



Call to order / Roll call

Public Comment

Action to set the agenda and approve consent items



1. Chair Report (Discussion)



2. CEO Report (Discussion)

Personnel Update

Positions posted:

- Manager of Distributed Energy Resources (DER) Strategy
- Senior Financial Analyst
- EV Program Specialist



Rate Adjustment – May 1

PCE rates will be adjusted May 1 to maintain the 5% discount to PG&E rates. This is to align our rates with the small rate change PG&E instituted on March 1.

Rate changes as a result of the ERRA / PCIA decision will not be made until July 1 at the earliest, and possibly later.

Legislative Update

- CalCCA Lobby Day in Sacramento: April 3
 - Thank you to Rick Bonilla for joining PCE staff at lobby day
- CalCCA has submitted Letters of Opposition for:
 - AB 56 (Garcia) central buyer for electricity
 - AB 1362 (O'Donnell) relaxes CPUC's code of conduct
 - AB 1584 (Quirk) cost allocation to customers
 - SB 155 (Bradford) expands CPUC oversight over CCA procurement
- PCE has submitted Letters of Support for:
 - SB 255 (Bradford) workforce / supplier diversity
 - SB 288 (Wiener) solar "bill of rights"

Marketing Strategy RFP

- Cyclops has started work on our marketing strategic plan
- Thank you to our Marketing Ad Hoc Committee, Ian Bain, Catherine Carlton, Carole Groom, Laura Parmer-Lohan, and Wayne Lee, for meeting with the consultants on April 12



Scheduling Lunch / Coffee meetings

- Jan would like to spend time with each city
 Either in your city or a convenient place for you
- Meet with each city's appointed members to PCE's Board, and their City Manager if possible
- Gain perspective on city needs / priorities
- Share ideas and focus for the future
- Open your calendars and see Anne before you leave tonight. Your availability?
 May 10, 17, 20, 21, 22, 23, 24

Upcoming Events

- SVLG Energy and Sustainability Summit, June 14, Oracle
- Business of Local Energy Conference, June 20 21, Irvine
- Silicon Valley Energy Summit, June 21, Stanford
- CalCCA annual conference, Nov 6-7, Los Angeles
- Plus many Earth Day events!



3. Citizens Advisory Committee Report (Discussion)

4. PG&E Analysis of Financial Impacts of Bill Protection on Time of Use (TOU) Transition (Discussion)

5. Approve Appointment of up to two "Director Emeritus" to the PCE Board (Action)

6. Approve New Liability, Directors & Officers, and Other Insurance Coverage (Action)



Current Overall Coverage

Insured	Туре	Company	Term	Limits	Deductible/Retention	Premium to PCE	Notes
	1	Γ	-		Γ	Γ	
County of San Mateo; PCE is Additional Insured	Liability - Primary	Princeton	5/22/18 - 5/22/19	\$2,000,000	\$1,000,000	\$0	
County of San Mateo; PCE is Additional Insured	Liability - 2nd Layer	Argonaut	5/22/18 - 5/22/19	\$7,000,000		\$0	Total of \$10MM
PCE	D&O/ Employers Practices Liability	RSUI	7/24/18 - 7/24/19	\$1,000,000	\$50,000	\$25,370	
PCE	Worker's Compensation	State Compensation Insurance Fund	7/13/18 - 7/13/19	Statutory	\$0	\$22,332	Est premium (actual based on reported payroll)
						\$47,702	

Not included:

- Property
- Crime
- Fiduciary
- Cyber/Professional Liability

Issues:

- Included in San Mateo County's Coverage
- Significant deductible

Property/Casualty – Summary/Marketing

Summary of Coverage - proposed

Coverage Type	Notes			
Property/Business Interruption	No current coverage			
General Liability - Primary	Includes Employee Benefits Liability			
Hired & Non-owned Auto Liability	Included in current Liability coverage			
Liability – Umbrella	Over Workers Comp, General and Auto			
Workers Compensation				
Cyber/Professional Liability (E&O)	No current coverage for data, phishing, privacy, etc.			
Crime	No current coverage for employee theft, funds transfer fraud			

Issues:

- New industry
- Risks not well understood

Marketing

Coverage Type	Marketing
Commercial Package (Property, Liability, Umbrella)	8 total – 3 quoted, 5 declined
Cyber/E&O	5 total – 3 quoted, 2 quoted Cyber only

Current D&O Coverage

\$1 million, with \$50K deductible

- Covers D&O and Employment Practices Liability
- Does <u>not</u> cover Fiduciary (retirement plans)
- Covers Directors with (likely) secondary coverage from their current elected council coverage
- Covers PCE Officers

Potential Losses/Claims

The most common losses are related to:



Customer sues the company and/or its directors or officers for any reason other than physical injury, product failure, or impairment



Vendor or supplier sues the company and/or its directors and officers



Competitor sues the company and/or its directors and officers



Government agency fines or sues the company and/or its directors and officers



Partner or other shareholder sues the company and/or its directors and officers



Director or officer is sued in connection with the purchase or sale of any equity or debt securities

New D&O Coverage Considerations

- Coverage limits and cost based on risk profile (i.e. size of business)
 - Assets (audited)
 - as of June 2017 were \$55.3 million
 - as of June 2018 were \$111.8 million
 - Revenues (audited)
 - as of June 2017 were \$93.1 million
 - as of June 2018 were \$244.7 million

Marketing Summary – D&O

Issues:

- New industry
- Risks not well understood

Reached out to multiple companies:

RSUI (PCE's current insurer) – quoted multiple options

Others that declined or could not compete

- Euclid
- Hiscox
- PGU

D&O Limit Options

A. Coverage areas

- Current = D&O and Employment Practices (EPL)
- Proposed = D&O, EPL and Fiduciary (retirement plan)

B. Shared vs. Separate

- Current = Shared (Total limit is shared by coverage categories; i.e. \$1 million combined)
- Proposed = Separate (Limit is separate by each category;
 i.e. \$1 million for each of 3 categories)

C. Limit

- Current Limit = \$1 million shared
- Proposed Limit = \$3 million / \$1 million for EPL/Fiduciary separate

Summary D&O Pricing Options

D&O/ Employers Practices/Fiduciary	RSUI	5/1/19 - 5/1/20	\$1MM D&O / \$1MM EPL and Fiduciary	\$50k D&O and EPL / \$2,500 Fiduciary	\$32,120	Shared Limits
D&O/ Employers Practices/Fiduciary	RSUI	5/1/19 - 5/1/20	\$2MM D&O / \$2MM EPL and Fiduciary	\$50k D&O and EPL / \$2,500 Fiduciary	\$51,370	Shared Limits
D&O/ Employers Practices/Fiduciary	RSUI	5/1/19 - 5/1/20	\$1MM D&O / \$1MM EPL and Fiduciary	\$50k D&O and EPL / \$2,500 Fiduciary	\$35,410	Separate Limits
D&O/ Employers Practices/Fiduciary	RSUI	5/1/19 - 5/1/20	\$2MM D&O / \$2MM EPL and Fiduciary	\$50k D&O and EPL / \$2,500 Fiduciary	\$56,800	Separate Limits
D&O/ Employers Practices/Fiduciary	RSUI	5/1/19 - 5/1/20	\$3MM D&O / \$1MM EPL and Fiduciary	\$50k D&O / \$2,500 EPL and Fiduciary	\$52,790	Separate Limits
D&O/ Employers Practices/Fiduciary	RSUI	5/1/19 - 5/1/20	\$5MM D&O / \$1MM EPL and Fiduciary	\$50k D&O and EPL / \$2,500 Fiduciary	\$65,600	Separate Limits

Recommended

Option

D&O Claims

What a loss looks like and its impact



More than 1 in 4 (26%) private companies reported experiencing a D&O loss in the last three years

\$399,394¹ The average reported D&O loss

The most common losses are related to:



Customer sues the company and/or its directors or officers for any reason other than physical injury, product failure, or impairment



Vendor or supplier sues the company and/or its directors and officers



Competitor sues the company and/or its directors and officers



Partner or other shareholder



Government agency fines or sues the company and/or its directors and officers



Partner or other shareholder sues the company and/or its directors and officers \$

Director or officer is sued in connection with the purchase or sale of any equity or debt securities

Government agency Claims include violations of Rule 701. While rare, the SEC did fine Credit Karma in March 2018.

Recommended Coverage

Insured	Туре	Company	Term	Limits	Deductible/Retention	Premium to PCE	Notes
PCE	Property/Business Interrruption	Federal (Chubb)	5/1/19 - 5/1/20	Replacement Cost	\$5,000	\$4,800	No coverage currently
PCE	General/Employee Benefits Liability	Federal (Chubb)	5/1/19 - 5/1/20	\$1MM/occurrence \$2MM Aggregate	\$1,000	\$5,273	
PCE	Hired & Non- Owned Auto	Federal (Chubb)	5/1/19 - 5/1/20	\$1,000,000	\$1,000	\$748	
PCE	Umbrella Liability (over WC, General)	Federal (Chubb)	5/1/19 - 5/1/20	\$10,000,000	\$0	\$8,240	Total of \$11MM
PCE	Worker's Compensation	Federal (Chubb)	5/1/19 - 5/1/20	Statutory		\$23,816	Est premium (actual based on reported payroll)
PCE	Cyber/Professional Liability	Landmark American	5/1/19 - 5/1/20	\$2MM Limit / \$250K Cyber Crime	\$10,000	\$10,836	No coverage currently
PCE	Crime	Travelers	5/1/19 - 5/1/20	\$500,000	\$5,000	\$1,335	No coverage currently
PCE	D&O/ Employers Practices/Fiduciary	RSUI	5/1/19 - 5/1/20	\$3MM D&O / \$1MM EPL and Fiduciary	\$50k D&O and EPL / \$2,500 Fiduciary	\$52,790	Separate Limits
						\$107,838	

7. Approve new EV Dealer Incentive Program for \$1.5 Million over a term of 3 Years (Action)



New EV Dealer Incentive Program April 25, 2019

Request: Approval of 2019-2021 New EV Dealer Incentive Program

Amount: Up to \$1,500,000

Term: 3 years (promotion during Q4 each year)

Outcomes

- 1. Lower the cost of new EVs
- 2. Increase/accelerate adoption of EVs

High-Level Roadmap



Transportation Detail



Electric Vehicles in San Mateo County: 19,000 (out of 670,000) State Goal by 2025: 45,544 EVs in San Mateo County

Private EV Segments & Approach



Program Detail

Project Objective: Lower the cost of new EVs to increase EV adoption above business-as-usual

Program Details:

- Discounts from partner dealer(s), one dealer per manufacturer
- \$1000 customer incentive from PCE
- \$250 dealer incentive per vehicle sold/leased

Program Process (recurring over 3-year period):

- 1. May-July: Dealer RFP
- 2. Aug-Sept: Execute dealer agreements & planning
- 3. Oct-Dec: Program running
- 4. Q1 following year: report results

2018 Program Summary

- Three partner dealers
 - Nissan of Burlingame
 - Stewart Chevrolet
 - Peter Pan BMW
- Significant dealer discounts
 - Purchase: \$1,750 \$6000
 - Lease \$5,550 \$14,000
- PCE rebate +\$1,000
- Marketing to 290,000 customers
 - >1M impressions (mail, email, print/online ads)
- License plate frame added to all vehicles





2018 Program Results

- 120 vehicles sold/leased (40% leased)
- Stimulated economic activity in County
 - Over \$4 million in sales
 - Over \$400,000 in taxes and fees
- Avoided GHGs: 5-6,000 tons over 10 years
- Positive buyer feedback
- Dealer feedback
 - "Everyone coming in knew about the program. We definitely want to do it again next year." - Dealer

"The rebate was a very big incentive for me to come up here and buy the car." – Robert S.





2019-2021 Program

- Vehicles: minimum all-electric ranges of 125 miles for pure battery EV; 25 miles for plug-in hybrid EVs
- More dealer participation expected (4-6 dealers)
- Expected uptake: 150-300 vehicles per year
- Promotion running during Q4 each year
- Same incentive levels
 - \$250 dealer
 - \$1000 customer
- May adjust vehicle qualifications and incentive levels over time
- May request more funds if program participation outperforms expectations

2019-2021 Program Budget

Approximate allocation over three-years:

- \$1,250,000 incentives
 - up to 1,000 vehicles, \$1,000 for customers,
 \$250 for dealership
- \$100,000 program administration
 - Dealer recruitment, training, rebate management
- \$250,000 marketing (marketing budget)
Program Budget: Programmed Funds

		Funds in Thousands								
	FY18	Actuals		FY19		FY20		FY21		FY22
Budget										
(June 2018 forecast)	\$	4,000	\$	6,000	\$	8,000	\$	10,000	\$	12,000
Allocated Funds (detail below)	\$	37	\$	1,705	\$	5,780	\$	5,730	\$	5,550
Remaining Balance	\$	3,963	\$	4,295	\$	2,220	\$	4,270	\$	6,450
Program										
EV Infrastructure	\$	15	\$	95	\$	4,000	\$	4,000	\$	4,000
Curbside/MUD EV Pilots	\$	7	\$	330	\$	330	\$	330		
New EV Incentives			\$	165	\$	300	\$	450	\$	600
Ride & Drive EV Marketing	\$	15	\$	60	\$	250	\$	250	\$	250
Low-Inc EV Incentive										
(assumed to repeat)			\$	200	\$	200	\$	200	\$	200
New Building Reach Codes &										
Climate Action Plans			\$	375	\$	200				
Community Pilots & Other										
(assumed to repeat)			\$	480	\$	500	\$	500	\$	500

An additional \$250,000 will be in the marketing budget

Request: Approval of 2019-2021 New EV Dealer Incentive Program

Amount: Up to \$1,500,000

Term: 3 years (promotion during Q4 each year)

Outcomes

- 1. Lower the cost of new EVs
- 2. Increase/accelerate adoption of EVs



8. Reach Codes Update (Discussion)

Building Reach Codes: Program Update April 25, 2019

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ENERGY

State Code vs Reach Codes



2019 State Building Codes

2016 State Building Codes

State Building Codes (Safety, Energy Efficiency, etc.)

Why Adopt a Reach Code?

- Advance climate emission reduction goals
- All-electric buildings are cost effective, safer, healthier
- Enable much greater EV adoption rates
- Fiscal prudence more cost effective to address at new construction

Reach Codes in Roadmap



Program Budget: Programmed Funds

		Funds in Thousands								
	FY18	3 Actuals		FY19		FY20		FY21		FY22
Budget										
(June 2018 forecast)	\$	4,000	\$	6,000	\$	8,000	\$	10,000	\$	12,000
Allocated Funds (detail below)	\$	37	\$	1,705	\$	5,780	\$	5,730	\$	5,550
Remaining Balance	\$	3,963	\$	4,295	\$	2,220	\$	4,270	\$	6,450
Program										
EV Infrastructure	\$	15	\$	95	\$	4,000	\$	4,000	\$	4,000
Curbside/MUD EV Pilots	\$	7	\$	330	\$	330	\$	330		
New EV Incentives			\$	165	\$	300	\$	450	\$	600
Ride & Drive EV Marketing	\$	15	\$	60	\$	250	\$	250	\$	250
Low-Inc EV Incentive										
(assumed to repeat)			\$	200	\$	200	\$	200	\$	200
New Building Reach Codes &										
Climate Action Plans		\langle	\$	375	\$	200	>			
Community Pilots & Other										
(assumed to repeat)			\$	480	\$	500	\$	500	\$	500

Support for Cities

- 1. Model codes
- 2. Facilitated process
- 3. \$10,000 per participating city
- 4. Adoption assistance
- 5. Implementation assistance

Partners & Roles



Lead consultant



- Technical support
- Facilitation support







- Regional partner
- Cost benefit, approvals

Timeline

Date/Timeframe	Activity
Dec. 2018	PCE, SVCE and County of San Mateo agree on reach code initiative
January	Reach Code kickoff event for city staff
February	Statewide Cost-Effectiveness study
March	Building Reach Code Workshops
April 11 and 24	Draft Model Reach Codes Measures announced
April & May	City-specific stakeholder engagements
15-May	Last input into model code measures
31-May	Model reach code language shared
Summer	Develop city specific format reach codes for adoption
Summer & Fall	City Councils vote on desired reach codes
Fall	Submit Code Packet for CEC approval
Jan. 1 <i>,</i> 2020	New codes go into effect

	Sq Ft	CO ₂ per year		Units per year		Years in Service		Years in Code Cycle		Total Avoided CO ₂
Single Family	2,700	2 tons	Х	100	Х	50	Х	3	=	30,000 tons
Multi-Family	1,000	1 ton	Х	10,000	Х	50	Х	3	=	1,500,000 tons
Office	100,000	120 tons	Х	20	Х	30	Х	3	=	2,160,000 tons

	Miles per Year	CO ₂ per year		EV's added per year		Years in Service		Years in Code Cycle		Total Avoided CO ₂
Car	12,000	5 tons	Х	5,000	Х	10	Х	3	=	750,000 tons

Building Performance Pathway

"Better by some %"



Key Terms: Building Electrification

All-Electric - buildings using electricity for space and water heating systems

Mixed Fuel – buildings using natural gas for space and water heating systems

Compliance Margin – how much more energy efficient than code minimum can be done in a cost effective manner, typically expressed as a percentage (e.g. 5% compliance margin)

Performance Pathway – exceed code by a certain compliance margin using CEC-approved modeling software (e.g. 5%)

Prescriptive Pathway – exceed code by including a list of specific cost-effective measures (e.g. drain heat recovery or batteries), see appendix for examples.

Climate Zone – San Mateo county is located within Climate Zone 3. Santa Clara county is mostly Climate Zone 4, with a small portion in Climate Zone 3.

Reach Code - Buildings

For a city considering a building Reach Code, the following elements will be defined:

- 1. Compliance Margin(s) equal to or better than State code (Title 24) for buildings based on fuel types
 - What is required for All-Electric Buildings (ex. 0% better than T24)
 - What is required for **Mixed Fuel** Buildings (ex. Reach code 10% better than T24)
- 2. Pathways for a builder to meet those requirements
 - **Performance** use modeling software to show the proposed building meets or exceeds the compliance margin (%) established in the reach code, **OR**
 - **Prescriptive** install from a list of specific technologies as defined within the reach code

Reach Code Options





Туре



Mixed Fuel (Electric + Natural Gas)



Performance OR Prescriptive Performance OR Prescriptive

More stringent efficiency requirements

Single Family Example

	Electric Pathway
Efficiency Required Above State Code (Compliance Margin)	0%
Estimated Increased* Construction Cost	\$0
Emissions	0%
Indoor Air Quality	Best
Equipment Utilized	All Electric appliances and systems, no CO monitor

Mixed Fuel Pathway
17 to 29%
\$ 6,800 to \$7,000
Higher
Worse
Gas connection, gas meter, gas furnace and water heater. CO monitor required, enhanced energy efficiency. Plus electrical wiring to all gas appliances for future switch to electric. Options for additional PV

OR

Reach Code vs State Codes

	2016 Title 24	2019 Title 24		PCE/SVCE Proposed
SINGLE FAMILY	 Prescriptive path exists for ✓ Heat pump space heater × Heat pump water heater ✓ Electric Cooking ✓ Electric Clothes Washer/Dryer 	 Prescriptive path exists for ✓ Heat pump space heater ✓ Heat pump water heater ✓ Electric Cooking ✓ Electric Clothes Washer/Dryer Parallel compliance pathway added to support heat pump water heater ¹	•	Require mixed fuel to have 14-29% compliance margin above 2019 T24 Require all-electric to meet minimum 2019 T24 Cost effectiveness demonstrated by IOU led statewide study ²

EV Charging

Build it and they will come...



- 1. PCE Customers are very interested in adopting EVs
- 2. Interest in adopting is independent of whether they have a garage
- 3. Access to charging is the highest concern
- 4. Sales of EVs are growing
 - Including among those in multi-unit dwellings

Very likely to obtain an EV 36<u>%</u>

Sales increase 2017 to 2018 95%

EV Infrastructure: Cost of New vs Retrofit



Key Terms: EV Infrastructure

Level 1 - standard household outlet 15-20 Amp, 120v AC Driving Distance provided: 3-4 miles/hour

Level 2 – Equivalent to a dryer outlet. 30+ Amp, 208/240v AC, Driving Distance provided: 25-30 miles/hour

EV Capable - *(Some assembly required)* Raceway (conduit), electrical capacity (breaker space)

EV Ready - (*Plug & Play*) Raceway (conduit), electrical service capacity, overcurrent protection devices, wire and outlet (i.e. full circuit)

EV Supply Equipment (EVSE) Installed - (Level 2 Charge!) All the equipment needed to deliver electrical energy from an electricity source to the EV at Level 2









Proposed EV Reach Code - Summary

Single Family: Complete Level 1 & 2 EV charging dedicated circuits (EV Ready = Plug & Play)

Multifamily Buildings: (EV Ready = Plug & Play)

- Small/medium: One Level 2 circuit per dwelling unit
- Large: One circuit per dwelling unit; 25% Level 2 & 75% Level 1

Non-Residential Buildings: (Mixture EVSE, Plug & Play + EV Capable)

- 10% of spaces: L2 EVSE installed
- 10% of spaces: Level 1 outlet
- Remaining spaces:
 - On-grade parking: 50% Level 2 EV Capable; Panel Capacity, average 2kW/ EV space
 - Underground or deck parking: 100% Level 2 EV Capable; Panel Capacity, average 1kW/ EV space

Reach Code vs State Codes: Single Family

	2016 CALGreen	2019 CALGreen	
	Mandatory	Mandatory	PCE/SVCE Proposed
Single Family Two-Family Townhome	1 Level 2 EV Capable for one parking space per dwelling unit	No proposed changes	 2 EV spaces total: <i>1 additional Level 1 circuit</i> 1 Level 2 EV Ready circuit

Reach Code vs State Codes: Multi-Family

	2016 CALGreen	2019 CALGreen	
	Mandatory	Mandatory	PCE/SVCE Proposed
Multi-Family	3% of total spaces Level 2 EV Capable for buildings with 17+ units	10% Level 2 EV Capable	 Small/Medium (≤40 units): One Level 2 EV Ready per dwelling Large (<40 units): One EV Ready circuit per dwelling. Of all spaces: 25% Level 2 EV Ready 75% are either Level 1 EV Ready Level 2 EV Ready with load management

Reach Code vs State Codes: Non-Resi

	2016 CALGreen	2019 CALGreen	
	Mandatory	Mandatory	PCE/SVCE Proposed
Non- Residential	~ 6% of total spaces Level 2 EV Capable for buildings with at least 10 parking spaces	No proposed changes	 10% Level 2 EVSE Installed 10% Level 1 EV Ready with L2 conduit On-grade parking: 50% Level 2 EV Capable; Panel Capacity, average 2kW/ EV space Underground or deck parking: 100% Level 2 EV Capable; Panel Capacity,
			average 1kW/ EV space

The Proposed Reach Codes:

- Preserves a lowest cost compliance option
- Encourages adoption of safer, cleaner, healthier buildings
- Aligns EV infrastructure with our area's high rate of adoption
- Provides pathway for 100,000's of tons of CO2 emissions avoided by foregoing natural gas and petroleum

Preempts future retrofitting costs & avoids stranded assets

Next Steps

Activities:

- Submit LOI
- Review Proposed Reach Codes with your city staff members
- Provide comments
- Share this with important community groups and commissions
- Engage Consultation support by contacting us

Timing:

- April through May 2019 City-specific stakeholder engagements
- April 24– Repeat webinar content from today
- May 15 Last input into model code language
- May 31 Model reach code language shared
- Summer 2019 Develop city specific format reach codes for adoption
- Summer/Fall 2019 City Councils vote on desired reach codes
- Fall 2019 Submit Code Packet for CEC approval
- January 1, 2020 New codes go into effect

Backup Slides

EV Code – Single Family, Plug & Play

	20	16 CALGree	n	2019	CALGree	n	PCE/SVCE Proposed	
	Mandatory	Tier 1	Tier 2	Mandatory	Tier 1	Tier 2		
Single Family Two- Family Townhome	1 Level 2 EV Capable for one parking space per dwelling unit	1 Level 2 EV circuit per o unit	/ Ready dwelling	No prop	oosed cha	nges	 SFD, 2 EV spaces total: 1 additional Level 1 circuit 1 Level 2 EV Ready circuit 	
*Includes voluntary m	heasures for new hotels a	nd motels						

Sources: CALGreen, Energy Solutions, and Center for Sustainable Energy

EV Code – Multi-Family, Plug & Play

	2016 CALGreen			2019 CALGreen			DCE/SV/CE Dropocod
	Mandatory	Tier 1	Tier 2	Mandatory	Tier 1*	Tier 2*	PCE/SVCE Proposed
Multi- Family	3% of total spaces Level 2 EV Capable for buildings with 17+ units	5% Level 2 Capable fo buildings v 17+ units	2 EV or with	10% Level 2 EV Capable	15% Level 2 EV Capable	20% Level 2 EV Capable	 Small/Medium (≤40 units): One Level 2 EV Ready per dwelling Large (<40 units): One EV Ready circuit per dwelling. Of all spaces: 25% Level 2 EV Ready 75% are either Level 1 EV Ready Level 2 EV Ready with load management

Source: CALGreen, Energy Solutions, and Center for Sustainable Energy

EV Code – Non-Residential, Mixture

	2	2019 CALGreen						
	Mandatory	Tier 1	Tier 2	Mandatory	Tier 1	Tier 2	PCE/SVCE Proposed	
Non- Residential	~ 6% of total spaces Level 2 EV Capable for buildings with at least 10 parking spaces	8% Level 2 EV Capable for buildings with at least 10 parking spaces	10% Level 2 EV Capable	No propo	osed cha	nges	 10% Level 2 EVSE Installed 10% Level 1 EV Ready with L2 conduit On-grade parking: 50% Level 2 EV Capable; Panel Capacity, average 2kW/ EV space Underground or deck parking: 100% Level 2 EV Capable; Panel Capacity, average 1kW/ EV space 	
*Includes voluntary measures for new hotels and motels								

Source: CALGreen, Energy Solutions, and Center for Sustainable Energy

What kind of car does an electrician drive?

EV Reach Code Comparison

	Palo Alto, Existing	PCE/SVCE Proposed
Residential	L2 Ready /unit	 SFD: L2 and L1 Ready Small, Medium MUDs L2 Ready/ unit Large MUDs 25% L2 Ready/ unit; 75% L1 Ready/ unit (or L2 load share)
Non-Residential	25% L2 EV Ready; 5% L2 EVSE installed (Hotels EVCI++)	 10% Level 2 EVSE Installed 10% Level 1 Outlet On-grade parking: 50% Level 2 EV Capable; Panel Capacity, average 2kW/EV spaces Underground or deck parking: 100% Level 2 EV Capable, Panel Capacity, average 1 kW/EV space

A volts-wagon....

Residential - Single Family - Performance

All residential units will include wiring and breakers for electric water heating, furnace, cooking and clothes drying.

Mixed Fuel – Compliance margin of 14-29% above Title 24 requirements.

• Exceed Title 24 by at least [pick a value between 14-29%]

All-Electric – Compliance margin of 0% above Title 24 requirements.

Meet or exceed Title 24

Residential - Single Family – support data

	Electric Pathway	+	Mixed Fuel Pathway <i>Option 1</i>	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
Compliance Margin	0%		17% (CZ3) 14% (CZ4)		29% (CZ3) 25% (CZ4)
Estimated Increased* Construction Cost	\$0		\$ 6,800 (CZ3) \$ 6,800 (CZ4)		\$ 7,000 (CZ3) \$10,000 (CZ4)
Emissions Penalty	0%		+60% (CZ3) +31% (CZ4)		+50% (CZ3) +15% (CZ4)
Indoor Air Quality	Best		Worst		Modest
Equipment Utilized	All Electric appliances and systems, no CO monitor		Gas connection, gas meter, gas furnace and water heater. CO monitor required, enhanced energy efficiency. Plus electrical wiring to all gas appliances for future switch to electric		Same as Mixed Fuel Option 1, plus Batteries or Solar Thermal (or equivalent)

Select Option 1 or Option 2 to be paired with the Electric Pathway

Residential - Multi-Family* - Performance

All units will include wiring and breakers for electric water heating, furnace, cooking and clothes drying.

Mixed Fuel – Compliance margin of 5-10% above Title 24 requirements.

• Exceed Title 24 by at least [pick value from 5-10%]

All-Electric – Compliance margin of 0% above Title 24 requirements.

• Meet or exceed Title 24

* Buildings over seven stories have not been modeled. Applicability TBD.
Residential – Multi-Family – support data

	Electric Pathway +	Mixed Fuel Pathway <i>Option 1</i>	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
Compliance Margin	0%	5% (CZ3) 8% (CZ4)		10% (CZ3) 15% (CZ4)
Estimated Increased Construction Cost	\$0	+\$2,500 (CZ3) +\$2,650 (CZ4)		+\$4,200 (CZ3) +\$4,350 (CZ4)
Emissions Penalty	0%	+62% (CZ3) +62% (CZ4)		+46% (CZ3) +46% (CZ4)
Indoor Air Quality	Best	Worst		Modest
Equipment Utilized	All Electric appliances and systems, no CO monitor	Gas connection, gas meter, gas furnace and water heater. CO monitor required, enhanced energy efficiency. Plus electrical wiring to all gas appliances for future switch to electric		Same as Mixed Fuel Option 1, plus Batteries or Solar Thermal (or equivalent)

Select Option 1 or Option 2 to be paired with the Electric Pathway

Non-Res – All* - Performance

All buildings will include wiring and breakers for electric water heating, electric furnace, electric cooking, and electric drying.

Mixed Fuel

- Hotels Compliance margin of 5% above Title 24.
- All others Compliance margin of (pick a value between) 5-15%

All-Electric – Compliance margin of 0% above Title 24 requirements.

• Meet or exceed Title 24

* Very large buildings (high rise and/or 150,000 ft² have not been modeled. Code applicability TBD.

Non-Res – Office/Retail – support data

	Electric Pathway	+	Mixed Fuel Pathway Option 1	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
Compliance Margin	0%		5%		15% (CZ3) 14% (CZ4)
Estimated Increased* Construction Cost	\$0		+\$50,000 (CZ3) +\$45,500 (CZ4)		+\$68,000 (CZ3) +\$71,000 (CZ4)
Emissions Penalty	0%		+62% (CZ3) +62% (CZ4)		+46% (CZ3) +46% (CZ4)
Indoor Air Quality	Best		Worst		Modest
Equipment Used	All Electric appliances and systems.		Gas connection, gas meter, gas furnace and water heater. CO monitor required, enhanced energy efficiency. Plus electrical wiring to all gas appliances for future switch to electric		Required

* For a building of similar size as modeled

Select Option 1 or Option 2 to be paired with the Electric Pathway

Prescriptive Building Measures

Prescriptive – Residential – Single Family

	Electric Pathway	+
Compliance Margin	0%	
Estimated Increased* Construction Cost	\$0	
Emissions Penalty	0%	
Description		

+	Mixed Fuel Pathway <i>Option 1</i>	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
	17% (CZ3) 14% (CZ4)		29% (CZ3) 25% (CZ4)
	\$ 6,800 (CZ3) \$ 6,800 (CZ4)		\$ 7,000 (CZ3) \$10,000 (CZ4)
	+60% (CZ3) +31% (CZ4)		+50% (CZ3) +15% (CZ4)
	EE: low leakage ducts in conditioned space + R-10 slab insulation + compact HW distribution + 0.35 W/cfm HVAC fan		Either 1 or 2: 1) EE: low leakage ducts in conditioned space + R-10 slab insulation + compact HW distribution + 0.35 W/cfm HVAC fan Plus PV and Battery 2) EE + Solar Thermal

Prescriptive – Residential – Multi Family (CZ3)

	Electric Pathway	+	Mixed Fuel Pathway <i>Option 1</i>	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
Compliance Margin	0%		5% (CZ3) 8% (CZ4)		10% (CZ3) 15% (CZ4)
Estimated Increased Construction Cost	\$0		\$ 2,500 (CZ3) \$ 2,650 (CZ4)		\$ 4,200 (CZ3) \$ 4,350 (CZ4)
Emissions Penalty	0%		62% (CZ3) 62% (CZ4)		46% (CZ3) 46% (CZ4)
Description			EE: R-10 slab insulation + compact HW distribution + 0.35 W/cfm HVAC fan		Either 1 or 2: 1) EE: R-10 slab insulation + compact HW distribution + 0.35 W/cfm HVAC fan Plus PV and Battery 2) EE + Solar Thermal

Prescriptive – Residential – Multi Family (CZ4)

	Electric Pathway	+	Mixed Fuel Pathway <i>Option 1</i>	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
Compliance Margin	0%		5% (CZ3) 8% (CZ4)		10% (CZ3) 15% (CZ4)
Estimated Increased Construction Cost	\$0		\$ 2,500 (CZ3) \$ 2,650 (CZ4)		\$ 4,200 (CZ3) \$ 4,350 (CZ4)
Emissions Penalty	0%		62% (CZ3) 62% (CZ4)		46% (CZ3) 46% (CZ4)
Description			EE: low leakage ducts in conditioned space + 0.25 ASR cool roof + R-10 slab insulation + compact HW distribution + 0.35 W/cfm HVAC fan	-	Either 1 or 2: 1) EE: low leakage ducts in conditioned space + 0.25 ASR cool roof + R-10 slab insulation + compact HW distribution + 0.35 W/cfm HVAC fan Plus PV and Battery 2) EE + Solar Thermal

Prescriptive - Non-Res – Office/Retail (CZ3)

	Electric Pathway	Mixed Fuel + Pathway Option 1	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
Compliance Margin	0%	5%		15% (CZ3)
Estimated Increased* Construction Cost	\$0	+\$50,000 (CZ3)		+\$68,000 (CZ3)
Emissions Penalty	0%	+62% (CZ3)		+46% (CZ3)
Indoor Air Quality	Best	Worst		Modest
Description	All Electric appliances and systems.	EE: SHGC=0.25, E/W facing windows limited to 1/2 of N/S windows, VAV Box minimums 20% of maximum, economizers on systems > 36,000 Btuh, reduced interior lighting LPD, institutional tuning, daylight dimming to off, open office occupant sensors		EE: SHGC=0.25, E/W facing windows limited to 1/2 of N/S windows, VAV Box minimums 20% of maximum, economizers on systems > 36,000 Btuh, reduced interior lighting LPD, institutional tuning, daylight dimming to off, open office occupant sensors

* For a building of similar size as modeled

Select Option 1 or Option 2 to be paired with the Electric Pathway

Prescriptive - Non-Res – Office/Retail (CZ4)

	Electric Pathway	Mixed Fuel + Pathway Option 1	or	Mixed Fuel Pathway Option 2 (Higher Efficiency)
Compliance Margin	0%	5%		14% (CZ4)
Estimated Increased* Construction Cost	\$0	+\$45,500 (CZ4)		+\$71,000 (CZ4)
Emissions Penalty	0%	+62% (CZ4)		+46% (CZ4)
Indoor Air Quality	Best	Worst		Modest
Description	All Electric appliances and systems.	EE: SHGC=0.25, E/W facing windows limited to 1/2 of N/S windows, VAV Box minimums 20% of maximum, economizers on systems > 36,000 Btuh, reduced interior lighting LPD, institutional tuning, daylight dimming to off, open office occupant sensors		EE: SHGC=0.25, E/W facing windows limited to 1/2 of N/S windows, VAV Box minimums 20% of maximum, economizers on systems > 36,000 Btuh, reduced interior lighting LPD, institutional tuning, daylight dimming to off, open office occupant sensors



9. Schools Engagement Report (Discussion)

Peninsula Clean Energy & Schools

<u>Goals</u>

- Increase understanding of electricity content, usage, conservation and GHG emission reduction
- Equip students (and their parents) with an understanding of their electric bill and PCE as a part of it
- Increase understanding of PCE and its benefits



Schools Projects Overview

- Schools and Youth Networking and Outreach
- STEM Fair
- Kids & Schools Webpage
- Energy Dashboard
- Clean Energy Teacher Fellowship
- Schools Activity Packet

Classroom & Youth Group Presentations

- Joined San Mateo County Office of Education (SMCOE) Environmental Literacy Community of Practice
- Trained Cañada College students for PCE during Earth Month
- Presented to Woodside High School Green Academy classes
- Presented to youth groups like Cub Scouts



San Mateo County STEM Fair

- Hosted clean energy booth reaching 470 parents/students
- Awarded 3 Special Awards
- Received press coverage in 2018 from The Almanac

PCE Special Award Recipients



2018 Georgia Hutchinson

2018 Charlotte Sullivan



2019 Grace Bigelow-Luth Half Moon Bay, 8th Grade

Kids & Schools Website Tab

Created for teachers to find and utilize energy-related education and activities.

Includes:

- Climate Change Impacts & Factors
- Climate Action
- PCE Developed Teacher Resources
- Resource References



Webpages were created by our 2018 Ignited Teacher Fellow Andre Tan. Launched in August 2018.

Kids & Schools Website Tab



Residents & Businesses Go Electric Programs Our Power Meetings & Events News & Media About Us RFPs & Grants Kids & Schools



Resource References

Home / Resource References

Schools and Youth – Educator Resources

Get started with your search for lessons with a climate and energy focus with these resources!

All about Energy:

- National Energy Education Development Project (NEED)
- Switch Energy Film & Education Project

Energy Dashboard Pilot

Goal: Educate teachers and students about energy use

Online dashboard of school energy use in a student-friendly

format that teachers can use in lesson plans

Pilot in San Carlos School District in partnership with SMCOE

2019-2020

PCE funded SMCOE for \$9,500 and

San Carlos School District for \$25,000



Energy Dashboard Pilot Timeline

- Dashboard announced via press release with SMCOE May 2019
- Launch PCE webpage about pilot May 2019
- Present at the 2019 San Mateo Environmental Learning

Collaborative Summer Institute

- Pilot in San Carlos School District 2019-2020
- Evaluate results/feedback from San Carlos 2020
- Potential county-wide replication in 2020-2021



SMELC Clean Energy Teacher Fellowship

- **Summer Institute:** Learning intensive
- Guided Implementation & Coaching: Ongoing support from SMCOE
- Final Deliverables: Unit of study, reflection presentation, final ceremony
- Community: Support from community environmental partners
- PCE is sponsoring 2019 Clean Energy Teacher Fellowship

	PCE Sponsorship of Clean Energy Teacher Fellowship			
Grades	Pre-K-12			
Subjects	All			
Stipend	\$500/teacher for up to 50 teachers = \$25,000			
Summer Institute	3 Days June 24-26			
Unit Focus	Standards aligned problem-based learning unit focused on Energy Issues.			
Professional	Eligible for 3 Continuing Education Units			

PCE Role in Summer Institute

- Develop Summer Institute curriculum
- Welcome teachers on 1st Day and explain about the work we do
- Lead segment of energy curriculum and explain PCE
- Serve as a community partner helping teachers develop unit of study
- SMCOE will present PCE Student Activity Packet



PCE Student Activity Packet

Eco Hero

The Costs of Electricity Student Activity Packet

You're an Electric Eco Hero!

Climate change has had unprecedented effects on the environment. As our weather continues to get more extreme, it's important that we are all a part of the solution.

Climate change is caused mostly by humans burning oil, gas, and coal for energy to travel, power buildings, grow food, and make the stuff we use.

The good news is you are already helping the environment by using electricity from cleaner sources! In San Mateo County, Peninsula Clean Energy supplies you with electricity that comes from greener sources such as the sun, wind, and water. Together we are acting locally to be a part of the global solution.

Don't believe it? Let's do the math! This activity packet covers some basic calculations you need to know to understand your electricity usage and the cost, in terms of money, and impact on the environment. You'll also learn how you are already helping to fight climate change.

While you're at it, learn what your electricity bill means!



PCE Student Activity Packet

Activity packet for high school math and science students to calculate the environmental and economic costs of electricity in San Mateo County.

Includes:

- Introduction to climate change and local impacts
- Renewable energy sources
- Understanding the PCE/PG&E energy bill
- Calculating costs of electricity for common appliances
- Calculating GHG emissions from using common appliances

Created by Andre Tan (local high school math teacher) and refined by Janet Creech (Math & Science Resource Teacher for Sequoia Union High School District) and PCE Communications Team.



Continuing Partnerships

SMCOE Grant Summary

Project	Amount
SMCOE Dashboard	\$9,500
San Carlos Schools District Dashboard (7 Schools)	\$25,000
Clean Energy Fellowship	\$25,000
TOTAL	\$59,500

Future Planning

- Fund Clean Energy Fellowship 2020
- Fund dashboard in other school districts

10. Board Members' Reports (Discussion)

Regular Agenda

Adjourn