

Q3 2020 Clean Transportation Program Advisory Council Meeting

October 28, 2020



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Agenda

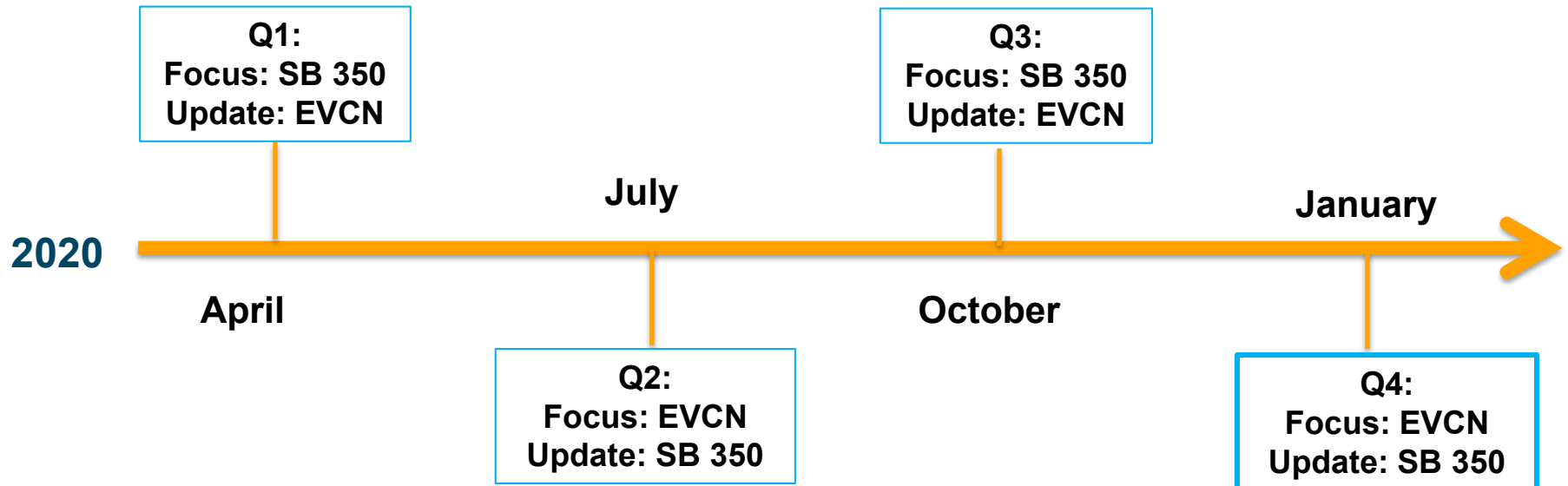
| | |
|--|----------------------|
| Safety / Introductions | 9:00 – 9:05 |
| EVCN Program Update | 9:05 – 9:10 |
| SB 350: Standard Review Projects & Deep Dives | 9:10 – 9:50 |
| Schools and Parks | 9:50 - 10:05 |
| Business EV Rate | 10:05 - 10:15 |
| BREAK | 10:15- 10:25 |
| SB 350: Priority Review Projects | 10:25 – 10:50 |
| Questions | 10:50 – 11:00 |



Clean Transportation Program Advisory Council

Overview

- PG&E has expanded our efforts on transportation electrification, with a number of filings, pilots and programs in development
- CPUC has directed PG&E to consult a Program Advisory Council in the development of these pilots and programs to gain feedback from industry stakeholders
- This platform will serve to gather insight and feedback on PG&E's proposals and ongoing programs



EVCN Program Update



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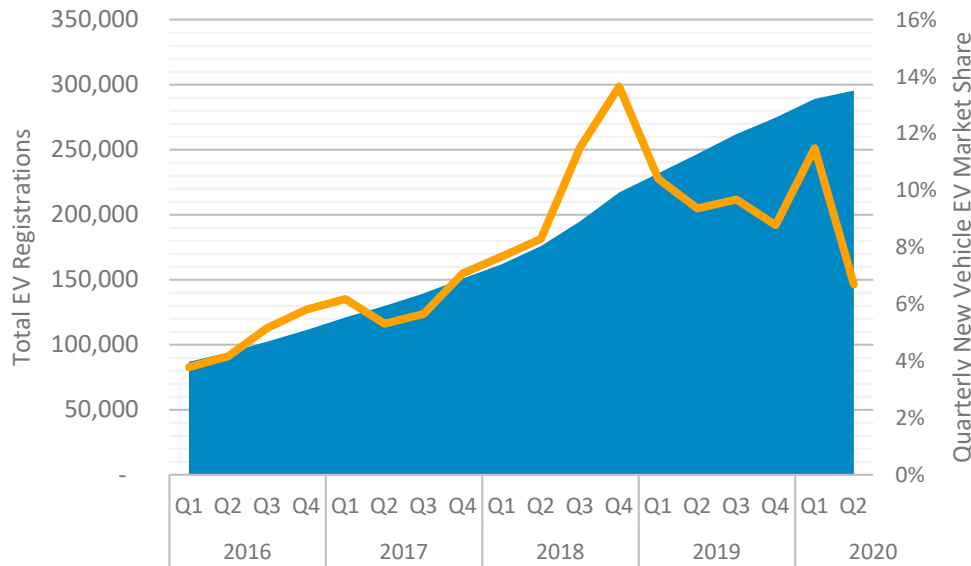


Q3 2020 EV Market Update

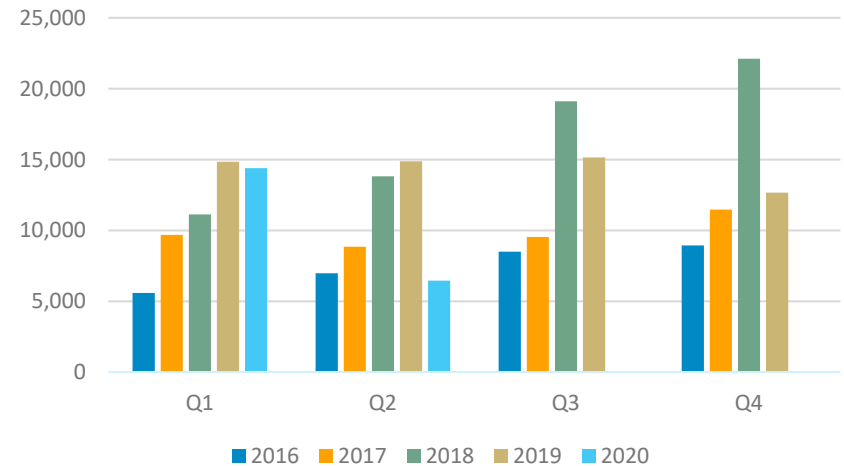
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EVs registered in PG&E service territory, through August of 2020

Cumulative New EV Registrations PG&E Service Territory



New EV Registrations by Quarter



Source: EPRI, Based on external registration data through August 2020

Programs Status Update

- After a COVID19-related pause to programs' construction in Q1/Q2, PG&E resumed its pre-shelter-in-place construction pace in Q3
- In Q3 2020,
 - EVCN: 744 ports (23 projects) were substantially complete
 - EV Fleet: 5 projects were substantially complete
- Through September 2020, PG&E has installed over 75% of target EVCN ports (3,460 ports out of 4,500 port target)



Programs Status Update

- PG&E construction is proceeding with COVID19-related safety protocols in place & with the goal of minimizing impact to customers during the pandemic
 - COVID-related safety protocols include daily health verification, safe distancing, proper face mask wearing, and use of good hygiene
- The programs continue to work to minimize impacts to construction resulting from PSPS and wildfires
 - Proactively monitoring scheduled work compared to high fire threat districts
 - Being prepared to reschedule clearances as necessary
- PSPS and wildfires throughout service territory have had minimal impact on construction and scheduled clearances so far





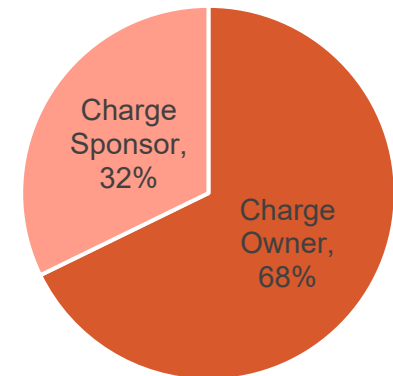
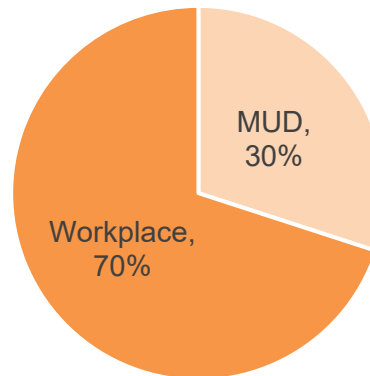
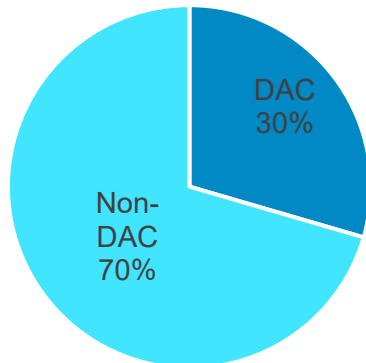
Overall EVCN Progress Update

Status as of 9/30/2020

| | Ports | Sites ² |
|-----------------------------------|--------|--------------------|
| Submitted | 15,828 | 816 |
| Viable ¹ | 4,898 | 198 |
| Final Design | 4,898 | 188 |
| Construction substantial complete | 3,460 | 157 |
| Activated | 2,752 | 139 |

- **Customer acquisition** complete: application portal closed Q2 2019
- **Site eligibility** complete: all customer agreements in place
- **Final design** complete: all applications have completed final design
- **Construction** at a steady capacity following shelter-in-place measures³

Installed port portfolio



Notes: ¹ Viable sites are those sites for which contracts are signed and the project will be constructed; ² 817 applications were reported as submitted in Q2 2020 update. Since then, the program identified a project that had previously been reported as a distinct application but was a duplicate application; it is now removed from the list, resulting in 816 applications submitted; ³ In Q2 2020, EVCN paused construction as the team evaluated state-, country-, and local-level construction restrictions related to COVID-19 shelter-in-place conditions and customer preferences

SB 350

Standard Review Projects



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EV Fleet



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EV Fleet Progress Update

Status as of 9/30/2020

| | Sites | EVs |
|-----------------------------------|-------|------|
| Applications | 116 | 1941 |
| Viable ¹ | 49 | 885 |
| Final Design | 35 | 372 |
| Construction substantial complete | 10 | 120 |
| Activated | 8 | 106 |

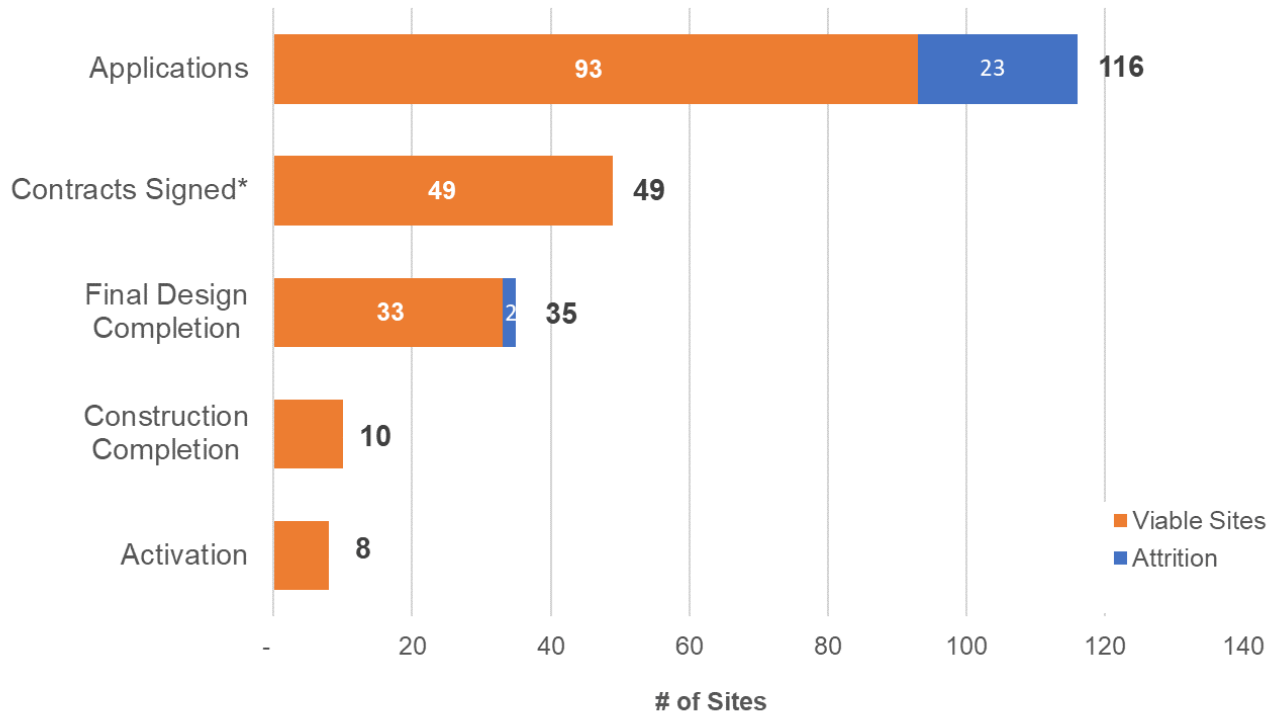
- **Customer acquisition** included webinars and marketing campaign to educate customers on benefits of fleet electrification
- **Site eligibility** assessments and contracting continued through shelter-in-place, but program anticipates pipeline development delays to continue through 2020 due to COVID19-related customer budget constraints and uncertainty of market readiness
- **Final designs** were completed despite shelter in place, as the program developed a remote review process versus in person site walks
- **Construction** site work was paused starting in March and PG&E developed guidelines for resuming site presence safely; construction activity resumed in July resulting in 5 completed sites that month

Note: ¹Viable contracts are all contracts signed to-date including on hold, cancelled, waitlisted and withdrawn.



EV Fleet – Program Overview

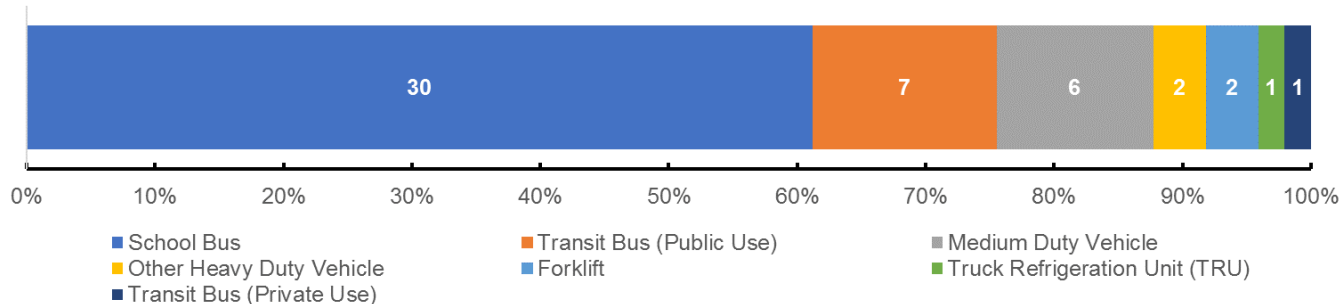
EV Fleet - Viable Sites vs Attrition



Highlights

- The program currently has 116 submitted applications, 49 signed contracts (details below), and 10 projects that have completed construction
- The team is on track to meet its construction completion goals for the year

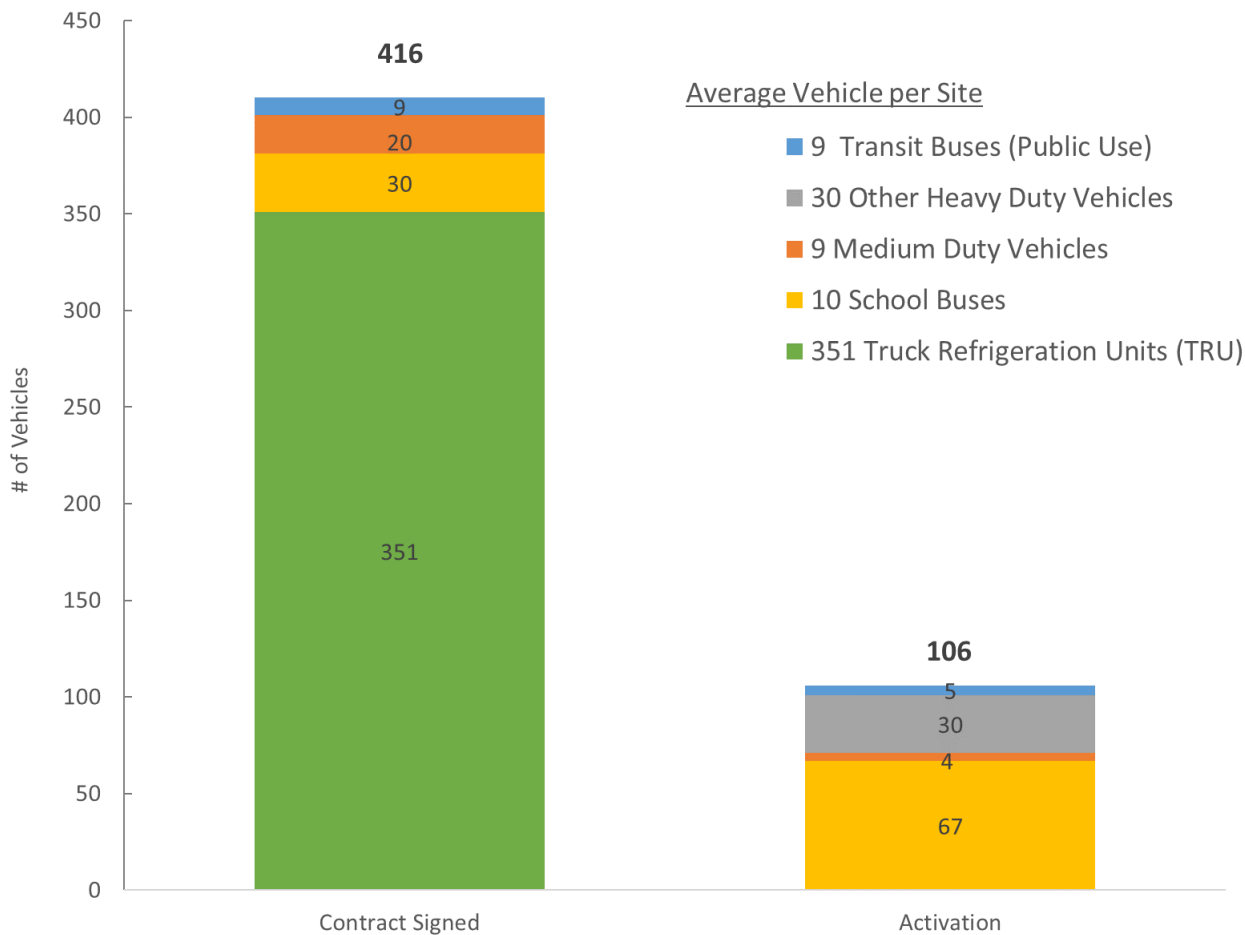
Contract Signed Stage - Site Diveristy (Total: 49 contracts)





EV Fleet – Enabled Electric Vehicles by Project Stage

Vehicle Segment by Project Stage



Highlights

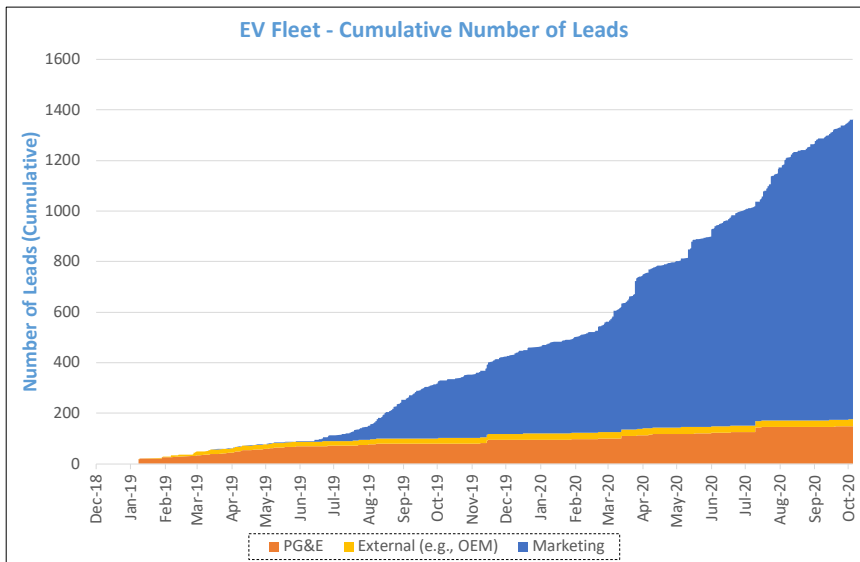
- **As of Q3 2020, all active contracts signed represented a total of 416 electric vehicles*, across 5 categories**
- **The 8 activated sites represent a total of 106 electric vehicles**

*Reports active sites only. Excludes sites that are waitlisted, on hold, cancelled, and withdrawn. Projects on hold are sites where customers have indicated that they need more time before moving to the next stage.



EV Fleet: Lead Generation Updates

| Lead Completes | 2020 Lead Total |
|---------------------------------|-----------------|
| Marketing Total | 817 |
| Teleservices | 363 |
| Webinars | 155 |
| Email Campaign | 3 |
| Open Houses | 64 |
| Paid Media | 76 |
| Other Marketing | 156 |
| Non-Marketing Total | 57 |
| Total Program Leads 2020 | 874 |



Efforts thus far:

- Completed 12 webinars and 2 virtual open houses:
 - 7,045 customers signed up
 - 3,461 attended live, with many more recordings watched
 - 155 webinar leads
 - 64 virtual open house leads
- Sent over 20 different emails with a click rate of 6.2% (industry average is ~2.5%)

Plans for Q4:

- Execute remainder of 2020 plan which includes a webinar promoting the new EV Fleet Savings Calculator, developing case studies, and enhancing OEM relationships.
- Plan for 2021 customer acquisition efforts with a specific emphasis to drive deeper participation with those already showing interest.

Highlights

Due to the pandemic and Shelter-in-Place order, the team had to revise its Marketing & Outreach Strategies from in-person events to virtual ones. Despite the challenges, the program recruited more than 800 leads for 2020.

[Note: A lead takes minimum of 4-6 months to convert to an application]



EV Fleet: Impacts of COVID

- The program currently has 33 projects 'on hold'
- 75% of the projects have been 'on hold' for at least 3 months
- The projects are a mix of customers from various vehicle sectors – Schools, Transit, Distribution & Delivery, Other
- 24 of the 33 projects have been placed on hold in the 'Contract Issued'* stage. Of the 24, 17 indicated the below reason for putting the project on hold:

“Our Leadership needs more time to review the project cost & scope, design, and contract terms and conditions.”

Other reasons included:

“Would like to hold off until we know the impacts of COVID. May need to hold off until next year.”

- The remaining 9 projects are in one of the following stages – Application submitted; Desktop Review completed; Prelim Design & ROM completed; Final Design completed

The above stats clearly indicate that customers are taking longer to make electrification decisions as they are having to reevaluate and reprioritize their internal goals and operations to adjust to the demands of COVID and Shelter-in-Place

It is important to note that 22 of the 23 contracts signed this year are projects where the customer began their electrification journey/engagement in 2019, i.e. before the pandemic hit

*Contract Issued is the stage when PG&E has sent the Contract to the customer for review and signature. It's the stage before 'Contract Signed'

EV Fast Charge

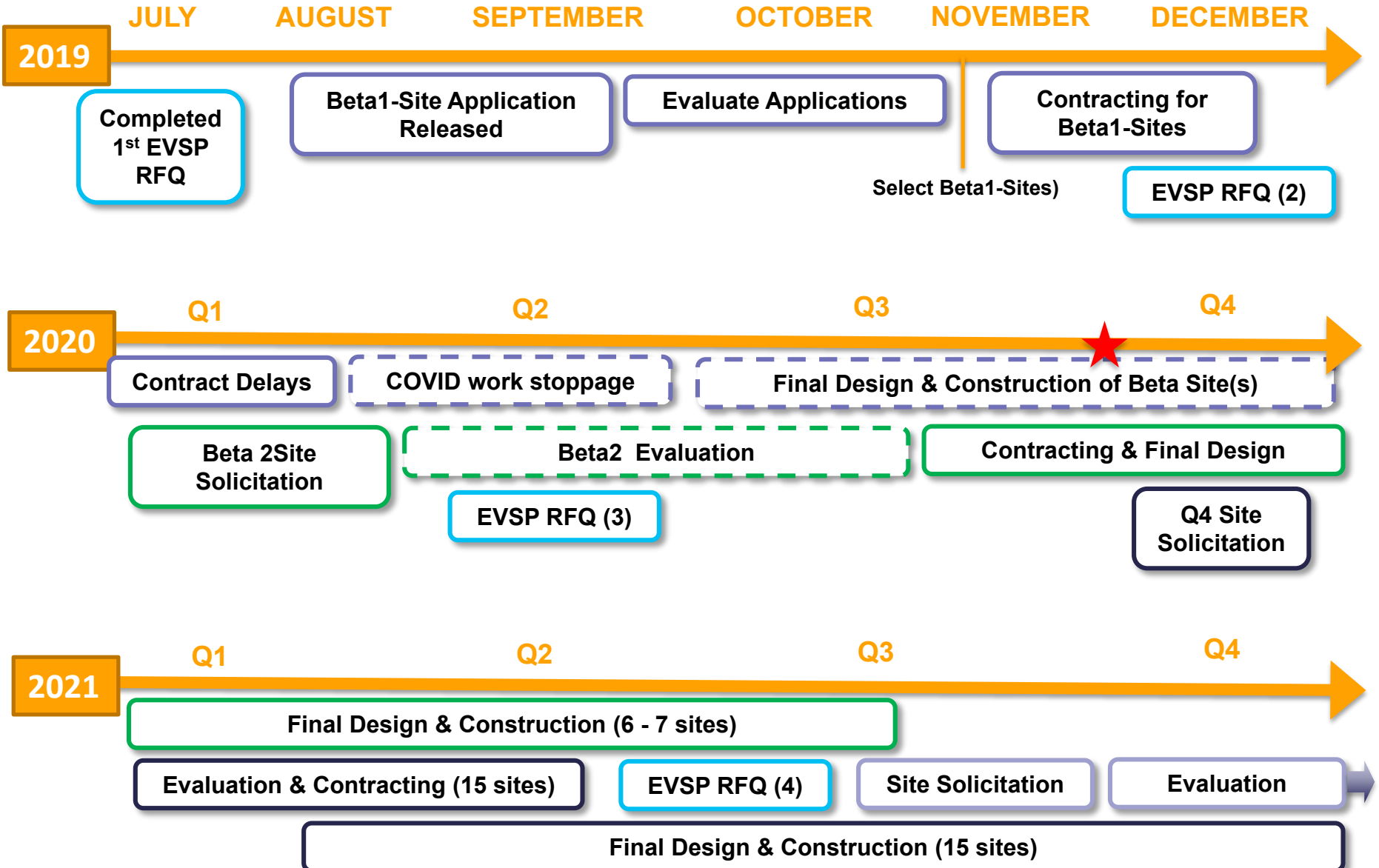


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Timeline

Dashed line indicates delay due to COVID-19



Third Vendor RFQ Completed in October with 3 Additional Vendors Qualifying

Qualified in June 2019

| Vendor | Hardware Used |
|--------|---------------------------------|
| | ChargePoint |
| | ABB BTC |
| | ABB BTC EFACEC TRITIUM |
| | BTC TRITIUM |
| | ABB EFACEC TRITIUM |
| | TRITIUM |
| | ABB |

Qualified in December 2019

| Vendor | Hardware Used |
|--------|-------------------|
| | Tritium |
| | Efacec Tritium |
| | Tritium |

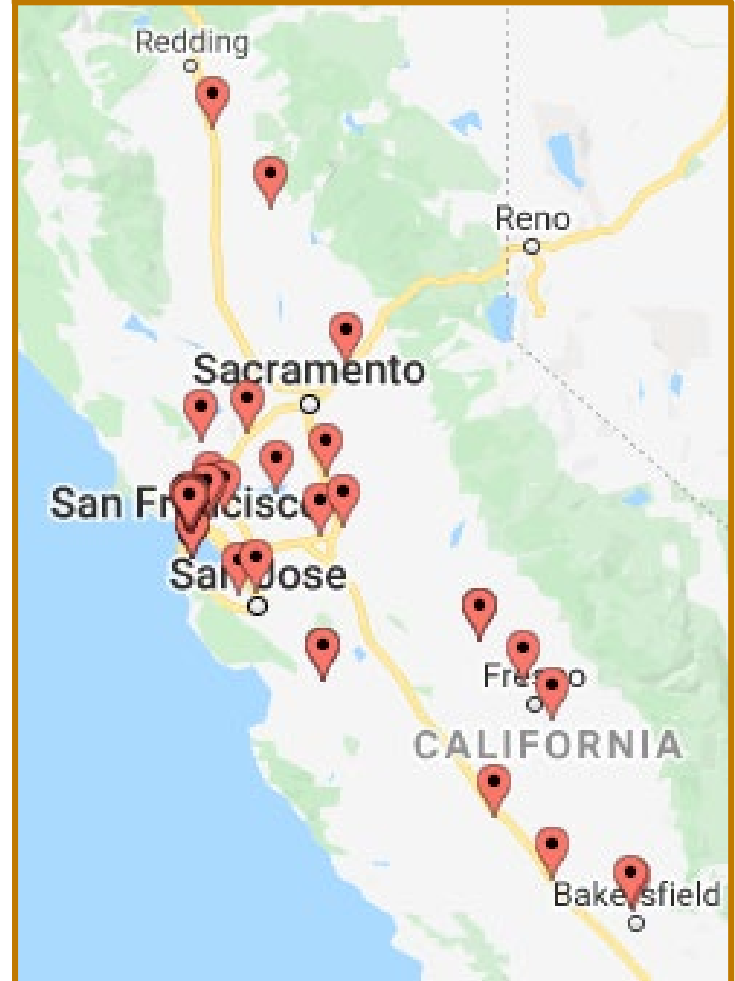
Qualified in October 2020

| Vendor | Hardware Used |
|---------------------------------------|----------------------|
| | ABB Signet BTC |
| EV Connect EV Gateway Greenlots | |
| | BTC |

Beta 2 Solicitation Statistics

- 7 Different EVSP submitted
- 61 Total applications received
- 24 unique customers w/ majority
 - Parking garages
 - Gas station/C-stores
- >65% sites located in DACs
- 8 different hardware models represented
- 85% of applications were for chargers of 50 kW or 62.5kW

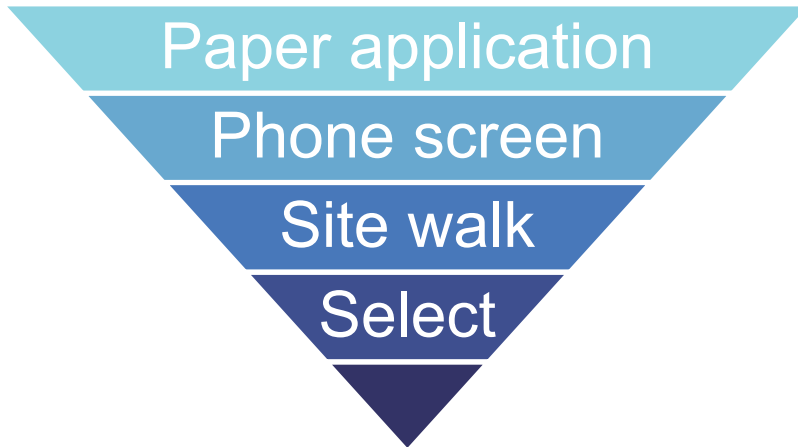
Represented Areas



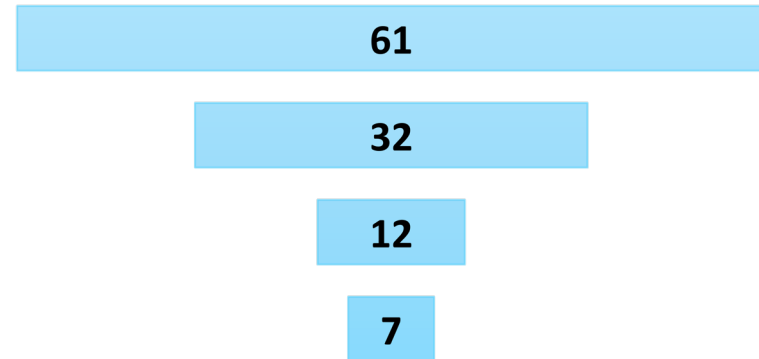


EV Fast Charge: Summary Statistics

Beta 2 Application Funnel



Beta 2 # Sites per Phase



*Although 7 Sites selected, only 6 contracts issued.
1 site is pending exception on 150kW make-ready.*

| Program Totals Inception to Date (ITD) | 2 Solicitations Total | | Sites | Ports |
|--|-----------------------------------|----|-------|-------|
| | Applications | 65 | 251 | |
| | Viable (Contract Issued) | 8 | 40 | |
| | Final Design | 6 | 28 | |
| | Construction Substantial Complete | 0 | 0 | |
| | Activated | 0 | 0 | |

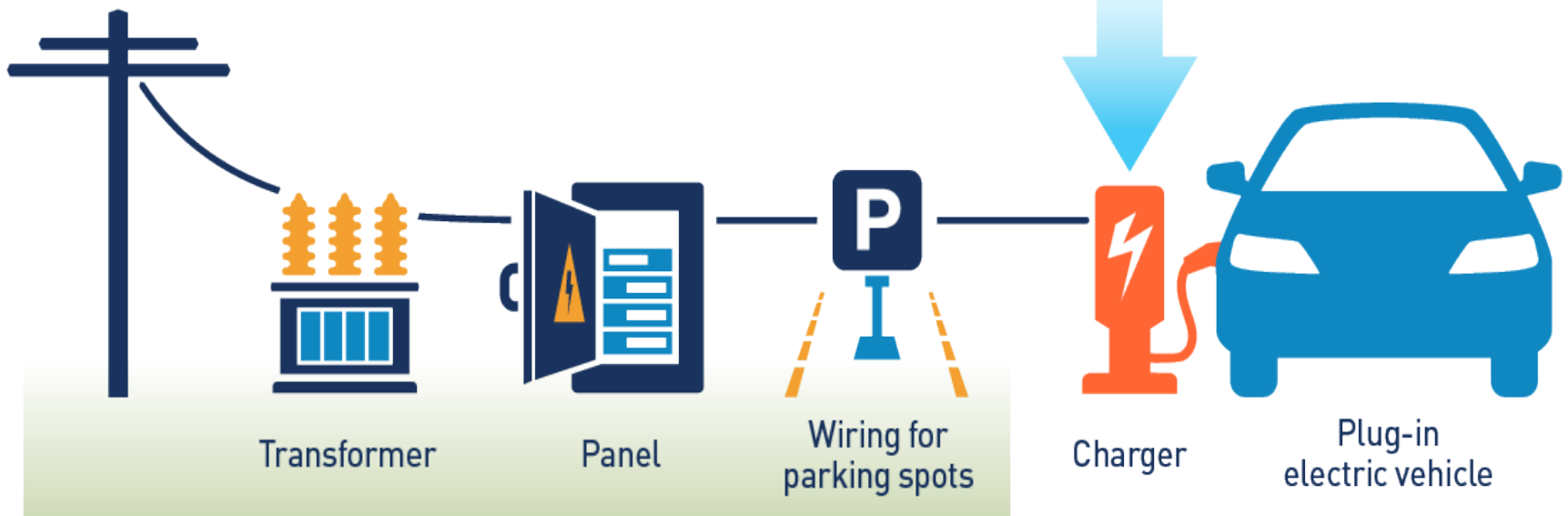
150 kW Make-Ready- Key Facts

D 18-05-040 states: *Pacific Gas and Electric Company must ensure all **customer-side** electric infrastructure necessary to support its Direct Current Fast Charger Make-Ready Program supports Electric Vehicle Supply Equipment of 150 kW or larger for all sites.*

PG&E pays for and owns all “make-ready” infrastructure

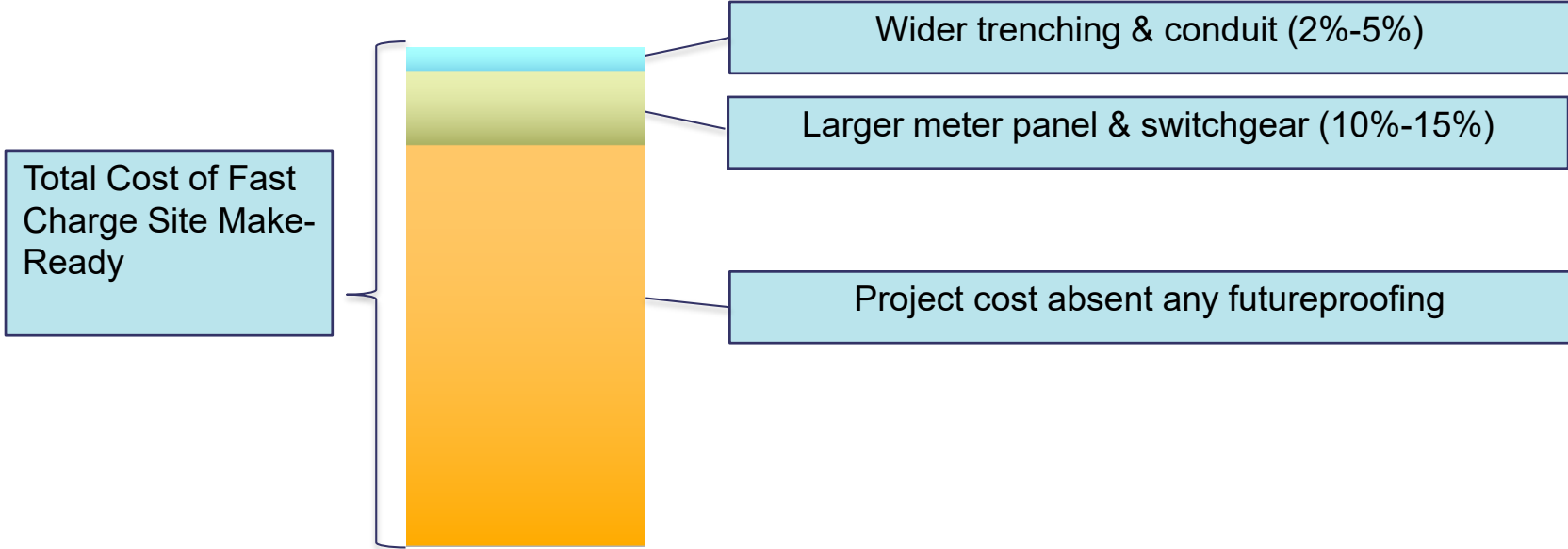
Customer pays for and owns charger

High vehicle utilization is key goal



150 kW Make-Ready- PG&E Observations

Currently, future proofing has an incremental cost of ~12% –20%



Do stakeholders agree with PG&E’s interpretation of what is included in “customer-side make ready”?

- Should it include larger meter panel & switchgear or should it be trenching only?

150 kW Make-Ready- PG&E Observations (continued)

The requirement may have unintended consequences for the program.



“Good” sites either excluded or compromised

Increased site evaluation costs / program admin cost



Mismatches between make-ready size and:

1. Driver/site host needs
2. Upstream of meter (TtM) capacity

150 kW Make-Ready- Discussion Questions

1. Do stakeholders agree with PG&E's interpretation of what is included in "customer-side make ready"?
2. Should there be exceptions to when PG&E builds make-ready infrastructure to accommodate 150kW?
3. If so, what might those exceptions be?
4. Should certain sites not be allowed into the program?
5. How might PG&E and other market actors help site hosts appreciate the added investment involved with "future proofing"?

EV Charge Schools & Parks



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Decision Summary

- **Decision No. 19-11-017** issued on Nov. 13, 2019
 - Underlying 2017 Assembly Bills: **AB 1082** (Schools) and **AB 1083** (Parks)
- **Purpose:** Provide charging infrastructure at city and county parks, state parks and beaches, school facilities and educational institutions in support of CA's electrification goals.
- **Pilot Project Cohort/IOU Partners:**
 - Liberty Utilities
 - Pacific Gas & Electric (PG&E)
 - San Diego Gas & Electric (SDG&E)
 - Southern California Edison (SCE)
- **Total Funding Across all IOUs:** \$54.4M
- **Total Proposed Ports Across all IOUs:** Appx. 900



EV Charge Schools & Parks

Summary of Programs

| | Scope | Time | Budget | Sites | DAC | Rebates |
|------------------------|---|---------|---------|--------------------------|--------------|------------------|
| Schools Program | 22 campuses 88-132 L2 ports | 2 years | \$5.76M | Lower & higher education | 40% of sites | Rebates |
| Parks Program | 15 parks/beaches 40 L2 ports 3 DCFC | 2 years | \$5.54M | State parks & beaches | 25% of sites | PG&E sponsorship |

Additional Program Components:

- Exploring opportunities to deploy chargers in Tribal Communities
- Educational Opportunities: Curriculum development and educational outreach for schools
- Awareness Raising: Signage and PR efforts for parks/beaches

Charger Ownership Option:

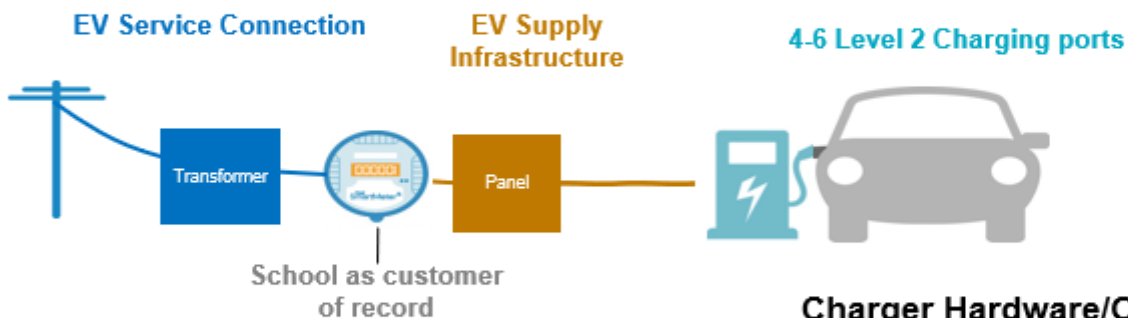
- Site owns the charger receives rebate **equal to the cost of the charger and ongoing network/maintenance costs**
- Site pays ongoing network/maintenance costs

Charger Sponsor Option:

- PG&E owns the charger
- PG&E pays ongoing network/maintenance costs

Make Ready

- PG&E responsible for design and construction of EV Service Connection & Supply Infrastructure (Make-Ready)
- PG&E covers full cost of the infrastructure



Charger Hardware/O&M

- Site Owner responsible for charger hardware, ongoing operation and maintenance
- PG&E provides rebate that includes one-time charger cost and cost of network and maintenance



EV Charge Schools EVSE Rebate Amount

Proposed Rebate Amount

| Equipment Type | Cost | Maintenance* | Network Service* | Warranty* | Proposed Rebate Total* |
|----------------|----------|--------------|------------------|-----------|------------------------|
| L2 (Single) | \$4,500 | TBD | TBD | \$1,500 | \$6,000 + M & NS |
| L2 (Dual) | \$8,500 | TBD | TBD | \$1,500 | \$10,000 + M & NS |
| DCFC | \$45,000 | TBD | TBD | \$7,000 | \$52,000 + M & NS |

*Proposed rebate total pays an “up to” dollar amount but does not exceed. PG&E leveraged cost data from EVCN/RFP/FRQ to develop rebate amount. Maintenance and network service rebate amounts will be calculated on a timeframe still being finalized. Rebate amounts and timeframe will be approved by CPUC.



EV Charge Schools & Parks

Timelines

Q4/20 (Oct 2020 – Dec 2020)

Q1/21 (Jan 2021 – Mar 2021)

Phase I – Design and Launch

- Finalize program design
- File Tier 3 Advice Letter with rebate calculation and supporting documentation
- Begin program implementation: internal collaboration, customer outreach
- Application launch and phone screens
- Ongoing information and data collection

Phase II – Implementation and Reporting

- Continue phone screens
- Schedule site walks
- Develop preliminary designs
- Issue contracts
- CPUC Tier 2 Advice Letter due March 1, 2021

Business EV Rate: Phase 2 Launch



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BEV Rate Open for Enrollment

Phase 2 of the BEV rate launch is complete and **live for enrollment as of 10/1**

Phase 2: Full Rate

Launch Date: October 1, 2020

Customers able to enroll in EV rate in October with full functionality:

- SmartMeter and MV90 meters
- Solar eligibility (NEM2)
- Cost Comparison and Account tools
 - Online enrollment
 - Electric rate and Gasoline Cost Comparisons
- Other rate mechanics
 - Grace Period and Auto Adj.
 - Overage fee notifications
 - BEV Rate Welcome Letter

BEV Enrollment Stats¹

- Total enrolled customers: 17
- Total sites: 203

Upcoming Marketing and Engagement

- Multi-channel outreach to potential customers.
- Public webinars and BEV data workshops in 2021

Customer Savings Case Study

By switching to the BEV rate, a customer with multiple electric city buses saved over \$14,000 in July and August 2020 alone.



Go-Live Updates for the Business EV Rate

- 1. All current BEV customers will be automatically transitioned to the full BEV rate on 10/1. Customers will not see any impact to cost or rate on 10/1.**
- 2. All enrolled customers will receive a paper Welcome Letter. This does not change the customers rate or subscription or anything else.**
- 3. All customers will receive another grace period for 3 billing cycles starting their first billing cycle after 10/1.**

*****REMINDER ABOUT RATE ELIGIBILITY*****

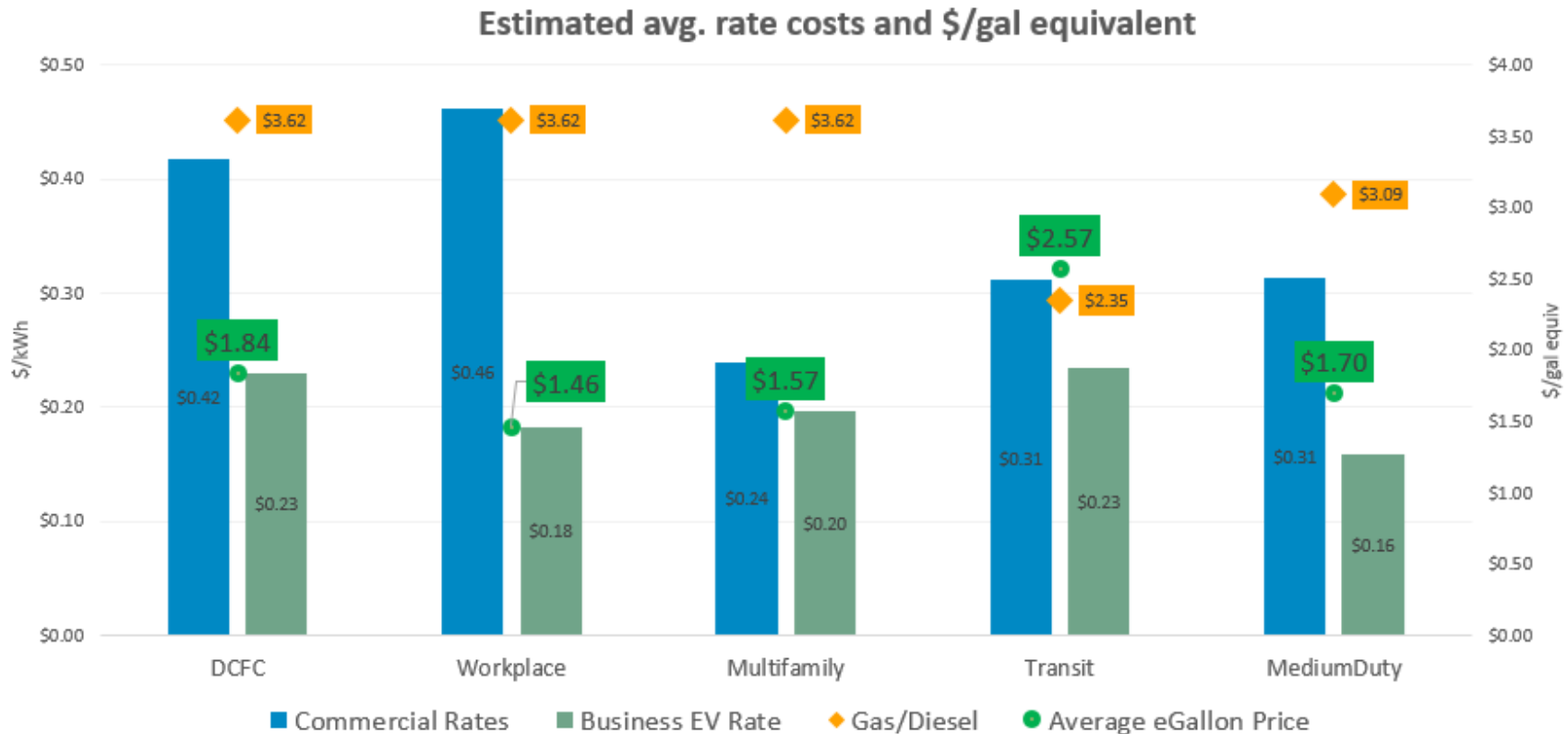
CUSTOMERS MUST:

- 1. Have a SmartMeter**
- 2. Have an active Energy Alert email on file**
- 3. Have individually metered charging stations**



BEV Provides Cost Savings Across Segments

On average the Business EV rate can save 40% on charging costs for EV customers compared to Commercial rates.





EV Fleet Savings Calculator – <http://fleets.pge.com/>



Annual Fuel Savings

\$20,000

Savings Per Mile

\$0.26



Annual LCFS Credits

\$12,000

Revenue Per Mile

\$0.16



Annual GHG Emissions Saved

91 Tons

VEHICLES

3x Pick-up Truck

Medium Duty



Miles per vehicle
Days Operating

100

Mo, Tu, We, Th, Fr

Charging: 9pm - 5am

[+ Add a new vehicle](#)

FUEL

DIESEL PRICE (\$/GAL)

3.1

1

5

ELECTRICITY SOURCE

California Grid

Clean onsite generation creates more LCFS credits.

FINANCIAL

ELECTRICITY

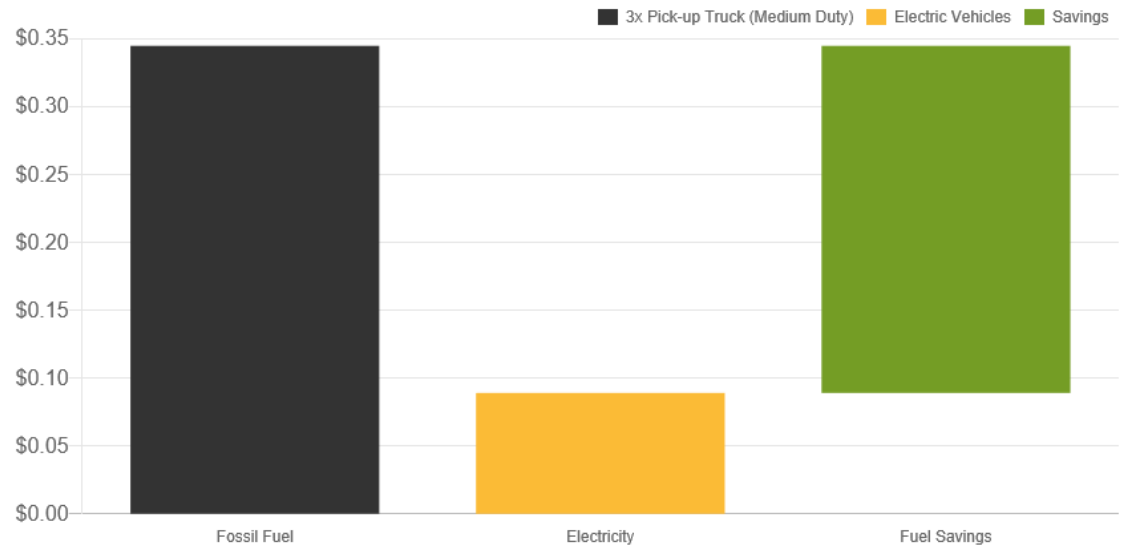
OPERATIONS

INFRASTRUCTURE

EMISSIONS

Based on your selections, using electricity instead of fossil fuel saves **\$20,000** per year.
For 78,268 annual miles, this is a savings of **\$0.26 per mile**.

ANNUAL FUEL COSTS





Resources and Links with More Information

1. View the Business EV tariff [here](#).
2. To learn more about the Business EV rate, please visit www.pge.com/businesssevrage
3. Business EV Fleet Savings Calculator [here](#).
4. To install a meter, contact PG&E's Service Planning department through PG&E's [Customer Connections Online](#) (CCO) or PG&E's Building and Renovation Service Center (BRSC) by calling 1-877-743-7782.
5. If you have further questions, please contact BusinessEVrate@pge.com

SB350

Priority Review Projects



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1 Medium/Heavy Duty Fleet Customer Demonstration

Project Partner

- San Joaquin Transit District (SJRTD) located in Disadvantaged Community
- Existing fleet of 17 electric buses
- Plan for all-electric buses (~100) by 2025

Project Scope and Goals

- Compare Total Cost of Ownership (TCO) for
- Overnight Depot Charging
 - On-route extreme fast charging (XFC) paired with demand management software
 - On-route XFC paired with battery storage system

2 Idle Reduction Technology

Project Partner

- Safeway Albertson's distribution facility located in Disadvantaged Community
- Fleet of 780 trailers (280 eTRU units)
- Plan for 360 eTRU ports now with 500 to 600 if participation is successful

Project Scope and Goals

- Understand deployment of eTRU technology and impact of site operations
- Deploy 25 electrified receptacles for eTRU connection
- Demonstrate building off customer infrastructure
- Minimizing fuel costs and GHG by reducing diesel idling

3 Electric School Bus Renewables Integration

Project Partner

- Pittsburg Unified School District (PUSD) located in Disadvantaged Community
- K-12 district, serving 13 school sites
- Fleet of 4 electric buses + ~200KW onsite wind and solar

Project Scope and Goals

- Deployment of 9 Level 2 Chargers and charge management software
- Optimize charging for economics and GHG reductions
- Test novel communications design to integrate onsite renewables

Challenges

BESS EPC and Activation delayed

- BESS procurement process started in April 2019, purchased in April 2020, currently sitting in storage
- Contracting bids higher than engineering estimations with significant variation in unit costs

Maintaining Operations

- Difficult to test new technology, like Demand Management Software, and maintain operations for the public
- Faults with the overhead chargers and demand ceilings caused delays in the transit schedule

Insights to-date

Cost Savings with BEV Rate

- Significant cost savings at both the depot charger location, and the overhead charger locations after switching to the BEV Rate
- BEV rate reduces the potential cost savings of other peak shaving strategies, such as the BESS

Limited Solutions Available

- Limited by available bus and charger models and charge management solutions
- Products are not always compatible and are progressing at different rates

Challenges

COVID and site security measures impacted data collection

- A combination of COVID, onsite security measures, and limited functionality of data collection equipment delayed data download efforts

Connection process is time-consuming for yard hostler operators

- Site is attempting to install a software retrofit to simplify the diesel-to-electric switchover process to improve operations and reduce time needed by the drivers and hostler operators

Insights to-date

Lower eTRU connection port utilization at docks vs. staging areas

- Trailers quickly pulled into docks for loading and moved to staging areas, where they sit until ready to be deployed on delivery routes
- Possibly more cost effective for sites with similar operations to focus on staging area electrification

Standardization of chargers and connection ports will be critical for scaling

- No standard for eTRU connectors and receptacles, so retrofitting equipment may be necessary.
- Utilities should support the establishment of an industry-wide eTRU connector standard to simplify future deployments.
- Likewise, design guidelines and installation best practices are needed and should be shared broadly.

Challenges

Capacity of buses and COVID resulted in lower-than-projected utilization

- Initial eLion buses were 64-passenger; with driver shortage, PUSD had to favor deployment of higher capacity existing diesel fleet until 78-passenger Blue Bird's were acquired
- With school closures, utilization was unable to catch up at the start of the testing period.

Bus BMS are not designed with delayed power and advanced charge management in mind

- Default stops power flow between the bus and the charger if no power was delivered over a factory-specified number of minutes
- Trickle charge kept bus from electrically disconnecting, no solution for Blue Bird during project period.

Insights to-date

Managed charging can be used to extract value for non-networked chargers

- Managed charging with low-cost, non-networked chargers is feasible and can yield operational cost savings.
- Initial analysis shows \$0.21/kWh (uncontrolled) vs \$0.17/kWh (managed)

BEV rate compatible with maximizing renewables integration while minimizing bill

- Simulated billing activity demonstrated savings on the BEV rate compared to the A-6 rate
- BEV rate favors consumption when system renewables are highest but is not necessarily well-aligned with optimization of on-site renewables consumption or participation in load control programs (e.g., XSP)

Questions



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