

Share My Data:	>100 3 rd party registrations >60,000 SAID
Stream My Data:	>5,000 provisioned available to all SmartMeter customers
Other services:	
Download My Data/ Green Button Download Building Benchmarking	>10K per month >14K requests since 2011

Residential Pay-for-Performance Enrollment Period 2

Leif L. Magnuson, Adam Scheer, Al Gaspari
PG&E Customer Energy Solutions



P4P Summary

- PG&E is launching California's first Residential Pay for Performance Program in June, 2017 (P4P Phase I)
- Meter-based analysis determines savings and incentive payments
- P4P provides much more freedom for program design and delivery
- Phase II of PG&E's Residential P4P program set to launch in early 2018 (RFP: Q4 2018)
- We anticipate selecting 2 – 4 additional savings “aggregators”

P4P Phase I and II Comparison

P4P	Phase I	Phase II
Context	High Opportunity Program or Project (HOPP) enabled by AB802	Key program model proposed in Business Plan to enable 3P program design and delivery
Size	~5% of Res portfolio	TBD
Incentives	Paid to aggregators after determination of year 1 and year 2 pre/post metered savings	Payments tied to metered savings. Timing of payments TBD
Objective	Deliver cost effective savings by any means possible	Deliver cost effective savings and achieve Key Business Plan goals

PG&E Residential Business Plan

Residential Sector Vision:

“Deliver a portfolio that will achieve deep energy savings and robust grid benefits through focused customer engagement, data driven programs that leverage market actors, and strong partnerships. We will strive to enable programs that are targeted for greater impact and coupled with financing options to deliver customers savings that show up at the meter.”

PG&E Residential Business Plan

Key Residential Sector Priorities for P4P:

- Align EE savings with high procurement costs and grid needs
- Drive deep retrofits
- Optimize TRC and PAC
- Incorporate financing offerings into programs to reduce up-front costs for customers and better utilize incentive dollars
- Address building shell and HVAC energy waste with high-quality, comprehensive offerings for customers
- Target customers with high savings potential via data analytics
- Accelerate adoption of Home Energy Management Systems and connected homes

What is PG&E Looking For?

In the Phase II P4P bid, PG&E is likely to reward:

- Cost effective savings observable at the meter
- Scalable program models
- Innovative approaches
- Effective partnerships
- Strategies that address key Business Plan and policy goals
- Excellent service for our customers

P4P Advantage: Flexibility!

Unparalleled flexibility to pursue a range of improvements and activities over time to achieve residents' savings goals. Savings are not defined by a deemed estimates and interventions are not limited to workpaper-approved measures.

Retrofit

- Whole House
- HVAC
- Lighting
- Outdoor/Pool Deck

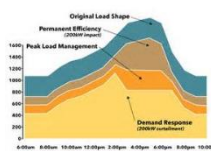
Operational

- Smart Thermostats
- Home Energy Management Systems
- Smart Appliances

Behavioral

- Homeowner Incentives
- Demand Response
- Other specially designed programs

Energy Performance Contracting

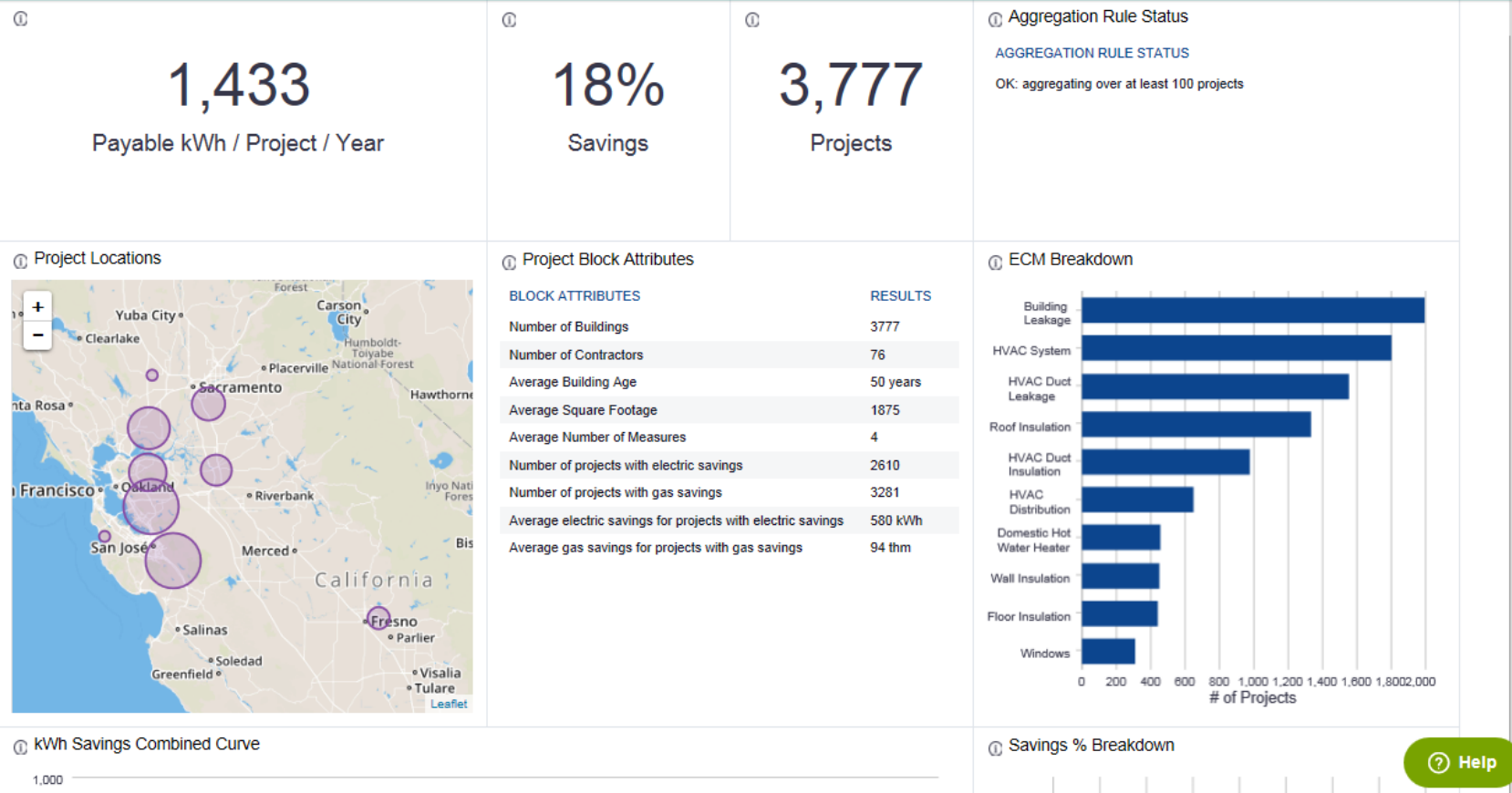


Tracking Savings

[Change Password](#) [Logout](#)

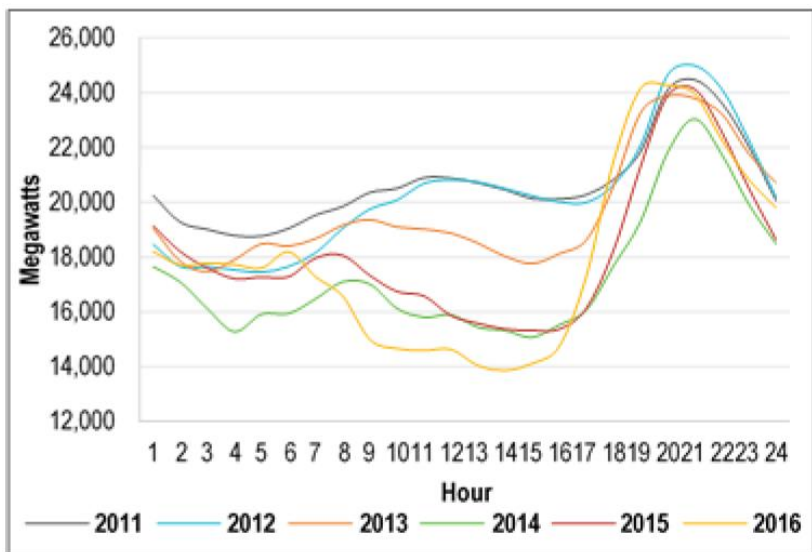
Advanced Home Upgrade Dashboard

FILTERS (0) ▾ No filters selected



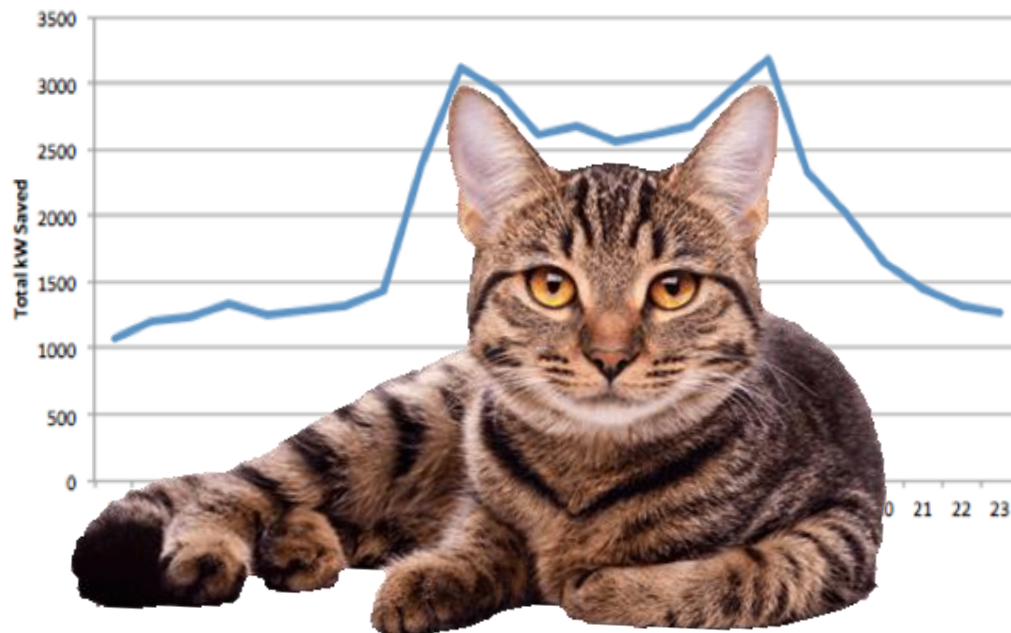
Looking toward the Future: Targeting the Most Valuable Savings

Duck Curve



Lowest March Daytime Net Load from: *Revisiting the California Duck Curve: An Exploration of Its Existence, Impact, and Migration Potential*. ScottMadden Management Consultants, 2016.

Advanced Home Upgrade Savings Curve



Savings from 5 – 9 pm tend to be most valuable.

Next Steps

PG&E markets P4P approach to potential aggregators – Summer 2017



PG&E Issues Contract Opportunity Announcement (Sep/Oct 2017)



PG&E Issues RFP (October/November 2017)



Bidders provide projected energy savings, disclose their target market and propose interventions



PG&E selects finalists and executes “Power Savings Agreements” in Q1/Q2 2018

Power Savings Agreement Structure

PG&E Issues RFP with ~\$XM available which will be paid based on savings at the meter (Bidder use PG&E's Levelized Cost Calculator to determine \$/MMBTU bid)

Bidders specify interventions and customer and savings targets, PG&E hopes to select 2-4 winning bidders

PG&E establishes baselines for each designated participant (customer) and tracks weather adjusted savings via CalTRACK

CalTRACK will compare the customers who participated to customers that did not (comparison group) to ascertain program effects

CalTRACK will display aggregated savings by bidder on a publically accessible dashboard. Bidders will be paid annually on results achieved up to maximum approved

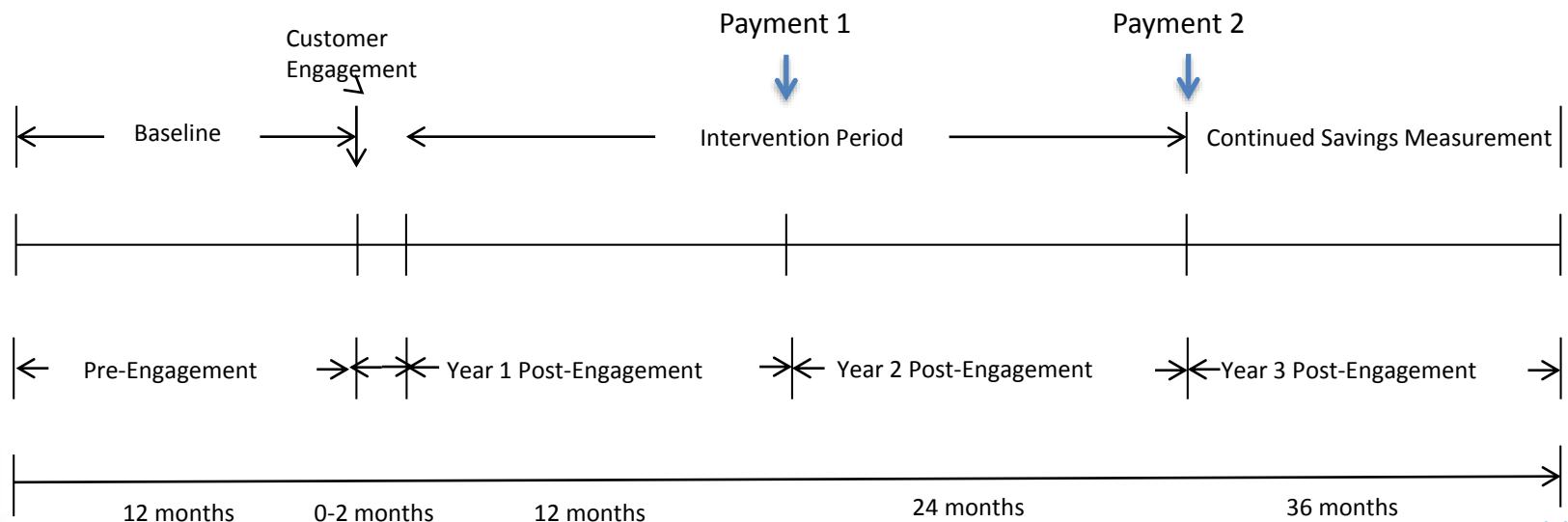
Questions

Appendix

Payable Energy Savings

- Pre/post analytics
- Savings = pre usage billing data minus post (weather normalized)
- Each participating home is analyzed then summed together to determine portfolio performance. PG&E pays each aggregator for their gross savings.

Determined at the meter via weather normalized pre/post billing analysis



Advanced Home Upgrade Dashboard

FILTERS (1) ▾ Climate_Zone CZ 13: Fresno

1,795

Payable kWh / Project / Year

15%

Savings

166

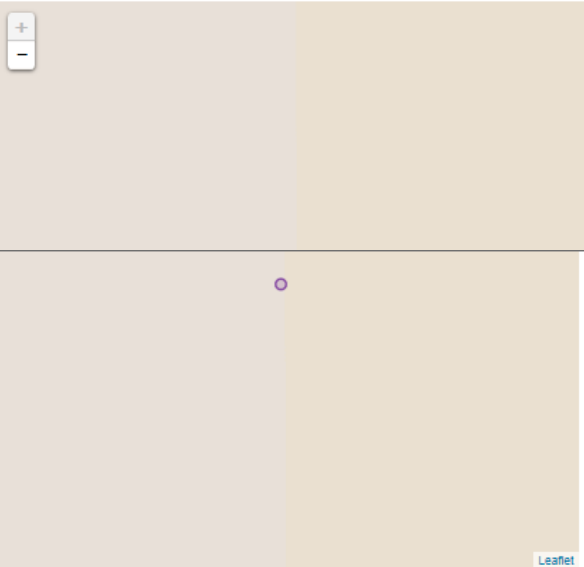
Projects

① Aggregation Rule Status

AGGREGATION RULE STATUS

OK: aggregating over at least 100 projects

① Project Locations

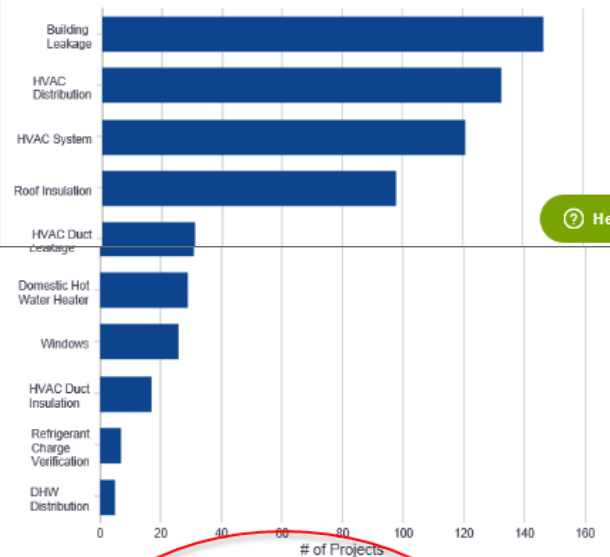


① Project Block Attributes

BLOCK ATTRIBUTES

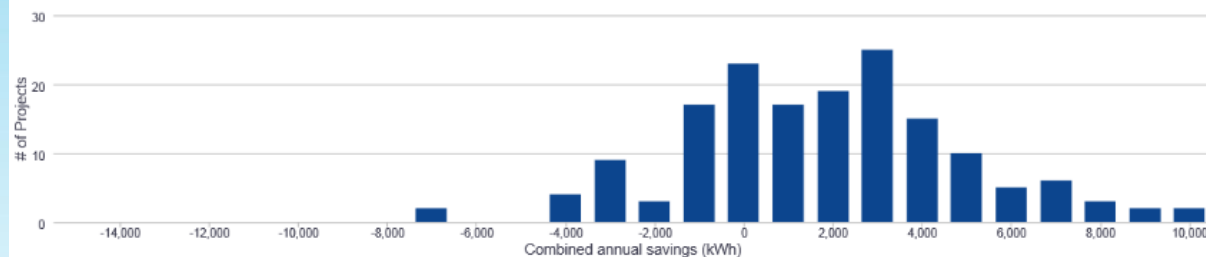
BLOCK ATTRIBUTES	RESULTS
Number of Buildings	166
Number of Contractors	7
Average Building Age	42 years
Average Square Footage	1929
Average Number of Measures	4
Number of projects with electric savings	148
Number of projects with gas savings	143
Average electric savings for projects with electric savings	1134 kWh
Average gas savings for projects with gas savings	84 thm

① ECM Breakdown

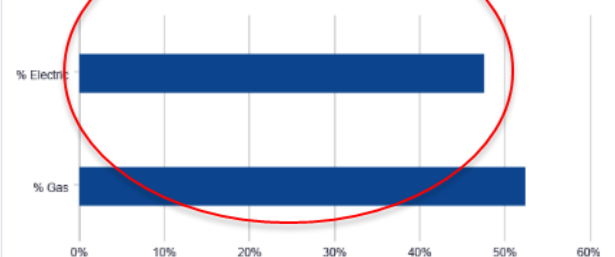


② Help

① kWh Savings Combined Curve



① Savings % Breakdown



Cost Effectiveness for EE Programs

Adam Scheer
PG&E Customer Energy Solutions



Cost Effectiveness: Background

- CPUC Decision¹ requires IOUs' Portfolios to meet 1.25 Total Resource Cost (TRC)
- TRC is one of many different cost effectiveness tests
- PAC is also of importance in California EE

Test	Key Test Objective
Participant (PCT)	Does participant benefit?
Program Administrator (PAC)	Does the utility benefit?
Total Resource Cost (TRC)	Do both utility and participants benefit?
Ratepayer Impact (RIM)	Do rates decrease?
Societal Test (SCT)	Does society as a whole benefit?

Unpacking the TRC and PAC

$$\text{Cost Effectiveness} = \frac{\text{Benefits}}{\text{Costs}}$$



$$TRC = \frac{\sum_{t=1}^N [(\sum_{i=1}^I \Delta EN_{it} \times MC: E_{it} \times K_{it}) + TC_t] / (1+d)^{t-1}}{\sum_{t=1}^N (PRC_t + PCN_t) / (1+d)^{t-1}}$$

$$PAC = \frac{\sum_{t=1}^N (\sum_{i=1}^I \Delta EN_{it} \times MC: E_{it} \times K_{it}) / (1+d)^{t-1}}{\sum_{t=1}^N (PRC_t + INC_t) / (1+d)^{t-1}}$$



Unpacking the TRC and PAC

$$PAC = \frac{\text{Utility Avoided Costs}}{\boxed{PA\ Costs} + \text{Incentives}}$$

$$TRC = \frac{\text{Utility Avoided Costs}}{\boxed{PA\ Costs} + \boxed{\text{Free Rider Incentives}} + \text{Net Participant Costs}}$$

- **Free Rider Incentives = Incentives paid for EE interventions that would have occurred in the absence of the program.**
 $PA\ Costs = \text{Admin} + \text{Marketing} + \text{Direct Implementation Non-Incentive}$

$$\text{Free Rider Incentives} = \text{Incentives} \times (1 - NTG)$$



Unpacking the TRC and PAC

$$PAC = \frac{\text{Utility Avoided Costs}}{PA \text{ Costs} + \text{Incentives}}$$

$$TRC = \frac{\text{Utility Avoided Costs}}{PA \text{ Costs} + \text{Free Rider Incentives} + \text{Net Participant Costs}}$$

- Avoided costs are on a net basis. i.e. They do not include free ridership.

Net-to-Gross (NTG) = 1 – Free Ridership Fraction

- Avoided costs are on a lifecycle basis, discounted via a Net-Present-Value¹ calculation.

¹17% discount rate

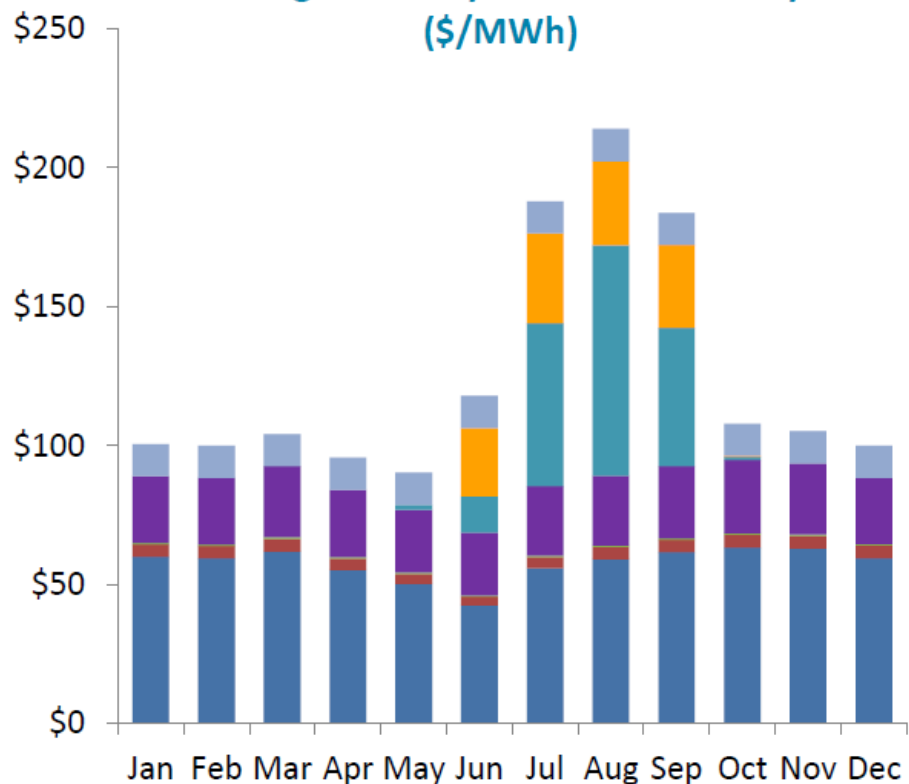


Benefits = Utility Avoided Costs

Electric Avoided Costs

- Energy
- Losses
- Ancillary Services
- Emissions
- Capacity
- T&D
- Avoided RPS

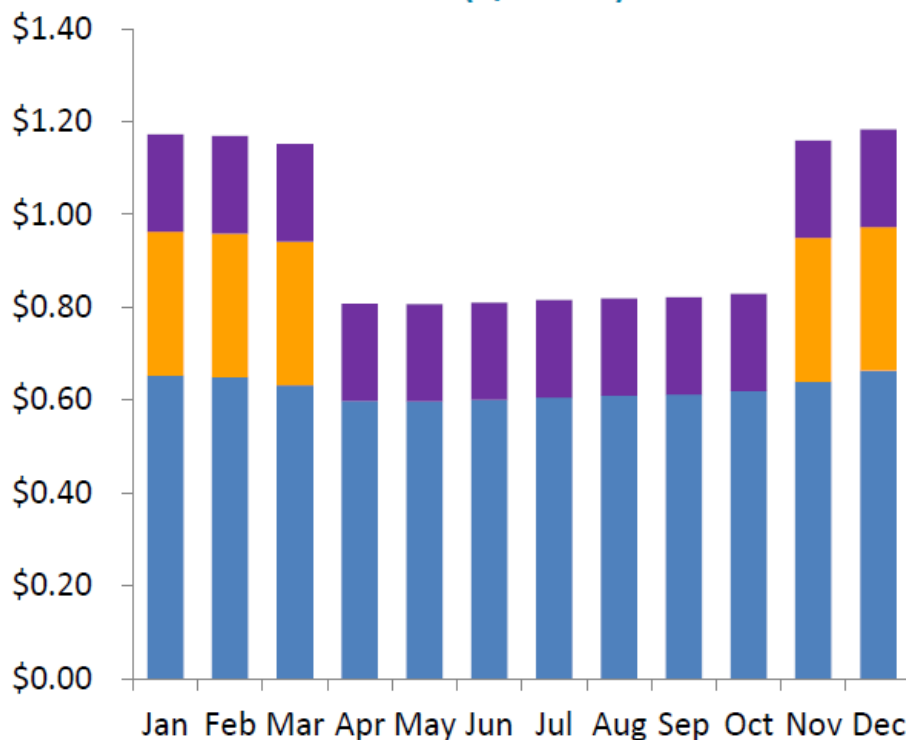
Average Monthly Value of Electricity
(\$/MWh)



Gas Avoided Costs

- Commodity
- T&D
- Emissions

Average Monthly Value of Natural Gas
(\$/therm)



Source: Energy Efficiency Avoided Costs 2011 Update, E3, December 19, 2011; projections of avoided cost for the year 2015



Differences Between TRC and PAC

$$PAC = \frac{\text{Utility Avoided Costs}}{PA\ Costs + \text{Incentives}}$$

$$TRC = \frac{\text{Utility Avoided Costs}}{PA\ Costs + \text{Free Rider Incentives} + \text{Net Participant Costs}}$$

- Participant Costs = Incremental Measure Cost (IMC) for replace-on-burnout measures with code baselines
- Participant Costs = Full Measure Cost (FMC) for measures with existing conditions baselines, including early retirement
- Free Rider Participant costs are excluded

TRC: A Simplified (but not Simplistic) view

$$TRC = \frac{NPV \text{ of Net Lifecycle Avoided Costs}}{Nonincentive Costs + Free Ridership \times Incentives + MC \times NTG}$$

TRC: Important Drivers

- ***Lifecycle Net Savings***
→ Gross Savings, EUL, and Net-to-Gross
- **Measure Cost (MC)**
- **Incentives**
- **Admin costs**

PAC: A Simplified (but not Simplistic) view

$$PAC = \frac{NPV \text{ of Net Lifecycle Avoided Costs}}{Nonincentive Costs + Incentives}$$

PAC: Important Drivers

- ***Lifecycle Net Savings***
→ Gross Savings, EUL, and Net-to-Gross
- **Incentives**
- **Admin costs**

Resources

- California Standard Practice Manual:
<http://www.cpuc.ca.gov/General.aspx?id=5267>
- Currently more resources, including computational tools to help estimate TRC, are available through E3:
https://www.ethree.com/public_proceedings/energy-efficiency-calculator/
- The CET tool is replacing E3 beginning next year. CET will have updated avoided costs.

EE/DR Road to 2020

Meghan Dewey and Sam Piell

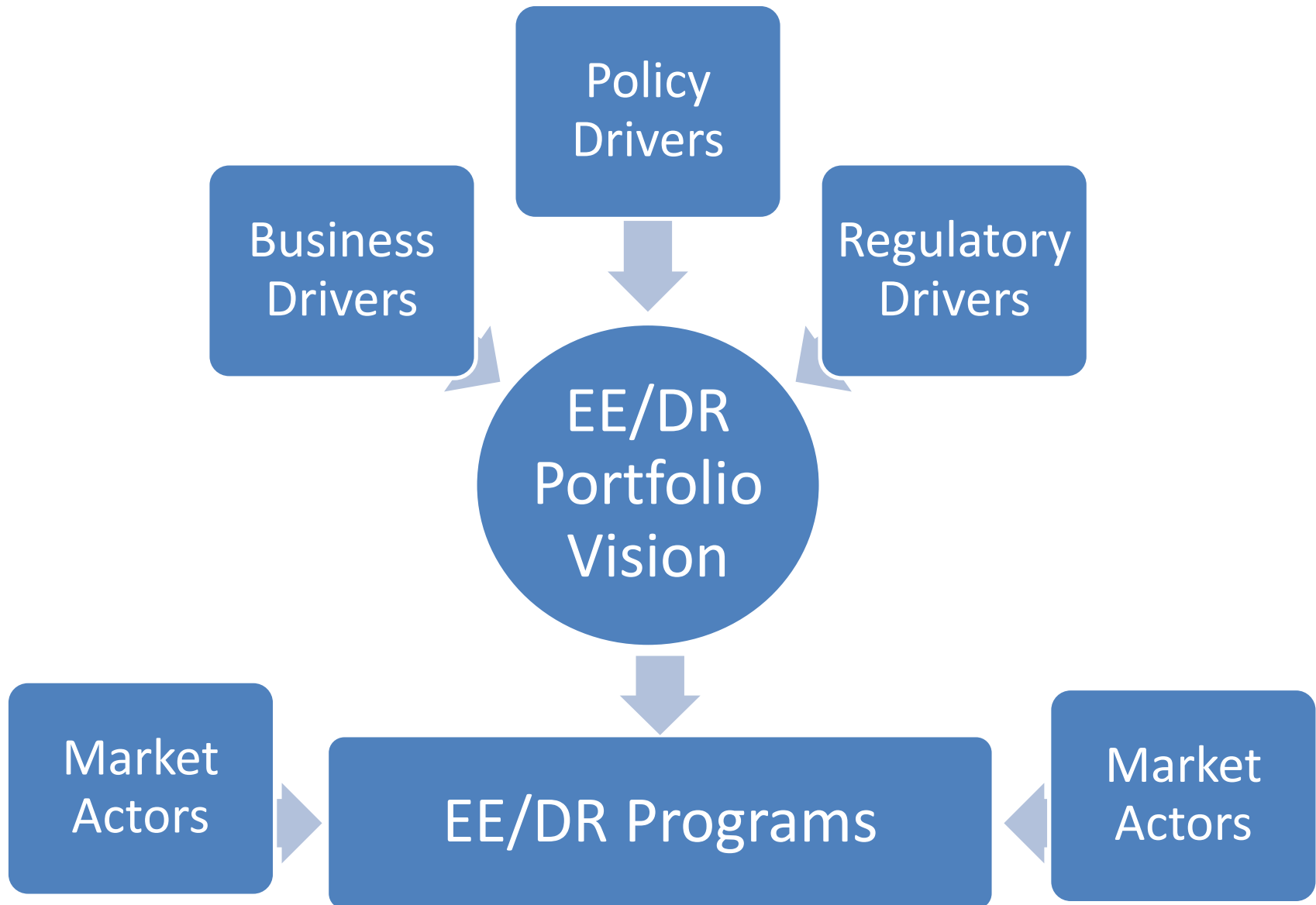
EE/DR Rock Stars

June 9, 2017



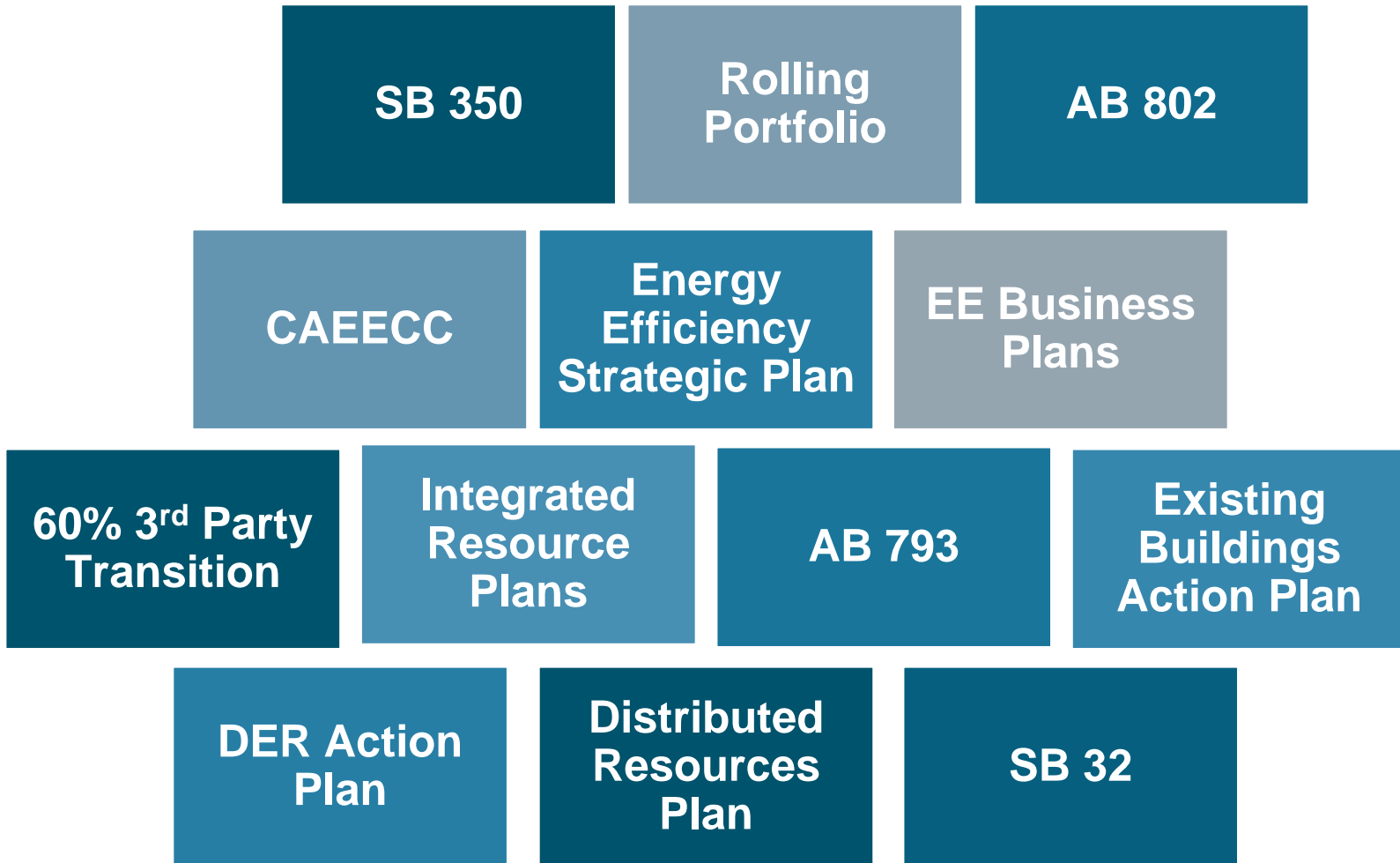
Together, Building
a Better California

Many factors shape our portfolios, and market actors are key to helping achieve IOU and State goals

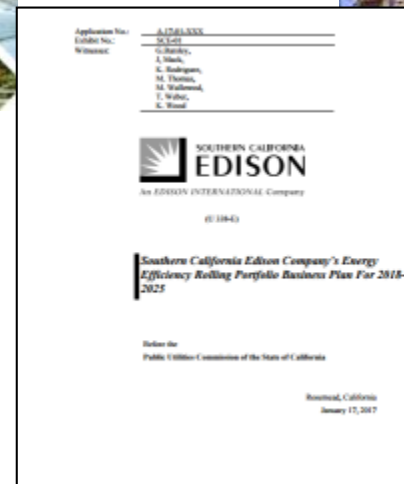
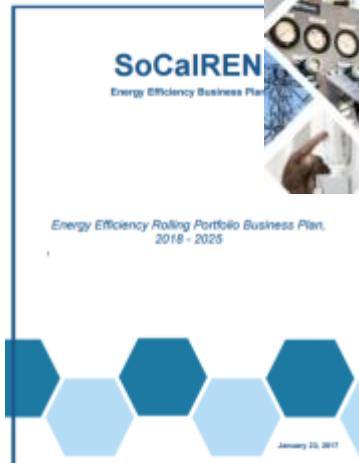
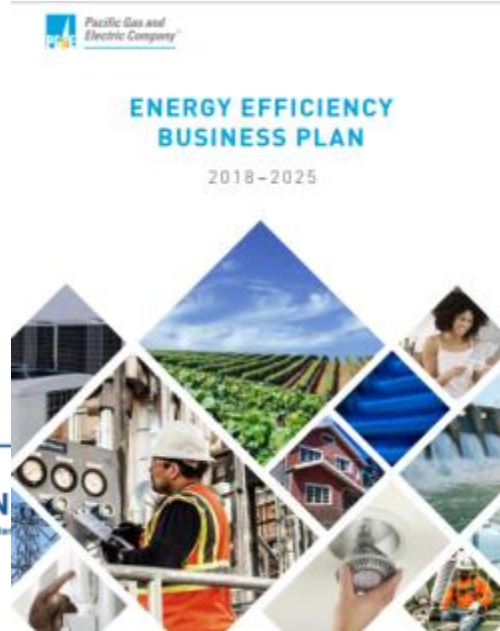




California's policymakers and regulators have redoubled efforts to make EE a way of life in California



EE Business Plans provide a strategic roadmap to meet portfolio visions and California's goals





PG&E's Portfolio Vision and Guiding Principles set the stage for our BP

Portfolio Vision: Evolve our portfolio to maximize cost-effective energy savings by using our knowledge of our customers, cultivating relationships with new partners, and offering programs that drive value and innovation for our customers

Portfolio Guiding Principles:

- **Scale EE cost-effectively by:**
 - Deploying new program models
 - Targeting customers with high savings potential
 - Seeking the right technology strategies
 - Making EE investments more attractive to customers and the market
- **Make energy efficiency offerings easier to access by streamlining the portfolio**
- **Develop energy efficiency as a cost-effective grid resource that is integrated within PG&E with other distributed energy resources, enabling deeper savings, greater penetration, and location-specific efficiency**



Demand Response: An enablement platform to transform DERs into Grid Responsive Loads

DR + ADR =
BTM DER enablement platform

Behind-the-Meter (BTM) DER Technology Programs

DG
e.g.
Batteries

Alt Fuels
e.g. EVs

EE
e.g. Smart
Thermostats

Encourage the
adoption of new
DERs

DR Enabling Technologies (ADR)

Communication, Control & Visibility
of Connected BTM Devices

Enable device automation

Demand Response Providers' Programs

Notify Participating Customers when
Load Flexibility is Valuable to the Grid

Customers can earn a new
revenue stream, on top of energy
bill savings

Demand Response Trends

Wholesale Market Integration

- IOUs are integrating some DR programs into the CAISO wholesale market

Participation in CAISO market is not limited to IOUs

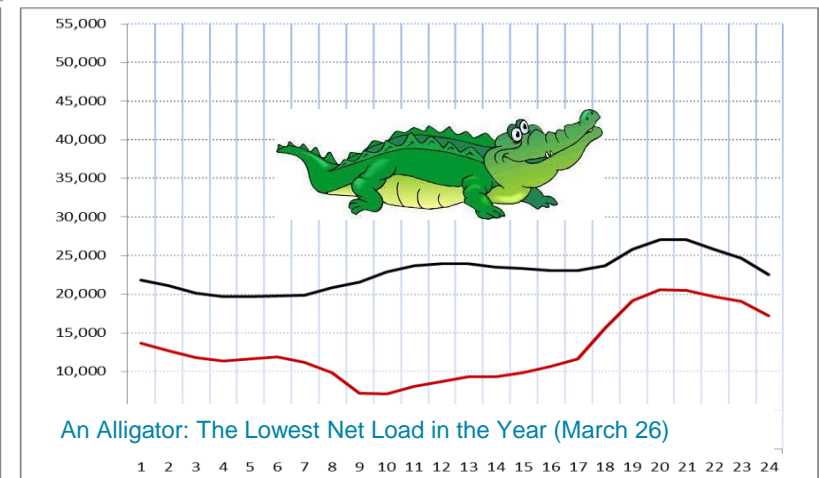
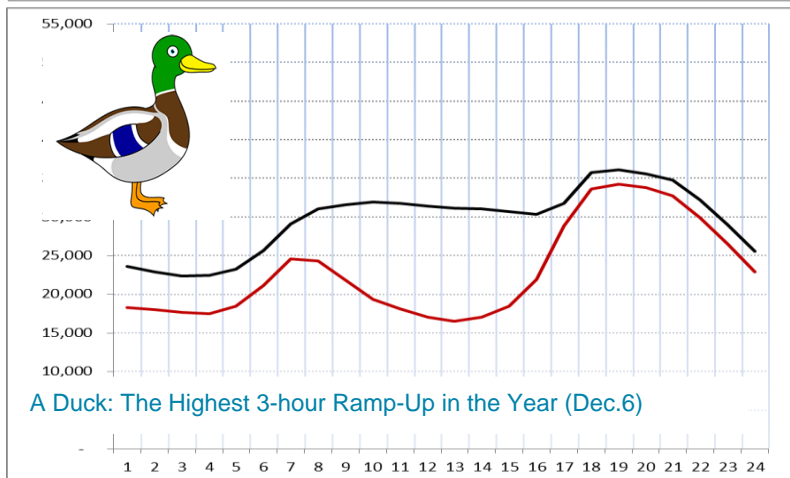
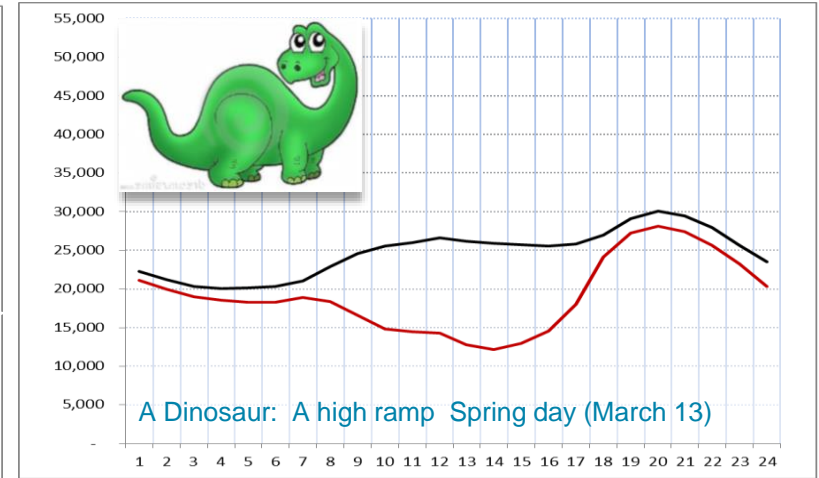
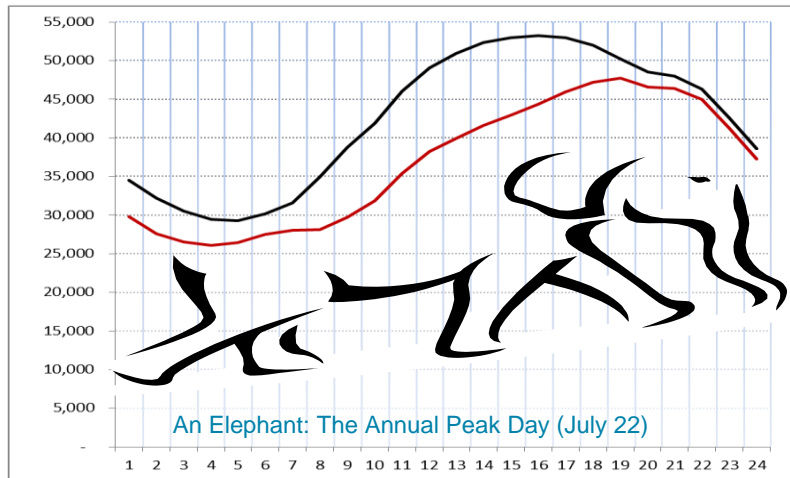
- Parties can participate directly in the wholesale market, without going through an IOU program
- IOUs enable 3rd parties by providing data with customer authorization (e.g., ShareMyData)

Need for Increased Flexibility

- When and how DR is most valuable to the grid is changing as a result of renewables integration
- PG&E's DR Pilots explore ways to meet evolving grid needs

You May Have Met the Duck, but There are More than “Ducks” in the Zoo

2022 Load Estimates





2 New transaction structures to expand the reach of ratepayer dollars

3 Customer targeting via interval data analytics

PG&E Residential:

- Bill avg: \$85.20/mo
- Rate: 16.0 ¢/kWh
- Usage: 531 kWh/mo

Nat'l Residential:

- Bill avg: \$125.22/mo
- Rate: 12.5 ¢/kWh
- Usage: 1,002 kWh/mo

Utility	Rate (¢/kWh)
Danvers Electric Illuminating Co	92
Commonwealth Edison	88
Central Maine Power Company	85
Ohio Edison Company	82
American Electric Company	78
L.S. Corp of Water & Power	75
West Penn Power Company	72
Delaware Light Company	70
Pennsylvania Electric	68
McKean Electric Company	65
National Grid USA	62
New York State Electric & Gas	60
Aust Energy	58
Pacific Gas and Electric	55
PG&E	50
Public Service Electric and Gas	48
Piedmont Electric Company	45
ETE Energy Company	42
PG&D Energy Company	40
San Diego Gas & Electric	38
WISCONSIN Electric Company	35
Jersey Central Power & Light	32
DOMT	30
Southern California Edison	28
Pacific Power (Portland)	25
Indiana Michigan Power Company	22
Portland General Electric	20
Alaska Electric Corporation	18
Illinois Electric Corp	15
Continental Energy Company	12
Connecticut Edison	10
Baltimore Gas and Electric	8
Energy Alternatives, Inc.	7
Western Energy	6
Piedmont Electric	5
Connecticut Light and Power	4
ORE Energy	3
American Electric Power	2
CP&D Energy	1
Northern Energy	0.8
Duke Energy Carolinas	0.7
Energy Louisiana	0.6
Florida Power & Light	0.5
PG&E Southern Division	0.4
USA	0.3
Dominion Virginia Power	0.2
Duke Energy Progress	0.1
Appalachian Power	0.08
Salt River Project	0.07
Arizona Public Service	0.06
Georgia Power	0.05
Tampa Electric	0.04
Duke Energy Florida	0.03
Alabama Power	0.02
South Carolina Electric & Gas	0.01

- Bill avg:
\$85.20/mo
- Rate:
16.0 ¢/kWh
- Usage:
531 kWh/mo

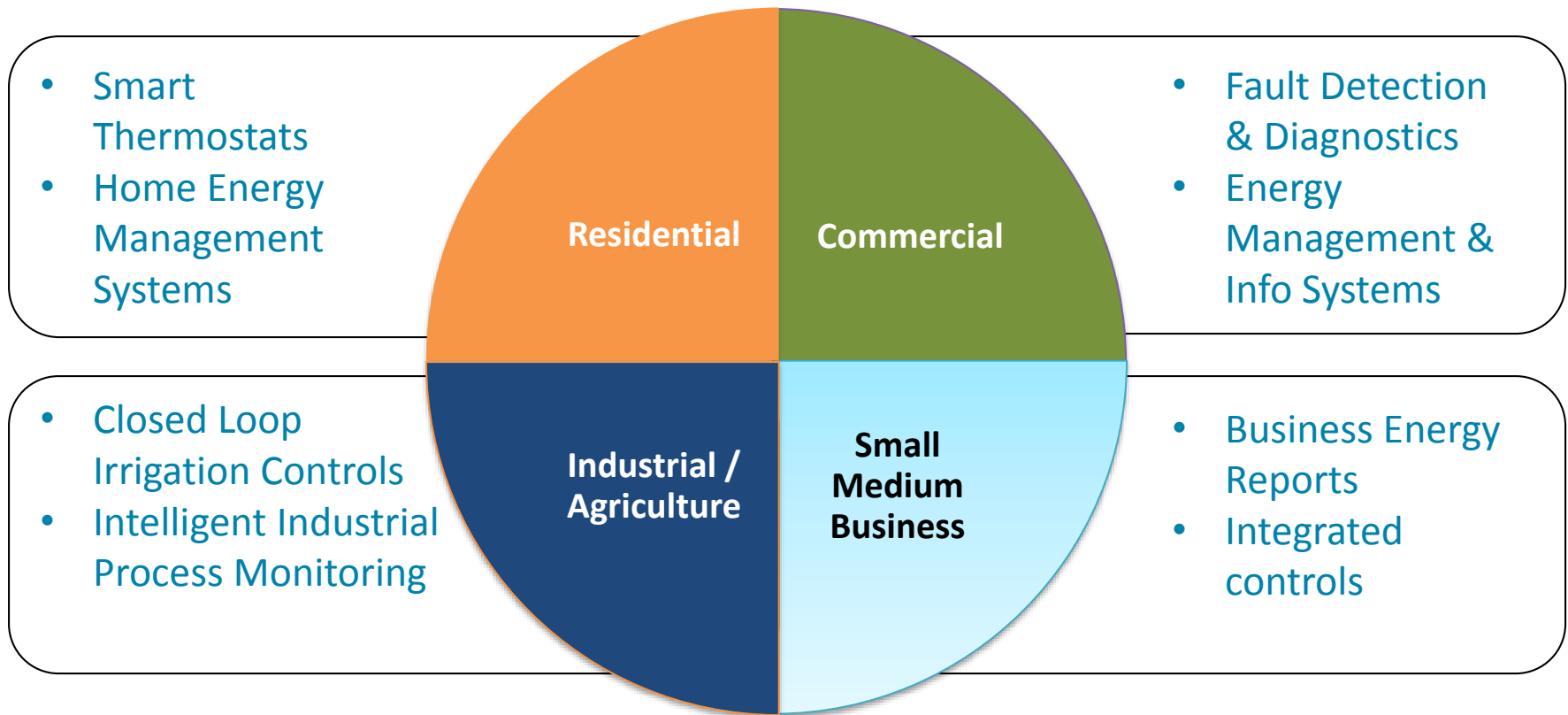
- Bill avg:
\$125.22/mo
- Rate:
12.5 ¢/kWh
- Usage:
1,002 kWh/mo

9



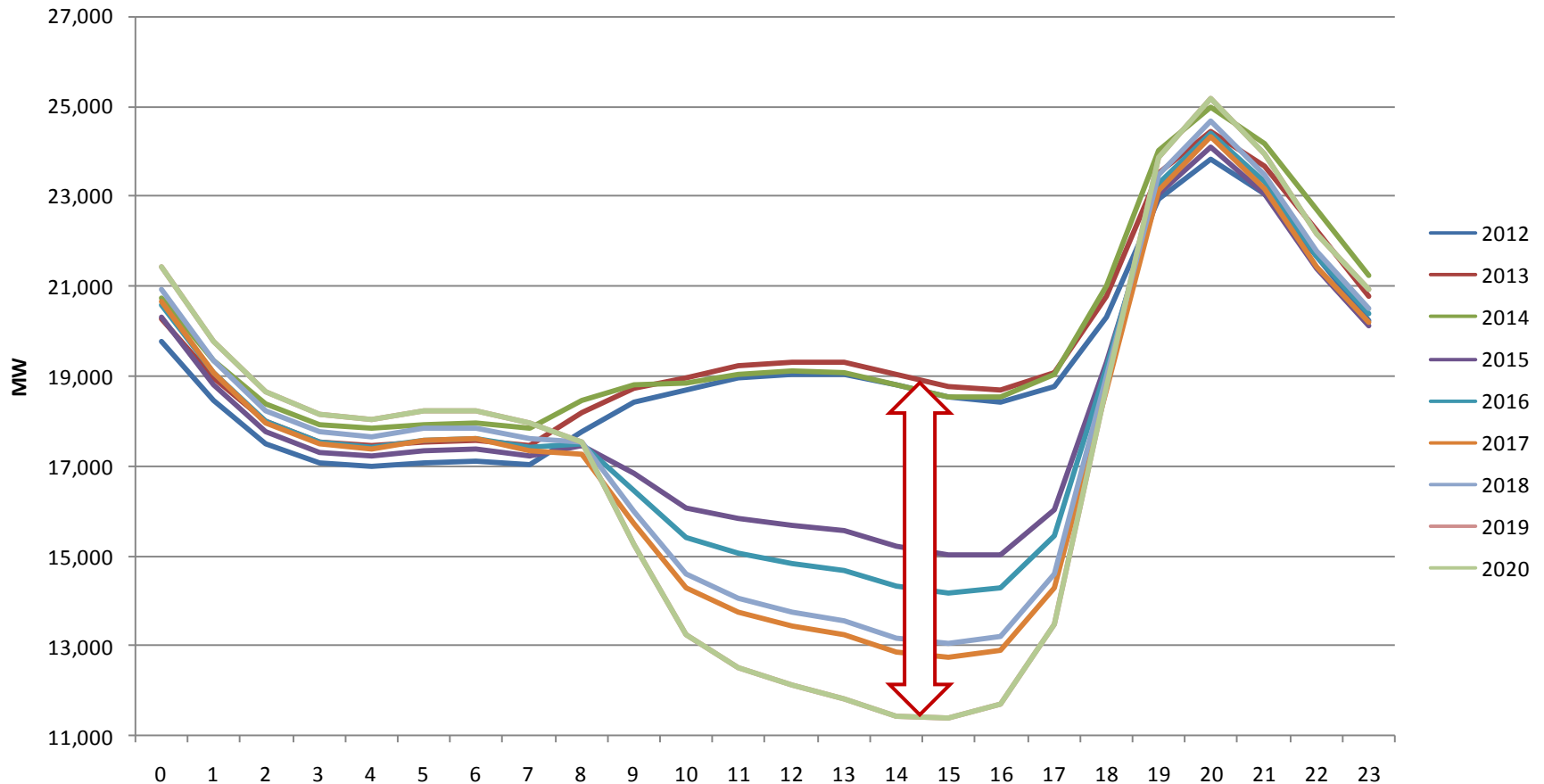
EE and DR help customers better understand and manage their energy use as rates change

We offer programs that help customers better manage their energy use



EE can serve an important role in alleviating stress on the grid and help customers save during peak hours

CAISO Net Load --- 2012 through 2020





A wide variety of market actors help PG&E meet its EE goals and objectives



Residential



Low Income



Commercial



Industrial



Agricultural

OP@WER



Center for Sustainable Energy
CALIFORNIA



ENERGY SOLUTIONS



ENERNOC



Build It GREEN
Smart Solutions from the Ground Up

RHA
program design+management

Honeywell

VaCom
Technologies

TRC
Results you can rely on



California Human Development

Creating Opportunities Through Citizenship and Immigration Pathways

matrix
Energy Services, Inc.

enovity

PROCTOR
ENGINEERING GROUP

BAY AREA ENERGY
GROUP

WAYPOINT

WILLDAN
Energy Solutions

CLEAResult

Government

COUNTY OF
MARIN



BAY AREA
Regional Energy Network

CITY OF
SAN JOSE
CITY OF SILICON VALLEY

ECONOMIC
DEVELOPMENT
CORPORATION
Leading Future Growth

SIERRA BUSINESS COUNCIL

SF Environment
We know. But also, we believe.

CSU The California State University
WORKING FOR CALIFORNIA

CALIFORNIA COMMUNITY COLLEGES
CHANCELLOR'S OFFICE

Academic

Santa Clara
University

UNIVERSITY OF CALIFORNIA
UC MERCED

SAN FRANCISCO
STATE UNIVERSITY

FRESNO STATE
California State University, Fresno

HUMBOLDT
STATE UNIVERSITY



UC DAVIS
AGGIES

CAL POLY
SAN LUIS OBISPO

SONOMA
STATE UNIVERSITY

Cal



Lawrence Livermore
National Laboratory

What questions do you have for me?



Meghan Dewey
mdkc@pge.com
415-973-1808

PG&E Contracting Primer

Technology Resource Innovation Outreach (TRIO)
Symposium and Roundtable

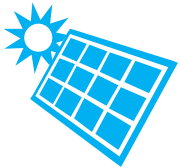
June 9, 2017



Together, Building
a Better California

Overall Goals of Our Outsourcing Strategy

Providing a smooth transition into a new third-party program approach through a set of phased program solicitations.



Seeking innovation that will improve the overall program portfolio performance.



Seeking greater cost-effectiveness and in program delivery.

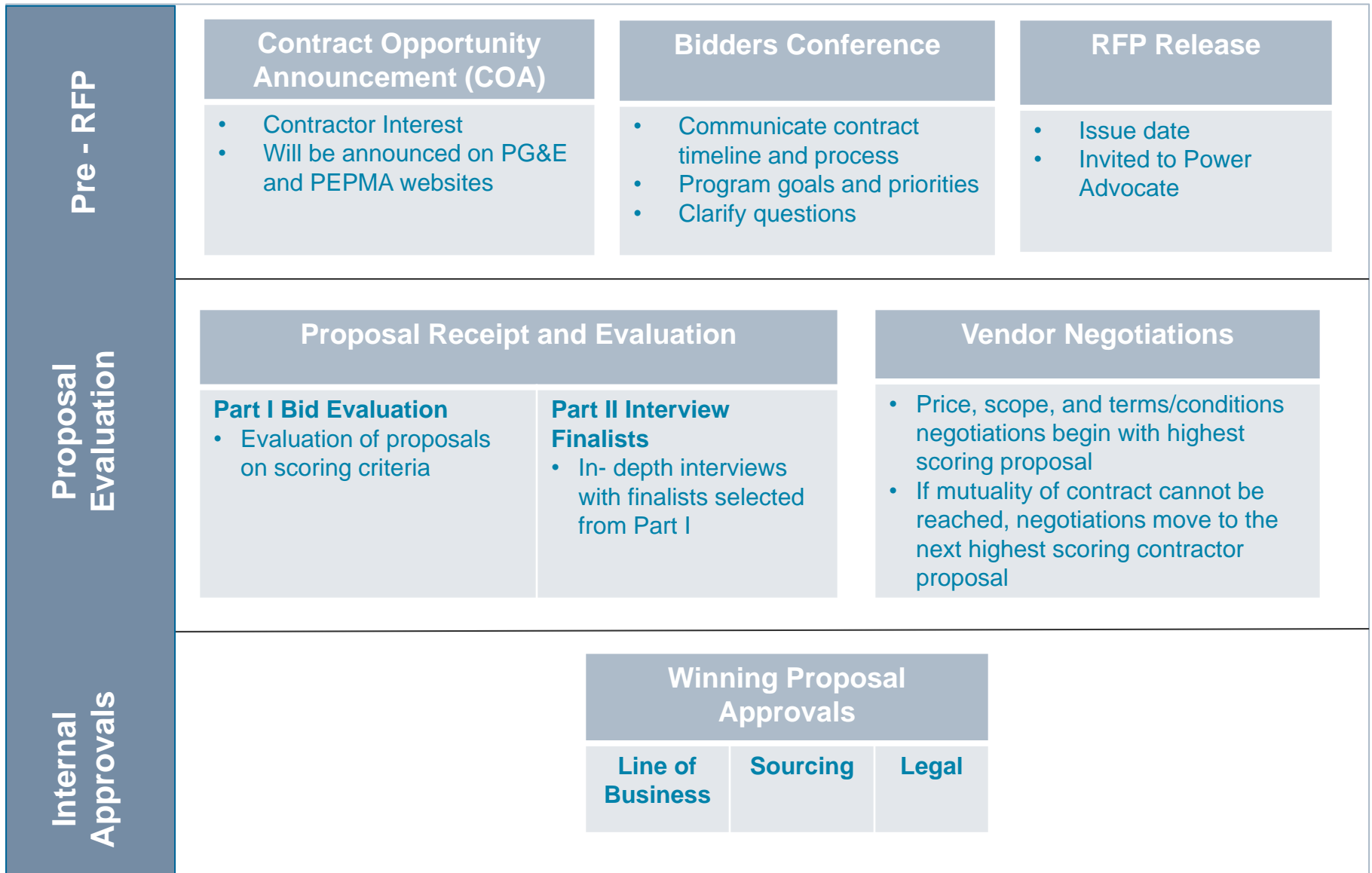


Promoting a healthy and vibrant energy efficiency ecosystem in California, for both large and small providers.



Identifying contract efficiency opportunities, including longer-term contracts and pay-for-performance contracts, with the use of normalized metered energy consumption data where practical.

RFP Process Overview



Anticipated Sequence of Activities and Timeframes for RFPs

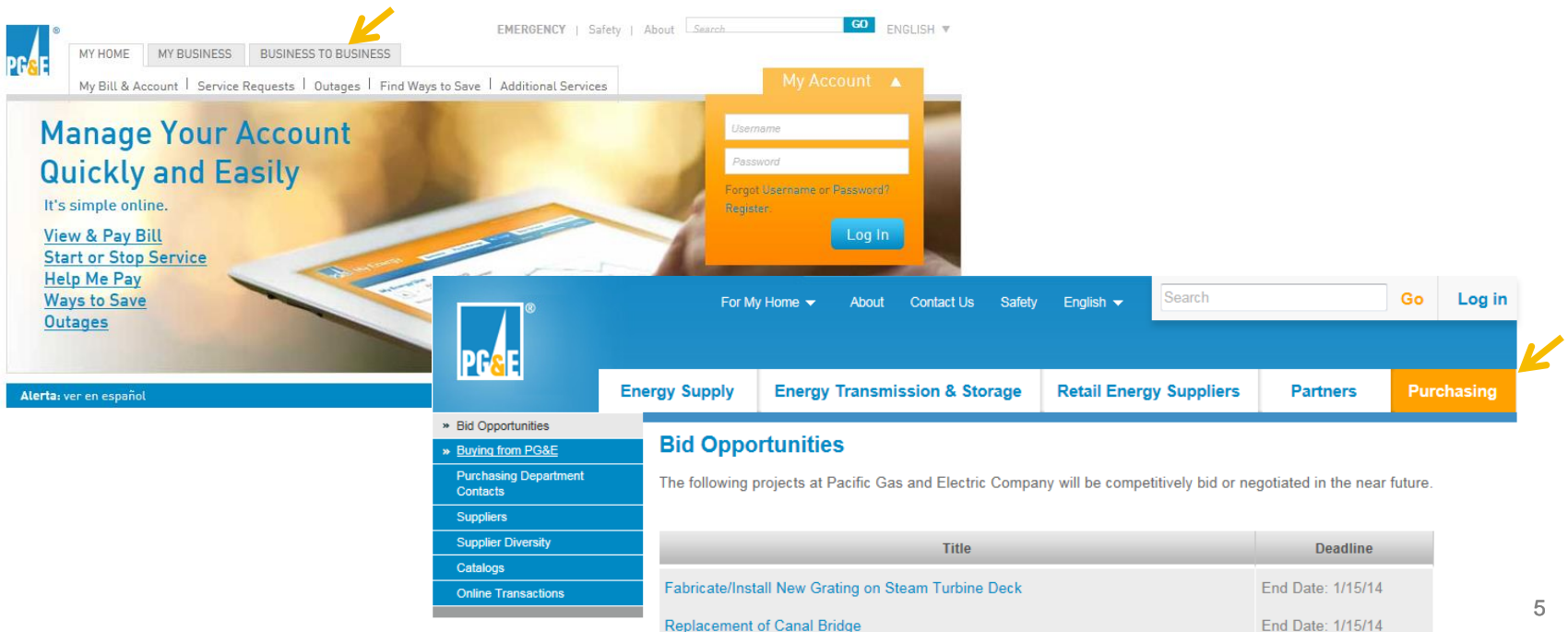
- **Month 1.5 from date of final decision:** Contract Opportunity Announcement (COA) released and Peer Review Group (PRG) selected
- **Months 2-3:** Scope of Work (SOW) and Request for Proposals (RFP) released
- **Month 3:** Bidders Conference
- **Months 3-4:** Initial Scoring / Applicant interviews
- **Months 4-5:** Top applicant recommended to PRG
- **Months 5-9:** Contract negotiation (timeline varies greatly)
- **Months 6-10:** Contract execution
- **Months 8-12:** IT security review clearance
- **Months 12-15:** Implementation plan reviewed by stakeholders and PG&E. Program launch.

PG&E is eager to launch new third party programs, and will seek opportunities to streamline tasks where possible, perform some work concurrently where possible, and explore other opportunities to reduce the length of time from solicitation period to program launch.

Contract Opportunity Announcement

Bid opportunities will be announced on the PG&E website

- Navigate your computer browser to www.pge.com
- Click on the Business-to-Business tab
- Hover the mouse/pointer over the Purchasing tab and click on Bid Opportunities, or click on bid opportunities in the bottom right corner of the web page
- <http://www.pge.com/en/b2b/purchasing/bidopportunities/index.page>



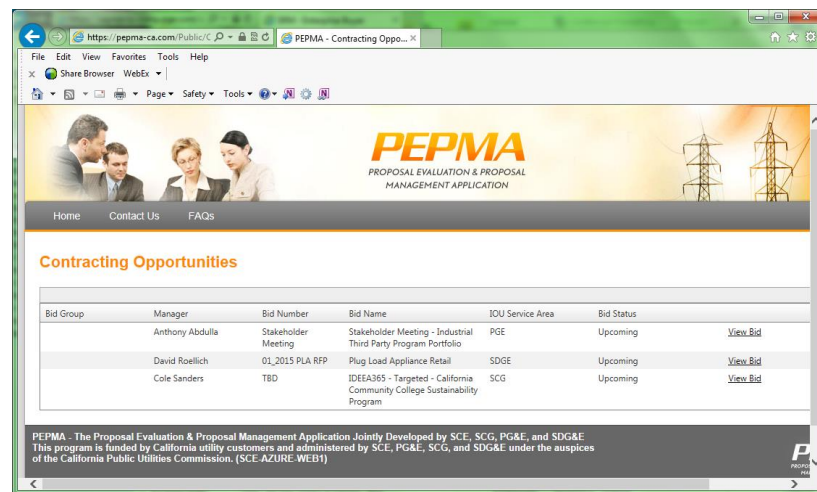
The screenshot shows the PG&E website interface. At the top, there are navigation tabs: MY HOME, MY BUSINESS, and BUSINESS TO BUSINESS. Below these are links for My Bill & Account, Service Requests, Outages, Find Ways to Save, and Additional Services. A 'Manage Your Account Quickly and Easily' section is visible on the left. On the right, there is a 'My Account' login box with fields for Username and Password, and a 'Log In' button. Below the main navigation bar, there is a secondary bar with links: For My Home, About, Contact Us, Safety, English, and a search bar. The 'Purchasing' tab is highlighted in orange. A dropdown menu is open under 'Purchasing', showing options: Bid Opportunities, Buying from PG&E, Purchasing Department Contacts, Suppliers, Supplier Diversity, Catalogs, and Online Transactions. The 'Bid Opportunities' section is expanded, showing a list of projects with their titles and deadlines.

Title	Deadline
Fabricate/Install New Grating on Steam Turbine Deck	End Date: 1/15/14
Replacement of Canal Bridge	End Date: 1/15/14

Contract Opportunity Announcement cont.

Bid opportunities will be announced on the PEPMA website

- Navigate your computer browser to <https://pepma-ca.com/Public/Default.aspx>.
- Click on the Contracting Opportunities tab



Bid invitations will be released following a review of COA responses

- All proposal documents must be uploaded to Power Advocate or completed in Power Advocate templates

Intended to provide a summary of the information and requirements set forth in the RFP materials

- Review solicitation goals and priorities
- Communicate solicitation timeline and process
- Describe evaluation criteria both quantitative and qualitative
- Outline offer submittal process
- Establish solicitation communication channels
- Clarify questions in the RFP process
- Interactive Q&A



At a minimum, an RFP could include the following sections

- General Instructions
 - Program Requirements
 - Segment Description / Data
 - Broad Evaluation Criteria
 - Performance Metrics / KPIs
 - Formatting and Submission Instructions
 - Communications & Q&A
 - Transmittal Letter
 - NDA
- Certificates & Forms
- Supplier Diversity Questionnaire
- Sustainability (Green) Questionnaire
- Safety Questionnaire
- Program Proposal / SOW
 - Description of proposed EE program structure, focus, and execution strategy
 - Project management structure – qualifications of key personnel
 - Relevant prior program design and execution experience
 - Execution timeline – major tasks and deliverables
 - Customer engagement plan
 - EM&V plan
 - Proposed program energy savings
 - Program cost summary / price
 - Financial stability / strength

PG&E is committed to providing diverse suppliers with economic opportunities to supply products and services required by PG&E

PG&E encourages companies interested in providing services to PG&E to support Supplier Diversity Purchasing through its purchasing and subcontracting practices.

In order for PG&E to include the Woman, Minority and Disabled Veteran Business Enterprise (WMDVBE) contractor or subcontractor in the Company's supplier diversity goals, the WMDVBE prime contractor or subcontractor must have a current verification by one of the following:

- CPUC's WMDVBE Clearinghouse (for woman- or minority-owned businesses); or
- Department of General Services (for disabled service veteran-owned businesses).

Verification can also be from one of the following CPUC Clearinghouse comparable agencies:

- National Minority Supplier Development Council (NMSDC) or a regional affiliate
- Women's Business Enterprise National Council (WBENC) or a regional affiliate
- Small Business Administration



Injury and Illness Prevention Program

PG&E ensures public, contractor and employee safety and expects the same code of conduct from its vendor partners

Elements required are listed below:

1. Management commitment/assignment of responsibilities
2. Safety communications system with employees
3. System for assuring employee compliance with safe work practices
4. Scheduled inspections/evaluation system
5. Accident investigation
6. Procedures for correcting unsafe/ unhealthy conditions
7. Safety and health training and instruction and
8. Recordkeeping and documentation.

Please include:

- Workers' Compensation Carrier and your policy number
- Your OSHA 300 Log for the previous 3 years
- Information on nurseline/injury hotline you may use including the phone #
- Your safety procedures, guidelines, and Code of Safe Practices (Safety Manual) if you have them. (Or a sample)

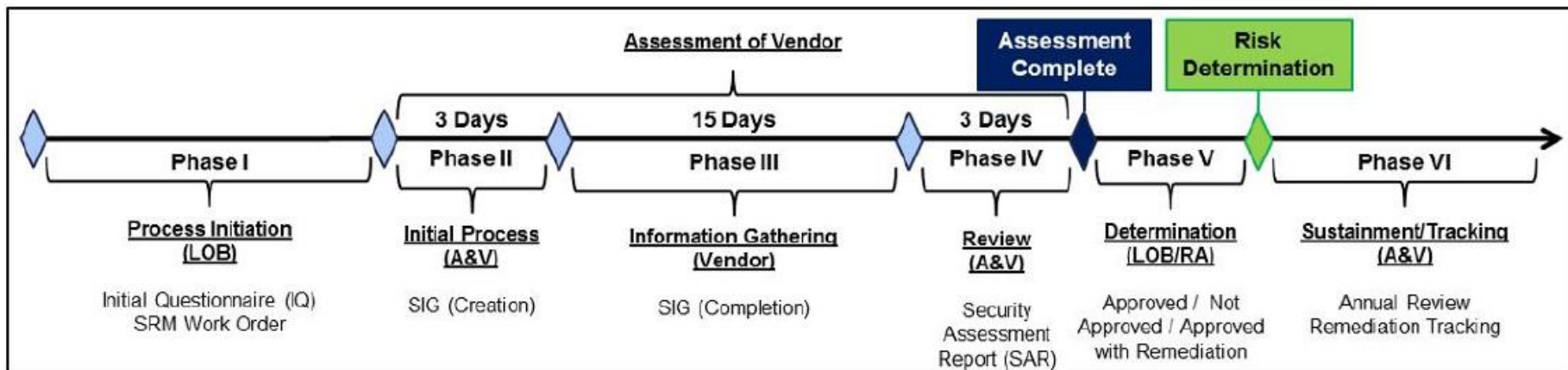
CALOSHA how to write an IIPP:

<https://www.dir.ca.gov/dosh/etools/09-031/how.htm>

<http://www.dir.ca.gov/dosh/etools/09-031/tools.htm>

Third-Party IT Security Review

Ensures that Third-Parties are protecting sensitive data we share in accordance with our security requirements.



Third-Party Security Review is a multi-step review process to evaluate the data PG&E plans to share with a third-party, identifies potential

- Must be completed prior to the sharing of information
- Typically takes 21 business days to complete but there is no time limit: length of time could be shorter or longer
- Security review must be performed annually to ensure no major changes have occurred to the security compliance of the vendor

TRIO Symposium: Technology Innovation and Utility Engagement

3P Engagement Opportunities - IDEEA365

Edwin Hornquist, ET Program Manager

June 9, 2017

TRIO Symposium – PG&E PEC

IDEEA365 (3P Engagement)

I. INTRODUCTION

- Innovative Design for Energy Efficiency Activities 365 Days a Year (IDEEA365)
- The intent of this IDEEA365 solicitation is to find, fund, and foster the best new EE (energy efficient) or IDSM (integrated demand side management) delivery approaches available in the marketplace discovered through the TRIO program and/or outreach events
- Resource and Non-resource
- Open all year – PEPMA-ca.com - Request for Abstract
- Review monthly

https://www.pepma-ca.com/



[Home](#) [Contact Us](#) [FAQs](#)

Welcome to PEPMA

California Statewide Investor Owned Utilities (IOU) and Energy Efficiency Solicitation Website

This site serves as a resource for:

- Individuals and organizations to learn about IOU energy efficiency programs
- Potential bidders to self-register their information
- Learning about upcoming energy efficiency contracting opportunities
- Exchange of bid information between individuals, organizations and IOUs
- Qualifying companies to provide required services to the IOUs

Participating IOUs

 Southern California Edison Company

 Southern California Gas Company

 Pacific Gas and Electric Company

 San Diego Gas & Electric Company

Please Login or Register

Username:

(Email Address)

Password:

[Log In](#)

[Forgot your password?](#)

New user? Register [here](#)

Contracting Opportunities



Click here to view available IOU contracting opportunities for both third party energy efficiency program work and professional services.

[Go >>](#)

Register Now



Click here to register with the Proposal Evaluation and Proposal Management Application (PEPMA). Once registered you will be eligible to participate in solicitations for upcoming contracting opportunities.

[Go >>](#)

Other Resources



[Contractor Referral Program](#)
[Supplier Diversity \(SCE\)](#)
[EE Best Practices](#)
[Work papers \(SCE\)](#)

[More >>](#)

Upcoming Events



[More >>](#)

Innovative Idea Submissions



II. PROGRAM PURPOSES & OBJECTIVES

- The IDEEA365 program find, fund and test the best of new energy-efficiency ideas and program designs from the marketplace so that SCE can add them to its overall portfolio of proven, successful, and reliable Programs. The IDEEA Program is designed to:
 - Encourage innovative concepts;
 - Reduce and eliminate market barriers;
 - Achieve energy savings and demand reduction for both the short term — the years in which they are funded — and the long term; and
 - Help the Energy Efficiency Division achieve its energy- savings targets, both annual and cumulative, as set forth by the California Public Utilities Commission (CPUC).
- The IDEEA365 Program recruits organizations that have special knowledge and experience, and/or that have ways of approaching our customers that are different from normal SCE practices.

III. PROCESS & PROCEDURES-

As part of the two-stage “rolling” or ongoing process for the Innovative Designs for Energy Efficiency Activities 365 days a year (IDEEA365) Program, SCE is providing this Request for Proposal (RFP) to those companies SCE selected to proceed from Stage 1 request for abstract (RFA) to submit a full proposal in this Stage 2 RFP solicitation process.

Stage 1 – Request for Abstracts (RFA)

- The RFA is Stage 1 of a two-stage solicitation. The PEPMA site contains the Abstract Format with an Abstract Checklist with the details of the items that must be included as a part of the Abstract submission to SCE in order for it to be deemed “responsive”.
- Upon completion of the required Abstract information, Respondents/Companies will submit the Microsoft Word/Excel editable electronic copy via email to Adrienne Smith at SCE.
- Upon receipt of the Abstract, we will have a team of subject matter experts (SMEs) review and score the Abstract which will take us 4-6 weeks. We will send a follow-up response after the SMEs have completed their review and scoring of the Abstract.

Stage 2 – Request for Proposals (RFP)

- The RFP is Stage 2 of a two-stage solicitation. SCE allows those Bidders Abstracts selected from Stage 1 RFA process to submit proposals to SCE.
- The purpose of this RFP is to find and fund the best EE and/or IDSM ideas and integrate them into SCE's overall Portfolio of proven, successful, and Reliable Programs.
- The objectives of this solicitation are for Bidders, under SCE's administration, to:
 - Fill potential gaps in SCE's Portfolio through new Program designs.
 - Implement a resource program (Resource Program) documenting kWh savings or non-resource program (Non Resource Program) with education and information components which enable immediate customer access and a method for enrollment to available EE Programs.

IV. TYPES OF INNOVATIONS IN ENERGY EFFICIENCY TECHNOLOGIES

SCE is especially looking for the following:

- New and promising energy-efficient technologies that achieve permanent peak-demand reduction;
- Energy-efficiency technologies for residential, commercial, industrial and agricultural market segments; and
- Technologies that works well with renewable technologies, such as solar thermal (water heating) applications which reduce electric energy usage.

In the past, SCE has funded Programs that:

- Form innovative alliances between companies with specific functions, such as when a veteran program design and implementation firm teams up with a small manufacturer, or
- Leverage the bidder's primary product or service offering by creating a companion program which serves their customers. For example, a property management company might develop an energy efficiency program to reduce commercial building peak energy demand.

V. TARGETED CUSTOMERS

- IDEEA365 Program is generally targeted to upstream and midstream entities, such as:
 - Marketing firms;
 - Product and/or software development companies;
 - Media companies;
 - Manufacturers of energy-efficient equipment;
 - Distributors of energy-efficient equipment;
 - Energy services companies;
 - Consultants;
 - Engineers;
 - Energy management system consultants;
 - Lighting consultants; and
 - Mechanical consultants
- In some cases, the Program also provide rebates, incentives, and/or training to end-user customers, who may be in the non- residential (commercial), single-family or multifamily residential, agricultural, or industrial market sectors.

Other Engagement Avenues

www.SCEIdeas.com

[Submit your idea](#)[Find your idea](#)[About Us](#)[Project Spotlight](#)[Focus Areas](#)[FAQ](#)[Contact](#)

Share your ideas to improve energy reliability, enhance economic well-being, and strengthen environmental quality.

Submit your idea!



Already submitted an idea? [Check on the status of your submission here.](#)



ABOUT US

Innovation Development for Energy Advancement (IDEA)

Focus Areas


[Submit your idea](#) [Find your idea](#) [About Us](#) [Project Spotlight](#) [Focus Areas](#) [FAQ](#) [Contact](#)  An EDISON INTERNATIONAL Company



The Smart Grid

Power grids are increasingly resilient, efficient, reliable, and secure thanks to advanced technology. At Edison International, we are upgrading our infrastructure and bringing the smart grid to life.


[About Smart Grid](#)



Customer Engagement

New technologies are giving consumers more power to manage their electricity usage, with mobile apps for hour-by-hour usage information and control.

[About Customer Engagement](#)



Electric Transportation

We're working in partnership with automakers and the United States Department of Energy to demonstrate technologies that advance cleaner, electric transportation.

[About Electric Transportation](#)



Energy Efficiency

Efficiency has its rewards: Reduce your energy usage, shrink your carbon footprint, and create a more efficient and comfortable environment.

[About Energy Efficiency](#)



Distributed Energy Generation

We see potential for distributed energy generation to help meet electricity demand, so we're testing technologies to ensure safety and reliability.


[About Distributed Energy Generation](#)



Cybersecurity

The electricity grid is part of our nation's critical infrastructure. We're working on patent-able advances in cybersecurity to protect the electricity grid.


[About Cybersecurity](#)



Energy Storage

Using new technologies for storing energy, we can make the grid more efficient. These innovations offer the promise of greater flexibility in transmitting and distributing generation, particularly from renewable sources like solar and wind.

[About Energy Storage](#)



Demand Response

By reducing your energy consumption during hours of peak demand, you relieve stress on the grid, the environment, and your bottom line. For additional opportunities to reduce energy costs.

[About Demand Response](#)

Questions?



*Edwin Hornquist
Southern California Edison
Emerging Technologies Program Manager
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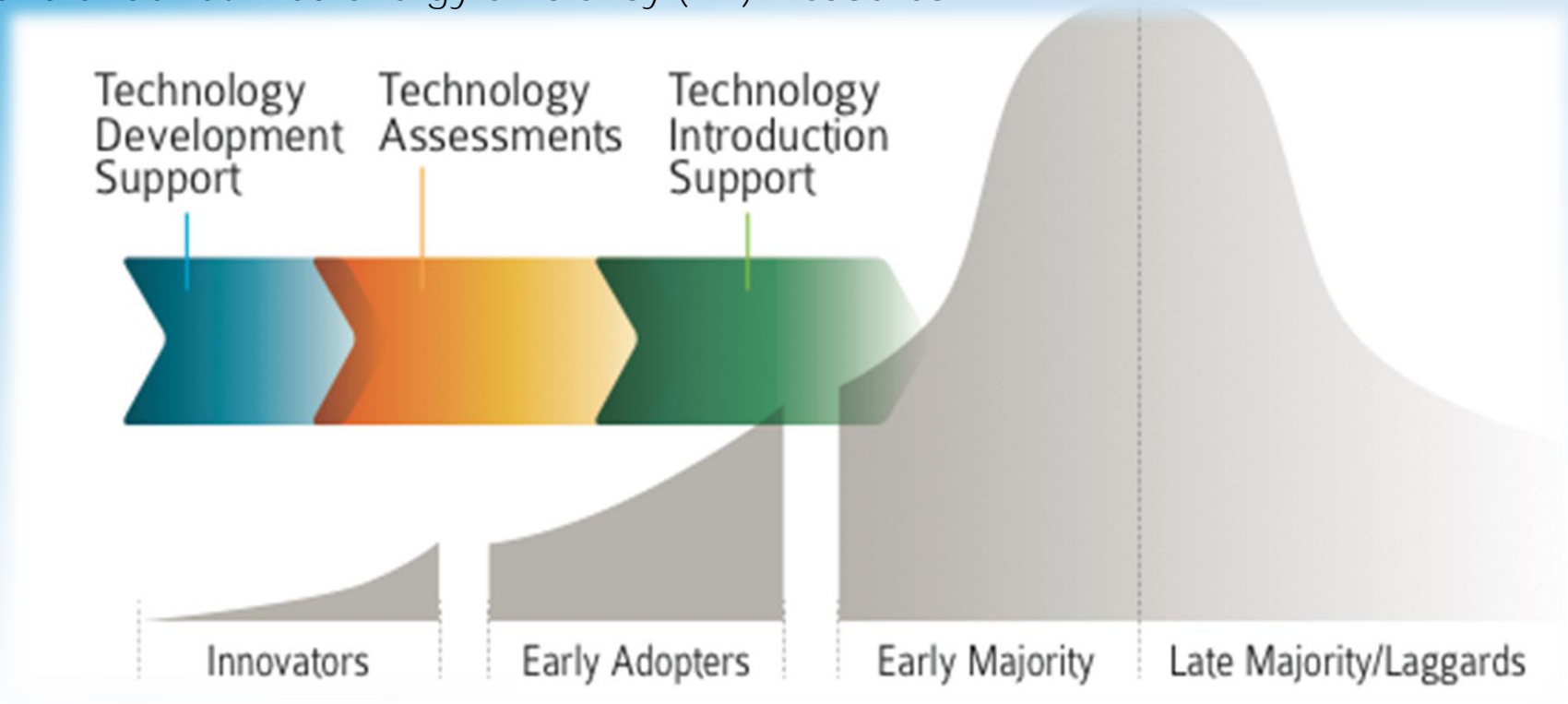
Working with SDG&E

Matt Smith – Emerging Technologies



Introduction to the Emerging Technologies Program

Purpose: ETP Program supports increased energy efficiency market demand and technology supply by contributing to the development, assessment, and introduction of new and under-utilized energy efficiency (EE) measures.



Annual budgets for the Emerging Technology Program at SDG&E

- \$1.3M for Energy Efficiency Projects
- \$700K for Demand Response Projects

Typical Stages of an Emerging Technologies Project

How long will it take to get my technology through the process?

From submission to incentive implementation is usually about 1-3 years. That might seem like a long time, but there's a lot involved and most steps cannot be carried out until the previous steps are complete. Here's the rough break-down:

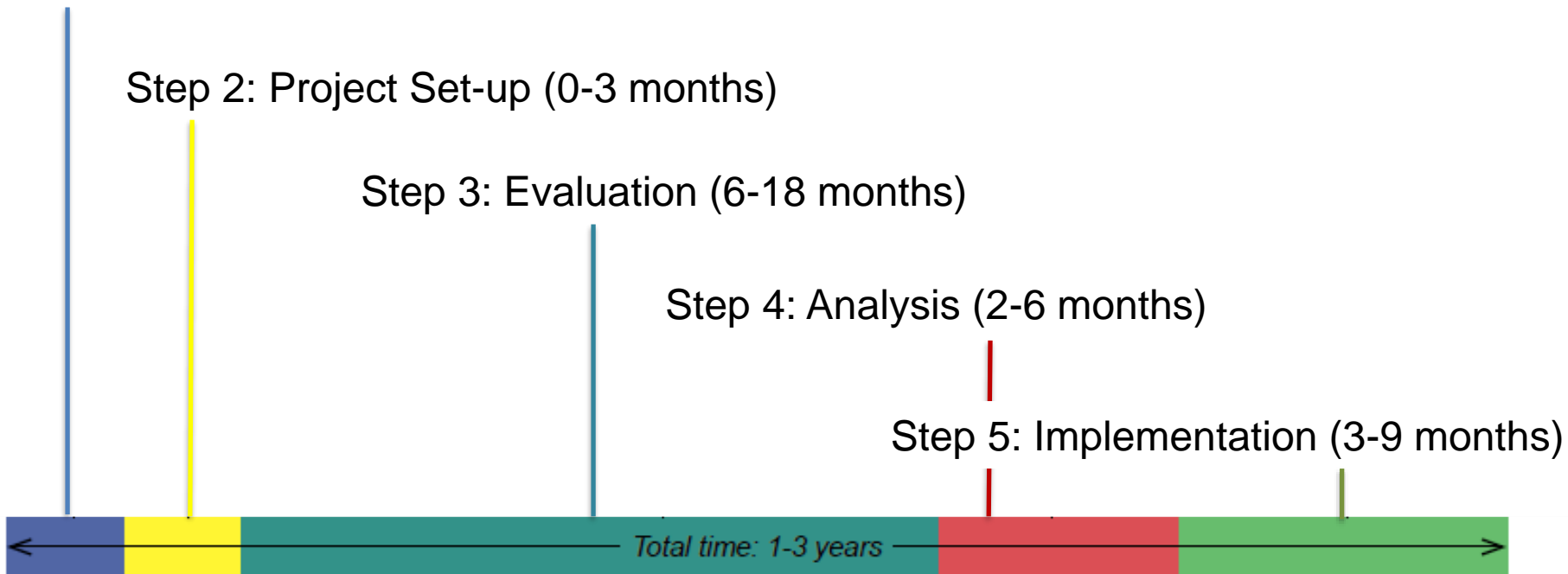
Step 1: Planning (1-2 months)

Step 2: Project Set-up (0-3 months)

Step 3: Evaluation (6-18 months)

Step 4: Analysis (2-6 months)

Step 5: Implementation (3-9 months)



While this timeline portrays the evaluation process as linear, it is often be highly iterative. Utilities may work with vendors through successive generations of technologies, backtrack to address errors in testing, and involve regulators into the process. These issues may speed up or slow down the evaluation process.



What We Look for in a Supplier

- Company Knowledge
- Strong record and commitment to **safety**
- Demonstrated high **quality** work and performance; appropriate licensing and insurance; and high **reliability** & responsiveness
- Competitive **pricing**
- Provides additional value through **special expertise, innovative** approach, etc.
- Commitment to **diversity** (directly and/or indirectly)
- Commitment to **environmental** sustainability
- A strong understanding and **compliance** with applicable regulations



IT Business Drivers

- Increasing business expectations for Customer engagement
- Security & Privacy considerations are expanding
- Utility Industry is undergoing significant transformation
- Smart Meter/Smart Grid deployments require more scalable approaches to:
 - System Integration, Testing & Systems Management
 - Cross functional business operations
- Greater flexibility is necessary from an IT workforce perspective
 - Specialized skill sets: System Integration, Mobility, etc.
 - Blended skill sets: IT & Power Systems Engineering
- Broader sets of stakeholders bring greater diversity in
 - Expertise, Experience, Capabilities & Decision Making

Contracting Opportunity with SDG&E



- Visit the company's website
 - Know who we are and what we do
- Register in company's database
 - <https://vendorrelations.sempra.com/VendorRelations/start.do>
- Register at PEPMA to be notified of new solicitations by SDG&E
 - <https://www.pepma-ca.com/>

Innovation

TRIO Symposium – Technology Innovation And Utility Engagement

June 9, 2017 @ Pacific Energy Center

Engaging with SoCalGas to Offer Utility Programs

- » Transition Plan - outlined in SoCalGas' filed Business Plan
- » Solicitation Structure – under consideration
- » Key Attributes for Winning Proposals – some scoring criteria
- » Critical Requirements for Vendors – examples

Transition Plan

- » SoCalGas Transition Plan to outsource 60% of program budgets by 2020 - included in Business Plan filing.
- » 3 Phases:
 1. Reconfigure existing 3rd Party Programs (2017)*
 2. Address and outsource state-wide programs (2018-19)*
 3. Address and outsource remaining core EE programs (2019-20)*
- » SoCalGas will not propose, design or implement outsourced programs – responsibility lies with the 3rd party

* Target dates subject to change due to regulatory direction.

Solicitation Structure

- » Considering a 3-step RFP process
 1. Request for Abstracts (RFA) – review, create short list
 2. Request for Proposals (RFP) – from short list, score and select winners
 3. Initiate/complete contracting and onboarding processes
- » SoCalGas' RFPs will not take individual ideas from RFA and bid them out. If an abstract is promising, plan to request that vendor to submit a detailed proposal.

General Proposal Scoring Criteria

- » In development, but utilities will seek to implement strategies outlined in business plans, so targeting program ideas around packages of measures vis a vis single product/widget/service
- » Likely criteria:
 - Innovation, e.g. market extension, product extension, different product/market mix, new product**
 - Feasibility
 - Cost-effectiveness
 - DBE requirements/diversity
 - Past experience

** May require Emerging Technologies involvement

Critical Requirements Examples

- » Data Security capabilities, 3rd party validation
- » Licensing, where applicable
- » Insurance
- » Branding with utility