SILICON VALLEY CLEAN ENERGY

SVCE 101 Board Workshop

February 23, 2019

Agenda

1. Electricity Industry Overview
2. Account Services & Community Relations
3. Finance, Security & Workforce
4. Power Supply
5. Decarbonization Programs Roadmap
6. Legislative and Regulatory

SILICON VALLEY CLEAN ENERGY

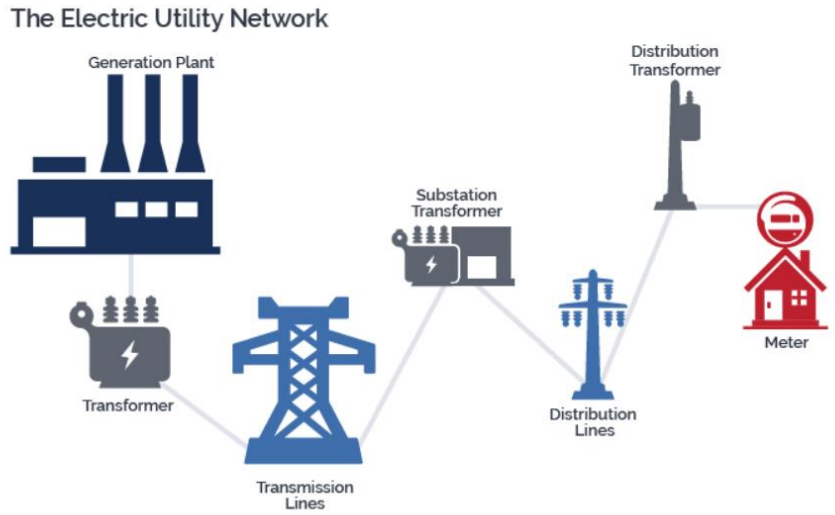
Introduction & Overview of Electric Industry

Girish Balachandran
CEO

SVCE Mission

Reduce dependence on fossil fuels by providing carbon free, affordable and reliable electricity and innovation programs for the SVCE community.

SILICON VALLEY CLEAN ENERGY


The Electric Utility Network
Generation Plant
Distribution Transformer
Substation Transformer
Transformer
Transmission Lines
Distribution Lines
Meter

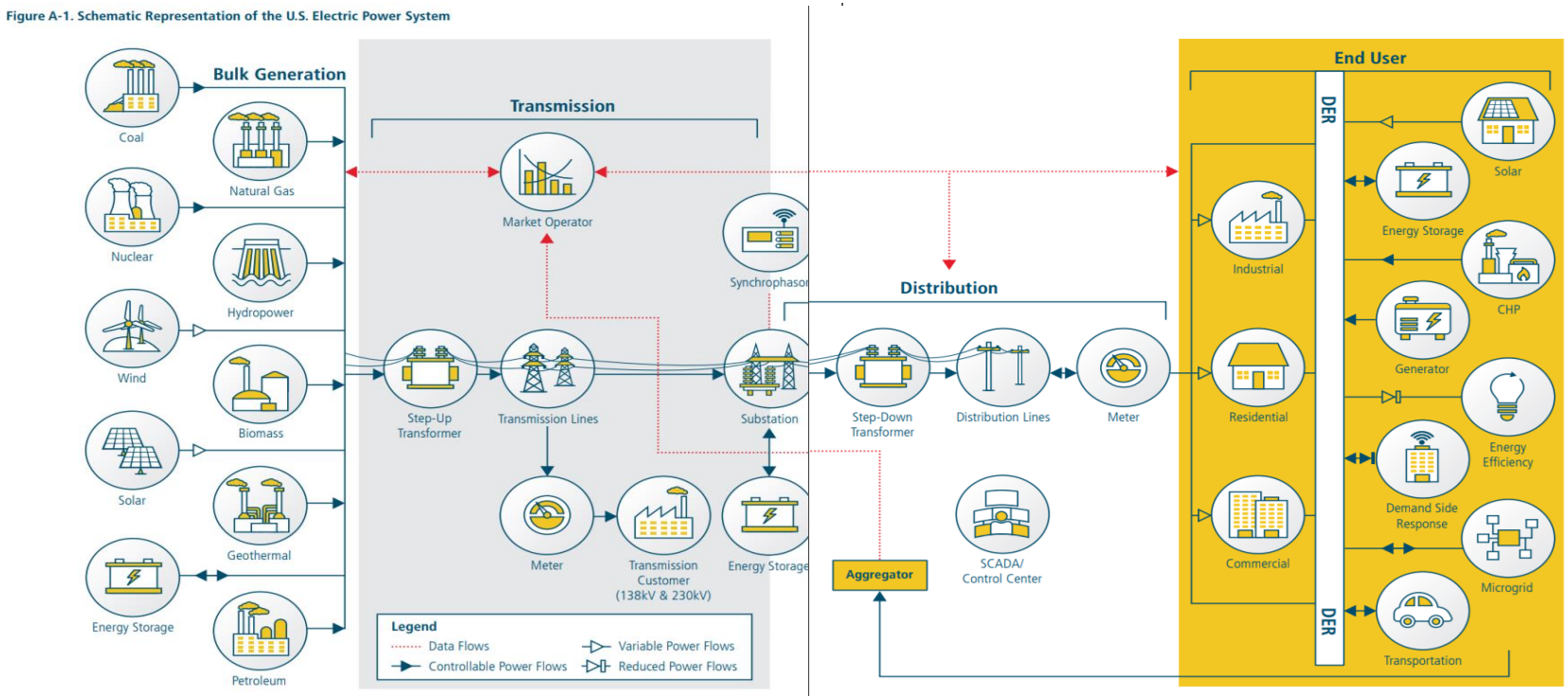
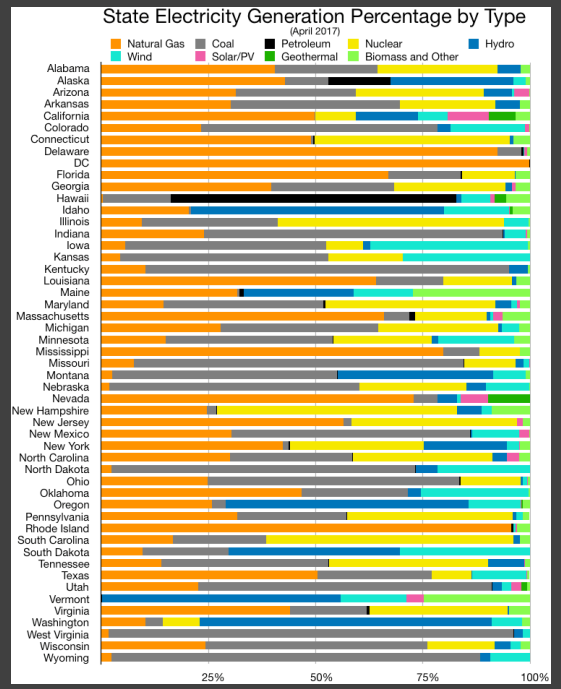
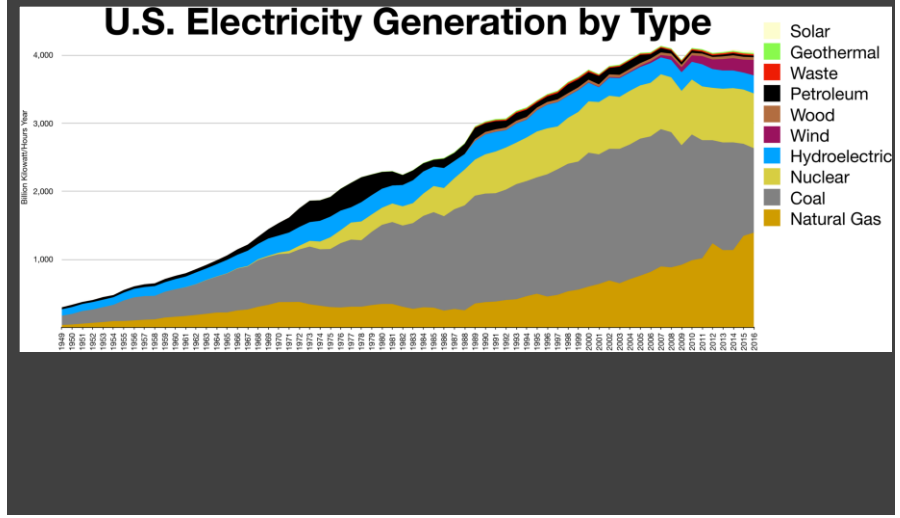


Figure A-1. Schematic Representation of the U.S. Electric Power System
Bulk Generation
Coal
Natural Gas
Nuclear
Hydropower
Wind
Biomass
Solar
Geothermal
Energy Storage
Petroleum
Transmission
Market Operator
Synchrophasor
Step-Up Transformer
Transmission Lines
Substation
Meter
Transmission Customer (138kV & 230kV)
Energy Storage
Legend
Data Flows
Controllable Power Flows
Variable Power Flows
Reduced Power Flows
Distribution
Step-Down Transformer
Distribution Lines
Meter
Aggregator
SCADA/ Control Center
End User
DER
Industrial
Residential
Commercial
Solar
Energy Storage
CHP
Generator
Energy Efficiency
Demand Side Response
Microgrid
Transportation
The electric power system comprises the following broad sets of systems: bulk generation, transmission, distribution, and end use (including DER).
Acronyms: combined heat and power (CHP), distributed energy resources (DER), kilovolts (kV), supervisory control and data acquisition (SCADA).


State Electricity Generation Percentage by Type
(April 2017)
Natural Gas
Coal
Petroleum
Nuclear
Hydro
Wind
Solar/PV
Geothermal
Biomass and Other
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
DC
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming
25%
50%
75%
100%


U.S. Electricity Generation by Type
Billion Kilowatt Hours/Year
4,000
3,000
2,000
1,000
Solar
Geothermal
Waste
Petroleum
Wood
Wind
Hydroelectric
Nuclear
Coal
Natural Gas

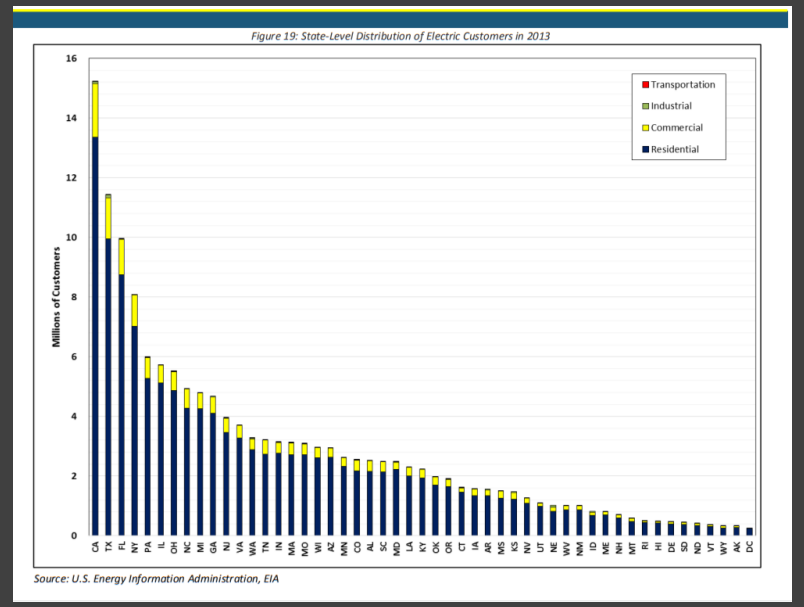
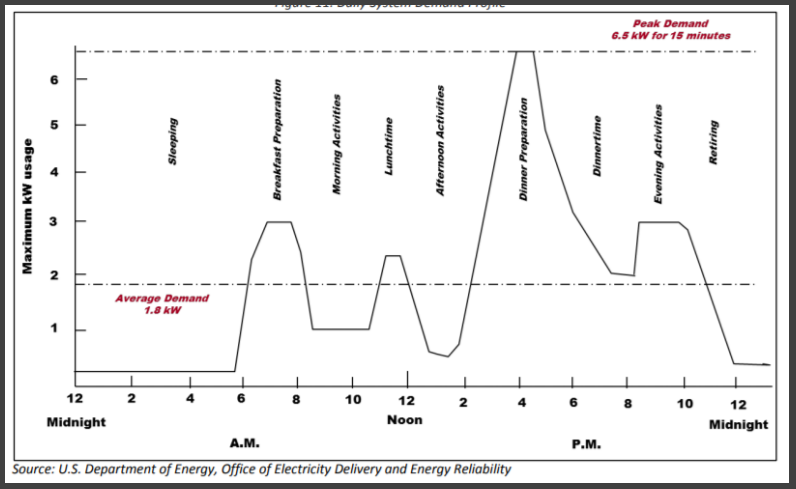
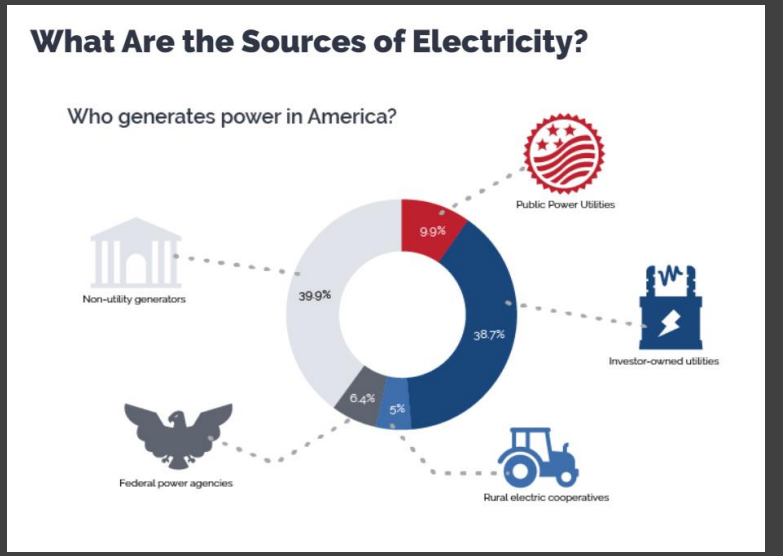
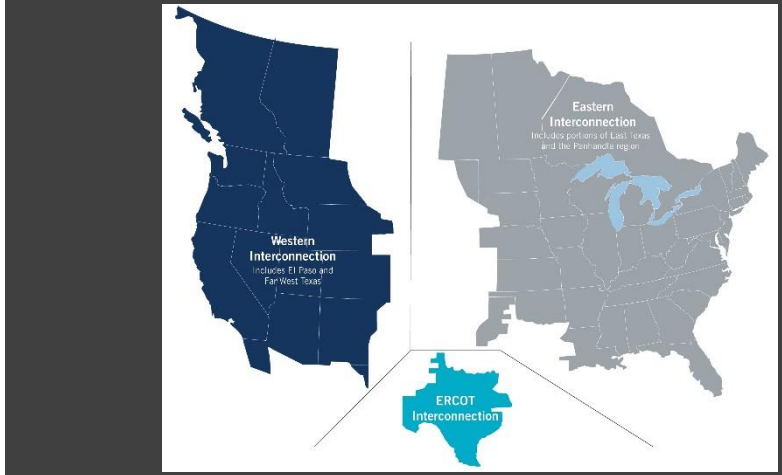


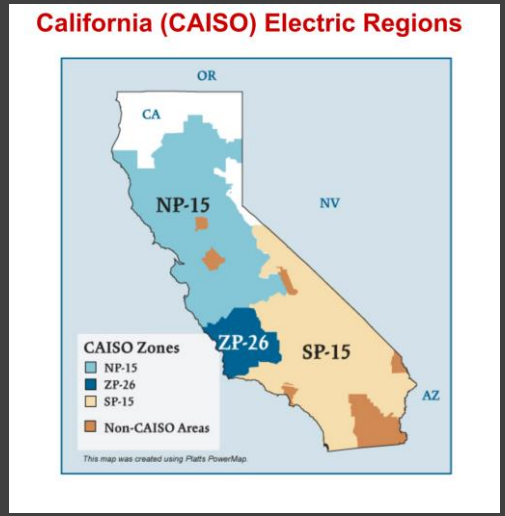
Figure 19: State-Level Distribution of Electric Customers in 2013
Millions of Customers
16
14
12
10
8
6
4
2
0
Transportation
Industrial
Commercial
Residential
CA TX FL NY PA IL OH NC MI GA NJ VA WA TN IN MA MO WI AZ MN CO AL SC MD LA KY OK OR CT IA AR MS KS NV UT NE WV NM ID ME NH MT RI HI DE SD ND VT WY AK DC
Source: U.S. Energy Information Administration, EIA

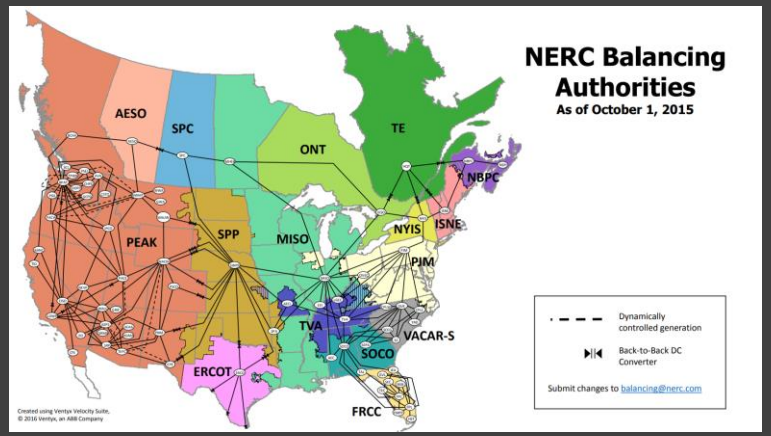

Peak Demand
6.5 kW for 15 minutes
Maximum kW usage
6
5
4
3
2
1
Sleeping
Breakfast Preparation
Morning Activities
Lunchtime
Afternoon Activities
Dinner Preparation
Dinnertime
Evening Activities
Retiring
Average Demand
1.8 kW
12
2
4
6
8
10
12
2
4
6
8
10
12
Midnight
A.M.
Noon
P.M.
Midnight
Source: U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability

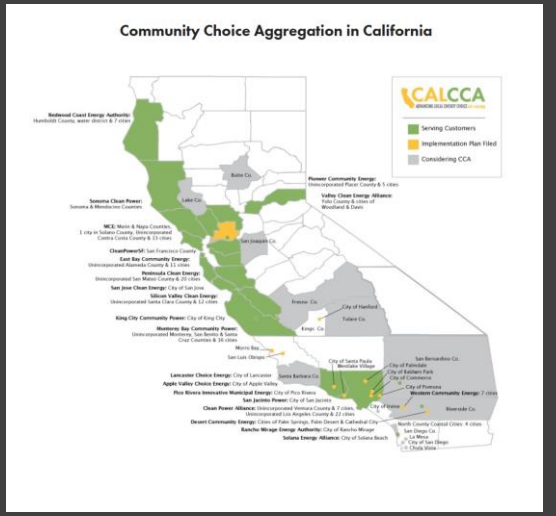

What Are the Sources of Electricity?
Who generates power in America?
Public Power Utilities
9.9%
Non-utility generators
39.9%
38.7%
Investor-owned utilities
6.4%
5%
Federal power agencies
Rural electric cooperatives

California
Electric Utility Service Areas
PacifiCorp
Area served by both Surprise Valley Electric Co-Op & PacifiCorp
Surprise Valley Electric Co-Op
Trinity
Shasta Lake
Shelter Cove
Redding
Lassen
Area served by both Lassen & Plumas-Sierra
PG&E
Biggs
Plumas-Sierra
Gridley
Truckee-Donner
Ukiah
Liberty Utilities
Pittsburg
Roseville
Kirkwood Meadows
Healdsburg
SMUD
Lodi
Port of Stockton
Alameda
Port of Oakland
City and County of S.F.
Area served by both MID & PG&E
MID
TID
Valley Electric
Merced
Palo Alto
Silicon Valley Power
LADWP
PG&E
SCE
Victorville
Azusa
Aha Macav
Pasadena
Rancho Cucamonga
Needles
Lompoc
Glendale
Burbank
Colton
Bear Valley Electric
Banning
Morongo
Anza Electric
LADWP
Vernon
Industry
Cerritos
SDG&E
IID
Anaheim
Corona
Riverside
Moreno Valley
California Energy Commission
RTEP Division
Cartography Unit
www.energy.ca.gov


Western Interconnection
Includes El Paso and Far West Texas
Eastern Interconnection
Includes portions of East Texas and the Panhandle region
ERCOT Interconnection


California (CAISO) Electric Regions
OR
CA
NP-15
NV
ZP-26
SP-15
AZ
CAISO Zones
NP-15
ZP-26
SP-15
Non-CAISO Areas
This map was created using Platts PowerMap.


NERC Balancing Authorities
As of October 1, 2015
AESO
SPC
ONT
TE
NBPC
PEAK
SPP
MISO
NYIS
ISNE
PJM
TVA
VACAR-S
SOCO
ERCOT
FRCC
Dynamically controlled generation
Back-to-Back DC Converter
Submit changes to balancing@nerc.com


Community Choice Aggregation in California
CALCCA
Serving Customers
Implementation Plan Filed
Considering CCA

Regulators, Legislators & CCAs

California ISO

STATE OF CALIFORNIA ENERGY COMMISSION SINCE 1975

Diverse Actors Regulate CCAs

PUBLIC UTILITIES COMMISSION EUREKA STATE OF CALIFORNIA

FERC Federal Energy Regulatory Commission

California Environmental Protection Agency Air Resources Board

Regulators, Legislators & CCAs

California ISO

Diverse Actors Regulate CCAs

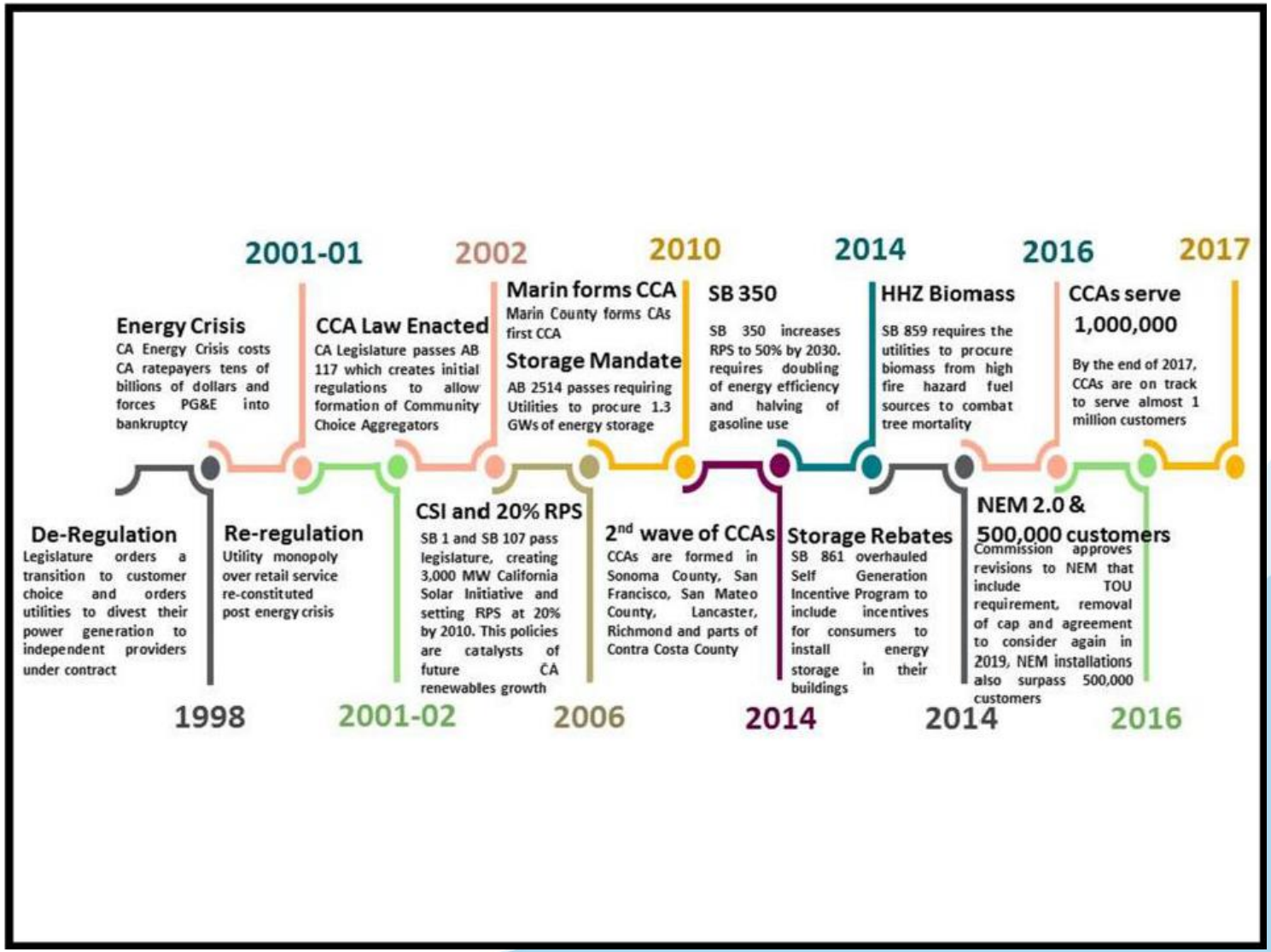
CAISO – Electric traffic controller
CEC – RPS, siting and energy efficiency
CPUC – regulates California's utilities, PCIA, IRP
CARB – emissions accounting, LCFS
FERC – regulates energy markets
NERC – reliability standards
Cal-CCA – Advocates and promotes CCAs

SILICON VALLEY CLEAN ENERGY

CCA Legislation

AB 117, 2002
- Establishes CCA

SB 790, 2011
- Establishes Code of Conduct, detailing the rights on CCAs



SILICON VALLEY CLEAN ENERGY

How does it work?

SOURCE

SVCE

buying and building energy supplies

DELIVERY

PG&E

delivering energy, repairing lines serving customers

CUSTOMER

YOU

benefitting from cleaner energy, local control

SILICON VALLEY CLEAN ENERGY

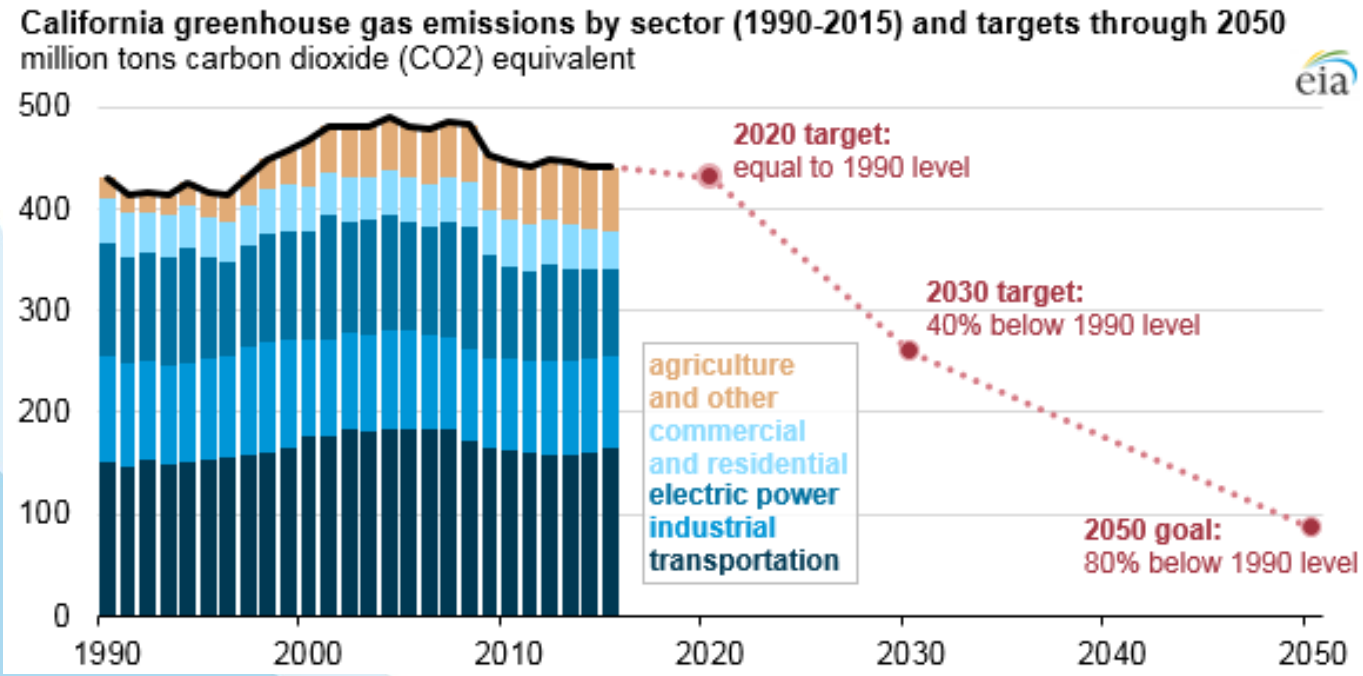
Major Trends in the Industry

Decarbonization
Decentralization
Digitalization
Personalization

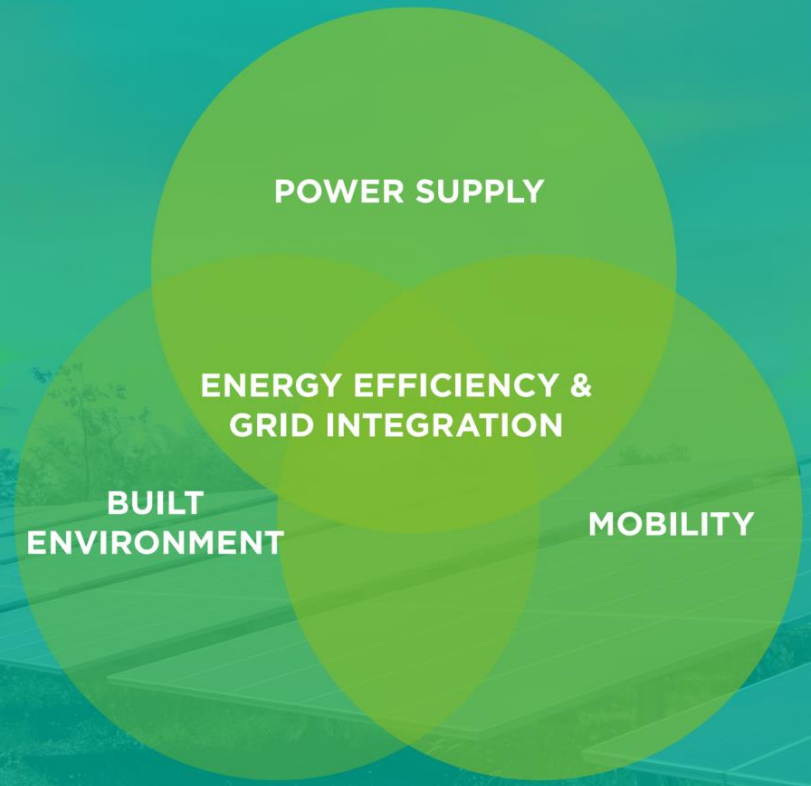
Four (?) horsemen of disruption

1. Decarbonize
2. Digital
3. Distributed
4. Participate

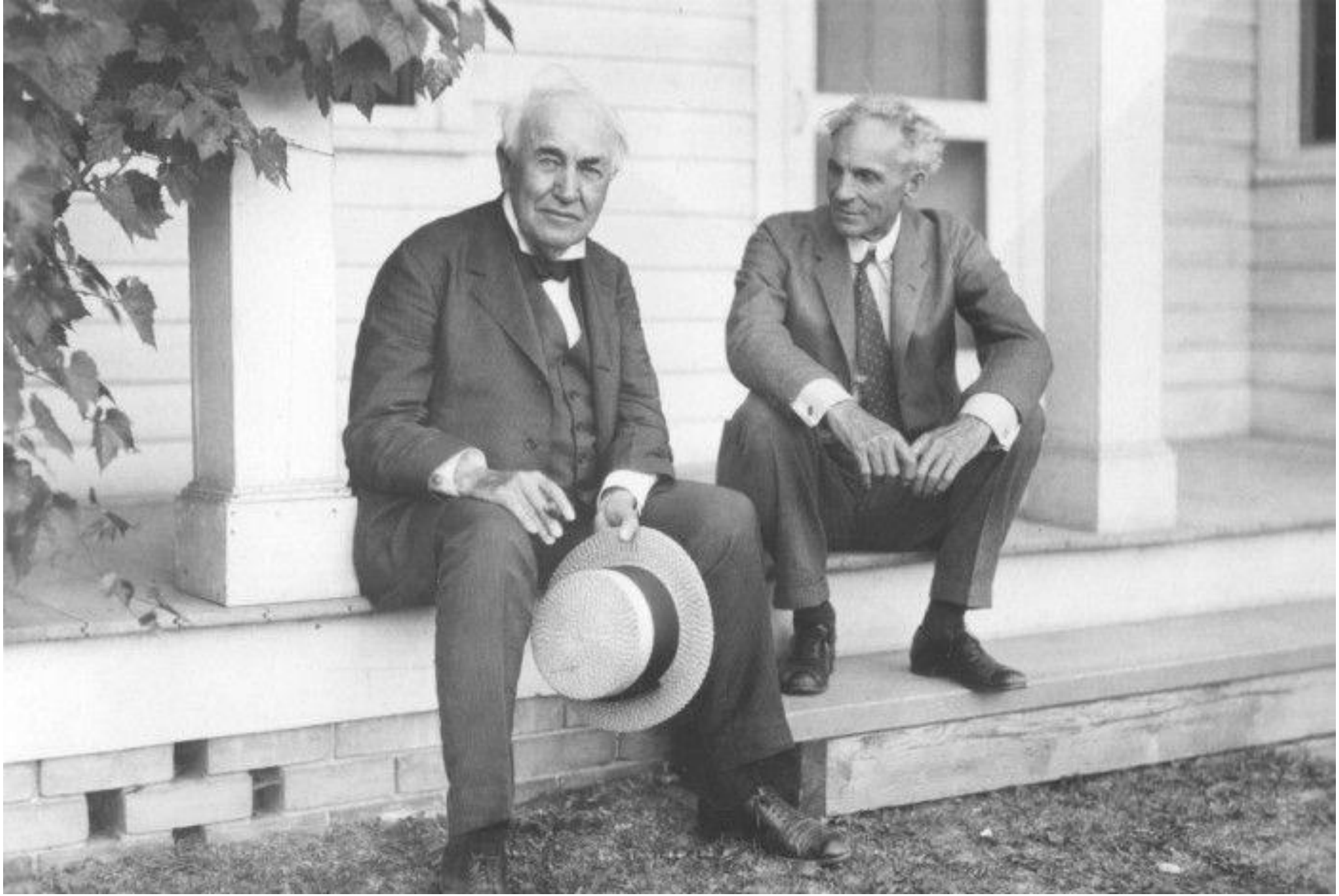
Decarbonization



SVCE is guided by the following overarching strategy to achieve deep decarbonization



- Procure & maintain a sustainable, affordable and carbon-free **power supply**
- Electrify the **built environment** and **mobility**
- Promote **energy efficiency** & successful **grid integration**



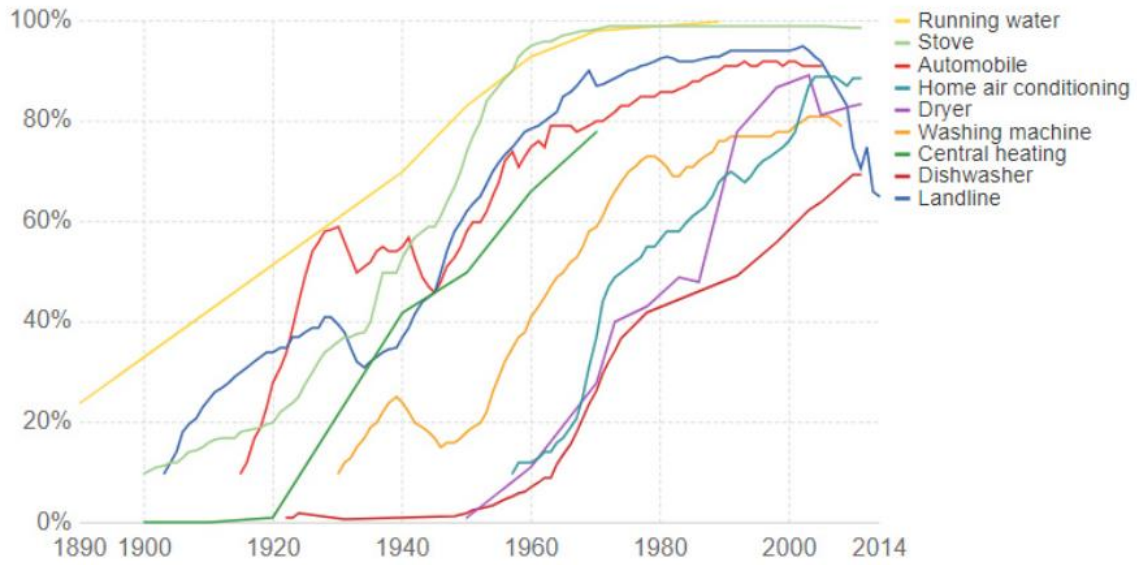
Easter Parades in New York City

Year 1900: One Motor Vehicle

Year 1913: One Horse & Carriage

Mobility Revolution – Electric & Autonomous

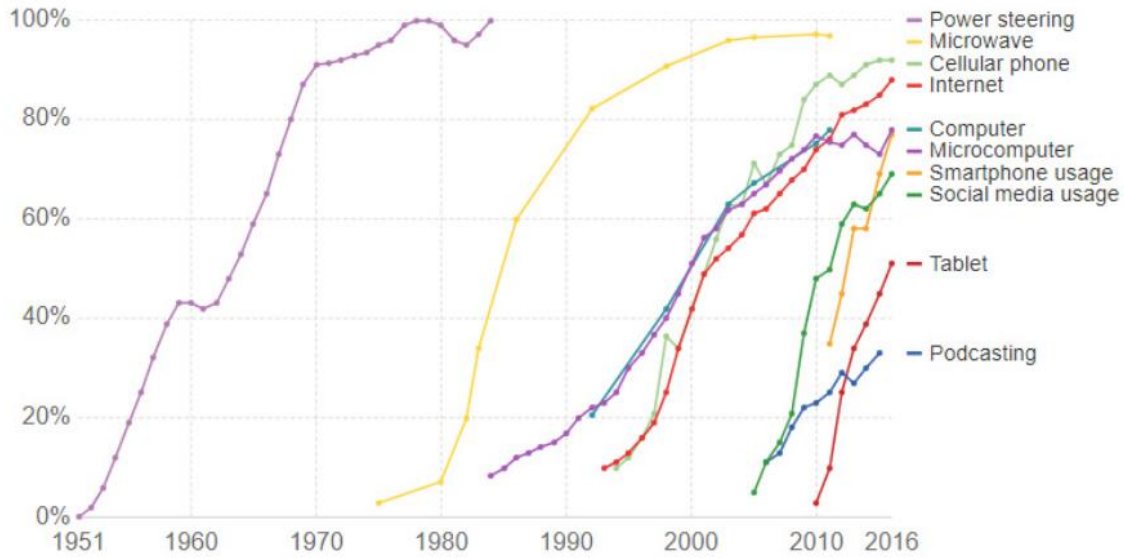
Here's a look at adoption rates for the household appliances and products today that we would consider pretty essential, over a period of more than 120 years:



The telephone was invented in 1876, but it wasn't until a century later that landlines reached a saturation point in households.

NEW ADOPTION SPEEDS

Now, here's a chart with many older technologies removed – keep in mind that the x axis has changed to a **much shorter** timespan (~65 years):



Strategic Plan & Org Chart

SVCE'S MISSION

COMMUNITY BENEFITS SUMMARY

A year of service, a year of results

From October 2017 through September 2018, Silicon Valley Clean Energy delivered on commitments to save customers money, buy cleaner power and reduce community-wide carbon emissions.

3.6 Billion kWh
Carbon-free energy delivered

266,500
Residential and business customers, a 97% participation rate

1.1 Billion pounds
Carbon emissions avoided by providing clean energy

$16.5 Million
On-bill savings for SVCE customers

$159,000
Cash payments to customers for generating extra solar energy

16.6 %
Community-wide emissions reductions from 2015 baseline

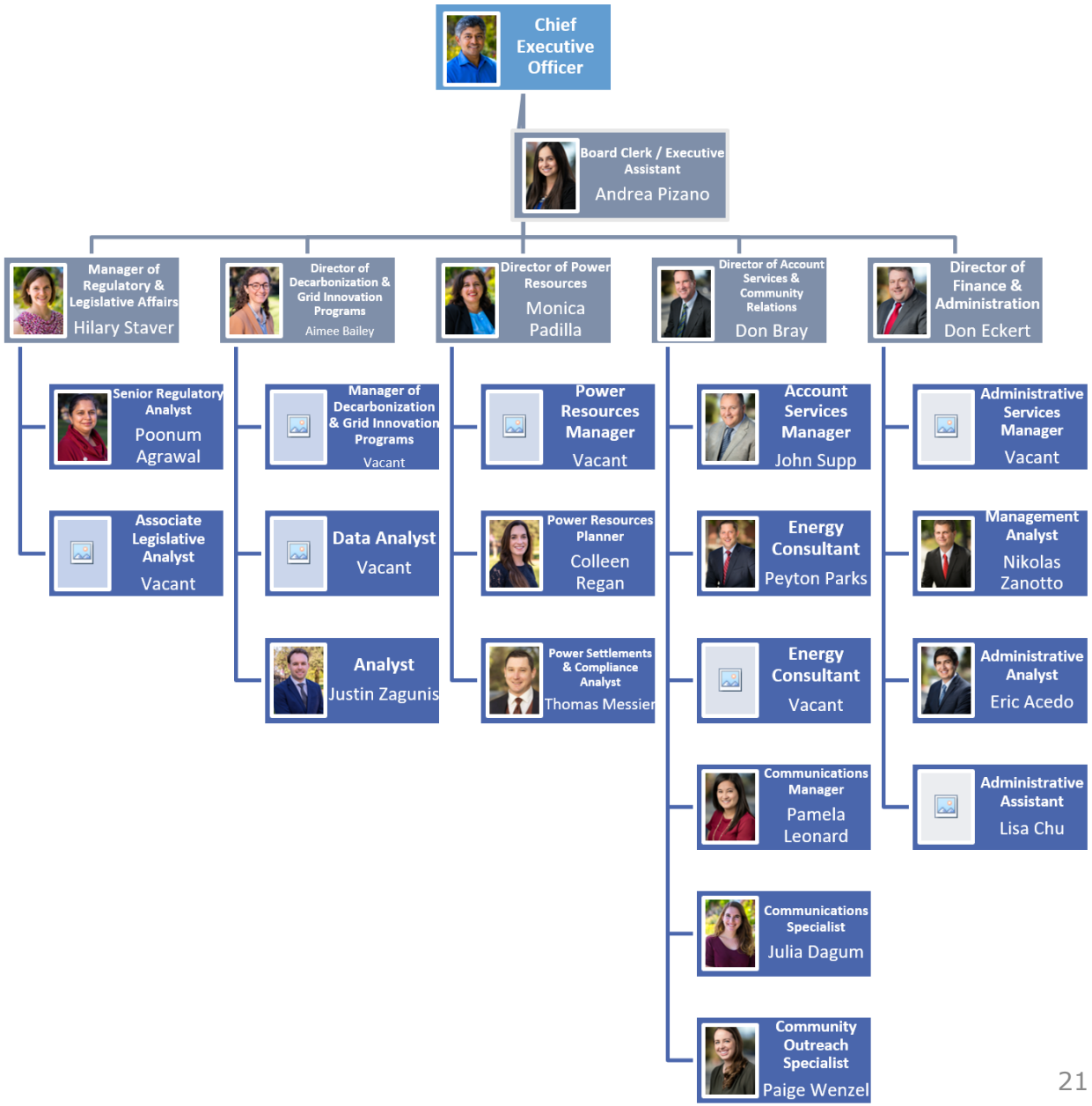
SVCE is dedicated to providing benefits to our customers and community.

SILICON VALLEY CLEAN ENERGY

TIMELINE

- **March 2016** — Silicon Valley Clean Energy becomes effective
- **April 2016** — Board of Directors sworn in and initial budget approved
- **Feb. 2017** — Set rates at 1% lower than PG&E
- **April 2017** — SVCE Launches Service
- **June 2017** — Strategic Plan is approved
- **Jan. 2018** — SVCE becomes debt-free
- **Feb. 2018** — Girish Balachandran is hired as Chief Executive Officer
- **April 2018** — Set rates at 6% lower than PG&E
- **May 2018** — Hold first annual Bike to the Future high school scholarship competition
- **June 2018** — Milpitas joins SVCE

SVCE Staff Organization Chart



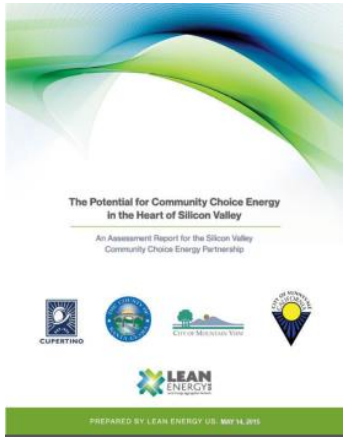
SVCE History & Community Relations

Pamela Leonard
Communications Manager

SVCE Formation History

- **Initial Discussions with Sunnyvale and Mountain View (July 2012)**
- **Silicon Valley Community Choice Energy Partnership (Feb. 2015)**
  - Sunnyvale (lead), Mountain View, Cupertino, Santa Clara County
- **Initial Assessment Report (May 2015)**
  - High-level risks and benefits of forming a local CCE
  - 8 other communities then expressed interest
    - Campbell, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, Morgan Hill, Saratoga
- **Technical Feasibility Study (Nov. 2015)**
  - Detailed study of regional energy needs, rate impacts, risks
- **Community Engagement (May 2015 – Feb. 2016)**
  - Meetings to inform and gauge interest
  - City council approvals for participation in SVCE
- **Operational Development (April 2016 – Jan. 2017)**
- **Launch (April – July 2017)**
- **Milpitas Enrollment (June 2018)**

SILICON VALLEY COMMUNITY CHOICE ENERGY PARTNERSHIP



SILICON VALLEY CLEAN ENERGY

SVCE Member Communities

Campbell | Cupertino | Gilroy | Los Altos | Los Altos Hills

Los Gatos | Monte Sereno | Morgan Hill | Milpitas

Mountain View | Santa Clara County | Saratoga | Sunnyvale

SILICON VALLEY CLEAN ENERGY

Sonoma Clean Power

EAST BAY COMMUNITY ENERGY

MCE Clean Energy
My community. My choice.

SAN JOSE CLEAN ENERGY

CleanPowerSF
Same Service • Cleaner Energy

SILICON VALLEY CLEAN ENERGY

PENINSULA CLEAN ENERGY

Monterey Bay Community Power

*Not all towns/cities within a county are served by the local Community Choice Energy agency. Please visit individual agency websites for more detailed service area information.

Audience/Stakeholders

- **Member communities**
- **Commercial customers**
  - Large customers
  - Small-and-medium businesses
  - Chambers of commerce and business associations
  - Agriculture
  - Apartment complexes and homeowner associations
- **Residential Customers**
  - Homeowners
  - Renters
  - Low-income
  - Seniors
  - Non-English speakers
- **Schools & Academia**
- **Community stakeholders**
  - Community-based organizations, service clubs, neighborhood associations, etc.
  - Faith community
  - Environmental organizations
  - Charitable organizations
- **State**
  - Regulatory agencies
  - Legislators
- **Industry stakeholders**
  - CalCCA
  - Solar
  - Labor
  - Design and building community
- **Regional agencies**

SILICON VALLEY CLEAN ENERGY

SVCE Key Messages (Benefits)

Reducing Carbon

Fighting climate change by cutting carbon emissions

We are helping our communities lead the fight against climate change by reducing the use of fossil fuels for energy, transportation and buildings, and building new renewable energy projects.

Reinvesting Locally

Net revenues directly benefit our local community

SVCE returns value to our customers through competitive rates, clean energy programs, projects, scholarships, grants, and improved access and education.

Accelerating Innovation

Finding new ways to improve the grid and provide more renewable energy

As the electricity industry undergoes unparalleled changes, SVCE encourages the advancement of new technologies to help our community meet its climate goals.

SILICON VALLEY CLEAN ENERGY

Community Engagement

- Events and presentations
- Direct outreach to community-based organizations
- Customer surveys
- Media relations and advertising
- Newsletter, social media, partner channels, collateral
- Brand recognition via community event sponsorships

Account Services & Community Relations Team

Don Bray

Director of Account Services & Community Relations

Pamela Leonard

Communications Manager

John Supp

Manager of Account Services

Paige Wenzel

Community Outreach Specialist

Julia Dagum

Communications Specialist

Peyton Parks

Energy Consultant

Colleen McCamy

Community Outreach Fellow

SILICON VALLEY CLEAN ENERGY

Bike to the Future

Electric bike building high school scholarship competition!

Scholarship Prizes

1st place: $7500

2nd place: $5000

3rd place: $3500

Community Engagement Grants

- $75,000 awarded to local organizations to collaborate on outreach to traditionally hard-to-reach and underserved residential customers
- Recipients:
  - Acterra
  - El Concilio
  - Interfaith Power & Light
  - Sound of Hope
  - Sunnyvale Community Services
  - Vietnamese Voluntary Foundation

Patti Sexton of Acterra shares SVCE info at Mountain View senior center

SILICON VALLEY CLEAN ENERGY

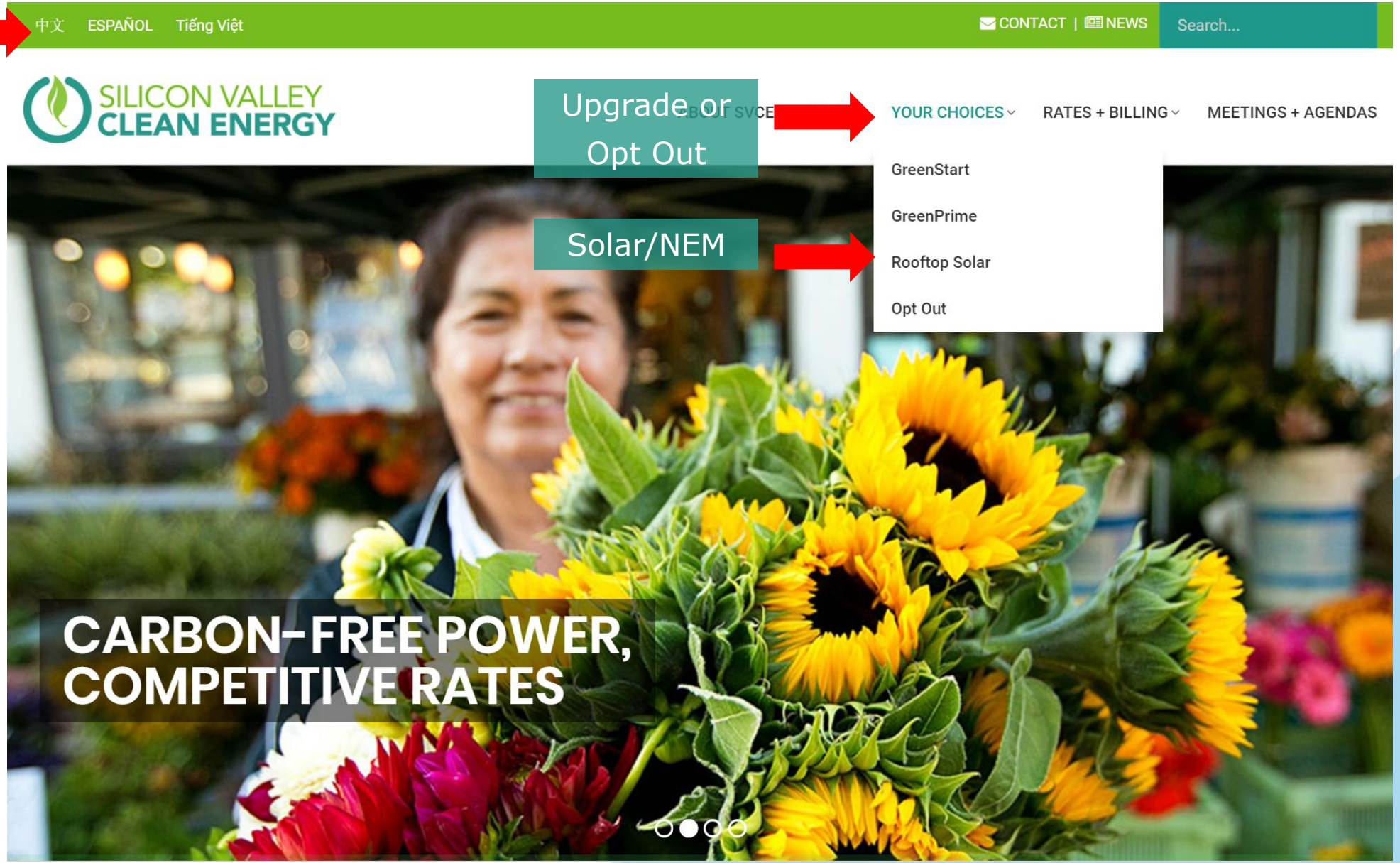
Community Close-Ups

- Capturing testimonials through image and video profiles of our customers

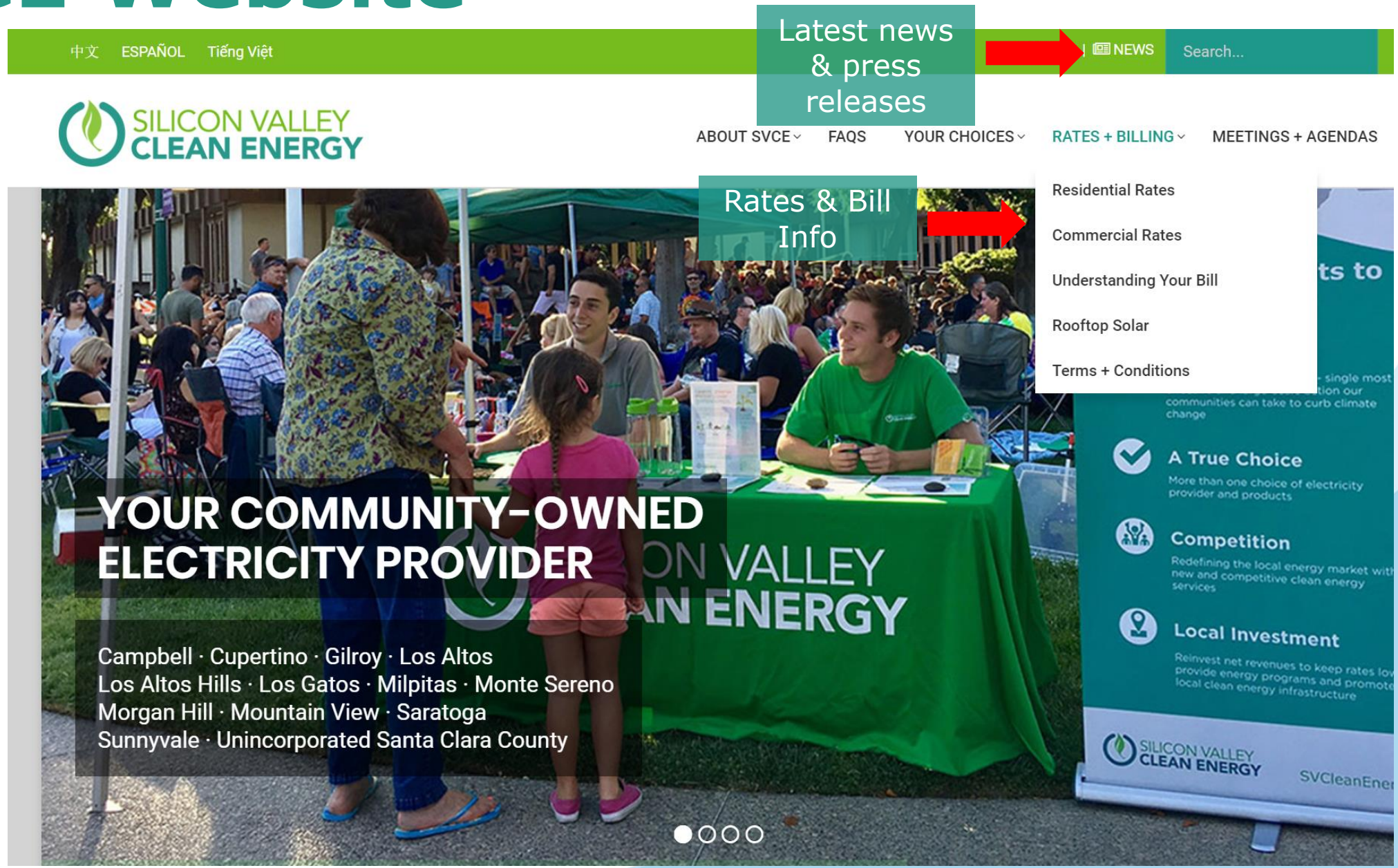
SILICON VALLEY CLEAN ENERGY

SVCE Website

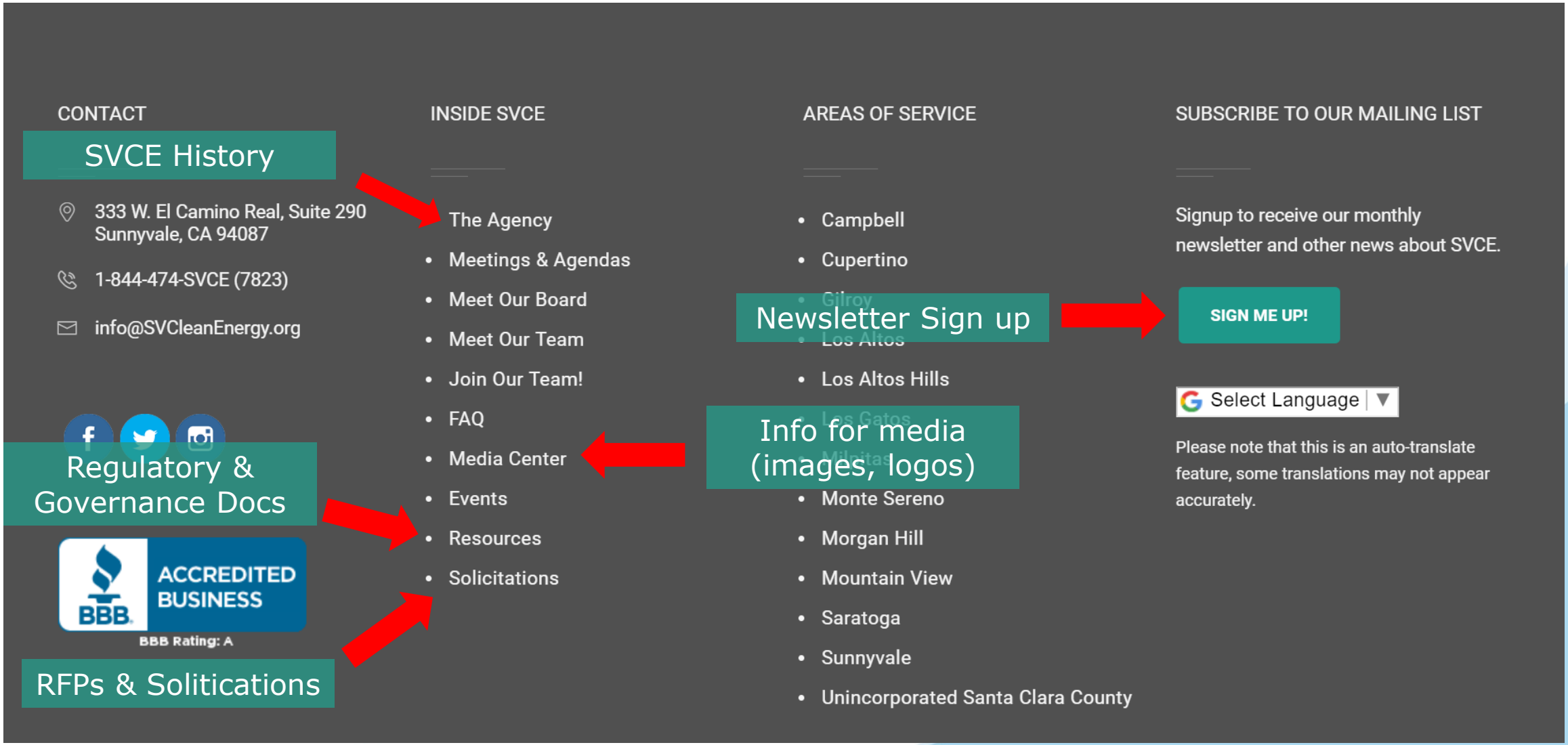
Translated microsites



SVCE Website



SVCE Website (Footer)



Account Services & Community Relations

Don Bray
Director of Account Services & Community Relations

Today's Topics

- Annual Results
- Customer Demographics
- Residential 'Personas'
- Participation
- Our Power Products
- Rates – TOU/Tiered/Solar
- GHG Inventory
- Clean Energy Metrics

SILICON VALLEY CLEAN ENERGY

2018 Community-wide Results

3.6 Billion kWh
Carbon-free energy delivered

266,500
Residential and business customers, a 97% participation rate

1.1 Billion Pounds
Carbon emissions avoided by providing clean energy

$16.5 Million
On-bill dollar savings for SVCE customers

$159,000
Cash payments to customers for generating extra solar energy

16.6%
Community-wide emissions reduction from 2015 baseline

SILICON VALLEY CLEAN ENERGY

2018 annual results for period Oct 1, 2017 – Sept 30, 2018

2018 Results – City of Sunnyvale example

2018 Community Benefits Summary

City of Sunnyvale and Silicon Valley Clean Energy

Formed in 2016 by the City of Sunnyvale and twelve other local communities, Silicon Valley Clean Energy (SVCE) is redefining the local electricity market. SVCE provides residents and businesses with carbon-free electricity at lower rates and offers innovative clean energy programs.

From October 2017 through September 2018, our communities achieved their commitments to save customers money, buy cleaner power and reduce community-wide carbon emissions.

Sunnyvale Results - A cleaner environment and lower costs

- **1.18 billion kilowatt hours** (kWh) of electricity from carbon-free sources
- **$5,265,000** in on-bill savings for SVCE customers
- **59,883** households and businesses served
- **100%** renewable electricity powering all municipal facilities with GreenPrime upgrade
- **347.7 million pounds** greenhouse gas emissions avoided by providing clean energy

2018 Regional Achievements

- **16.6%** community-wide greenhouse gas emissions reduction from 2015 baseline
- **$16.5M** total in overall on-bill customer savings
- **270,000+** customers served, a **97%** participation rate
- **All** start-up capital repaid
- **6%** discount in 2018 generation rates
- **1.1 billion** lbs. of CO2 avoided in 2018
- **110 megawatt** new wind energy project in development
- **$75,000** community engagement pilot grant

SVCE in your Community

Engaging with Sunnyvale customers and supporting local events

- Community meetings
- Community and Earth Day events
- Chamber of Commerce Presentations & Meetings
- Bike to the Future high school team participant

SILICON VALLEY CLEAN ENERGY

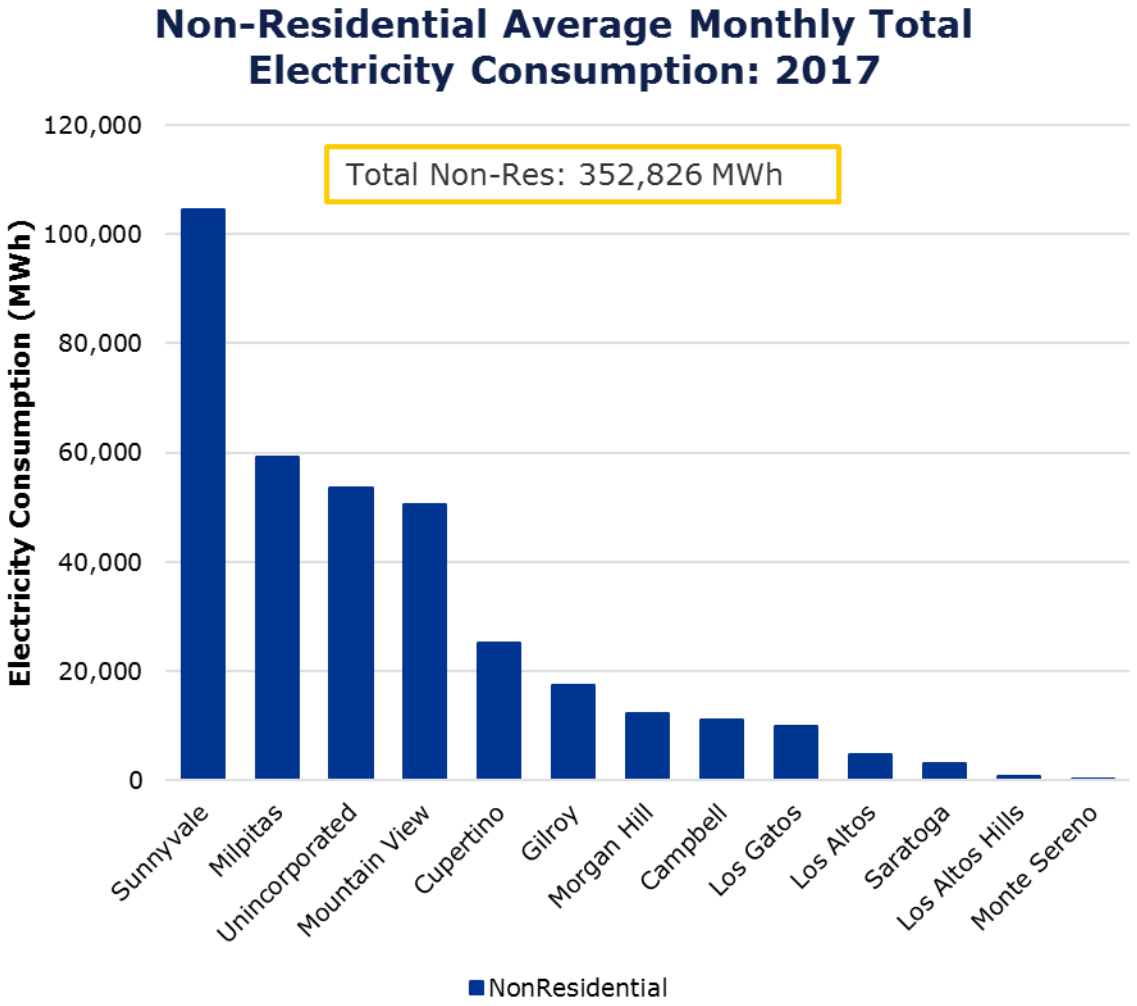
SVCE Market Profile

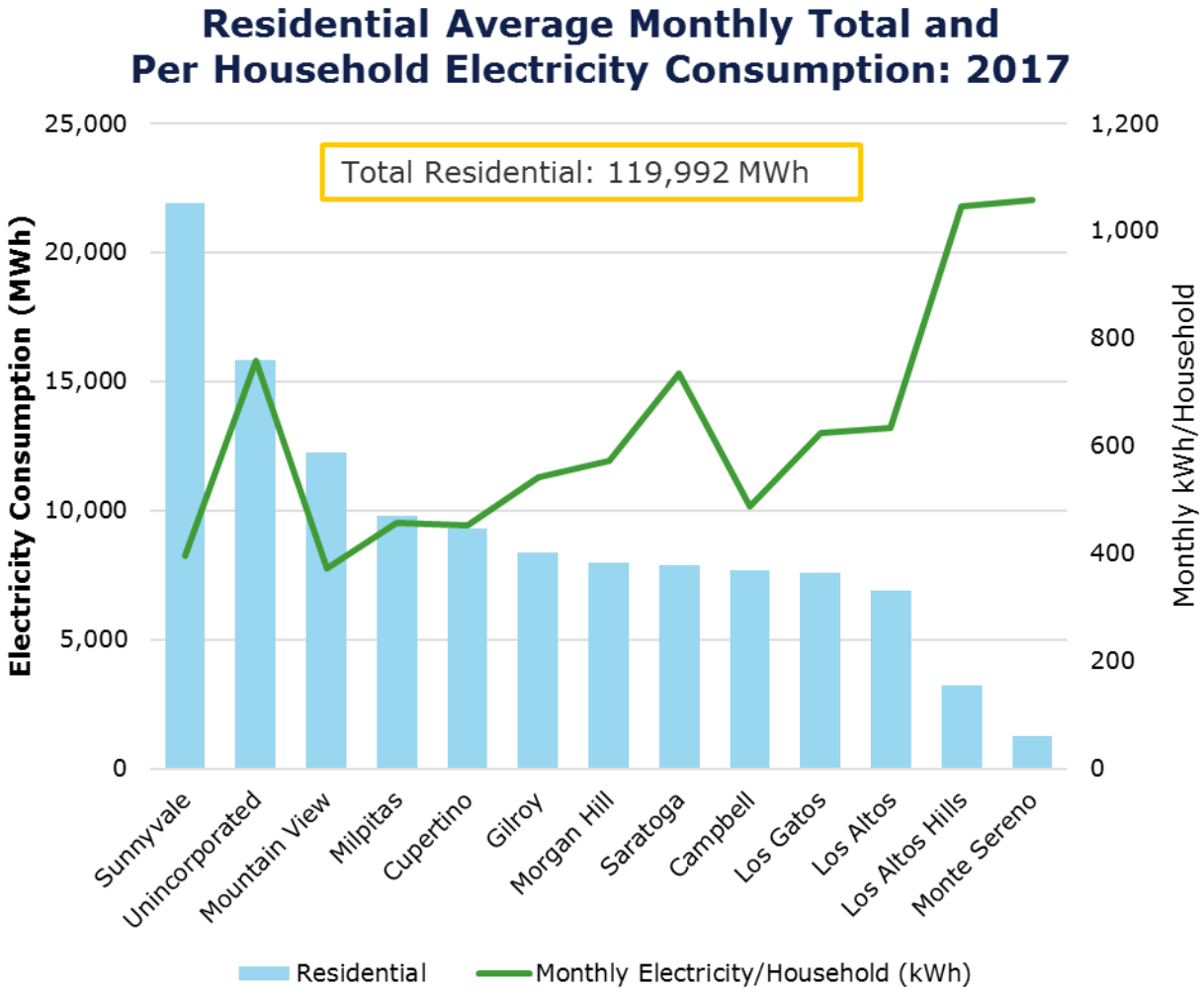
SVCE's service territory includes a large and dynamic commercial community . . .

Customer Classification	Customer Accounts	Accounts % of Total	Energy Use (million kWh)	Energy Use % of total
Residential	240,855	90%	1,335	34%
Ag, Pumping and Street Lighting	2,759	1%	68	2%
Small and Medium Business (SMB)	23,082	9%	1,040	26%
Large Commercial and Industrial (C&I)	1,485	<1%	1,501	38%
Totals* (Bundled)	268,181	100%	3,945	100%
Direct Access (DA)	971	<1%	1,278	32% (of SVCE total)

* Totals may not add to 100% due to rounding

Electricity Consumption - City and Sector





Data sources: SVCE, PG&E, Direct Access

DA Expansion and 'At Risk' Customers

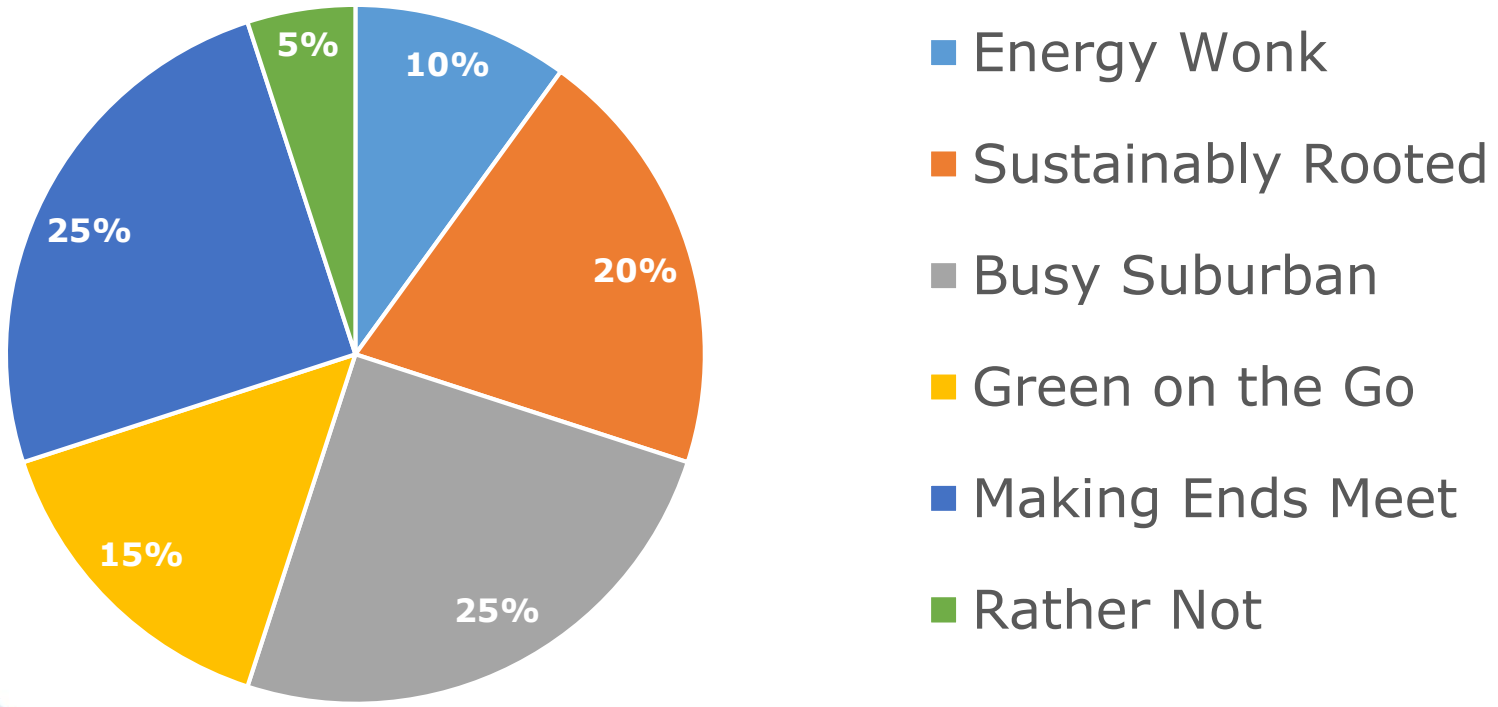
	GWh/yr
SVCE Load with Current DA Customers	**165**
Remaining Load on 2019 Waitlist	**88**
Total:	**253**

- Direct Access Customers in SVCE Territory
  - 30 of 100 largest customers in territory are DA (across SVCE, DA, PG&E)
  - 20 of 30 are also SVCE customers, and likely on waitlist
  - SVCE load with current DA customers: 165 GWh/year
  - Five customers represent 75% of this total
  - DA customers vary – local nexus, national chains, international etc.

SILICON VALLEY CLEAN ENERGY

Residential Customer Segmentation

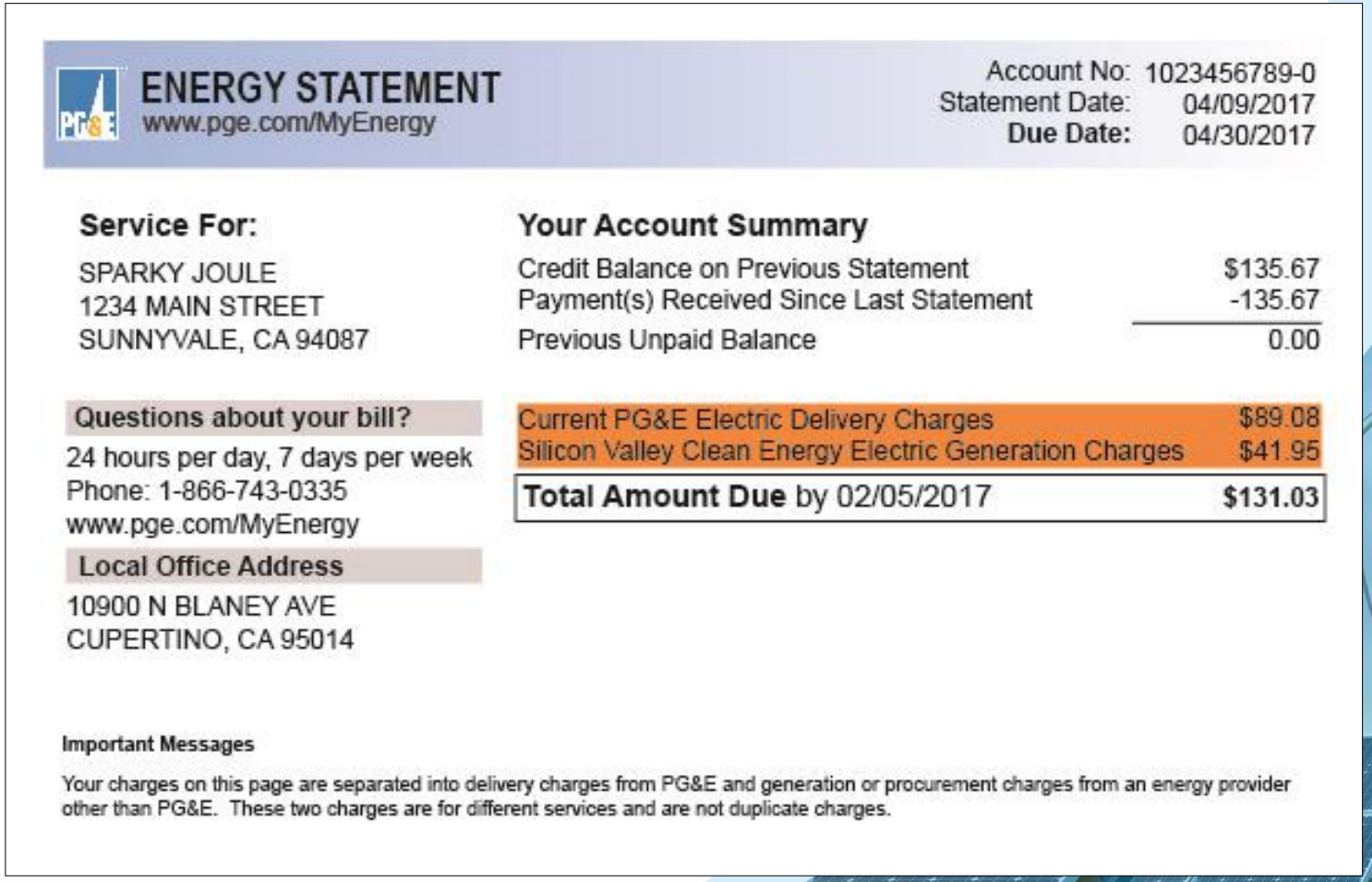
Identified Customer 'Personas'



SILICON VALLEY CLEAN ENERGY

Products, Rates & Billing

- Rate Components
- Monthly Costs
- Rate Types
- NEM
- Special Programs



ENERGY STATEMENT
www.pge.com/MyEnergy

Account No: 1023456789-0
Statement Date: 04/09/2017
Due Date: 04/30/2017

Service For:

SPARKY JOULE
1234 MAIN STREET
SUNNYVALE, CA 94087

Your Account Summary

Credit Balance on Previous Statement	$135.67
Payment(s) Received Since Last Statement	-135.67
Previous Unpaid Balance	0.00
Current PG&E Electric Delivery Charges	$89.08
Silicon Valley Clean Energy Electric Generation Charges	$41.95
Total Amount Due by 02/05/2017	**$131.03**

Questions about your bill?
24 hours per day, 7 days per week
Phone: 1-866-743-0335
www.pge.com/MyEnergy

Local Office Address
10900 N BLANEY AVE
CUPERTINO, CA 95014

Important Messages

Your charges on this page are separated into delivery charges from PG&E and generation or procurement charges from an energy provider other than PG&E. These two charges are for different services and are not duplicate charges.

SILICON VALLEY CLEAN ENERGY

Electricity Choices

GreenStart

Your default option – currently 6% below comparable PG&E generation rates

- Carbon Free
  - 50% renewable wind + solar
  - 50% non-polluting hydropower

GreenPrime

Your voluntary option costs less than 1 penny ($ 0.008) more per kilowatt hour than GreenStart

- 100% renewable – 80% wind, 20% solar
- Green-e certified
- Qualifies for LEED Points!

SILICON VALLEY CLEAN ENERGY

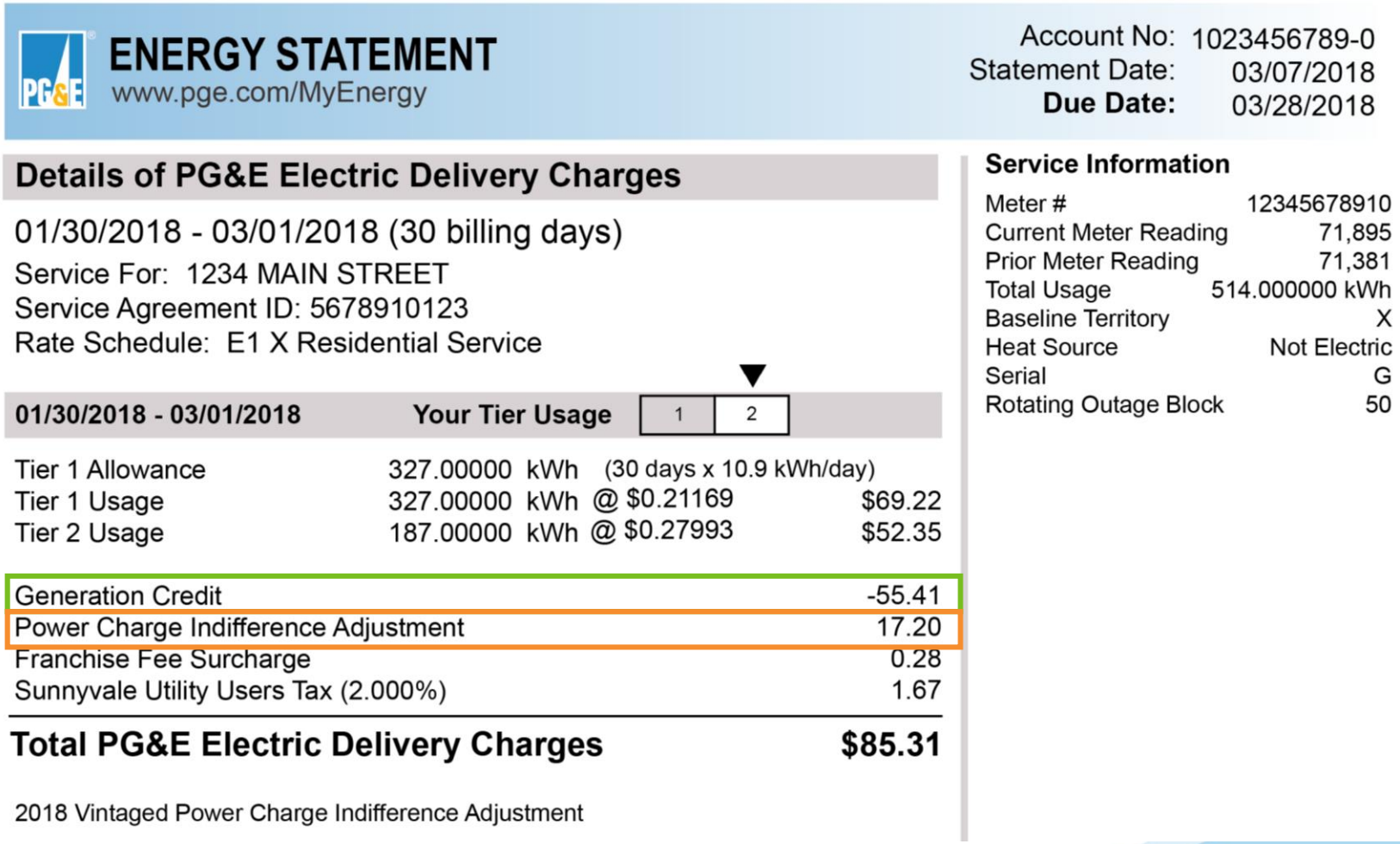
Residential Rate Comparison

GreenStart	Opt Out	GreenPrime
50% RENEWABLE ENERGY	33% RENEWABLE ENERGY	100% RENEWABLE ENERGY
$56.09 PG&E ELECTRIC DELIVERY	$56.09 PG&E ELECTRIC DELIVERY	$56.09 PG&E ELECTRIC DELIVERY
$30.29 ELECTRIC GENERATION	$48.51 ELECTRIC GENERATION	$33.89 ELECTRIC GENERATION
$15.30 PG&E ADDED FEES	$0 PG&E ADDED FEES	$15.30 PG&E ADDED FEES
$101.68 AVERAGE TOTAL COST	$104.60 AVERAGE TOTAL COST	$105.28 AVERAGE TOTAL COST

SVCE Residential Average; Usage ~450 kWh /month

SILICON VALLEY CLEAN ENERGY

Sample Bill



ENERGY STATEMENT
www.pge.com/MyEnergy

Account No: 1023456789-0
Statement Date: 03/07/2018
Due Date: 03/28/2018

Details of PG&E Electric Delivery Charges

01/30/2018 - 03/01/2018 (30 billing days)

Service For: 1234 MAIN STREET
Service Agreement ID: 5678910123
Rate Schedule: E1 X Residential Service

01/30/2018 - 03/01/2018	Your Tier Usage	1	2	
Tier 1 Allowance	327.00000 kWh	(30 days x 10.9 kWh/day)		
Tier 1 Usage	327.00000 kWh	@ $0.21169		$69.22
Tier 2 Usage	187.00000 kWh	@ $0.27993		$52.35

Generation Credit	-55.41
Power Charge Indifference Adjustment	17.20
Franchise Fee Surcharge	0.28
Sunnyvale Utility Users Tax (2.000%)	1.67
Total PG&E Electric Delivery Charges	**$85.31**

2018 Vintaged Power Charge Indifference Adjustment

Service Information

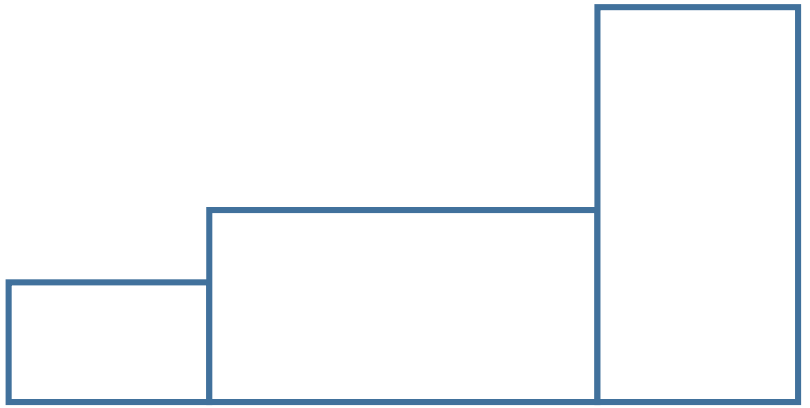
Meter #	12345678910
Current Meter Reading	71,895
Prior Meter Reading	71,381
Total Usage	514.000000 kWh
Baseline Territory	X
Heat Source	Not Electric
Serial	G
Rotating Outage Block	50

SILICON VALLEY CLEAN ENERGY

Residential Rate Types

Tiered

- 90% of residential on E-1 rate
- Rate increases with volume

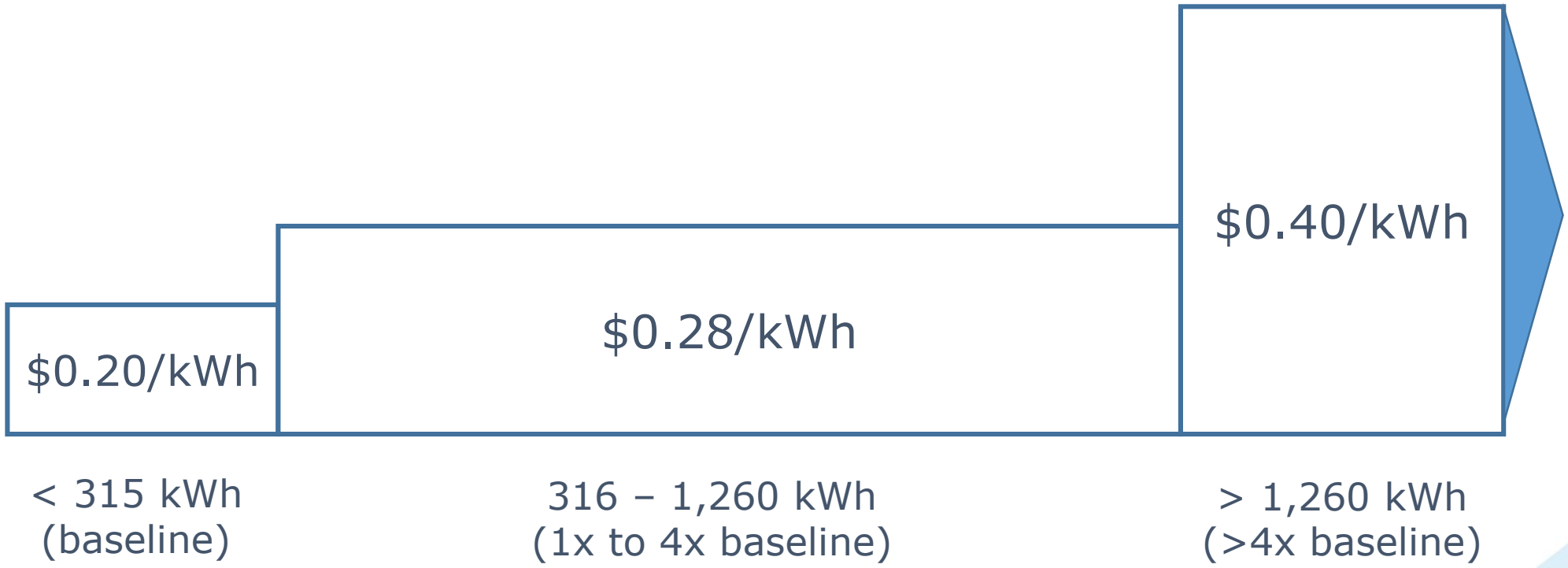


Time of Use (TOU)

- 10% of residential
- E-TOUA,B,C; EVA,B; E6
- Rate varies by season, day, time of day; may be lowered for baseline usage

SILICON VALLEY CLEAN ENERGY

E1 Residential Tiered Rate Example



SILICON VALLEY CLEAN ENERGY

Avg, baseline territory X, 2017; BUNDLED RATE

EV-A Residential TOU Rate Example

SUMMER	PEAK	PART-PEAK	OFF-PEAK
May 1 – Oct 31	$0.45/kWh	$0.25/kWh	$0.12/kWh
	M-F 2 pm – 9 pm	M-F 7 am – 2 pm	All other times
	S-S 3 pm – 7 pm	M-F 9 pm – 11 pm	

WINTER	PEAK	PART-PEAK	OFF-PEAK
Nov 1 – April 30	$0.32/kWh	$0.20/kWh	$0.13/kWh
	M-F 2 pm – 9 pm	M-F 7 am – 2 pm	All other times
	S-S 3 pm – 7 pm	M-F 9 pm – 11 pm	

SILICON VALLEY CLEAN ENERGY

Net Energy Metering

52

What is PG&E Net Energy Metering?

	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Generation (kWh)	270	350	400	500	625	450	350	280	200	150	150	170
Consumption (kWh)	300	320	300	280	300	320	300	330	370	370	350	330
Monthly Net (kWh)	-30	30	100	220	325	130	50	-50	-170	-220	-200	-160
Cumulative Annual Net (kWh)	-30	0	100	320	645	775	825	775	605	385	185	25

- Solar generation 'netted' each month v/v usage
- Value of cumulative net usage/surplus is tracked
- Annually, customer is billed if the net value of generation vs. consumption is negative

SILICON VALLEY CLEAN ENERGY

SVCE Net Energy Metering

- ✓ **Retail Value for Surplus Generation**
- ✓ **Automatic Annual Cash Out**
- ✓ **Monthly Billing with Credit Roll Over**
- ✓ **Opportunity to Enroll in GreenPrime**
- ✓ **Additional GreenPrime Value for Surplus Generation**

SILICON VALLEY CLEAN ENERGY

Special Discount Programs

Discount program eligibility unaffected:

- CARE/FERA: SVCE saves additional 6%
- LIHEAP: Additional 6%
- Medical Baseline: over 15%*

*no PCIA or Franchise Fees

SVCE customers ineligible for –

SmartRate

- Residential demand response program
- Discount in exchange for high 'event day' rate

Budget Billing

- Formerly Balanced Payment Plan
- Averages yearly electricity usage and spreads the total amount over 12 months

SILICON VALLEY CLEAN ENERGY

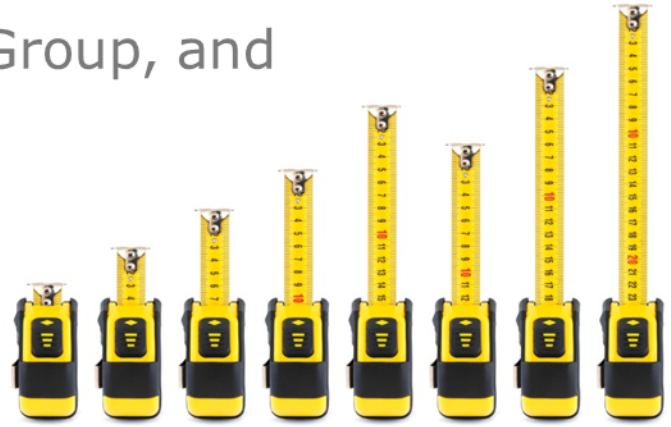
GHG Inventory Data – Context and Goals

- GHG emissions reduction core to SVCE's mission

- To guide SVCE goal setting, program development and performance tracking, key datasets have now been established:
  - SVCE service area GHG emissions baseline and update
  - energy asset data
  - selected demographic data

- SVCE has worked closely with the Member Agency Working Group, and resulting datasets are available to all member jurisdictions

- Datasets will be updated annually



SILICON VALLEY CLEAN ENERGY

GHG Inventory Scope…

- **GHG Emissions Baseline Data: 2015**
  - Two primary sectors – built environment and transportation
  - Thirteen jurisdictions

- **GHG Emissions – 2017 Update, and Key Trends**
  - Includes impact of SVCE rollout for partial year, across twelve jurisdictions
  - Milpitas not yet a member community
  - Projections for the "Full Rollout" Impact of SVCE

- **Clean Energy Asset Baseline for 2017, and Target Market Assessment**
  - Energy Use Demographics – building stock, occupancy, usage
  - Distributed Resources – solar, storage, alternative generation
  - Electric Vehicles and EVSE

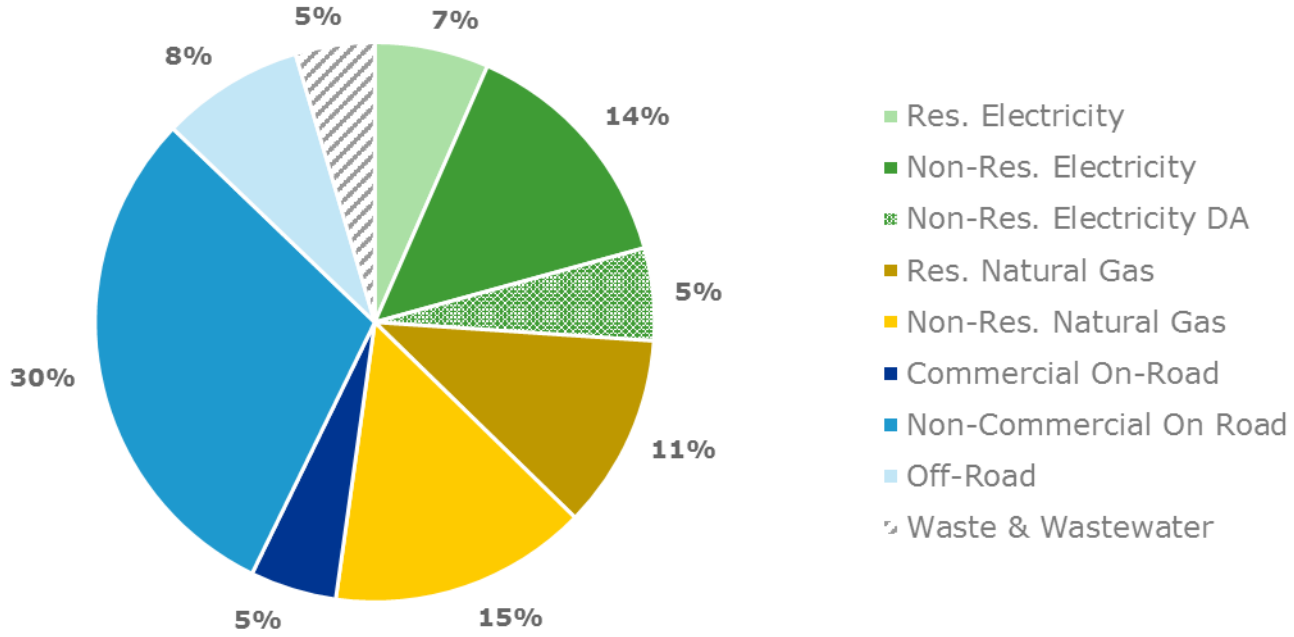
SILICON VALLEY CLEAN ENERGY

2015 Baseline

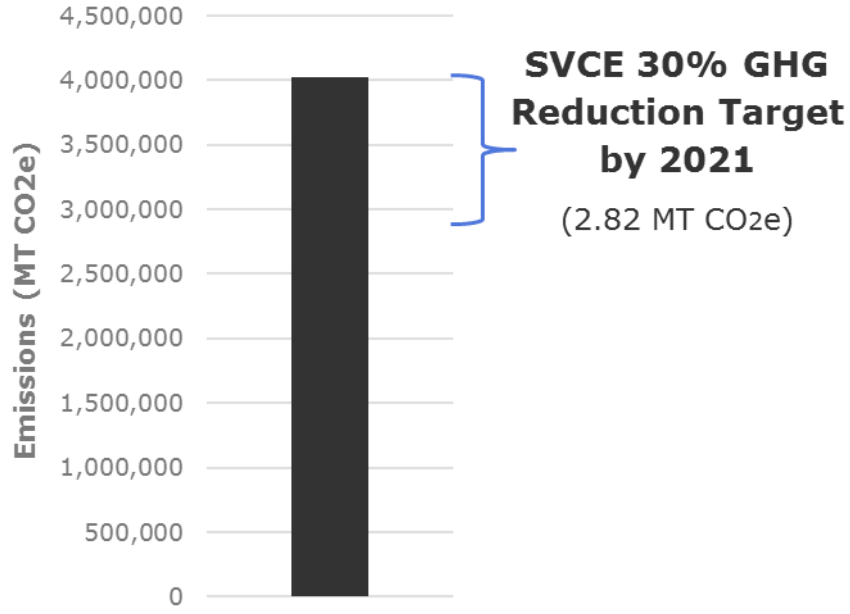
All Sectors

- **2015 baseline emissions of 4.03 million MT CO2e establishes baseline for SVCE to measure future progress against**

2015 Total Emissions by Subsector



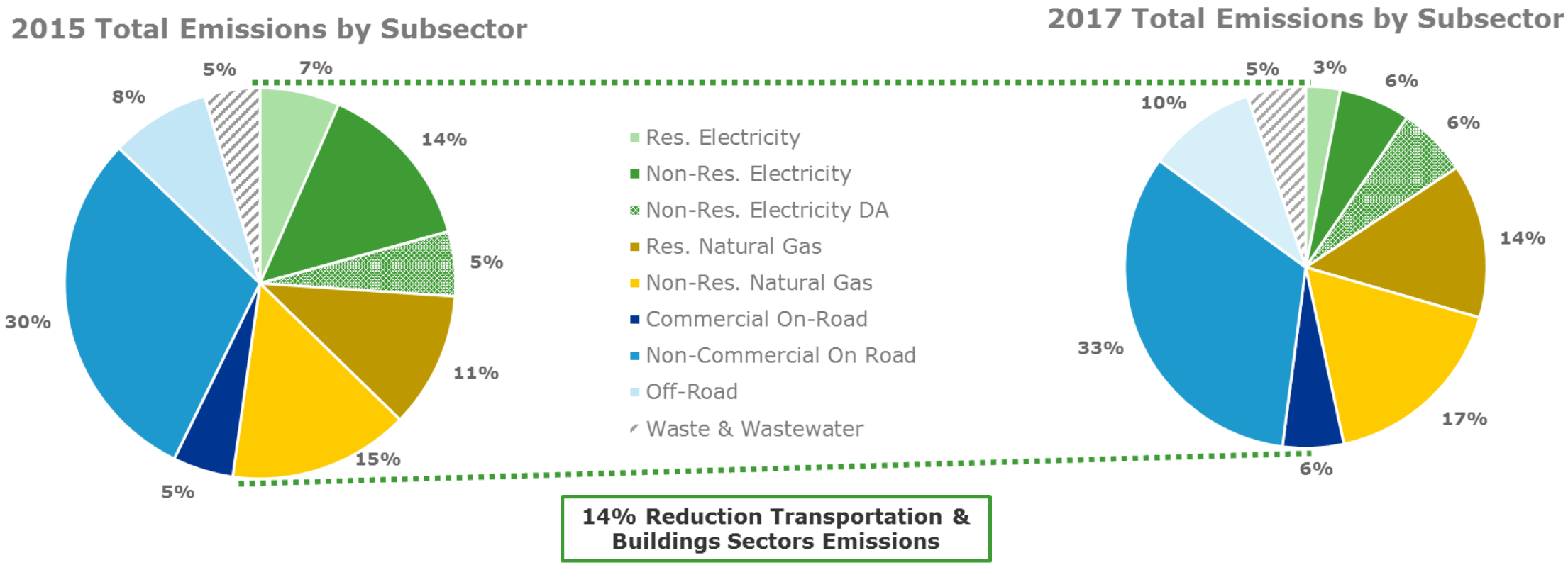
2015 Total Buildings & Transportation Emissions



- Waste & Wastewater emissions not calculated and not included in the baseline. Estimated using typical per capita data for illustrative purposes.

2015 Baseline and 2017 Update

All Sectors



- Waste & Wastewater emissions not calculated and not included in the baseline. Estimated using typical per capita data for illustrative purposes.

Electricity Emissions Factors

Built Environment

- **The weighted average electricity emission factor decreased 46% between 2015 & 2017**

Provider	2015 Emission Factor (Lbs/MWh)	2017 Emission Factor (Lbs/MWh)
Direct Access	373	373*
PG&E	405	294**
SVCE	N/A	0.25
Weighted Average	**398**	**217**

*Direct Access: 2015 most recent year of data available
**PG&E: 2016 most recent year of data available

How is SVCE's electricity emission factor determined?

- Emission factors calculated using The Climate Registry (TCR)-compliant methodology
- Small amount of emissions from geothermal power

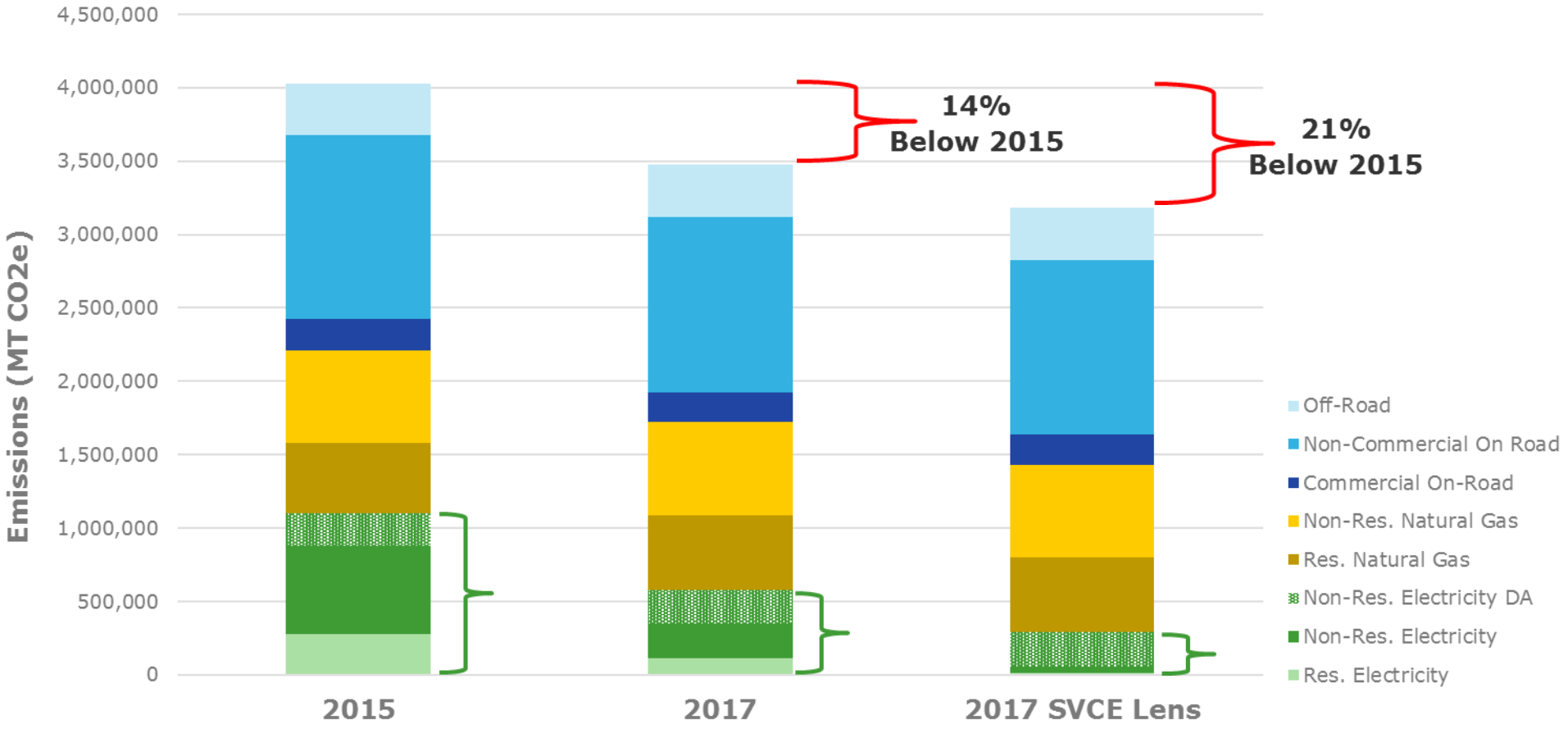
How is the direct access electricity emission factor determined?

- Based on state average emission factor
- Adjusted to account for large, direct access customers in SVCE territory that procure 100% carbon free electricity

Estimated 2018 GHG Reductions

All Sectors

- **With a full year of SVCE up and running, we should expect a ~21% reduction in building & transportation emissions and a ~74% reduction in electricity emissions**



"2017 SVCE Lens":

- Uses 2017 data *except assume*:
  - SVCE was available to all jurisdictions for full year of 2017
  - Milpitas was a member of SVCE for full year of 2017

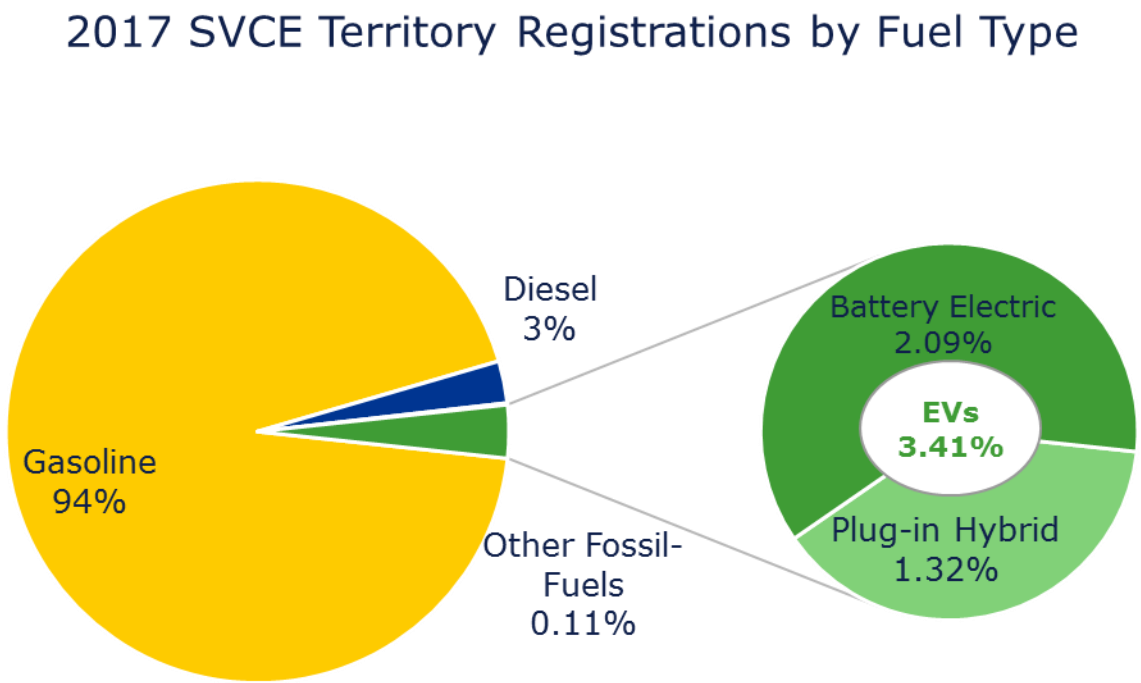
Electricity Emissions:

- **2017:**
  - 47% below 2015
- **2017 SVCE Lens:**
  - 74% below 2015

Clean Energy Asset Baseline Study

Energy Use Demographics	Distributed Resources	Transportation
• Electricity Consumption by Community • Building Stock Characteristics	• Solar PV • Storage • Fuel Cells	• Registered Electric Vehicles • EV Charging

Electric Vehicles Make up Small Portion of Fleet (But Growing!)

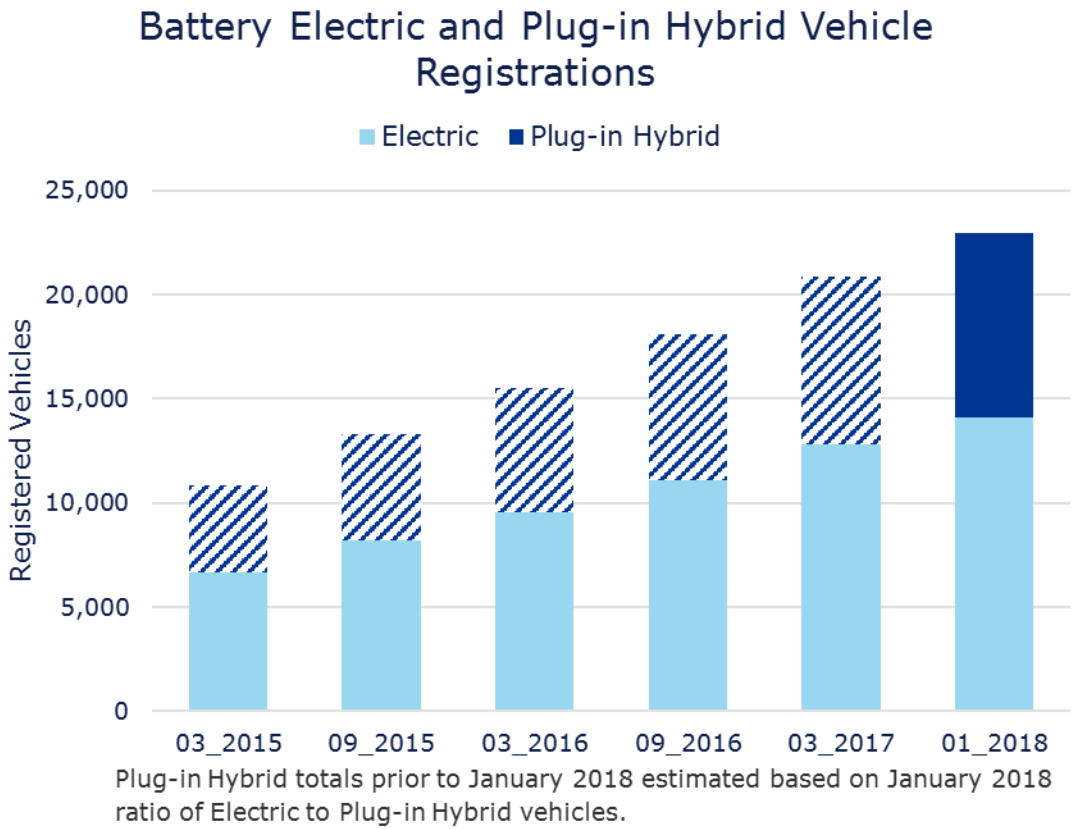


Plug-in Hybrid	Battery Electric	Total Registrations
8,876	14,070	672,710

Data sources: State of California Dept. of Motor Vehicles

SILICON VALLEY CLEAN ENERGY

Electric & Plug-in Hybrids Expanding Rapidly



Plug-in Hybrid totals prior to January 2018 estimated based on January 2018 ratio of Electric to Plug-in Hybrid vehicles.

- **Electric Vehicles have a double digit percentage growth rate every 6 months**

Existing PEV Fleet Distributed by *County*

County	New EV Adoption Rates (2012-2016)
Alameda	3.82%
Monterey	0.83%
San Francisco	1.77%
San Mateo	2.59%
Santa Clara	*5.25%*

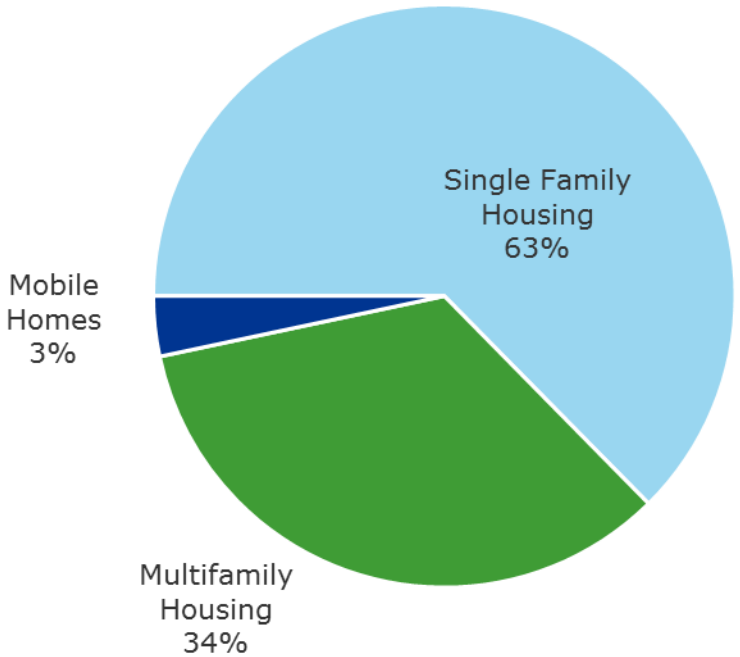
Data sources: State of California Dept. of Motor Vehicles Motive Power Biannual Report

SILICON VALLEY CLEAN ENERGY

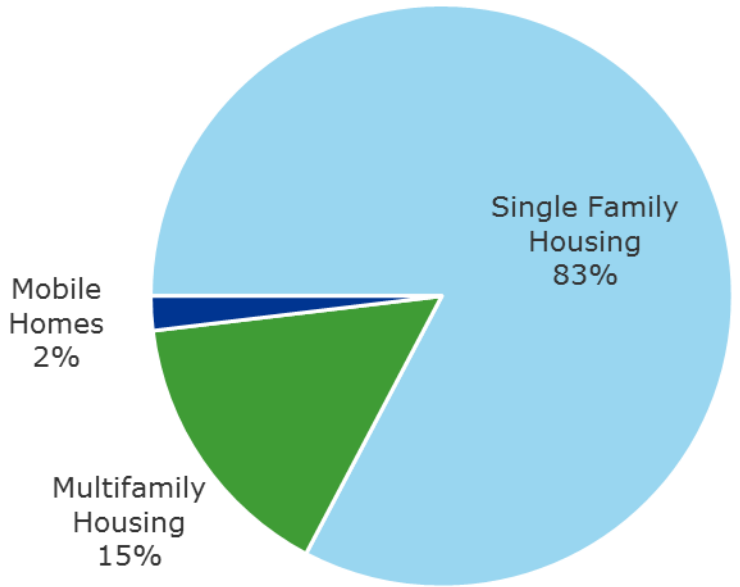
Residential Electricity Consumption by Housing Type

- **Single family homes consume 83% of electricity despite making up only 63% of total housing units**

Total Housing Unit Count by Housing Type



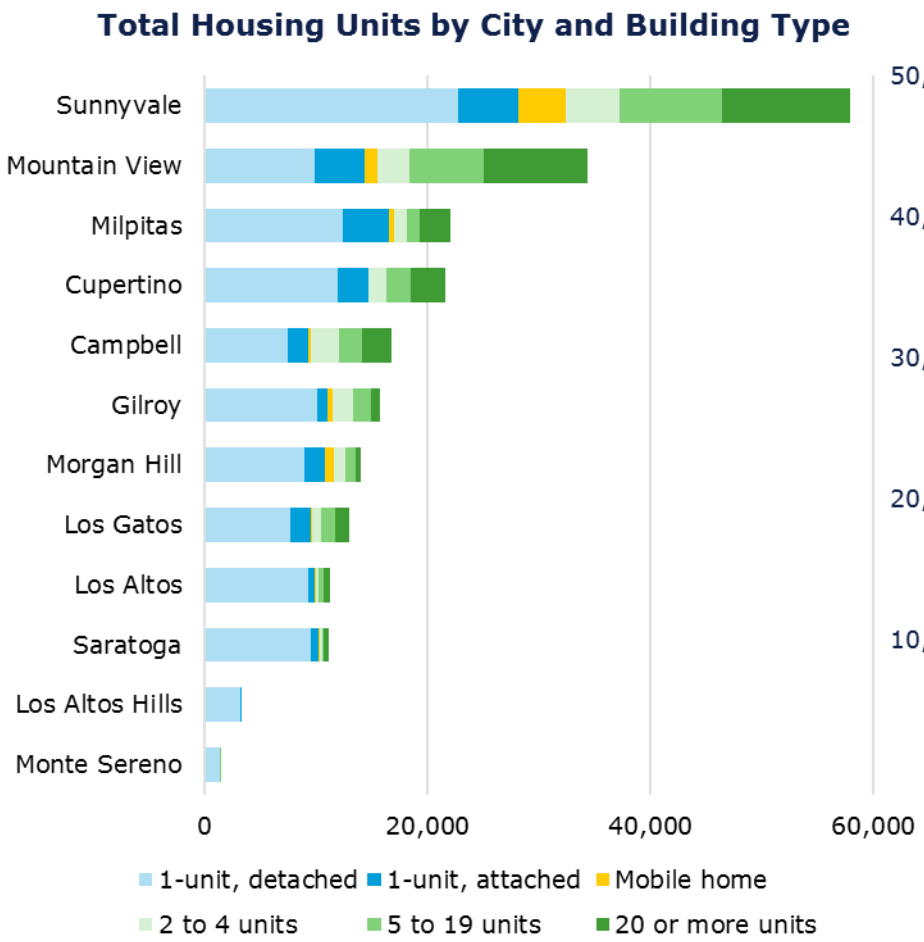
Estimated Residential Electricity Consumption by Housing Type

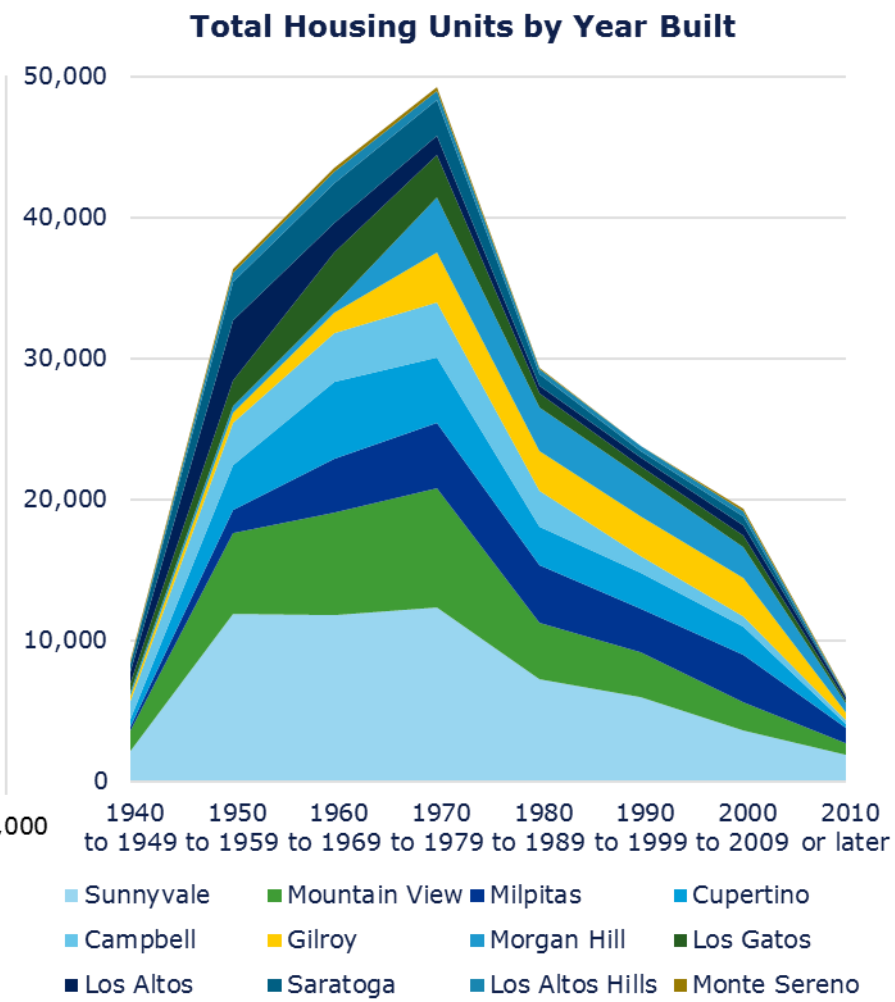


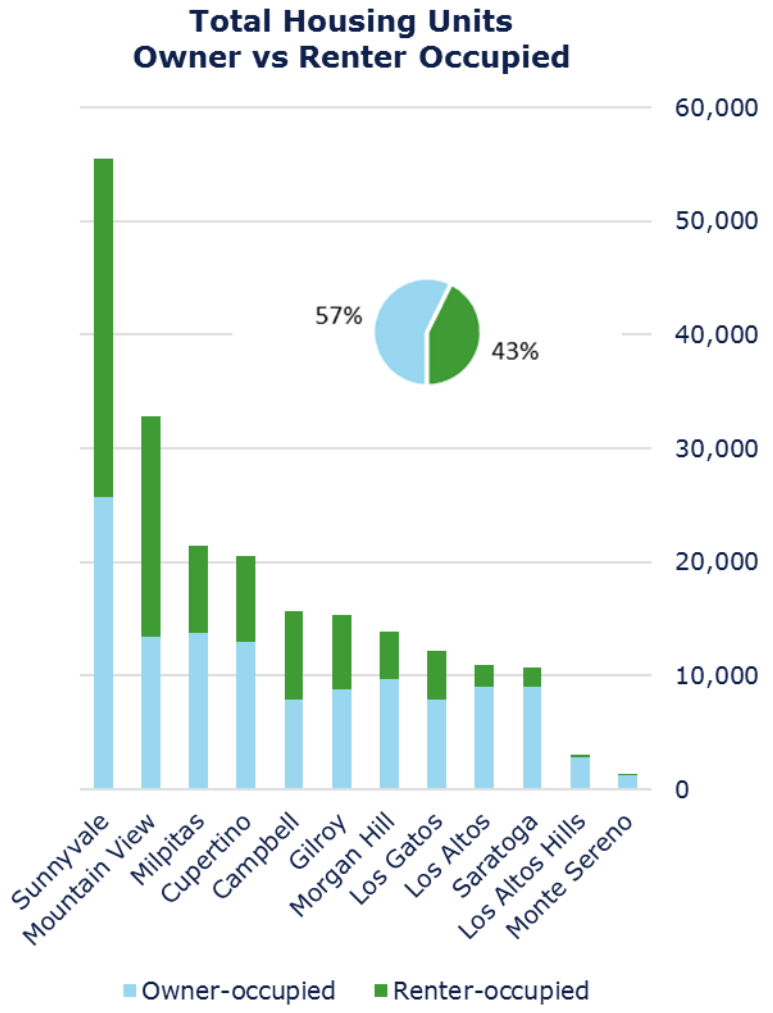
Property Type	Estimated Electricity Consumption per Housing Unit (Average kWh per Month)
Single Family	634
Multifamily Unit	311
Mobile Home	465

SILICON VALLEY CLEAN ENERGY

Residential Building Stock Characteristics



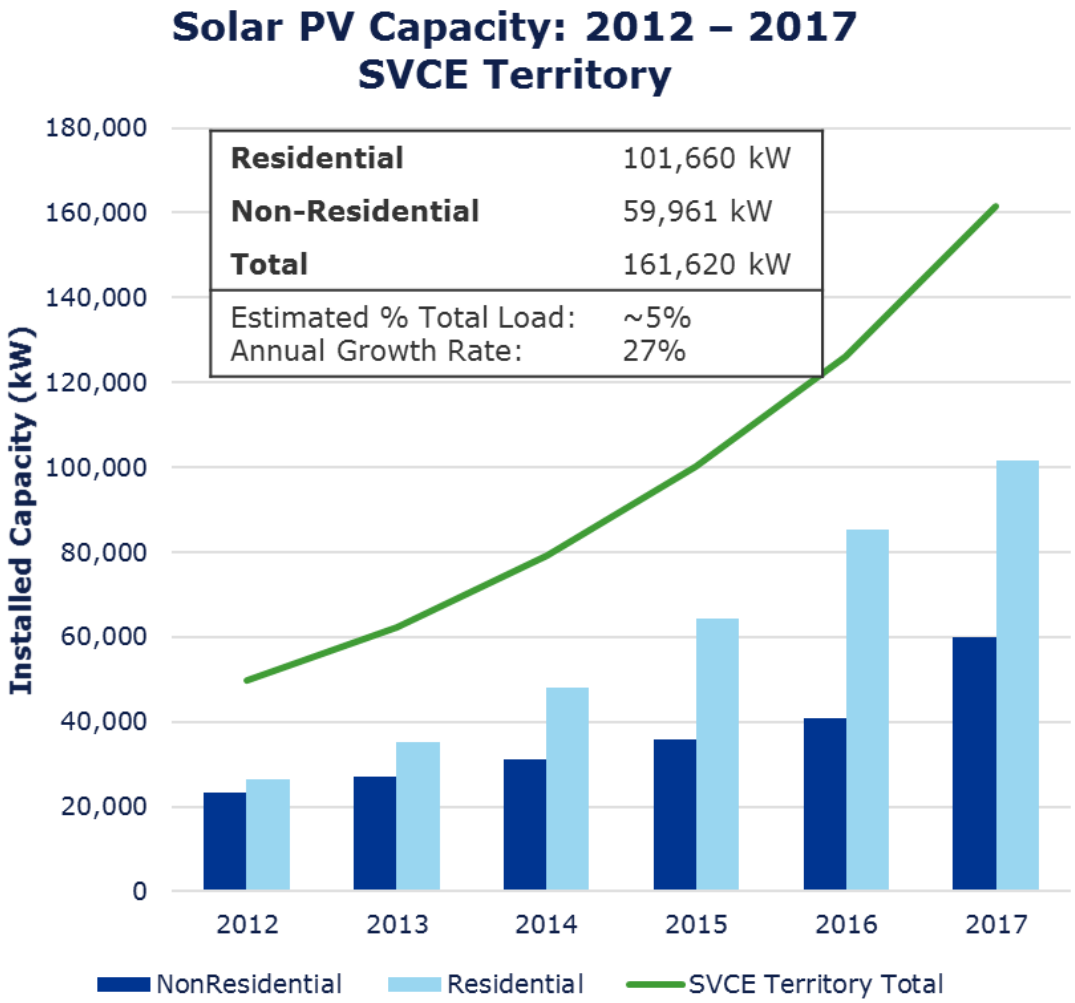


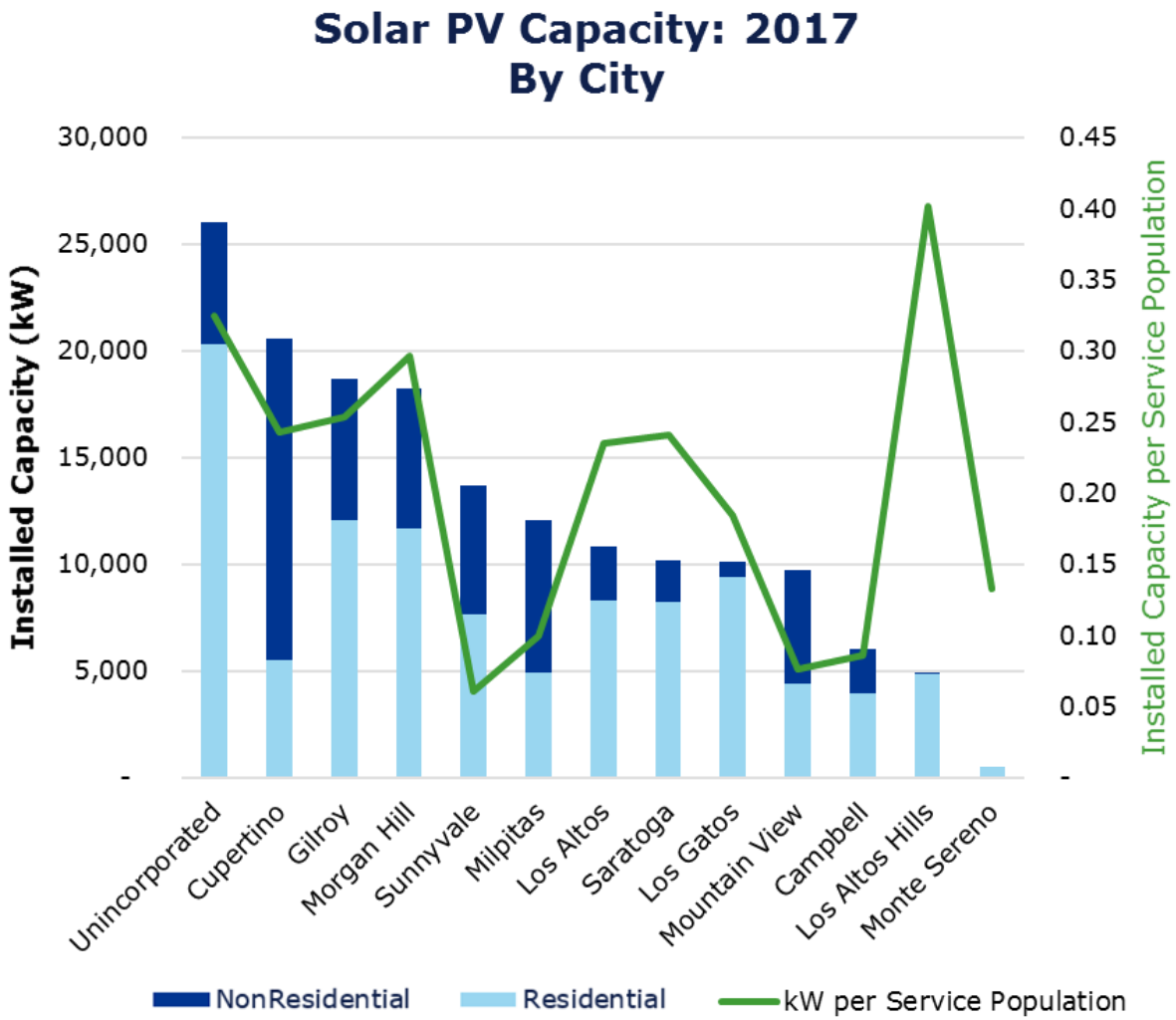


Data sources: US Census and American Community Survey

SILICON VALLEY CLEAN ENERGY

Distributed Solar Photovoltaic Capacity is Growing Rapidly



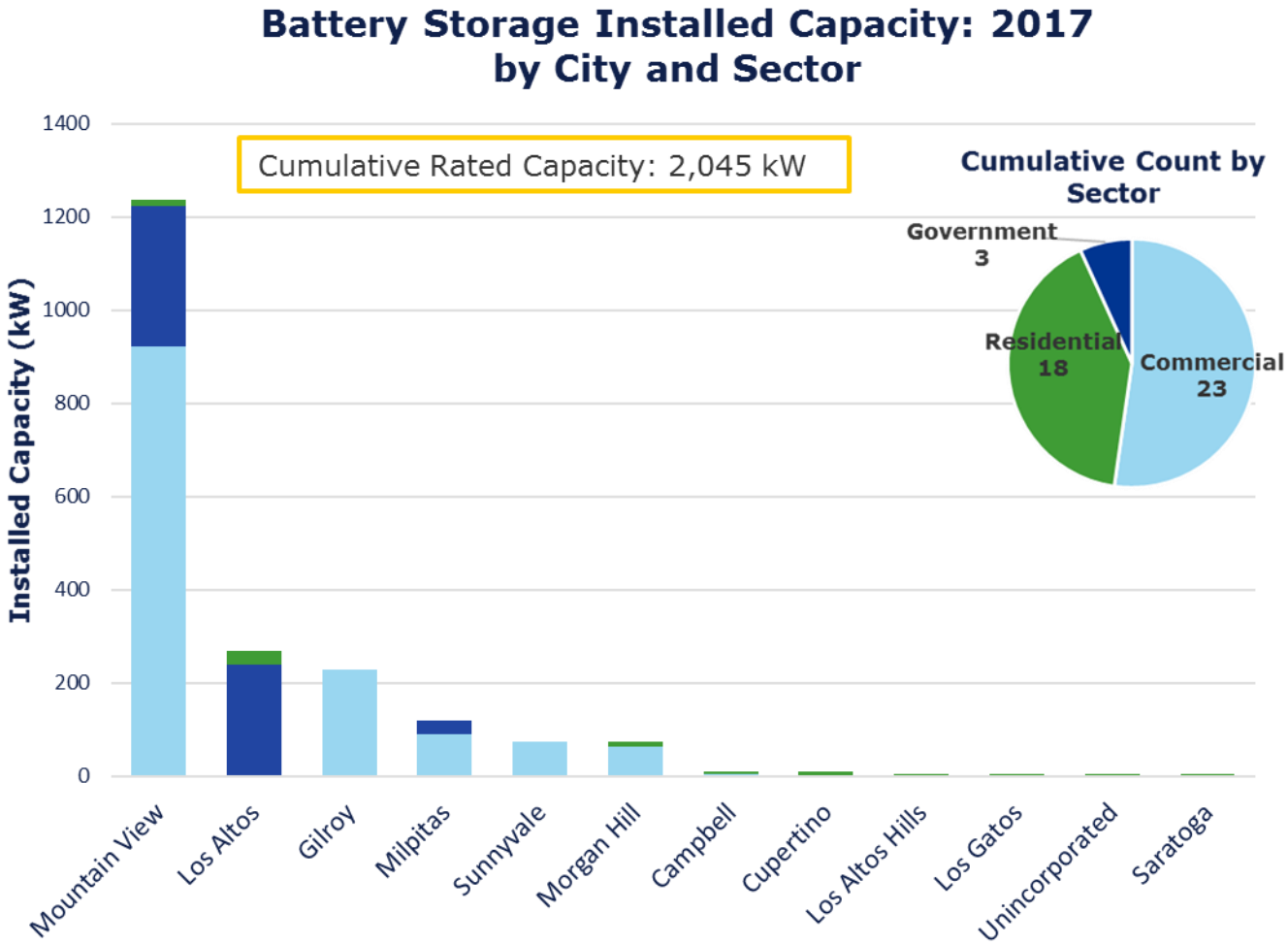


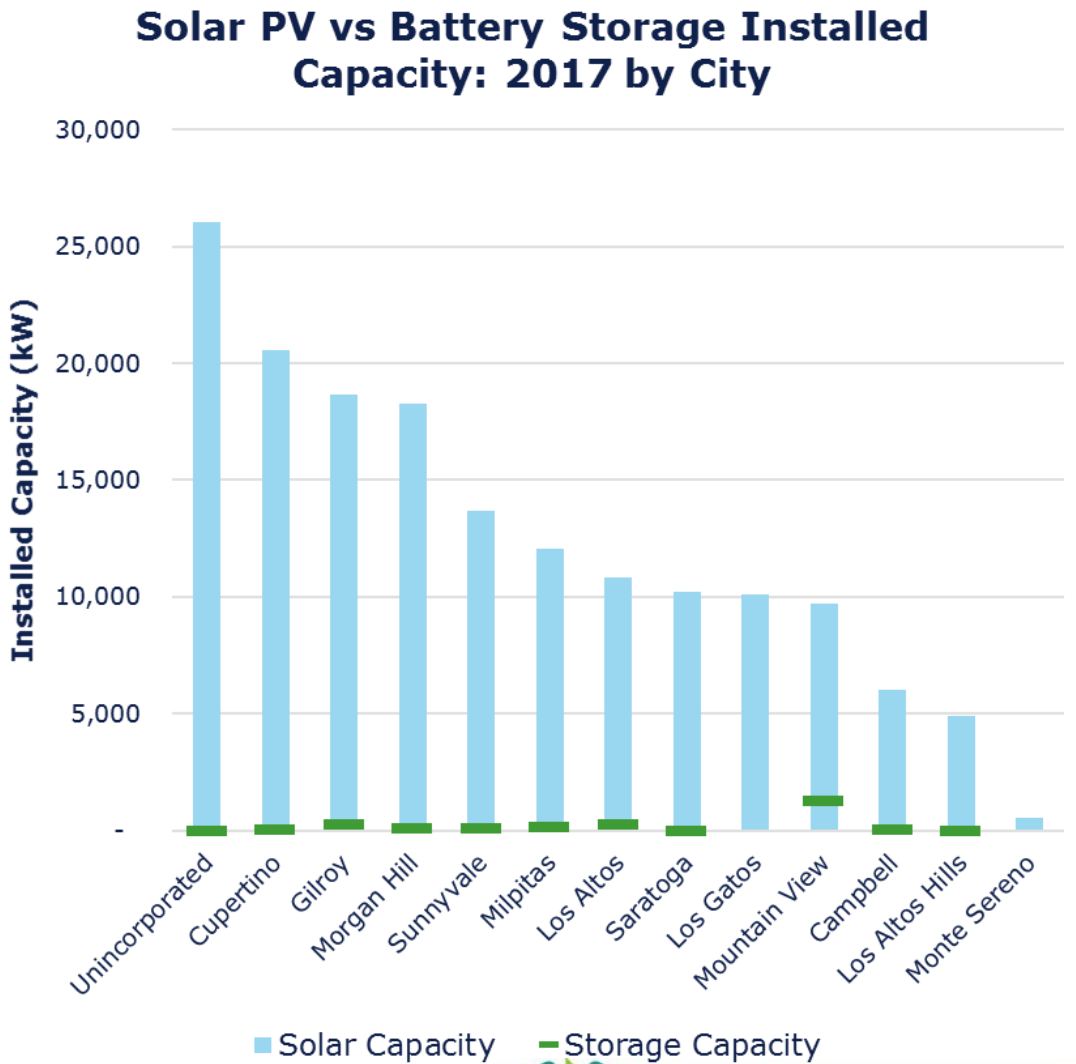
Data sources: California Solar Initiative Data, https://www.californiasolarstatistics.ca.gov/data_downloads/

SILICON VALLEY CLEAN ENERGY

Distributed Resources

Battery Storage Market is Nascent

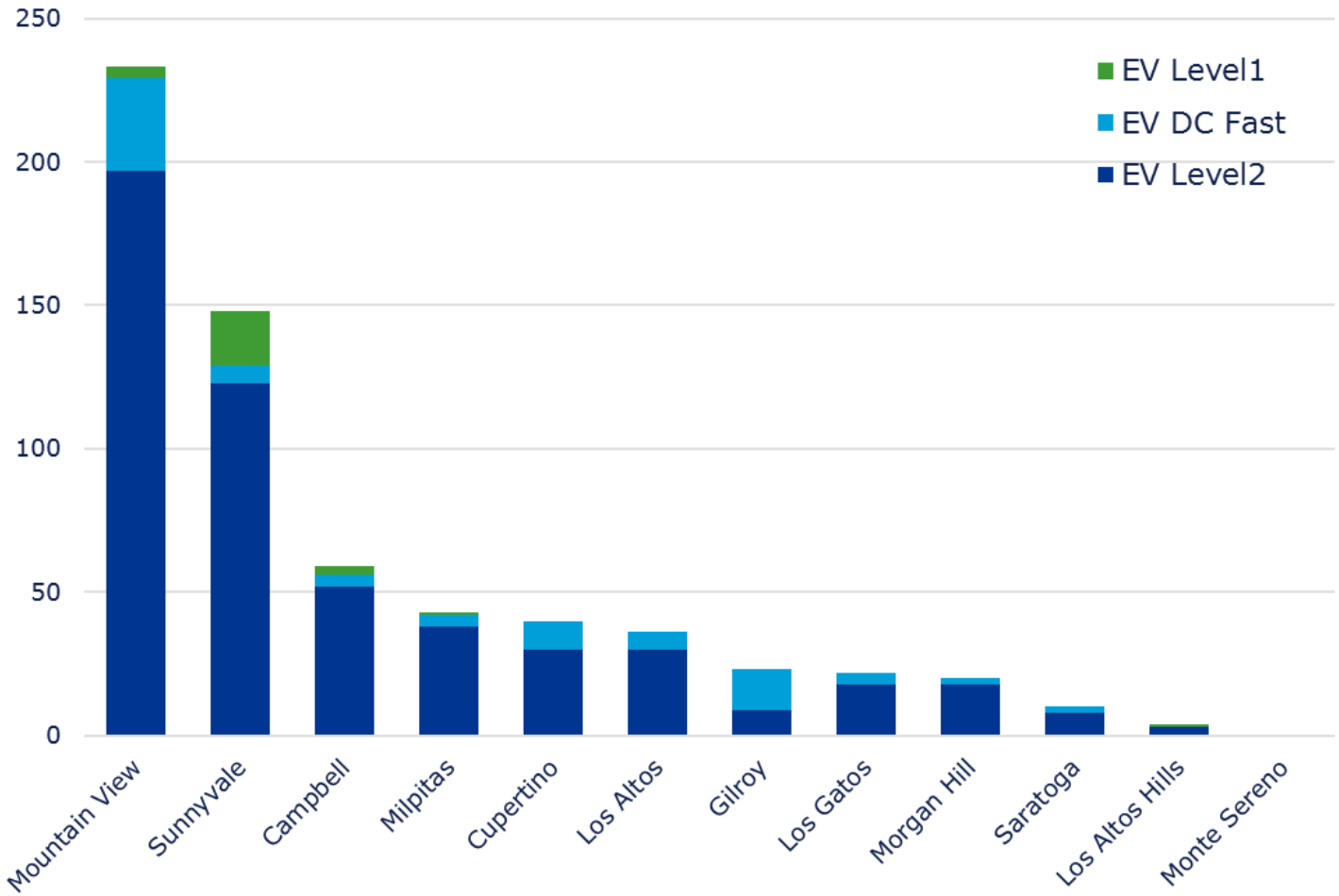




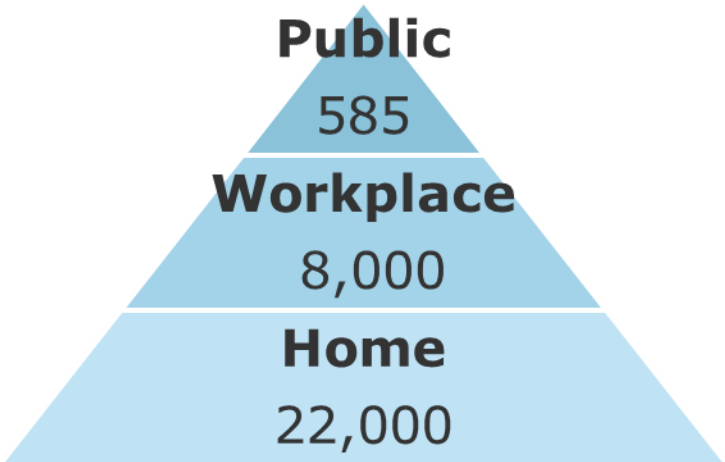
SILICON VALLEY CLEAN ENERGY

Published Data Underestimates Number of EV Chargers

Published EV Chargers by City: 2017



Estimated Charger Count: 2017

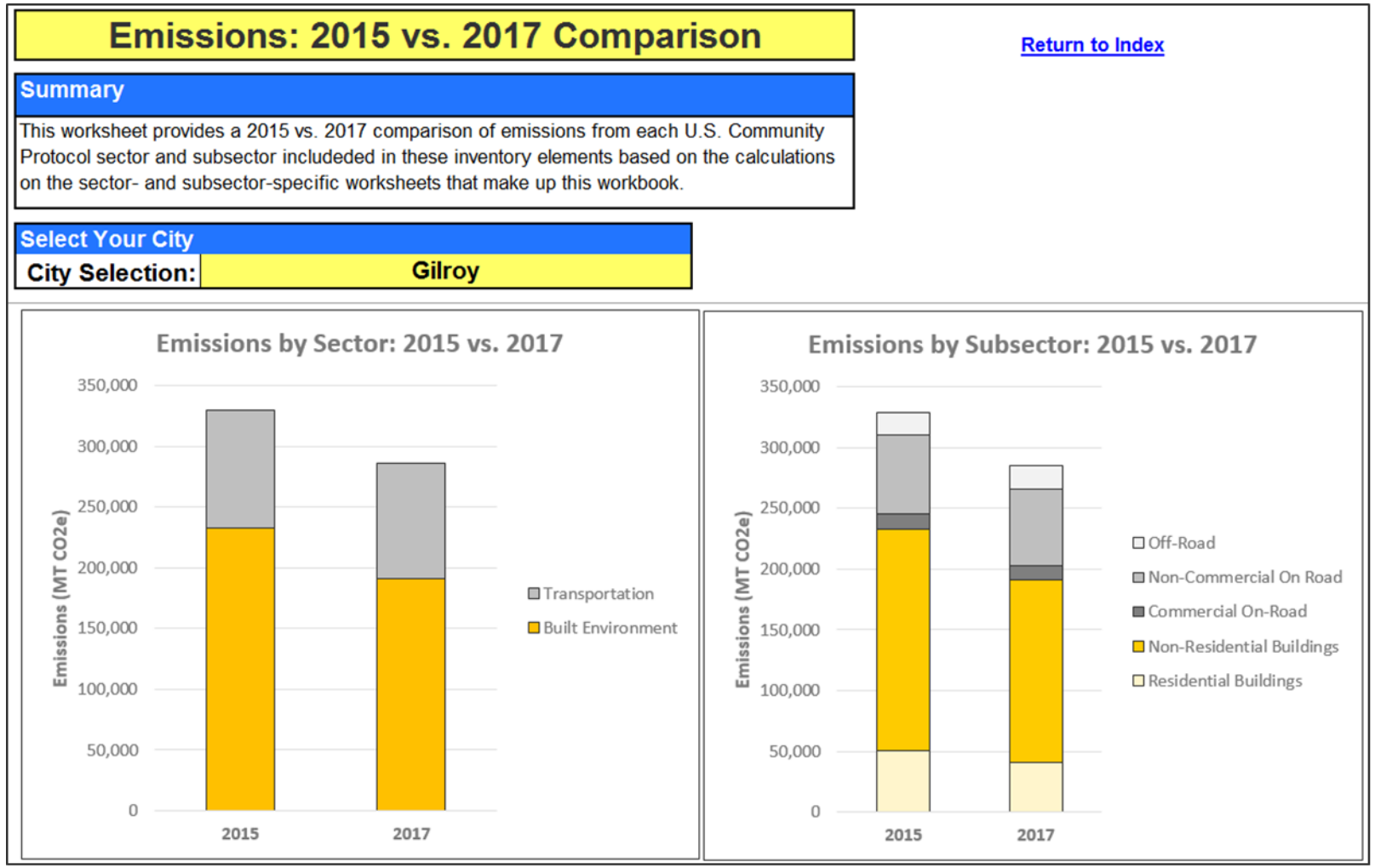


Note:
- EV Charging companies reference only 5-10% of their charging network are published publicly.

Data sources: U.S. DOE Alternative Fuels Data Center (AFDC), ChargePoint, EVgo

SILICON VALLEY CLEAN ENERGY

Greenhouse Gas Inventory Elements & Clean Energy Asset Tools



- Centralized databases that track community emissions & clean energy assets on a city-by-city basis
- Available to the public & city staff
- Provide high-level graphs, well-documented methodologies, & calculations

SILICON VALLEY CLEAN ENERGY

SILICON VALLEY CLEAN ENERGY

FINANCE & ADMINISTRATION OVERVIEW

Don Eckert
Director of Finance & Administration

Who we are

Don Eckert
Director of Finance and Administration

Nik Zanotto
Management Analyst

Andrea Pizano
Board Clerk / Executive Assistant to CEO

Eric Acedo
Administrative Analyst

Administrative Services Manager
Recruitment begins shortly

Administrative Assistant (Starting Early March)

SILICON VALLEY CLEAN ENERGY

Responsibilities

Finance

Accounting
Financial Reporting
Budgeting
Investments
Risk Management
Purchasing

Human Resources

Recruiting/Hiring
Benefits Administration
Compensation
Facilities

I.T.

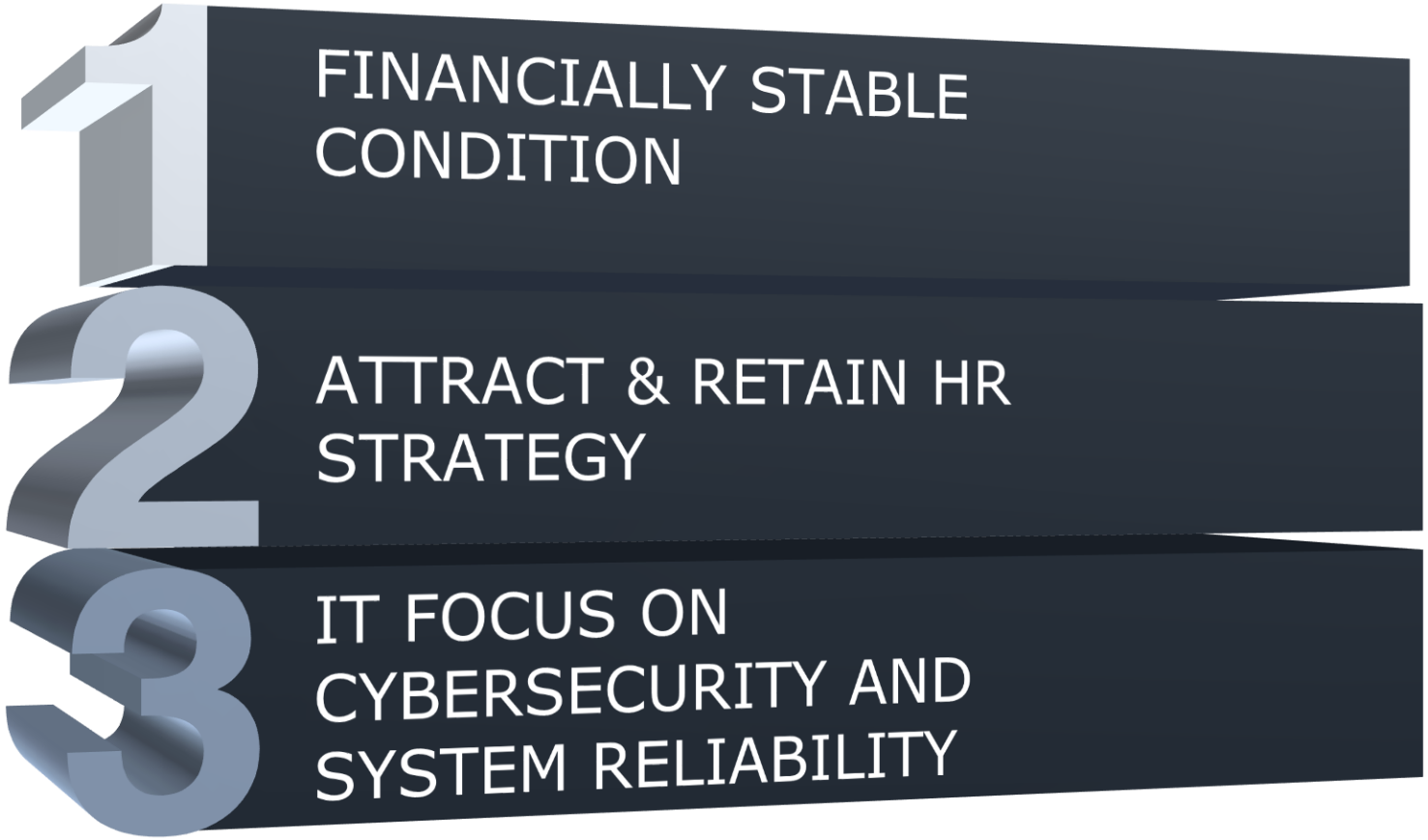
Reliability
Cybersecurity
Asset Management

Administration

Board/Committee
Meetings
Document Control
Contracts Management
Office Support
Policies

SILICON VALLEY CLEAN ENERGY

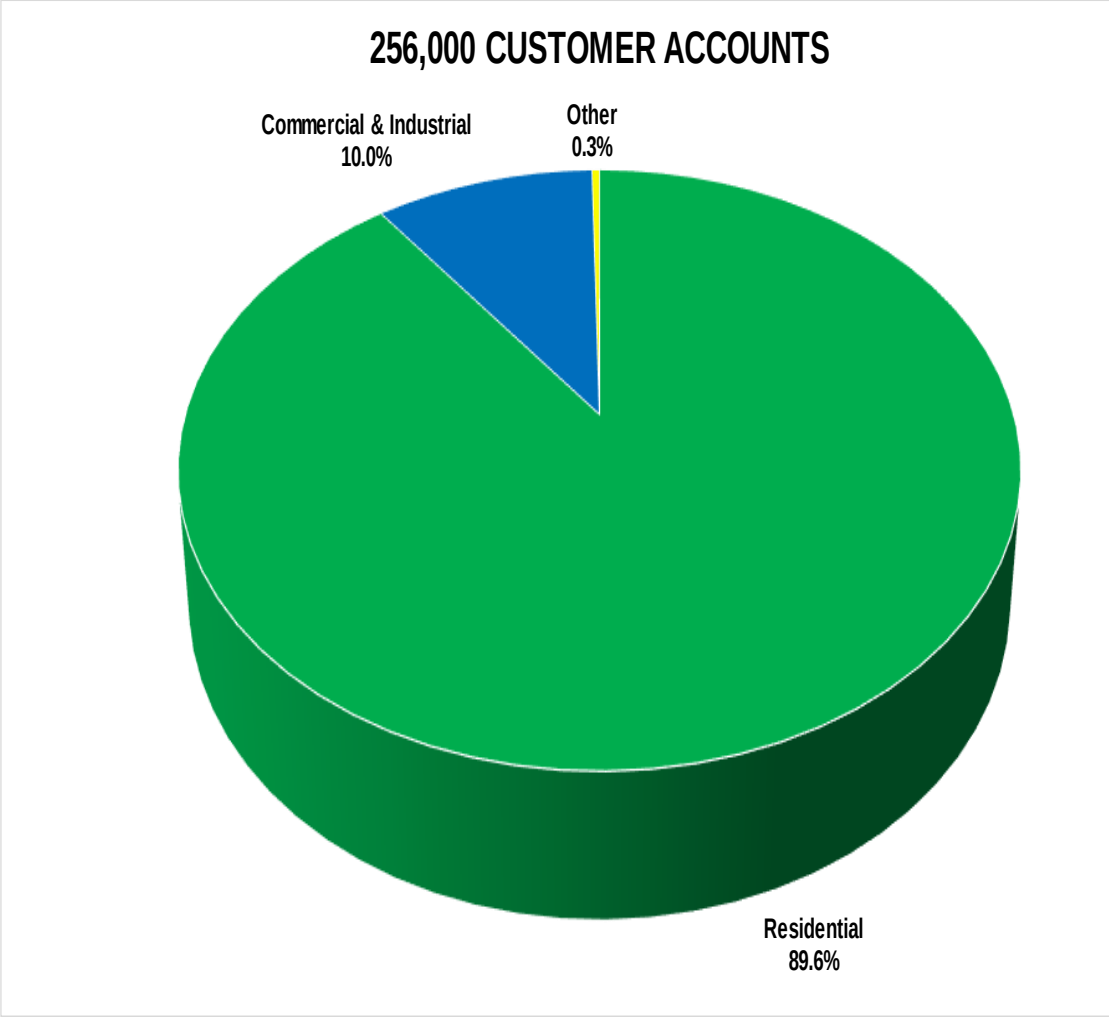
HIGHLIGHTS

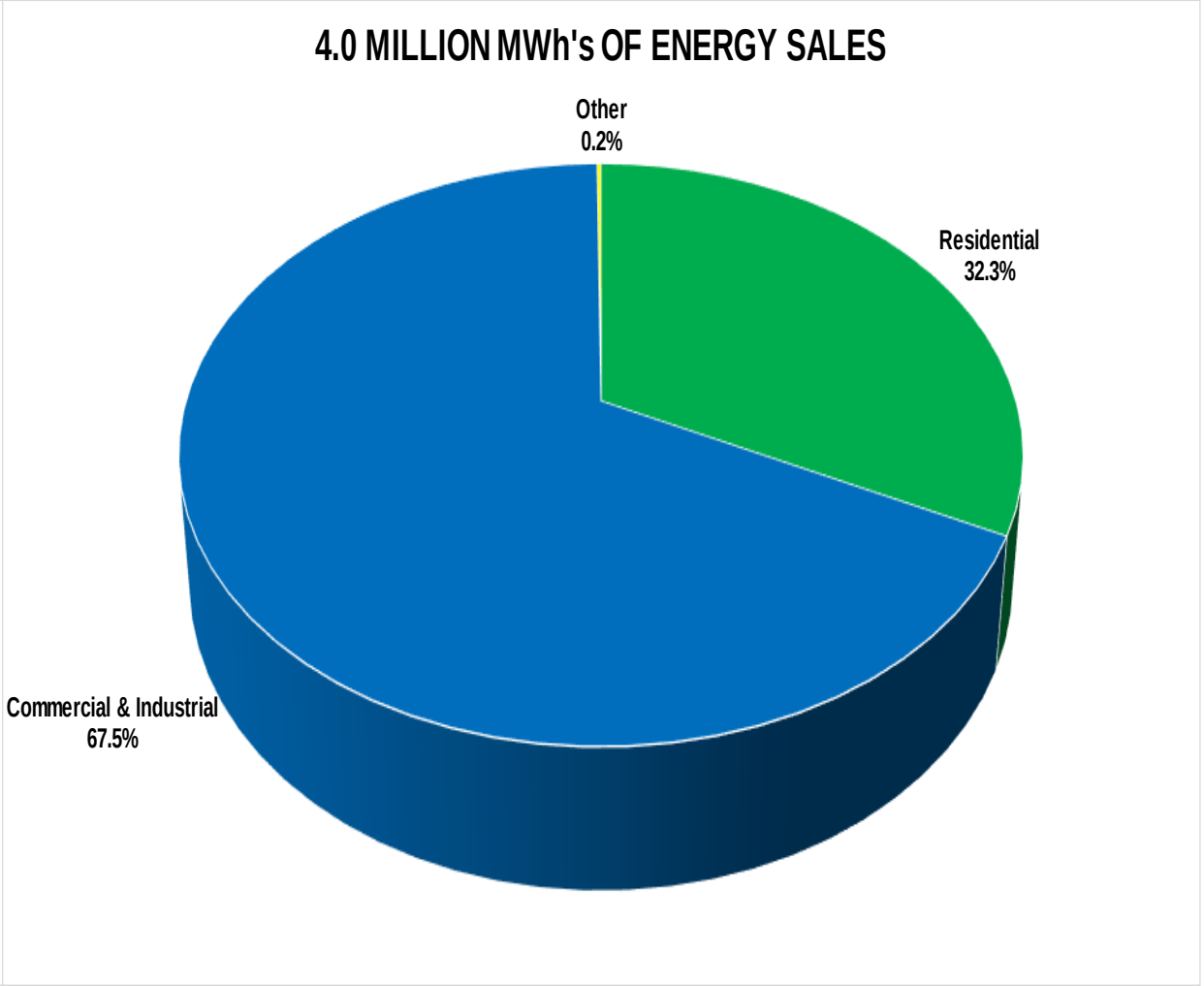

1
FINANCIALLY STABLE CONDITION
2
ATTRACT & RETAIN HR STRATEGY
3
IT FOCUS ON CYBERSECURITY AND SYSTEM RELIABILITY

FINANCE

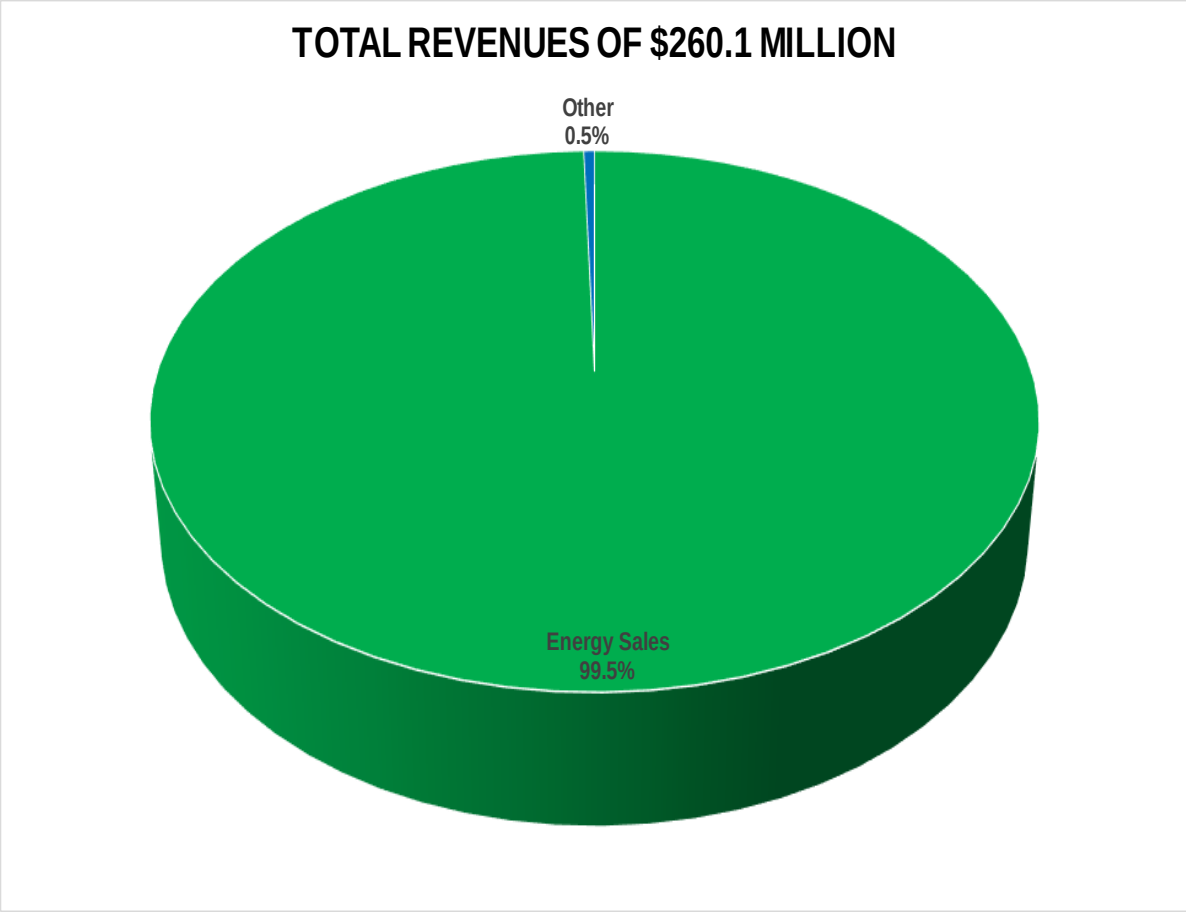
SILICON VALLEY
CLEAN ENERGY

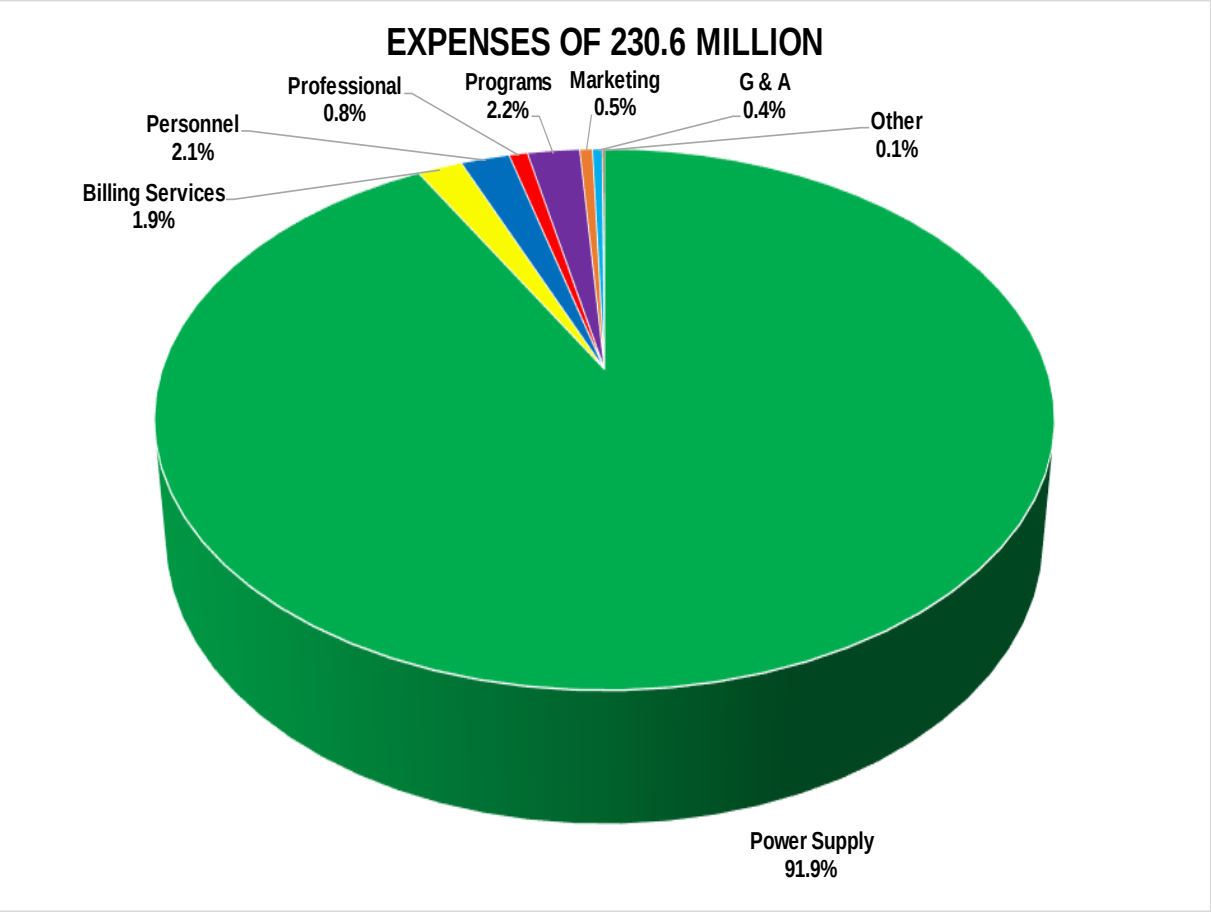
BUDGET INPUTS





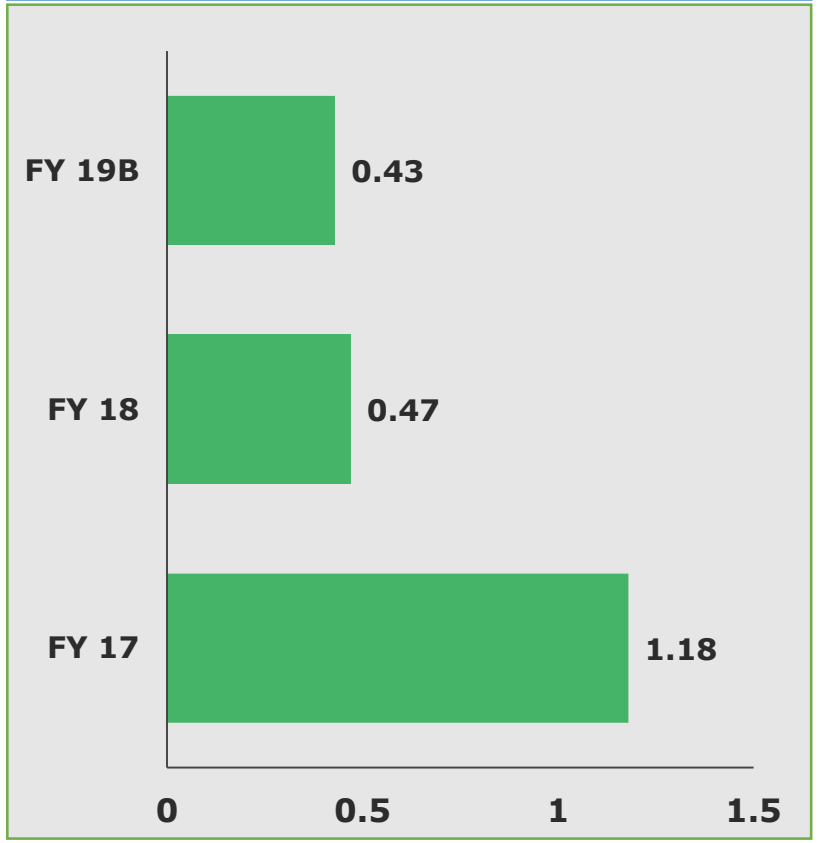
CASH FLOW


TOTAL REVENUES OF $260.1 MILLION
Other
0.5%
Energy Sales
99.5%

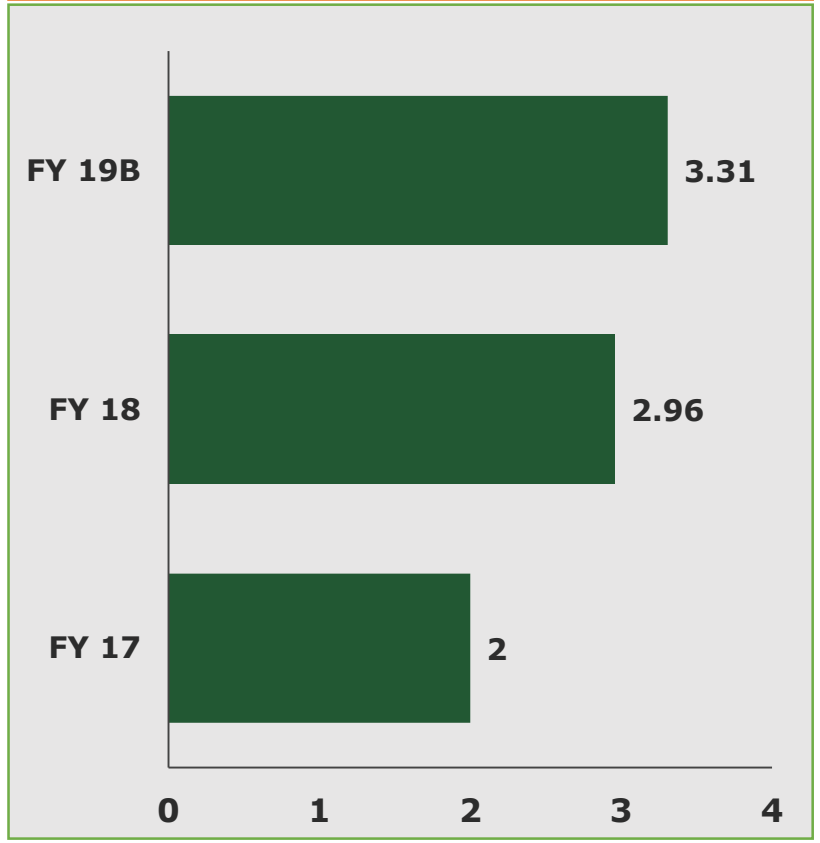

EXPENSES OF 230.6 MILLION
Professional
0.8%
Programs
2.2%
Marketing
0.5%
G & A
0.4%
Personnel
2.1%
Other
0.1%
Billing Services
1.9%
Power Supply
91.9%

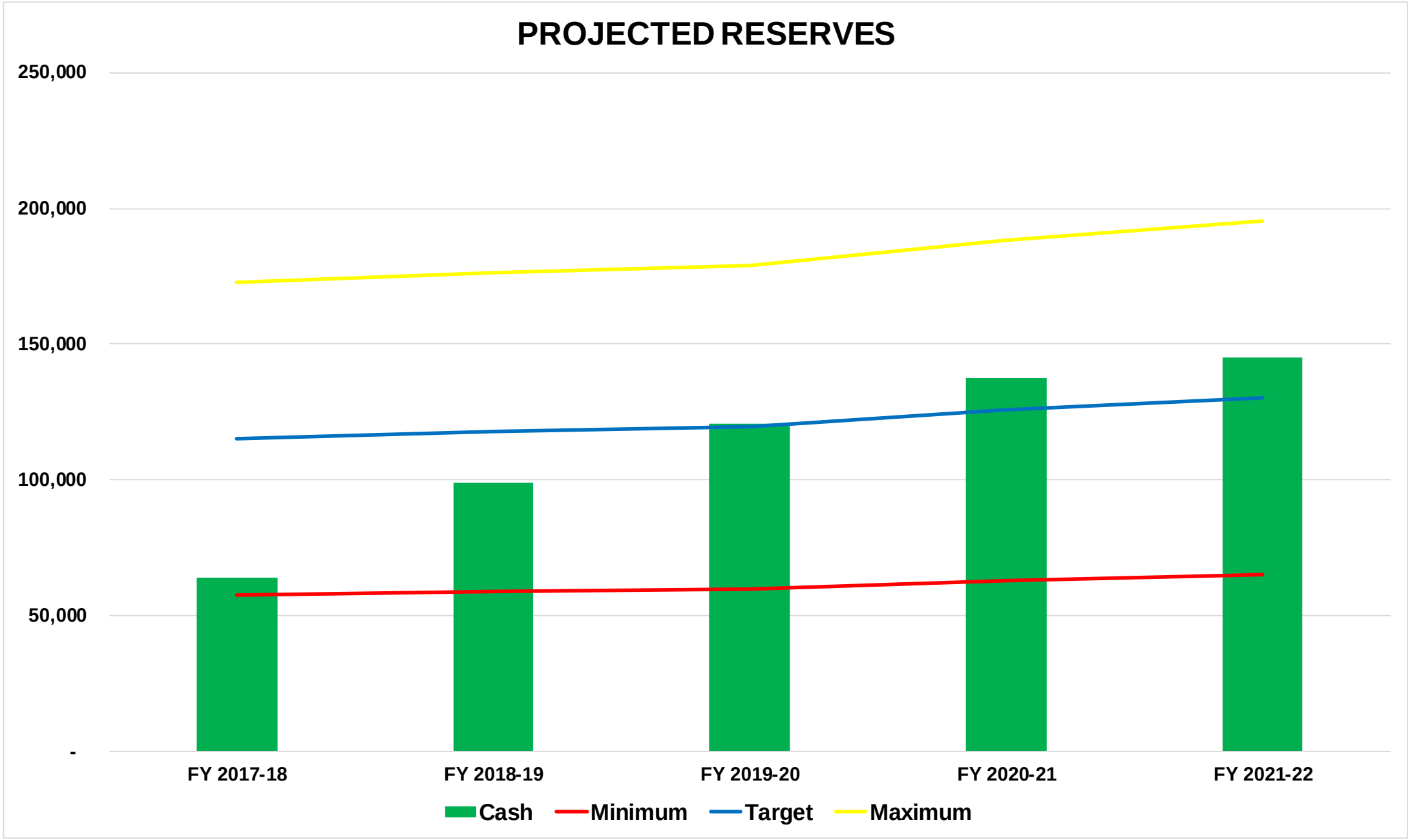
KEY RATIOS

Debt-Equity Ratio = $\frac{\text{Total Liabilities}}{\text{Total Equity}}$



Current Ratio= $\frac{\text{Current Assets}}{\text{Current Liabilities}}$




PROJECTED RESERVES
250,000
200,000
150,000
100,000
50,000
-
FY 2017-18
FY 2018-19
FY 2019-20
FY 2020-21
FY 2021-22
Cash
Minimum
Target
Maximum

RISK

SILICON VALLEY
CLEAN ENERGY

Types of Risk

- Demand Shortfall
- Customer retention
- Pricing pressure
- Regulation
- Sector downturn
- PG&E Bankruptcy
- Governance

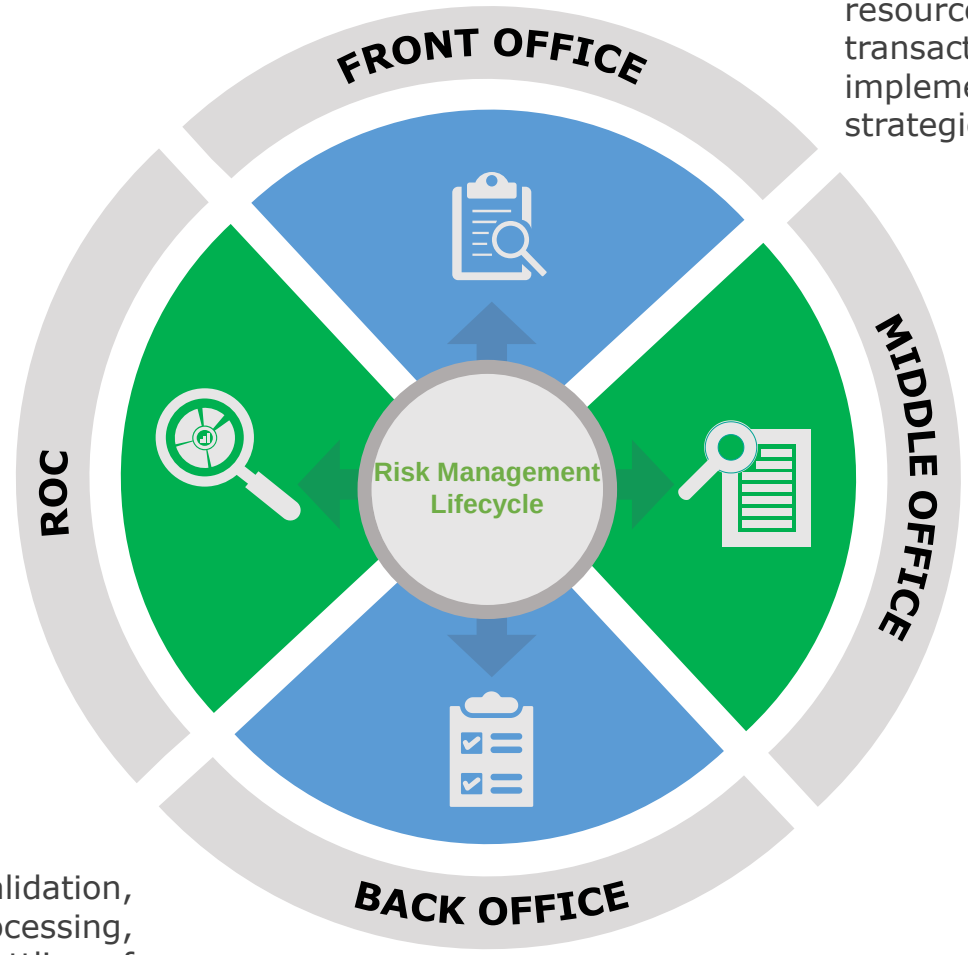
- Cost Overrun
- Operational Controls
- Infrastructure
- Supply Issues
- People (Attract and Retain)
- Technology
- Commodity prices
- Emergency response

- Macroeconomic
- Political Issues
- Legal Issues
- Natural disasters

- Debt and interest rates
- Poor financial management
- Inadequate reserves

Energy Risk Management

Product procurement, resource planning, sales transactions and implementation of strategies



Monthly reports provided to Risk Oversight Committee to provide sufficient details on market exposure, NOP, transaction compliance, credit exposure and other relevant data

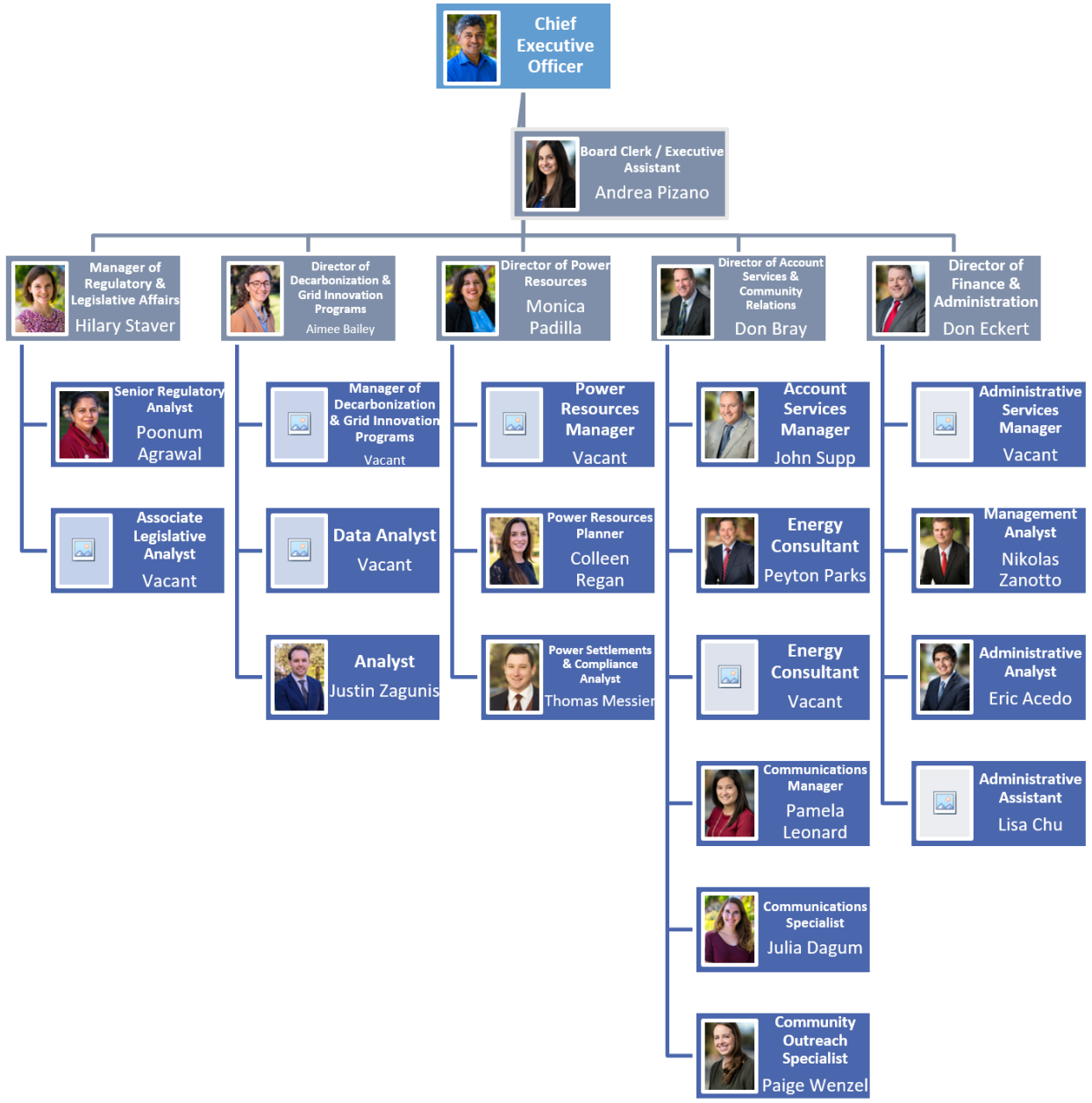
Risk management and counterparty credit. Ensure front office complies with policy

Verification, validation, accounting, processing, reconciling and settling of transactions.

HUMAN RESOURCES

SILICON VALLEY
CLEAN ENERGY

SVCE Staff Organization Chart



Staff Org Chart

Additional Staff:

Decarbonization and Grid Innovations Team
Robert Spragg, Decarbonization Analyst Intern

Communications Team
Colleen McCamy, Community Outreach Fellow

Administration Team
Karen Pauls, Special Projects Assistant

Better Benefits

Time-Off

Changes

Week off between Christmas and New Years
40 hours Management Leave
40 hours volunteer leave

New Benefits

HRA/FSA

$2,400/year FSA
$6,000/year HRA

Upgrade

Upgrades to existing traditional benefits

Changes to maximize the $1,000 allotment already budgeted.

$0.5 MM

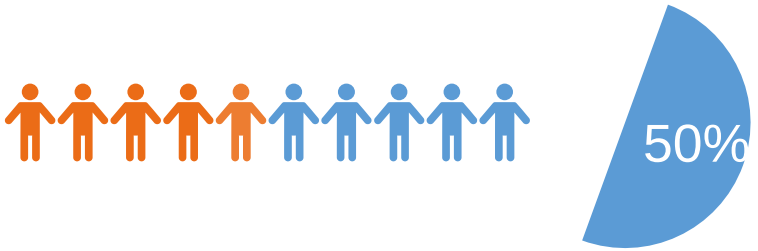
All-In benefits

Personnel costs 2% of operating revenues
Including deferred comp, total fringe benefits is approximately a 25% adder to salaries and wages

Workforce

Women

Men



FTE Budget = 25

Vacancies = 7

Turnover rate in 2018 = 25%

Last FTE to leave was October

SILICON VALLEY CLEAN ENERGY

INFORMATION TECHNOLOGY

SILICON VALLEY
CLEAN ENERGY

Facts and Stats

- Cyber crime damage costs to hit $6 trillion annually by 2021
- Human attack surface to reach 6 billion people by 2022
- Global ransomware damage costs are predicted to exceed $5 billion in 2017
- There is a hacker attack every 39 seconds
- 43% of cyber attacks target small business
- The average cost of a data breach in 2020 will exceed $150 million
- Since 2013 there are 3,809,448 records stolen from breaches every day
- 91% of cyber attacks start with an email.
- **95% of cybersecurity breaches are due to human error**

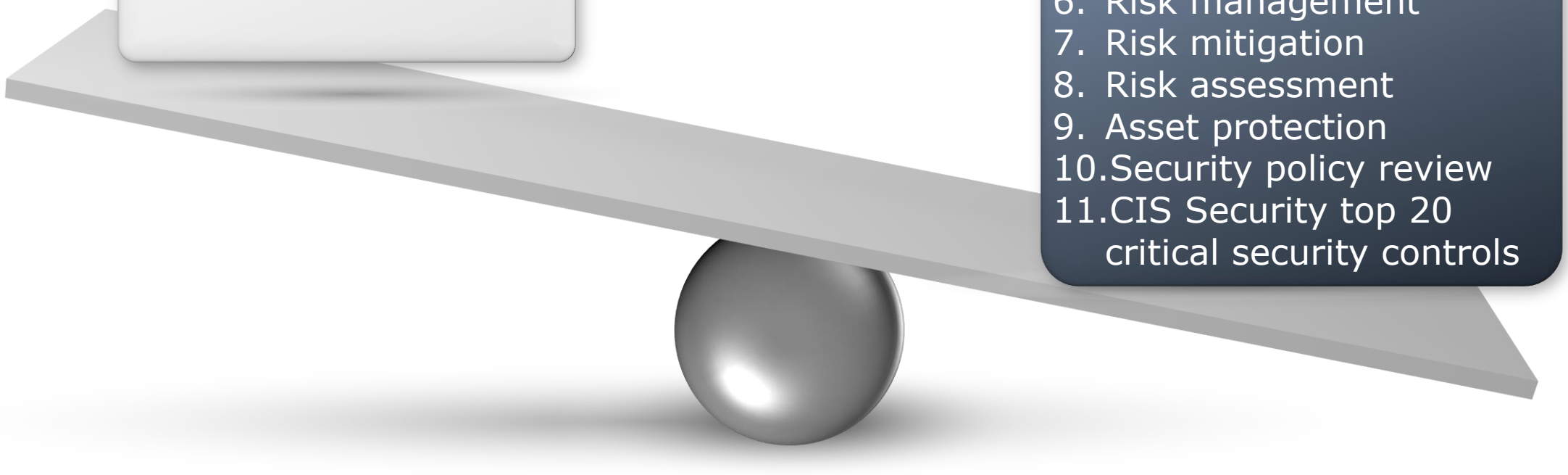
Annual Audit Scope

2017-2018 Risk Assessment

1. Policy Planning
2. Vulnerability assessment
3. Passive penetration test
4. Disaster recovery review

2018-2019 Risk Assessment

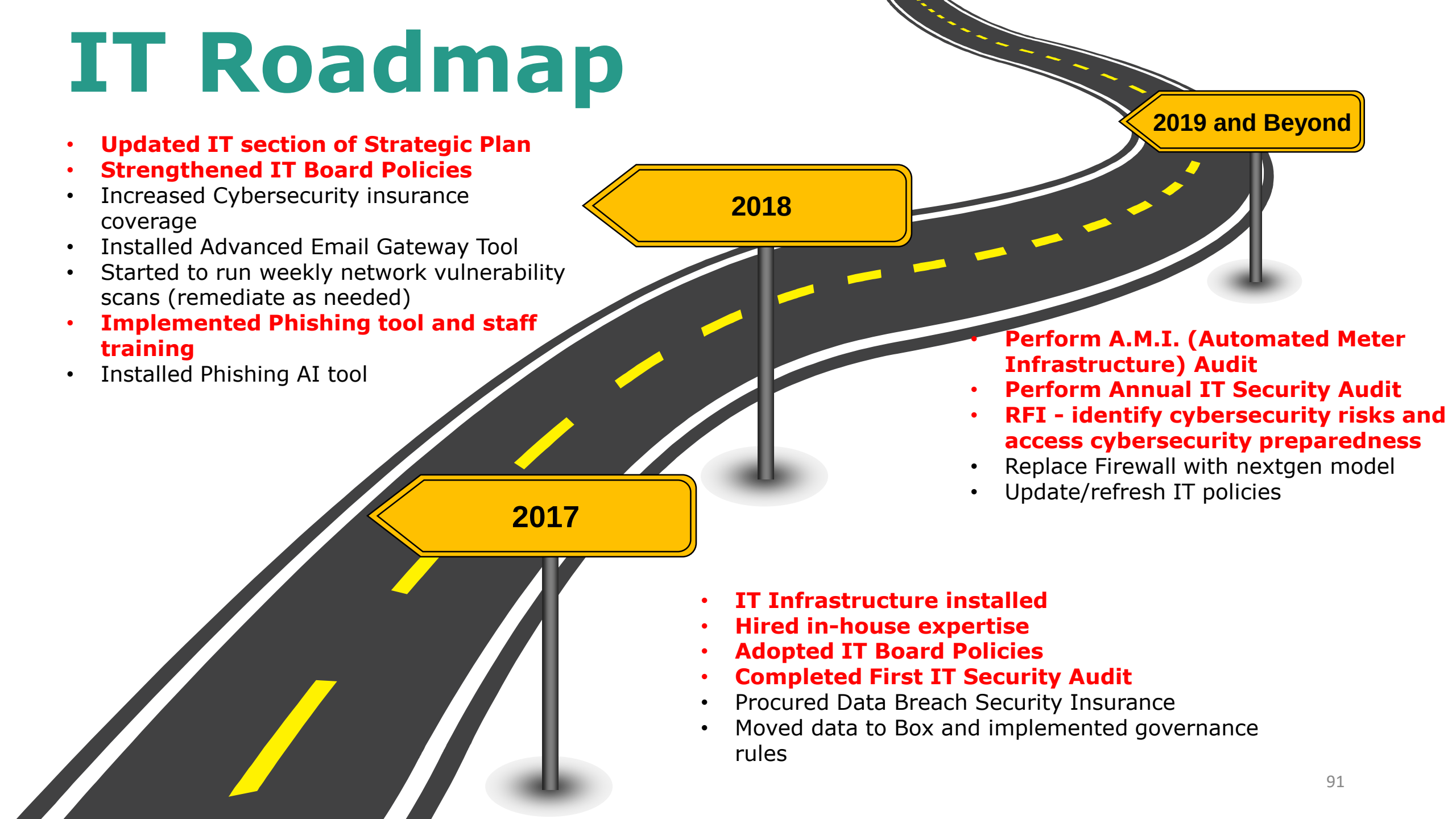
1. Policy Planning
2. Vulnerability assessment
3. Passive penetration test
4. Disaster recovery review
5. Compliance
6. Risk management
7. Risk mitigation
8. Risk assessment
9. Asset protection
10. Security policy review
11. CIS Security top 20 critical security controls



A.M.I. Audit

- Automated Meter Infrastructure (AMI)
- CPUC requires all CCAs to conduct audit every 3 years
- Focus on security of customer data
- Findings will be reported to the CPUC and the Board
- Audit committee review in late April

IT Roadmap



- **Updated IT section of Strategic Plan**
- **Strengthened IT Board Policies**
- Increased Cybersecurity insurance coverage
- Installed Advanced Email Gateway Tool
- Started to run weekly network vulnerability scans (remediate as needed)
- **Implemented Phishing tool and staff training**
- Installed Phishing AI tool

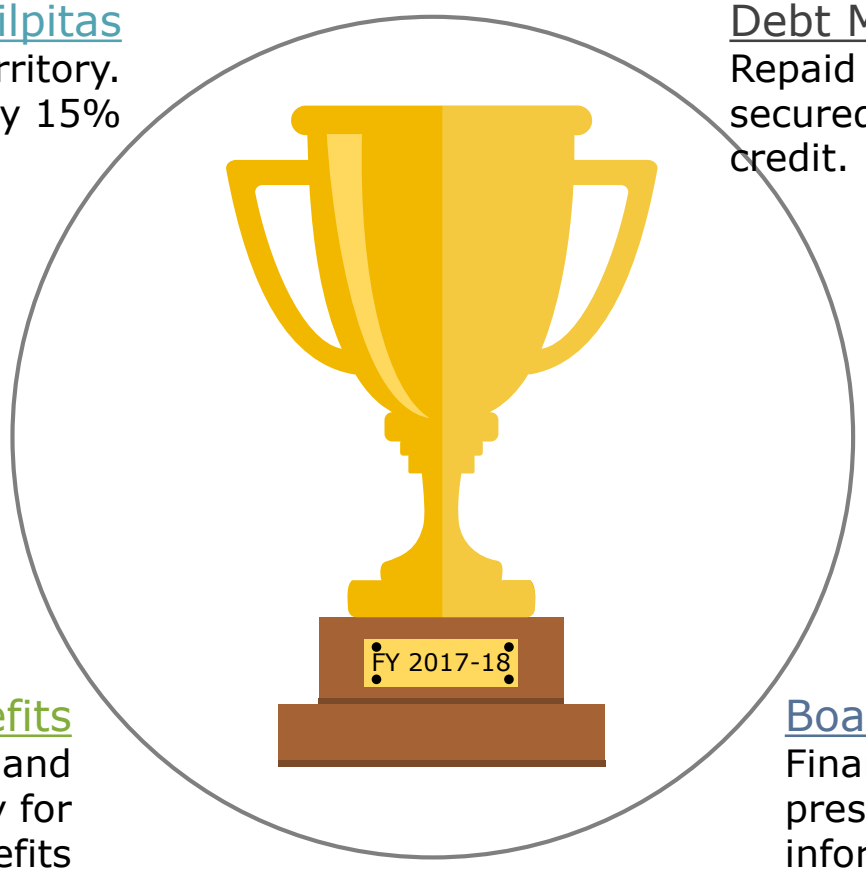
- **Perform A.M.I. (Automated Meter Infrastructure) Audit**
- **Perform Annual IT Security Audit**
- **RFI - identify cybersecurity risks and access cybersecurity preparedness**
- Replace Firewall with nextgen model
- Update/refresh IT policies

- **IT Infrastructure installed**
- **Hired in-house expertise**
- **Adopted IT Board Policies**
- **Completed First IT Security Audit**
- Procured Data Breach Security Insurance
- Moved data to Box and implemented governance rules

Achievements

City of Milpitas
Expansion of service territory. Increased load by 15%

Debt Management
Repaid Member Agencies and secured $20 million line of credit.



Rate Competitiveness
Began the year with 1% discount to PG&E. Ended the year at 6% discount. $20 million of utility bill savings for the territory.

Awards and Audits
SVCE recognized for budget excellence. Formed Audit Committee. Initial Financial and IT Audits completed.

Better Benefits
Compensation study and attract and retain strategy for benefits

Board Policies
Finance and Administration presented multiple financial and information technology policies to protect the Agency's assets.

Initiatives

1
- FY 2017-18 Financial Audit ✓

2
- Implementation of new benefits ✓

3
- Expansion of Line of Credit ✓

4
- Mid-Year Budget
- Rate setting

5
- Annual IT Audit
- Initial AMI Audit

6
- Enhancements to HR Services
- Office configuration

7
- Risk management improvements
- Document control

8
- Strategic/financial planning
- FY 2019-20 Budget process

THANK YOU

SILICON VALLEY
CLEAN ENERGY

Power Supply Portfolio, Goals and Challenges

Monica Padilla
Director of Power Resources

Power Resources

Monica Padilla

Director of Power Resources

Thomas Messier

Power Settlements & Compliance Analyst

Colleen Regan

Power Resources Planner

SILICON VALLEY CLEAN ENERGY

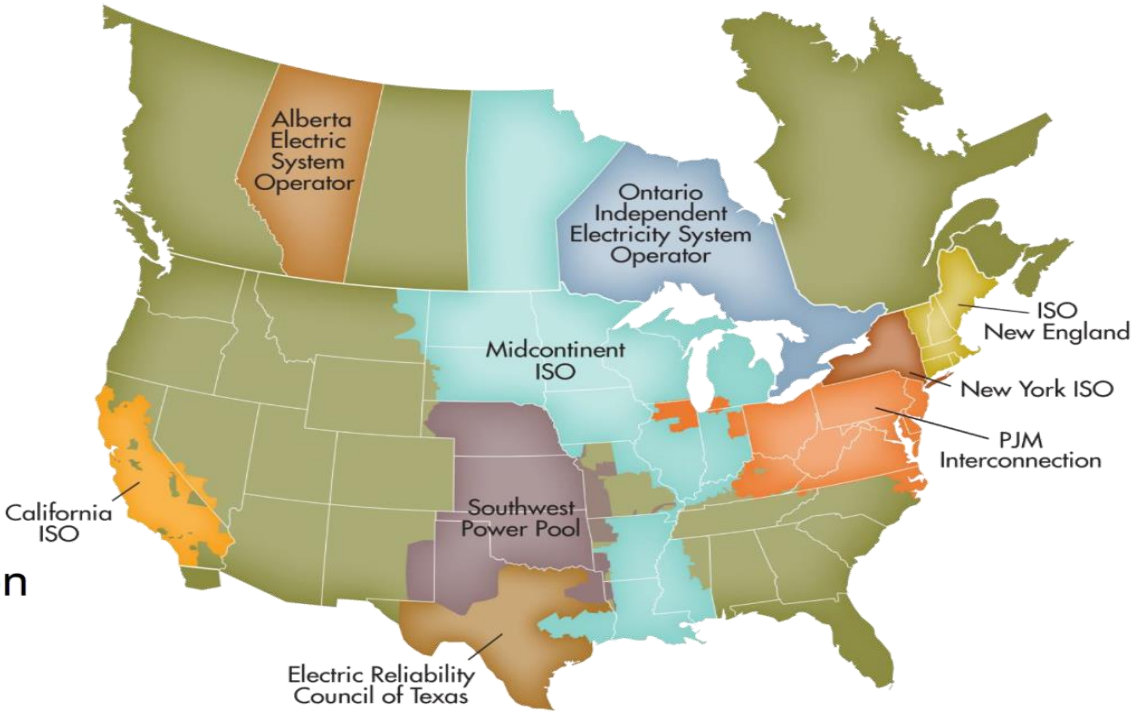
Load and Power Supply Resources

- Power Supply Delivery
  - SVCE's Load & Portfolio of Power Supply Resources ("Load Resource Balance")
    - RPS products
      - Mandates, needs, SVCE portfolio
    - Power Supply Costs/Revenues
      - Management of Cost Uncertainty
        - Future Challenges:
          - Achieving Carbon Free
          - Cost to serve load & contribution to margin
          - Direct Access and Corporate Customers – resource offerings and risks

SILICON VALLEY CLEAN ENERGY

SVCE is one of many load serving entities operating within the CAISO

- One of nine grid operators in North America
- 2/3 of the U.S. is supported by an ISO
- One of 38 balancing authorities in the western interconnection

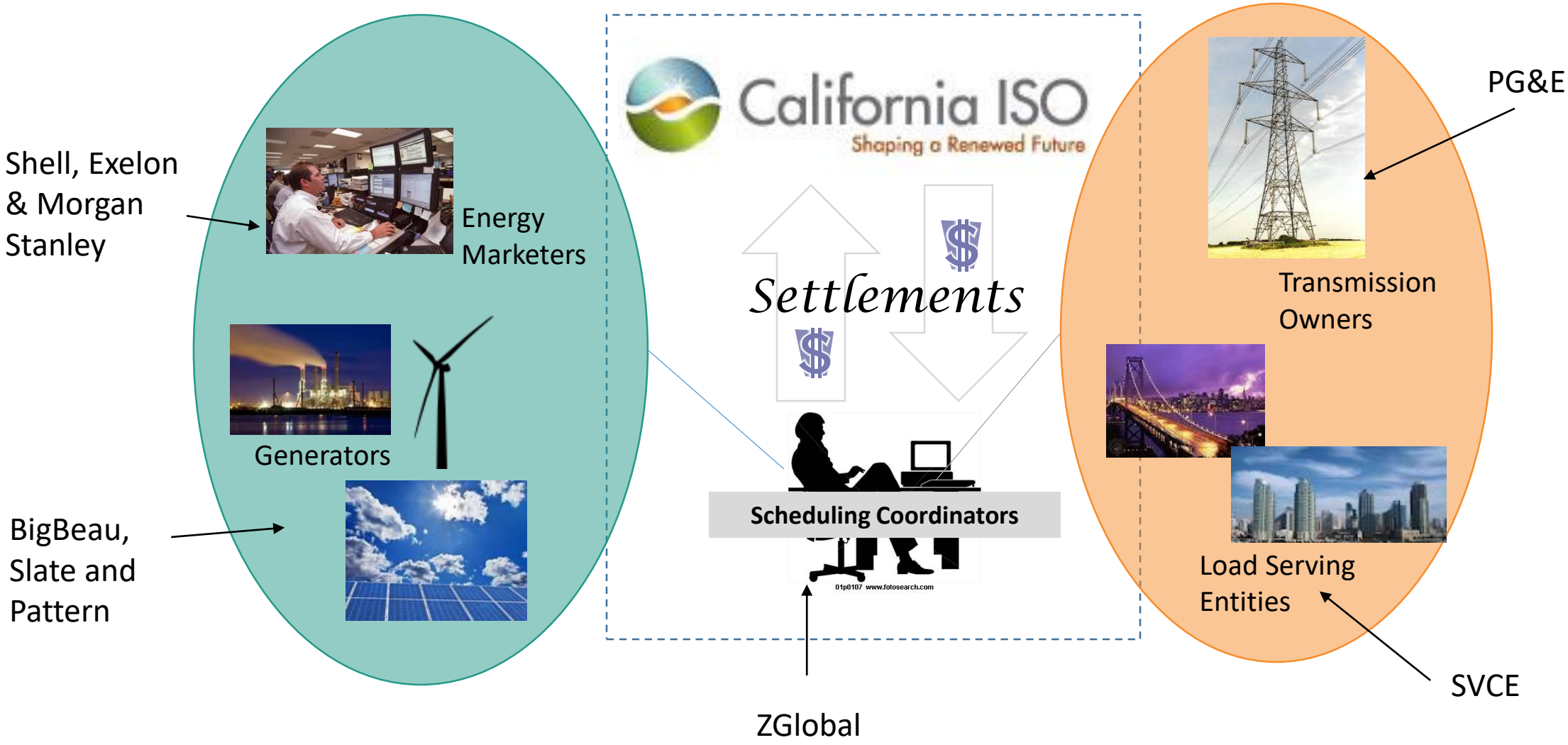


The CAISO is responsible for the *second-to-second* monitoring and maintenance of demand and supply balance.

California ISO
ISO PUBLIC – © 2018 CAISO

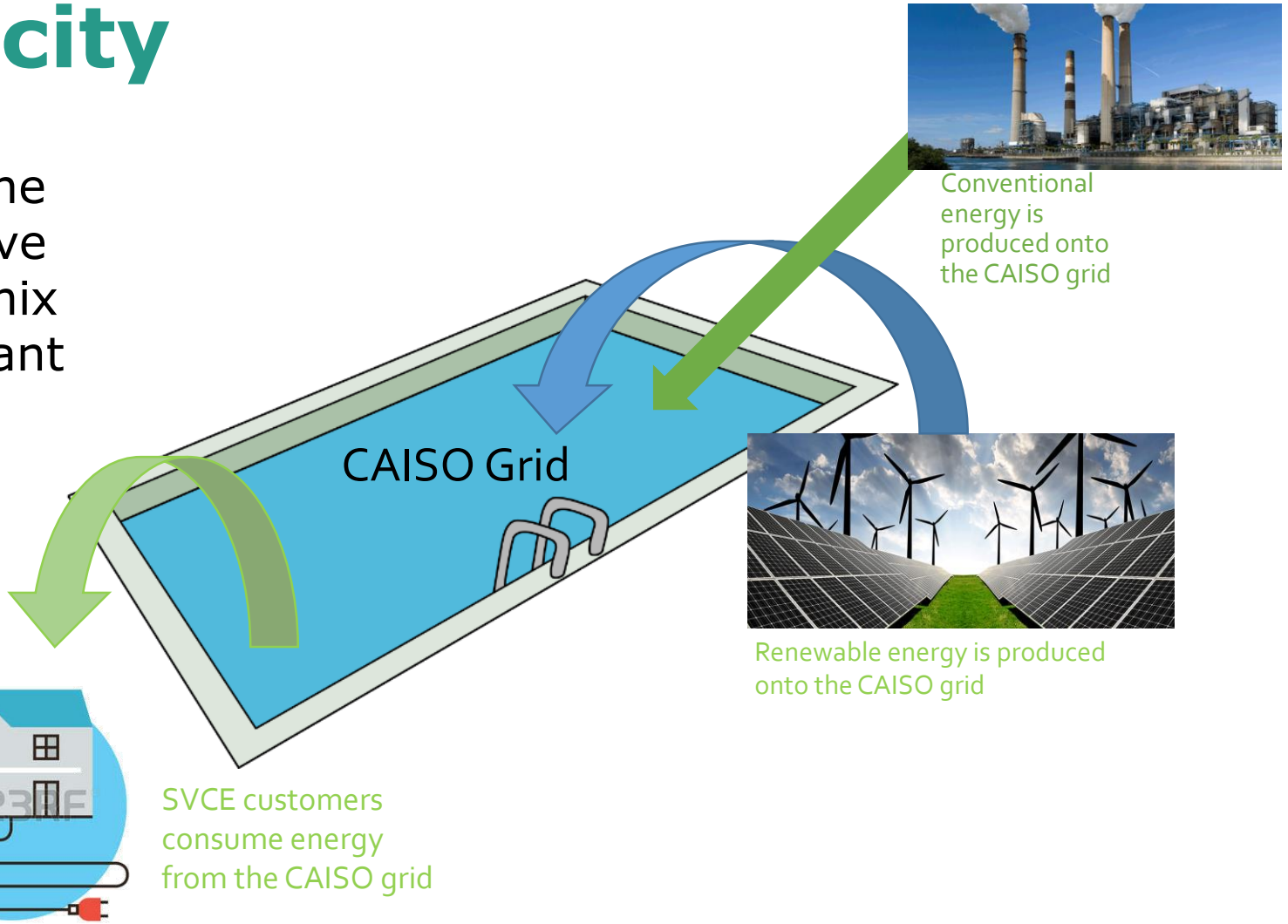
SILICON VALLEY CLEAN ENERGY

CAISO Market Clearinghouse



Flow of Electricity

All load-serving entities in the CAISO, such as SVCE, receive electricity from the supply mix from the CAISO at that instant in time – "system power"

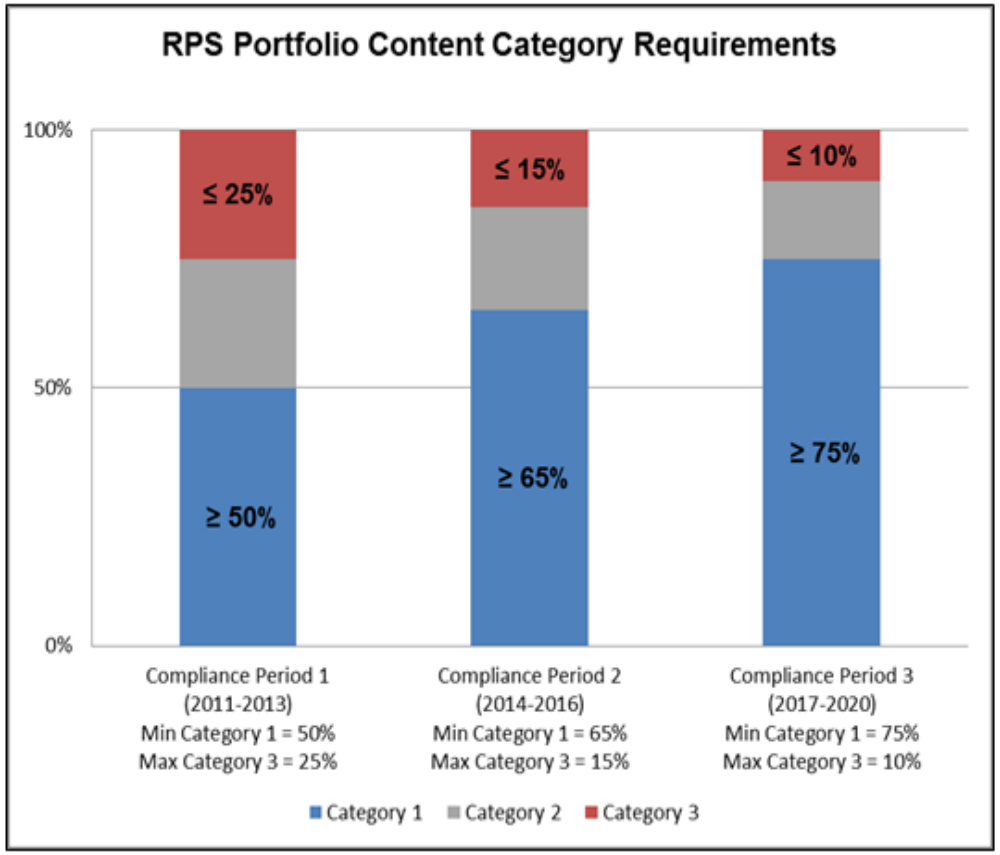


SILICON VALLEY CLEAN ENERGY

Renewable Portfolio Standard (RPS)

California's (SB 1, SB 350 and SB100)

- RPS 33% by 2020 and 60% by 2030
- 100% Carbon Free by 2045
- Minimum of 65% of RPS in long-term contracts (10 years or greater)
- Integrated Resource Plan to CPUC every two years
- California Energy Commission sets eligibility
  - *Wind, solar, small hydro, geothermal, biomass, biomethane*
  - *Vintage requirements*
  - *Three Buckets – Power Content Category (PCC) - PCC1, PCC2 & PCC3*
- Multiple 4-year compliance periods
- CPUC oversees compliance with RPS mandates and enforces penalties



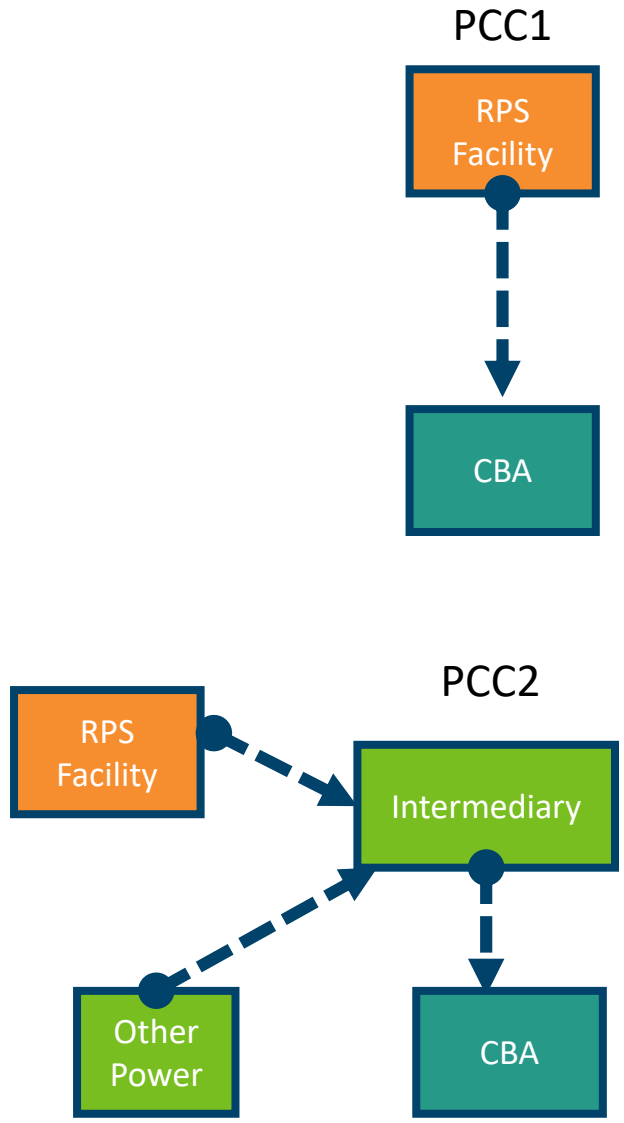
Trend toward increasing PCC1 and decreasing Unbundled RECs

Renewable Energy In California

Bucket 1 (PCC1) – Energy and RECs (typically from CA) delivered to a California Balancing Authority (CBA) without substituting electricity from another source.
Premium product, ~$20/MWh, Min 75%

Bucket 2 (PCC2)– Energy and RECs (typically from an out-of-state renewable energy project) that cannot be delivered to a CBA without substituting energy from another source (i.e. intermittent wind energy needs to substitute in another energy source to meet demand during times when the wind facility is not generating electricity).
$8 to $12/MWh

Bucket 3 (PCC3)– Unbundled RECs, or RECs that do not meet Category 1 and 2 conditions.
$2/MWh, Maximum 10%



SILICON VALLEY CLEAN ENERGY

SVCE's Product Offerings & Content

SVCE's RPS - 50% Now

- Preference for PCC1 (phase-out PCC2 and no PCC3)
- No biomass or geothermal resources
- 2017 through 2021 – existing resources and short-term
- 2021 and beyond: Mix of new and existing resources
- In-state and out-of-state

GreenStart – default

- 50% RPS Solar, wind, small hydro and some geotherma
- 50% Carbon Free Resources (large in-state and out-of-state hydroelectric resources – not RPS eligible)

GreenPrime – ~2% of SVCE load

- 100% RPS - Solar & wind
- Green-e certified
- $0.008/kWh premium

Version: July 2018

2017 POWER CONTENT LABEL

Silicon Valley Clean Energy

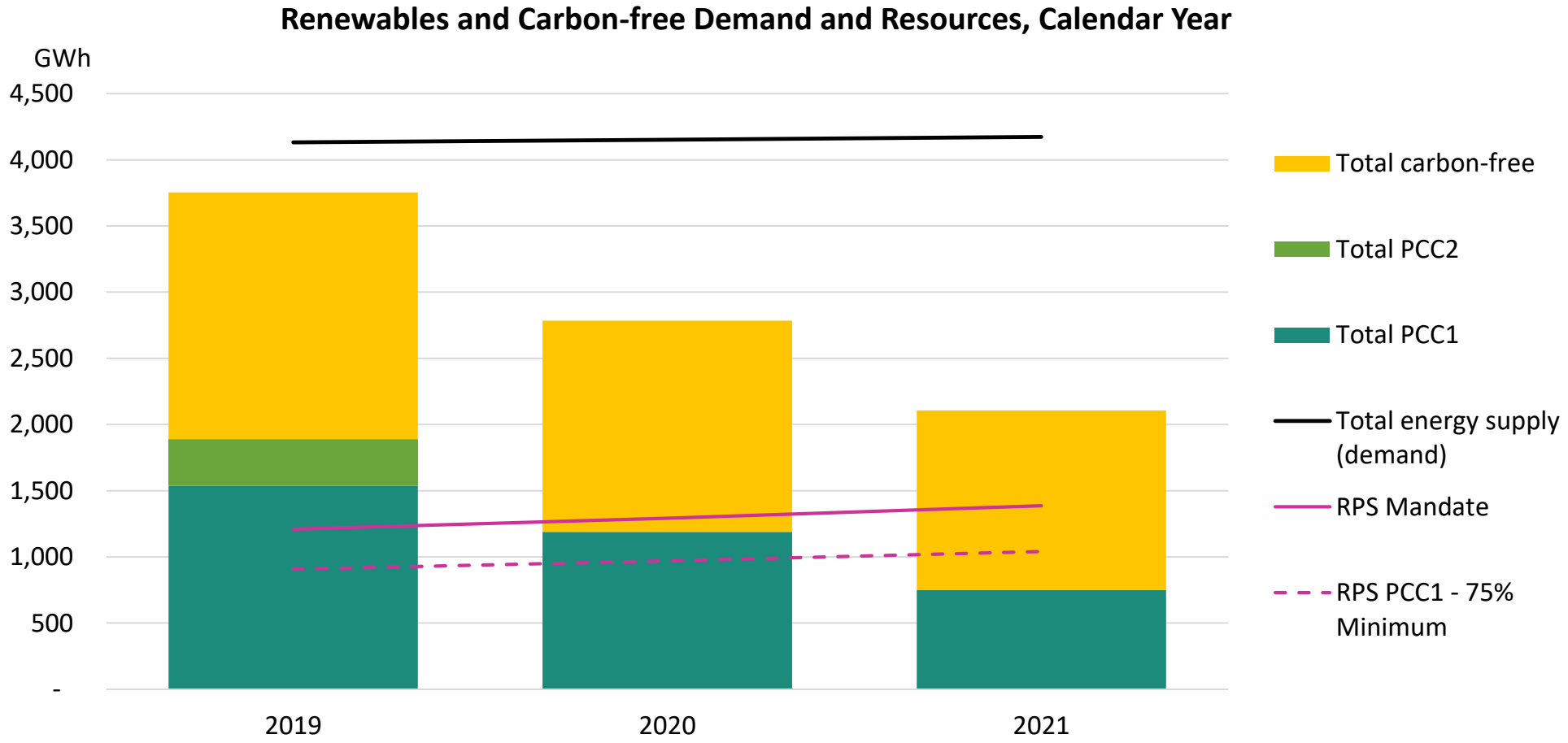
ENERGY RESOURCES	GreenPrime	GreenStart	2017 CA Power Mix**
Eligible Renewable	**100%**	**55%**	**29%**
Biomass & biowaste	0%	6%	2%
Geothermal	0%	1%	4%
Eligible hydroelectric	0%	2%	3%
Solar	20%	10%	10%
Wind	80%	36%	10%
Coal	**0%**	**0%**	**4%**
Large Hydroelectric	**0%**	**45%**	**15%**
Natural Gas	**0%**	**0%**	**34%**
Nuclear	**0%**	**0%**	**9%**
Other	**0%**	**0%**	**<1%**
Unspecified sources of power*	**0%**	**0%**	**9%**
TOTAL	**100%**	**100%**	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

** Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the identified year.

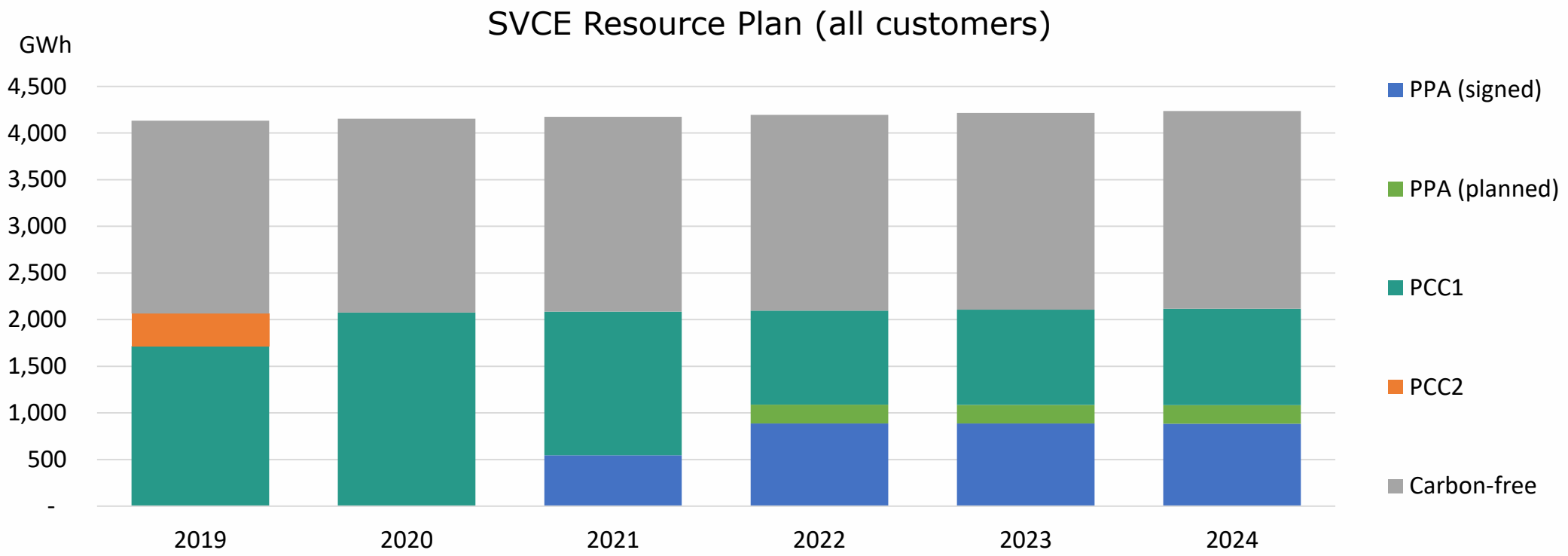
For specific information about this electricity product, contact:	**Silicon Valley Clean Energy** **1-844-474-SVCE (7823)**
For general information about the Power Content Label, please visit:	http://www.energy.ca.gov/pcl/
For additional questions, please contact the California Energy Commission at:	844-454-2906

Current Load and Resource Balance 2019-2021 (RPS & CF)



- *SVCE's PCC1 resources in 2019 and 2020 exceed minimum PCC1 requirement*

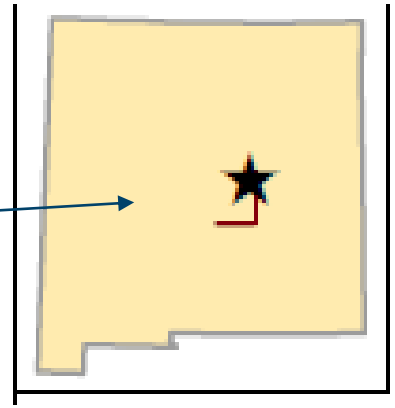
Illustration of Future Resource Plan

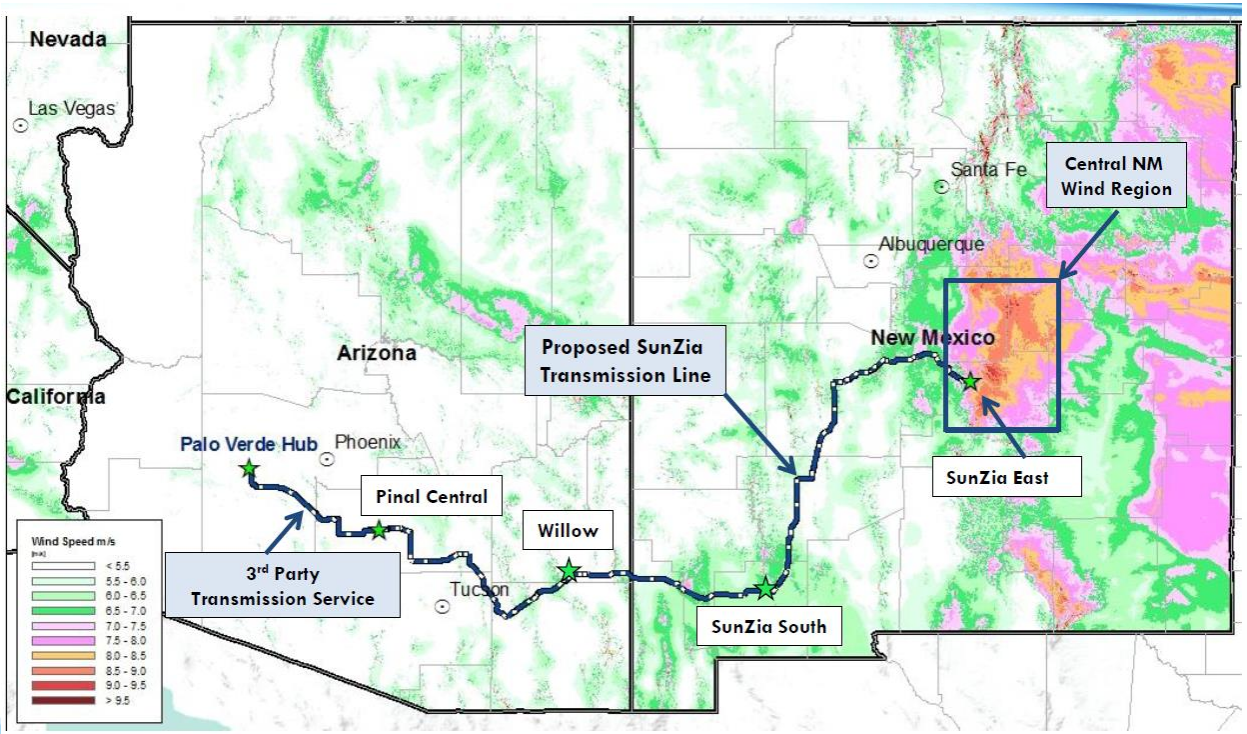


- SVCE has signed three PPAs for new renewable projects which are expected to meet 21% of total load by 2022.
- SVCE intends to issue another RFP in spring 2019 for additional a new renewable projects (likely wind or solar).
- SVCE's board currently prohibits new contracts for PCC2s (ie, 'Bucket 2s' or 'firmed and shaped' RECs) as well as contracts with biomass, geothermal, and nuclear. 'Carbon-free' is thus primarily from large hydro facilities.

Corona Wind Overview

- 200 MW Generating Capacity, with SVCE to receive 55% of its output, and MBCP 45%.
- Location: Torrance and Lincoln Counties, New Mexico
- Delivers Bucket 1 (PCC1) renewable energy
- Delivery point into the CAISO is the Palo Verde Hub
- Delivery path is over the new 515 mile SunZia transmission path, with a 3,000 MW capacity on two 500 kV lines.
- Environmental studies began in 2016 and will continue through the end of 2018. Project is considered low risk from sensitive species perspective.





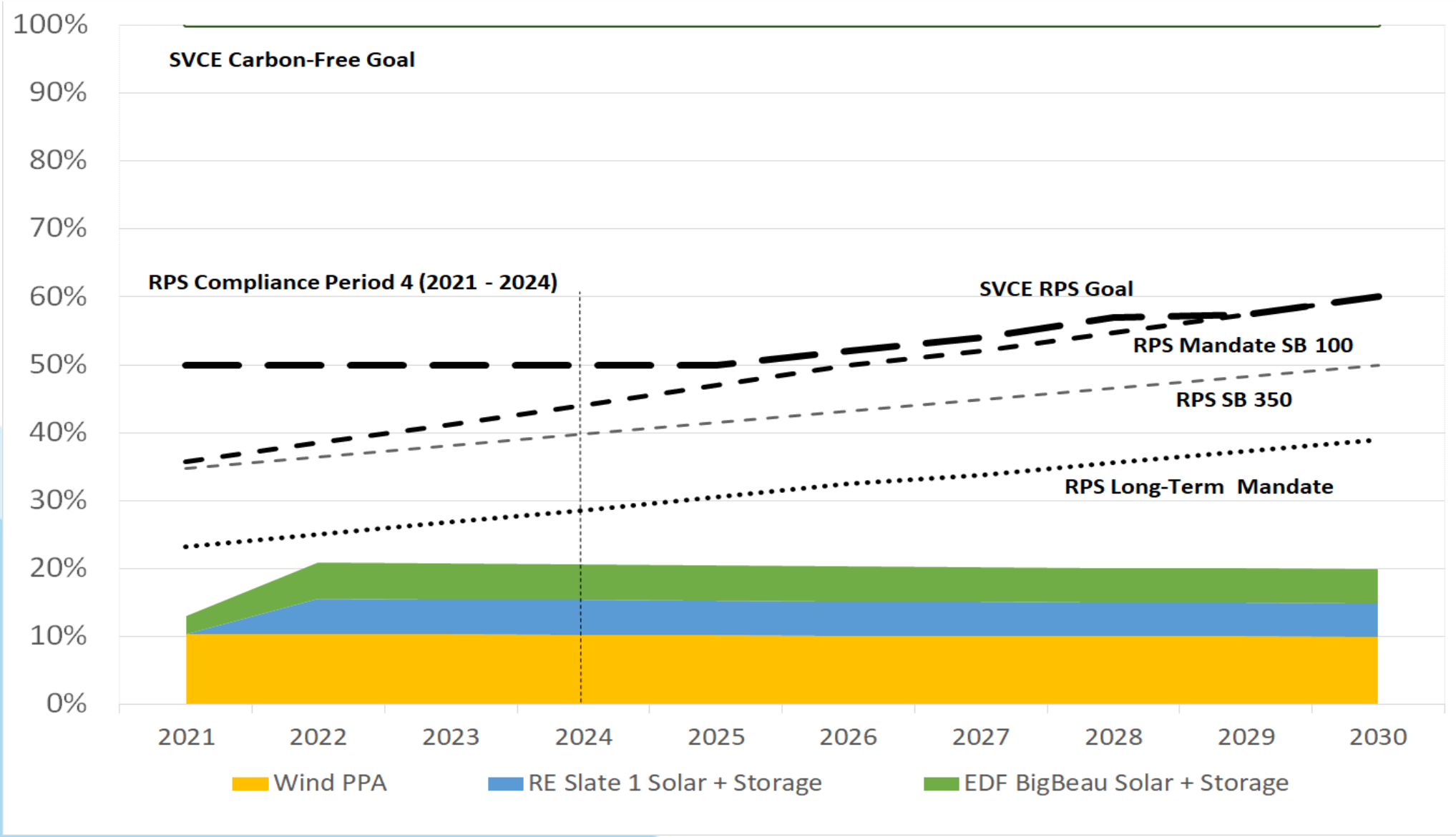
RE Slate 1, LLC. Project

- Developed by Recurrent Energy Development Holdings, LLC ("Recurrent")
- 150 MW Solar PV Generating Capacity
- 45 MW Lithium Ion Battery Energy Storage System with a 4-hour discharge duration delivering 180 MWh per discharge cycle.
- Location: Lemoore, Kings County, California
- Delivery start date is June 2021; 15 Years
- SVCE will receive 55% and MBCP to receive 45% of the output.
- ~5% of SVCE's retail sales

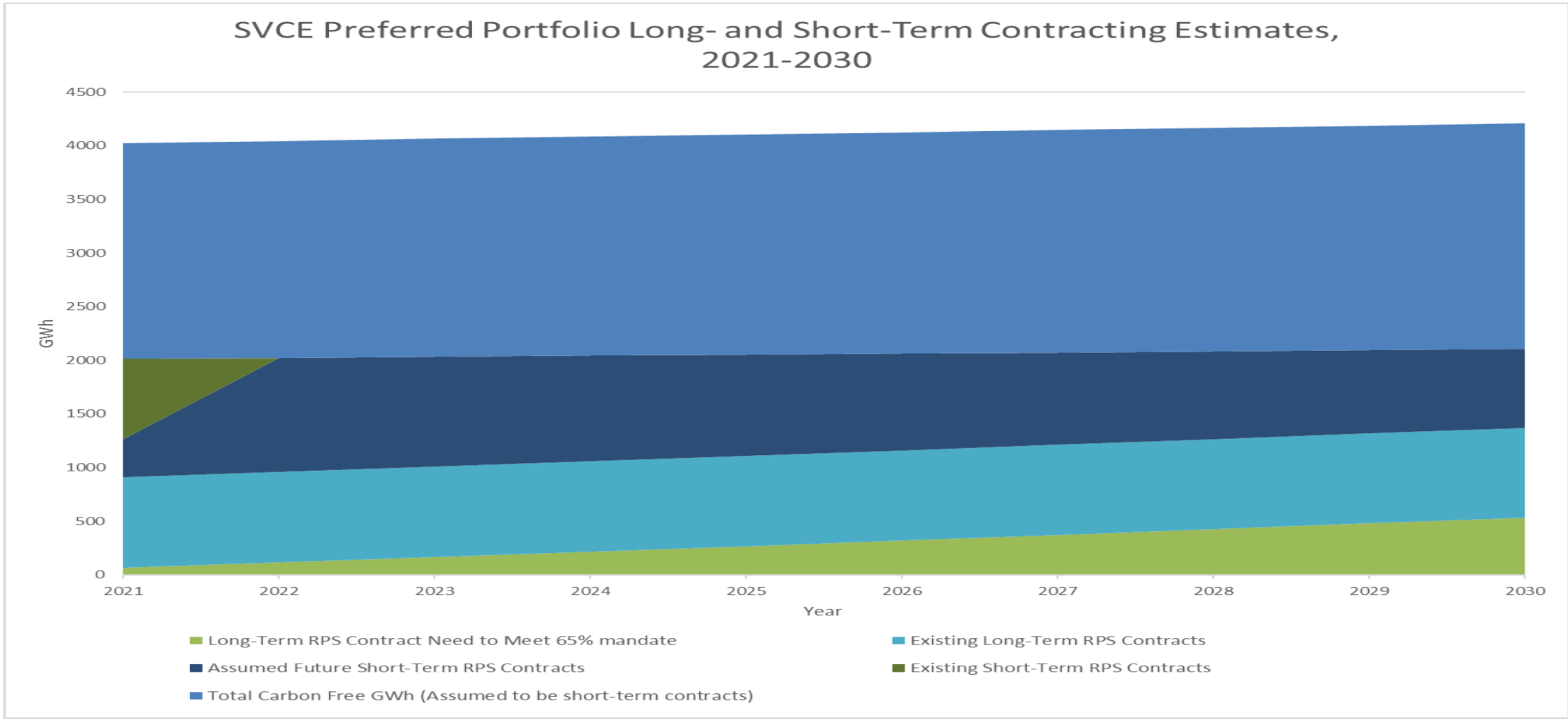
BigBeau Solar LLC., Project

- Developed by EDF Renewable Energy, Inc ("EDF")
  - 128 MW Solar PV Generating Capacity
    - 40 MW Lithium Ion Battery Energy Storage System with a 4-hour discharge duration delivering 160 MWh per discharge cycle.
      - Location: Unincorporated City of Rosamond, Kern County, California
        - Delivery start date is December 2021; 20 Years
          - MBCP to receive 45% of the output, and SVCE will receive 55%.
            - ~5% of SVCE's retail sales

Renewable Portfolio Standard SVCE Goals, Mandates and Long-term Resources



Long-term Portfolio Mix – Integrated Resource Plan

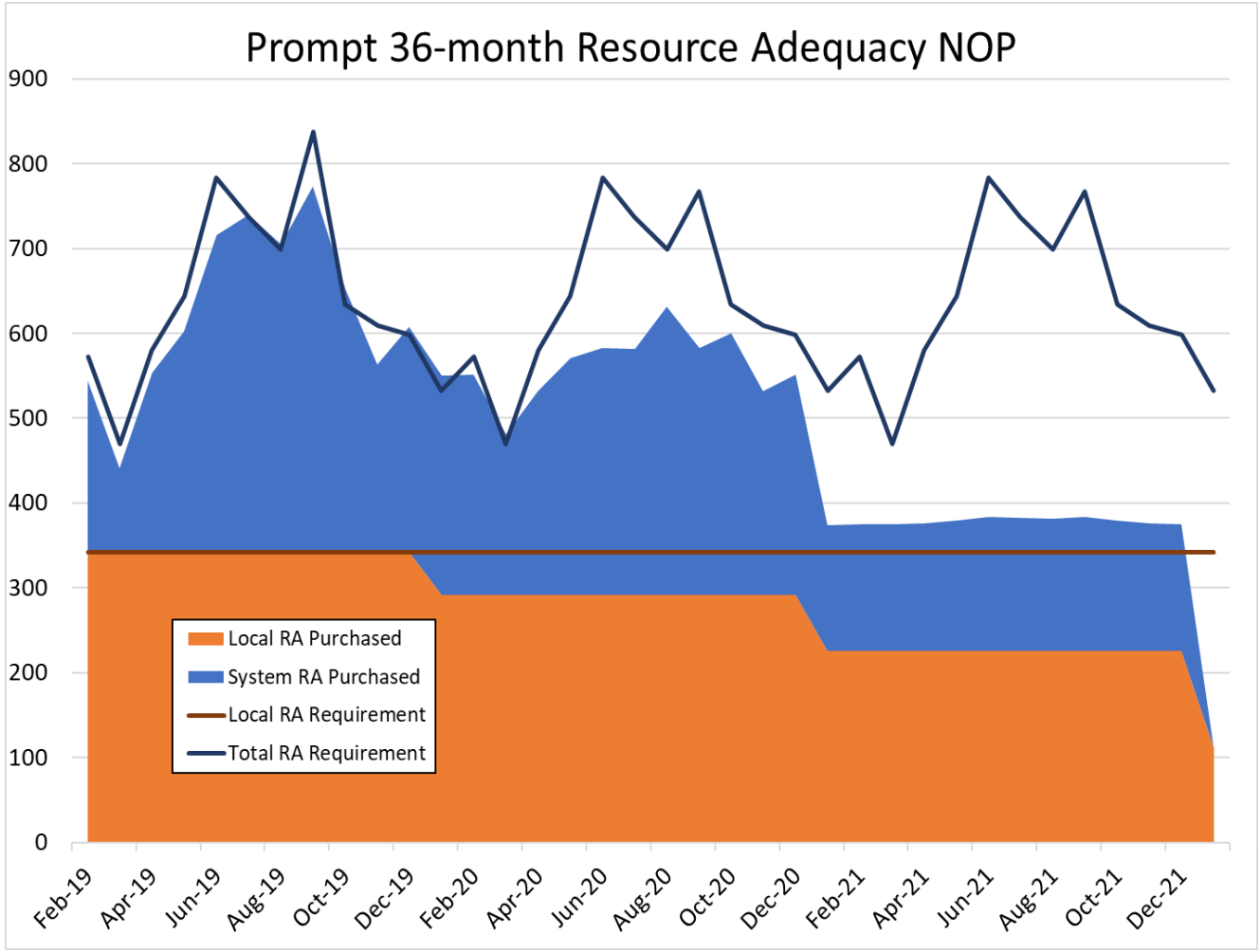


Resource Adequacy for Grid Reliability

California requires that all LSE's demonstrate sufficient capacity for reliability purposes – Resource Adequacy ("RA").

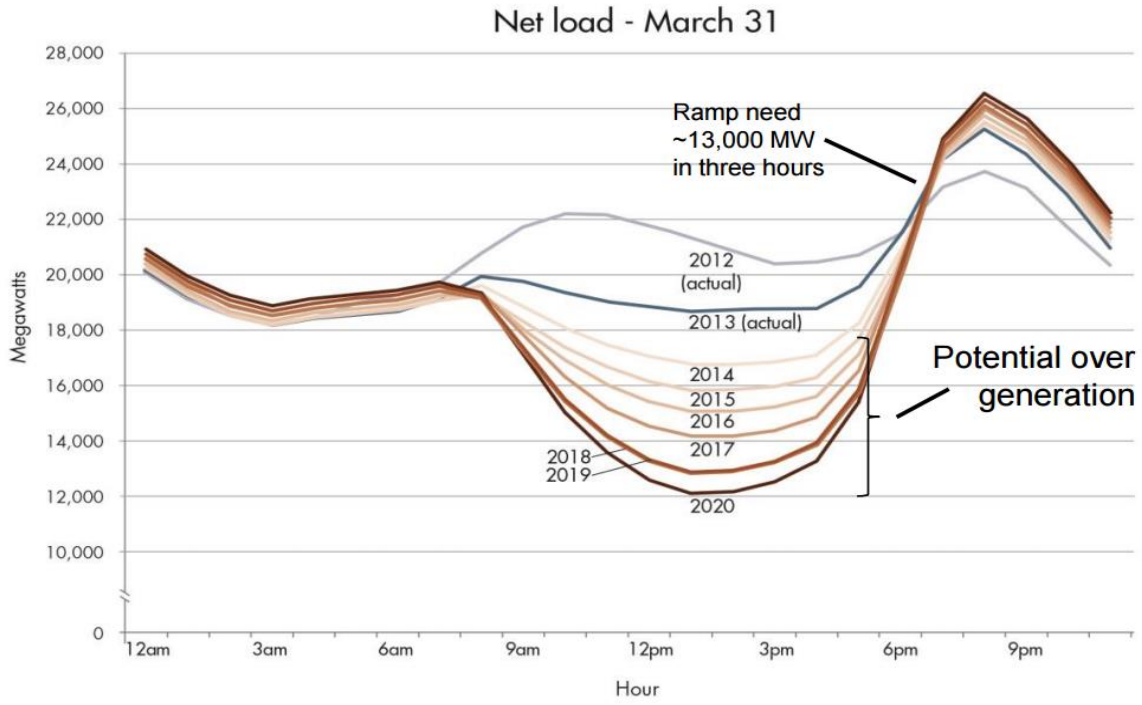
- System RA – planning reserves to cover 115% of capacity needs
- Local RA – capacity located in congested areas
- Flexible RA – capacity to deal with "duck curve" ramping requirements

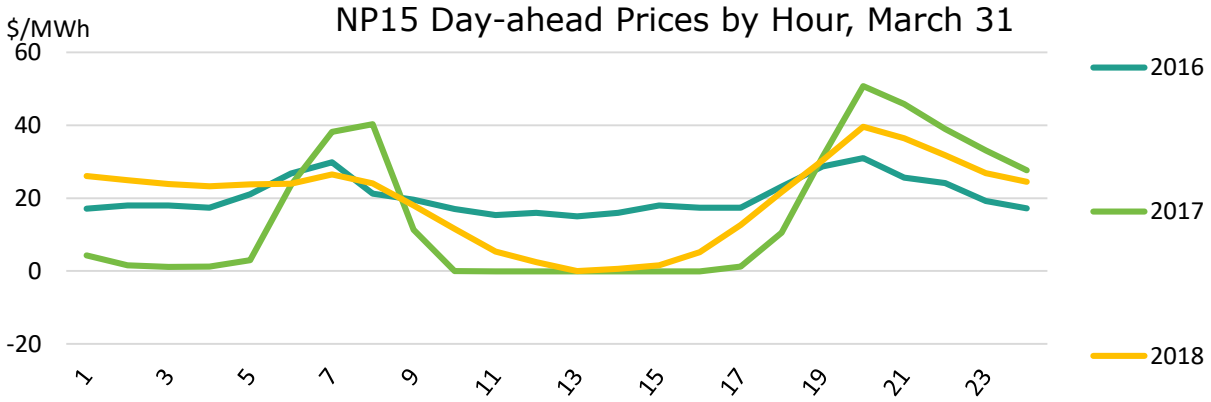
SVCE buys RA from marketers, PG&E other LSEs. Annually costs about $20M. Compliance rules are changing, resource availability is scare and costs are increasing.



Uncertainty over counting of existing RA due to regulatory changes and possible proposed central buyer mechanism

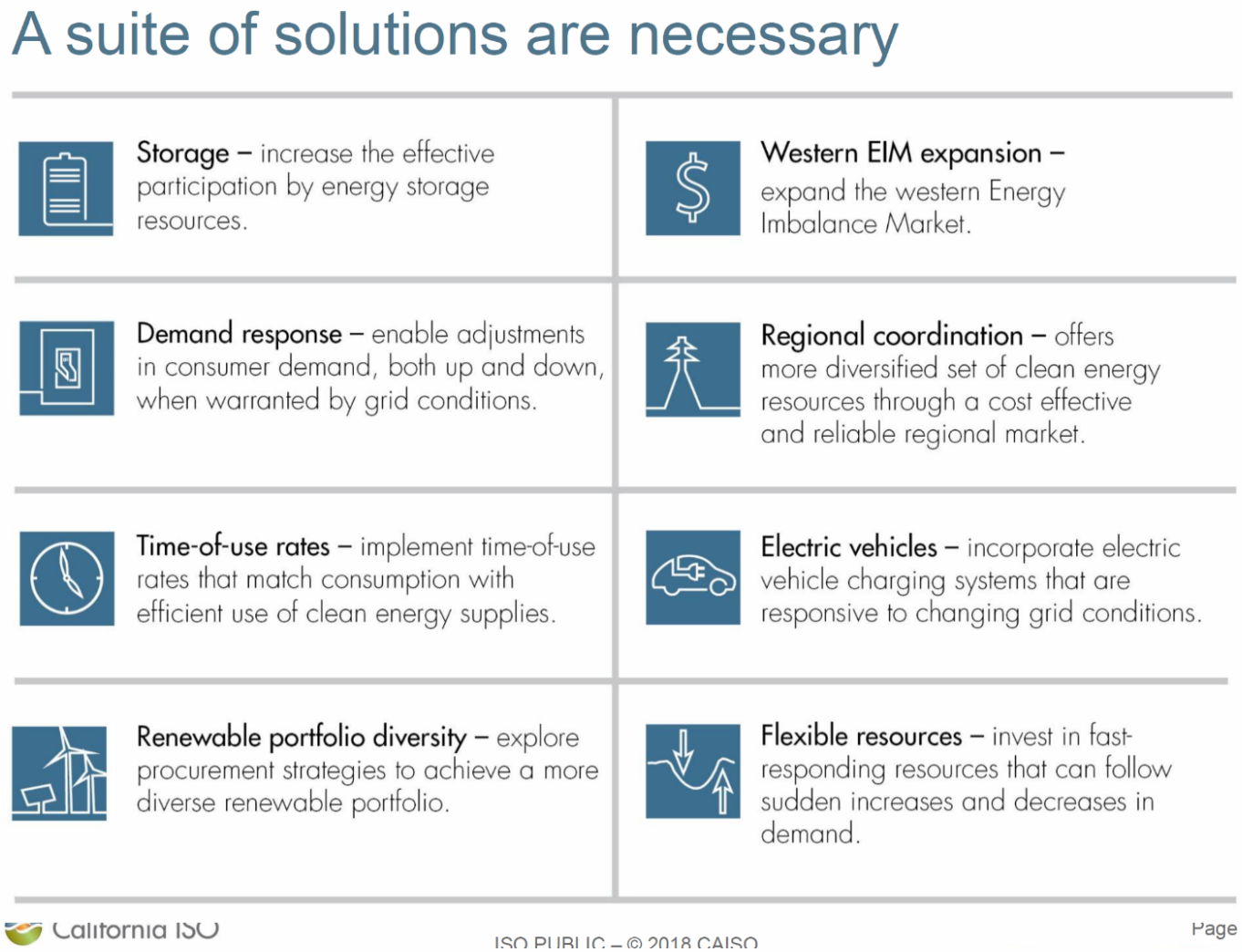
The "Duck" Curve





- Overgeneration of electricity from solar in hours where energy demand is lowest.
- Curtailment of clean energy and/or exporting out-of-state (CAISO – energy imbalance market)
- Prices during the belly of the duck are low, sometimes negative, followed by high ramp costs.
- This is a California/regional problem requiring local and regional solutions.
- For SVCE, the problem may be greater since we have high penetration of rooftop and behind-the-meter solar

Making the Duck Fly



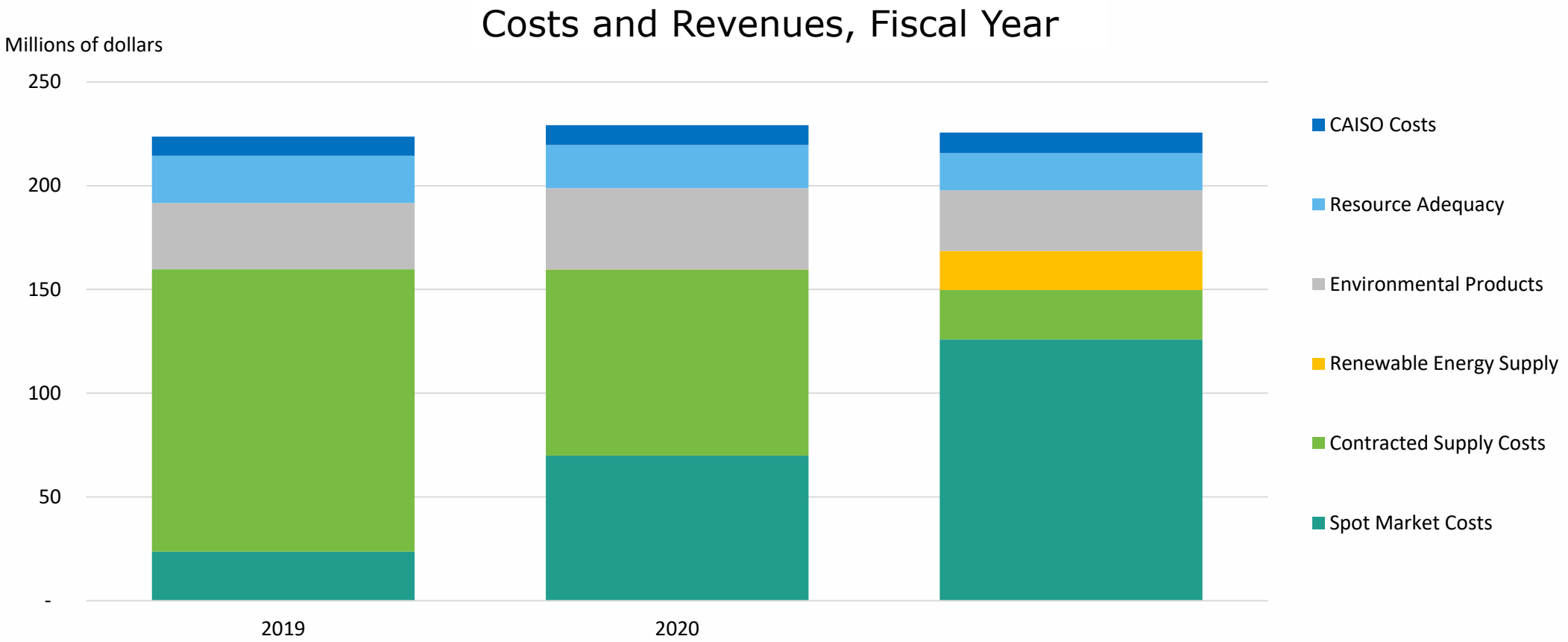
- SVCE has signed two solar plus storage PPAs – total of 45 MW of storage. Allows us to store energy from solar during low energy values and discharge in the evening hours
- SVCE has also signed a PPA for wind from out-of-state – generation profile compliments in-state solar generation.
- Decarbonization Roadmap - creative solutions including distributed energy resources (DER), electric vehicles, TOU and virtual power plants

Power Supply Costs/Revenues

- Cost components:
  - CAISO cost to serve load – wholesale energy, congestion, losses, ancillary services and grid management charges
  - Power Purchase Agreements and energy supply commitments
  - Renewable RECs and carbon-free attributes
  - Resource Adequacy Capacity
- Revenues:
  - CAISO payments for resources scheduled on behalf of SVCE from PPAs and inter-schedule trades (ISTs)
  - Retail Revenues from SVCE customers

SILICON VALLEY CLEAN ENERGY

Power Supply Costs FY 2019-2021



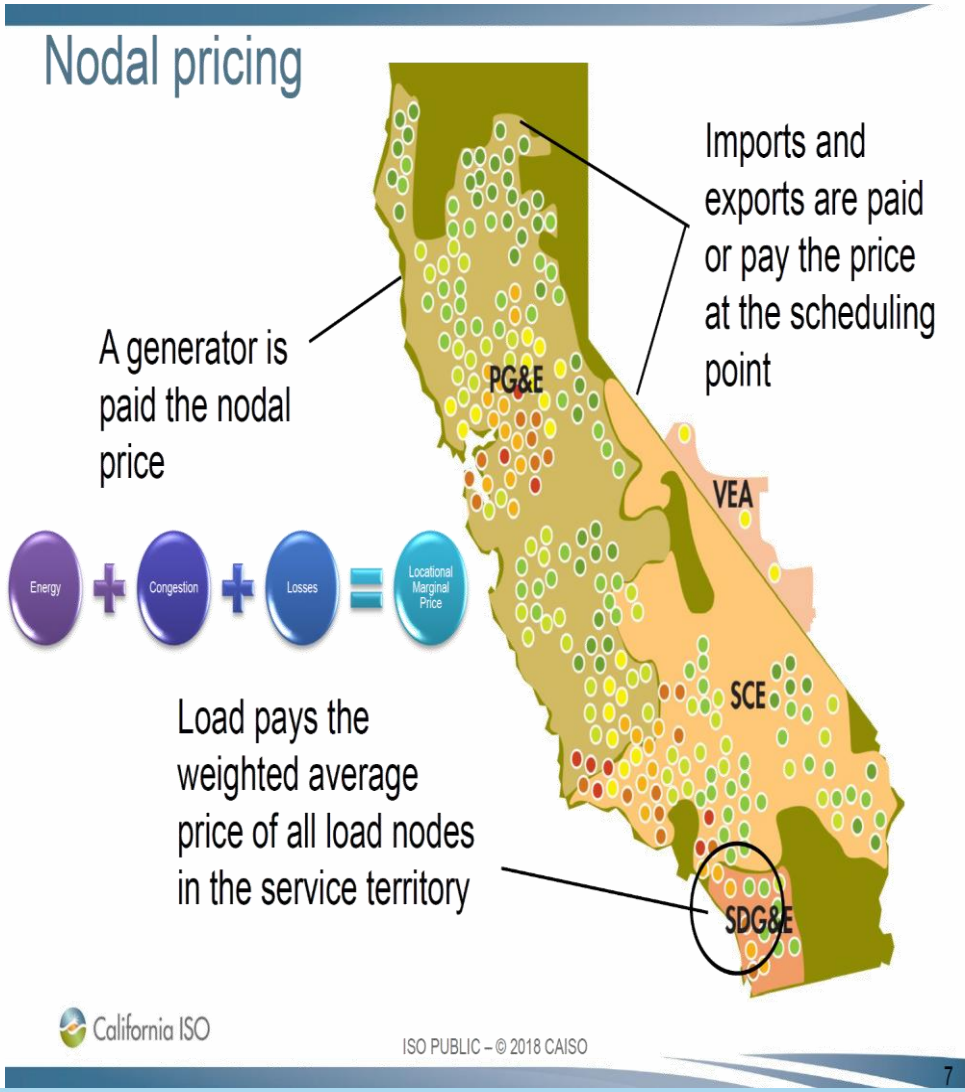
Power supply costs are uncertain and highly sensitive to changes in wholesale market prices

Cost to Serve Load & Risks

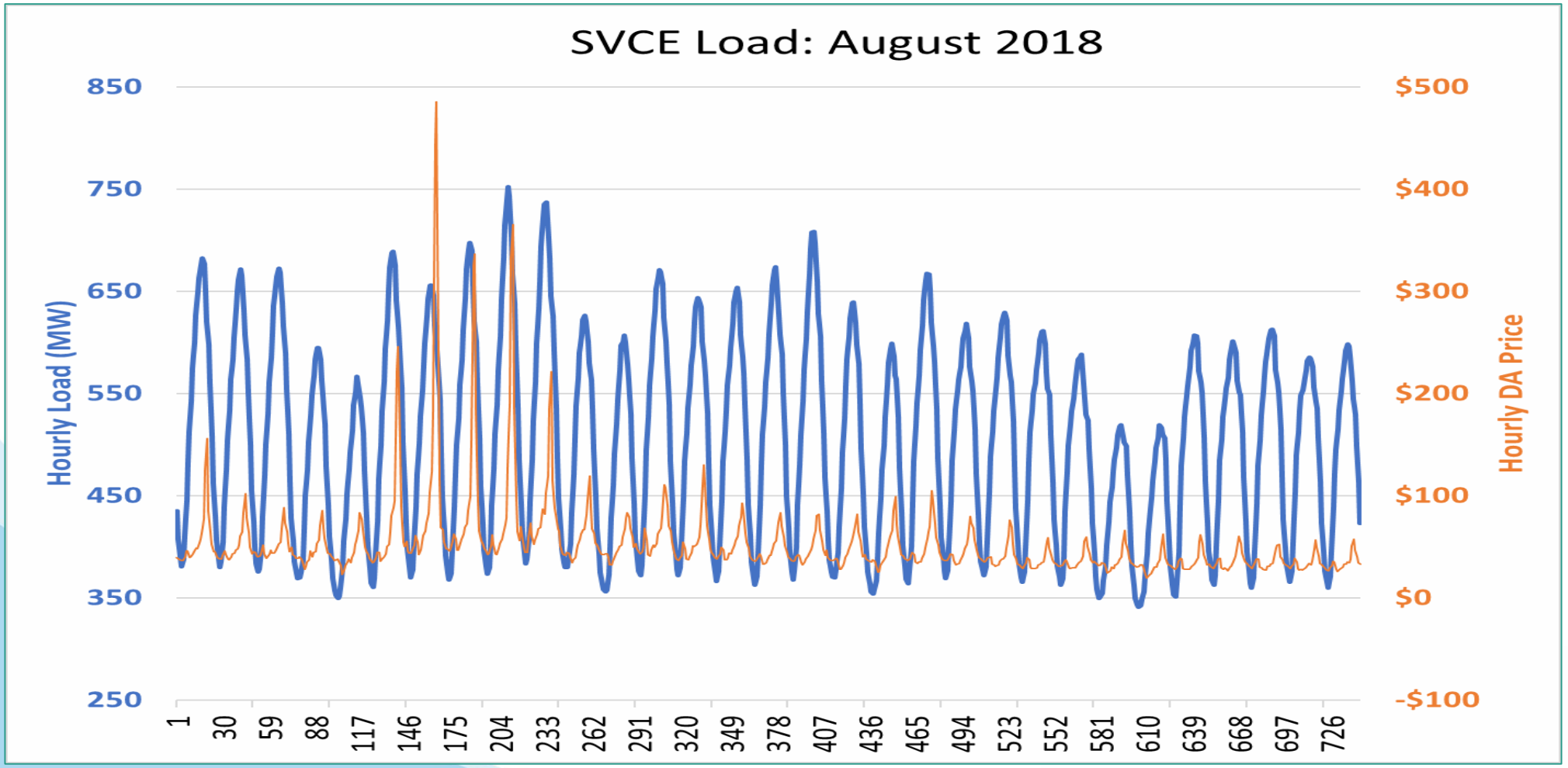
SVCE schedules all of its load into the ISO and pays the PG&E load aggregated price (DLAP) which varies hour-to-hour

SVCE' contracts for fixed-priced generic energy with power marketers to hedge load cost. These contracts (ISTs) are paid by to the generators at the nodal price of power (NP15)

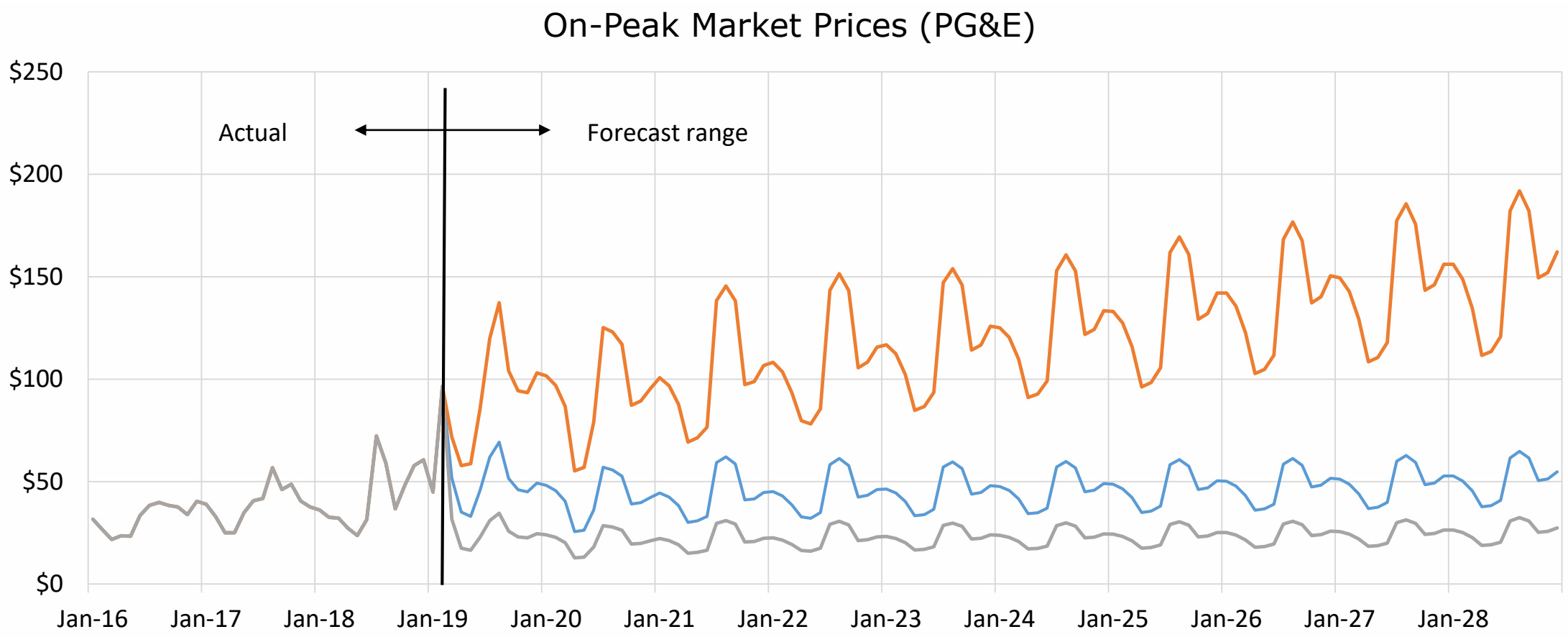
The difference between what load pays and what resources are paid is basis risk, which SVCE manages with financial products known as congestion revenue rights (CRRs)



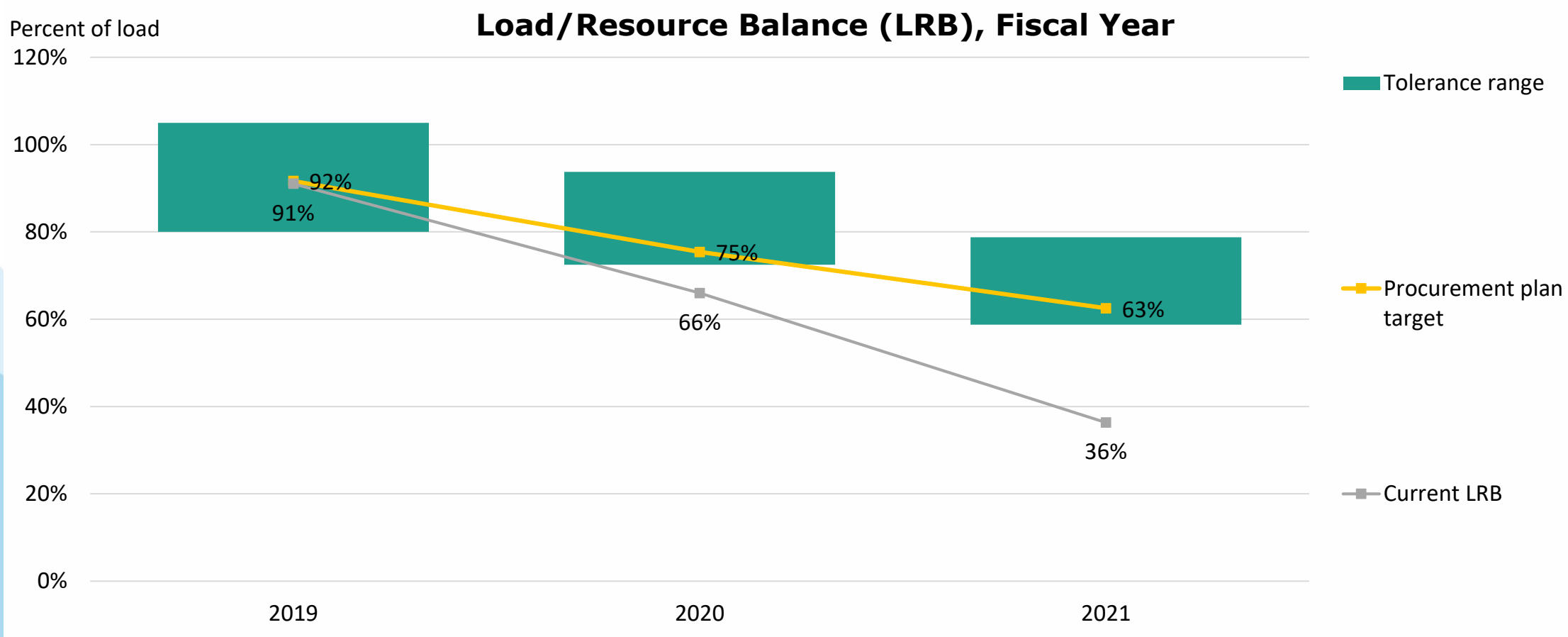
SVCE's Load Varies Seasonally and Hourly



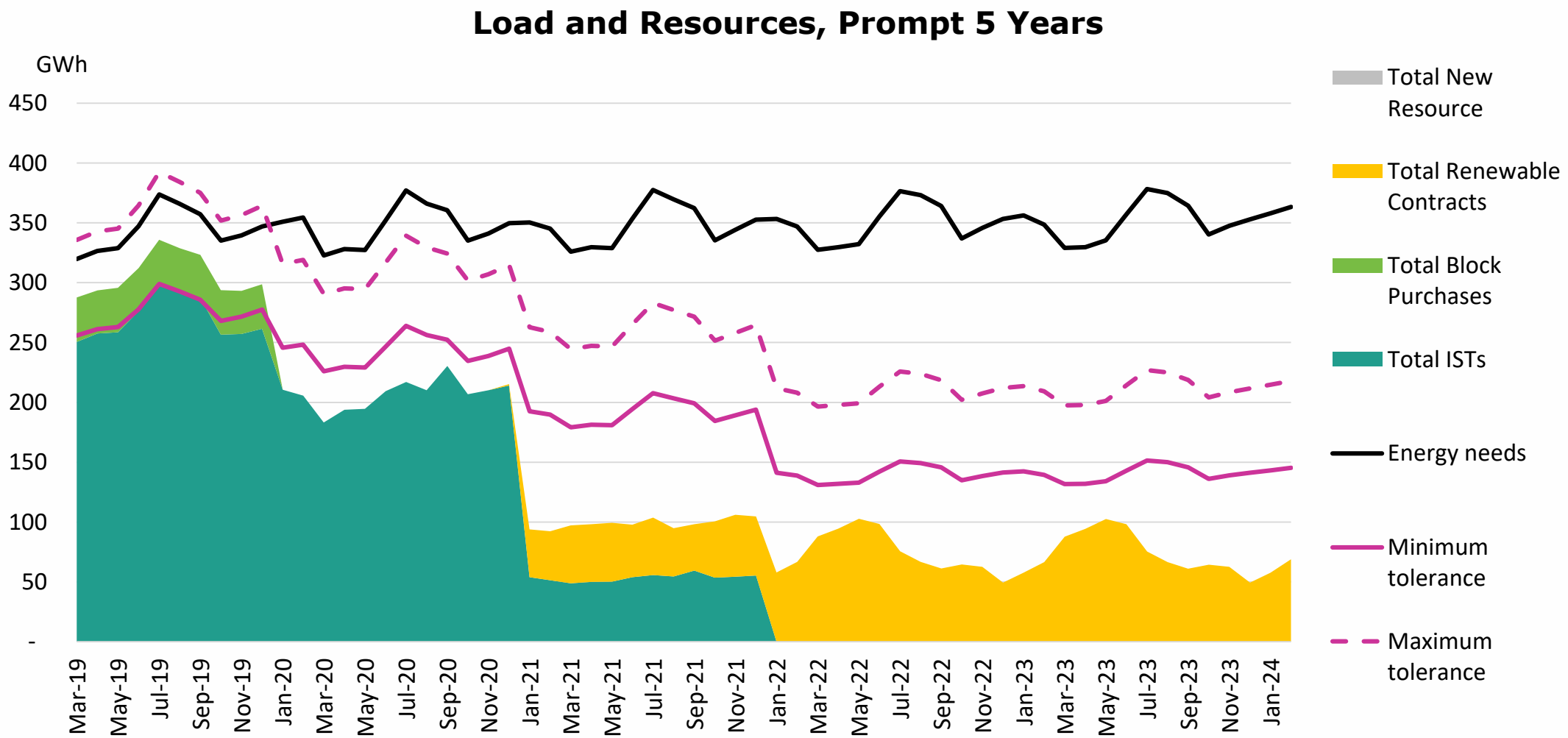
Model Outputs: Market Price Forecasts



Energy Risk Management Policy Min/Max Tolerance Bands



Monthly Load/Resource Balance – Energy Hedge



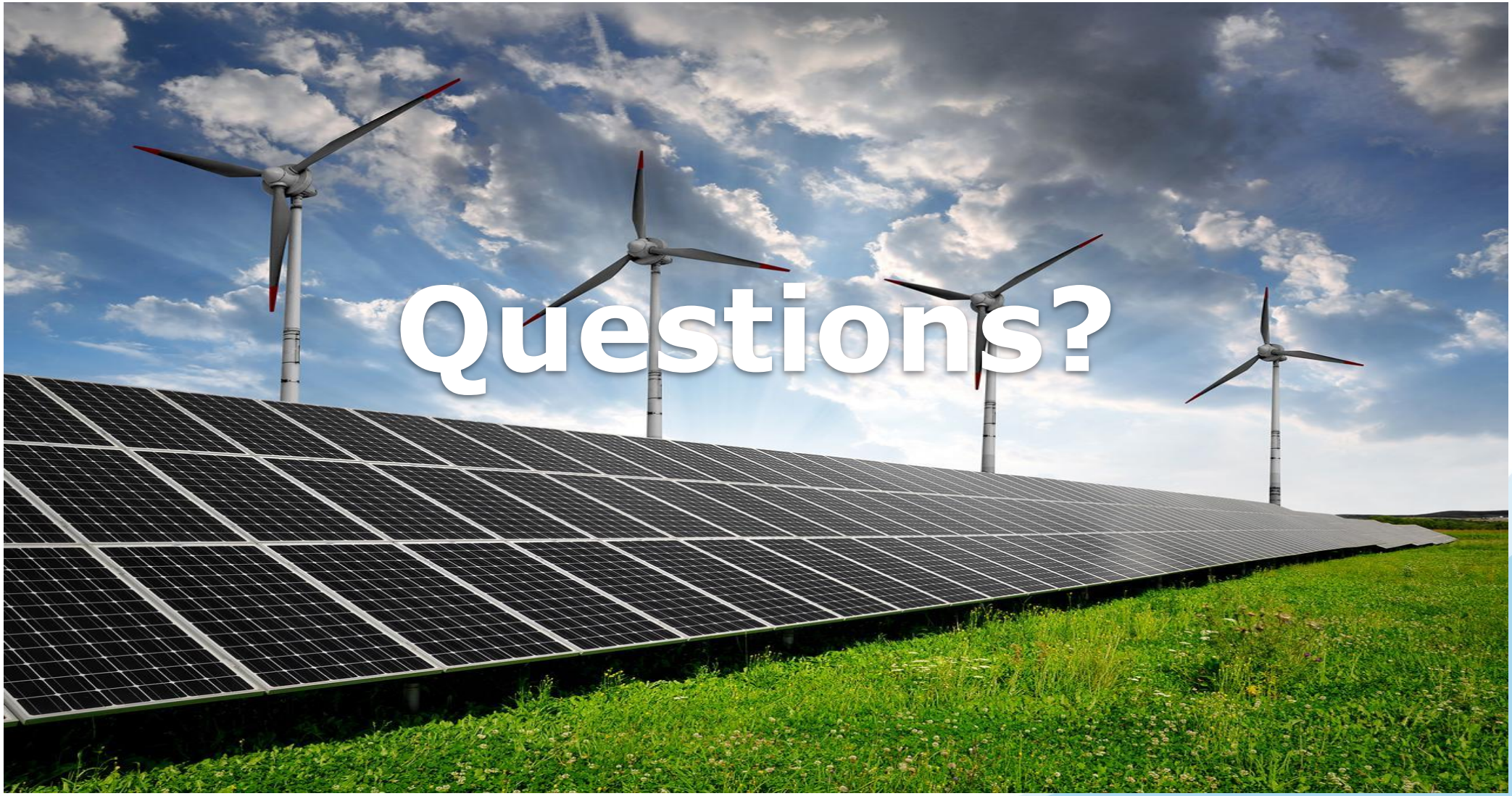
Challenges and Opportunities

- Meeting Carbon Free goals at a reasonable/competitive cost
- Greenhouse Gas Accounting & Hourly Emissions – Power Content Label and AB 1110
- Complying with Resource Adequacy obligations
- Meeting the Duck Curve challenge with supply and demand side solutions
- Understanding cost to serve load and contribution to margins from different customers types and by season
- Planning for Direct Access and potential loss of load
- Developing products/resources to meet corporate customer needs
- Creating in-house bandwidth and systems to monitor, report and respond to policies, compliance requirements and risks

Big Initiatives

- Request for Proposals for new long-term RPS resources
  - Integrated Resource Plan
    - Carbon Free Portfolio Alternatives and Hourly accounting analysis and recommendations
      - Commercial/Industrial clean energy offerings
        - Implementing 3+ PPAs for delivery starting in 2021

SILICON VALLEY CLEAN ENERGY


Questions?

Achieving Deep Decarbonization

Dr. Aimee Bailey
Director of Decarbonization & Grid Innovation

Decarbonization & Grid Innovation Programs

Aimee Bailey, PhD

Director of Decarbonization & Grid Innovation Programs

Justin Zagunis

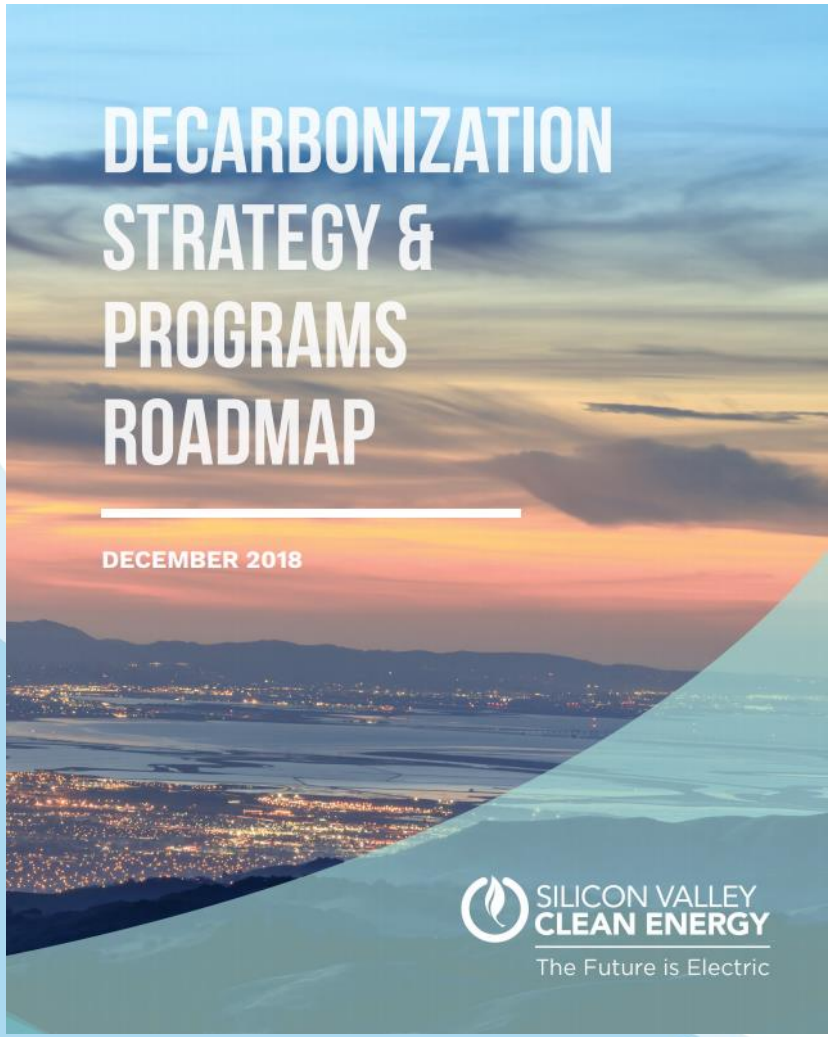
Decarbonization and Grid Innovation Analyst

Robert Spragg

Decarbonization Analyst Intern

SILICON VALLEY CLEAN ENERGY

Decarb Strategy & Programs Roadmap



- Initial work on SVCE programs started in 2017
- Months-long stakeholder engagement process
- *Decarb Strategy & Programs Roadmap* reviewed and approved by SVCE Board on December 13, 2018

SILICON VALLEY CLEAN ENERGY

Key Groups Providing Input

Customer Program Advisory Group (CPAG)

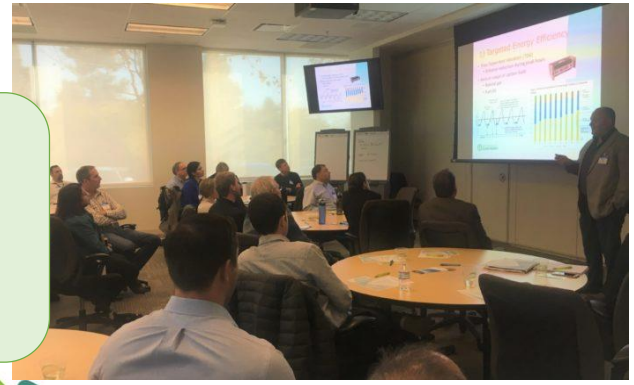
Stakeholder Workshop Participants

SVCE's Decarb Strategy & Programs Roadmap

Member Agency Working Group (MAWG)

SVCE Board & Staff

C&I Customers



SILICON VALLEY CLEAN ENERGY

How will we leverage?

Innovation:

- Harness innovation to continuously improve service to our customers and community, and to accelerate “bending the carbon curve”

Data:

- Unlock the tremendous value of utility and other data to guide development, implementation, measurement and evaluation of all program activities

Partnerships

- Form and leverage partnerships to support activities addressing our decarbonization mission

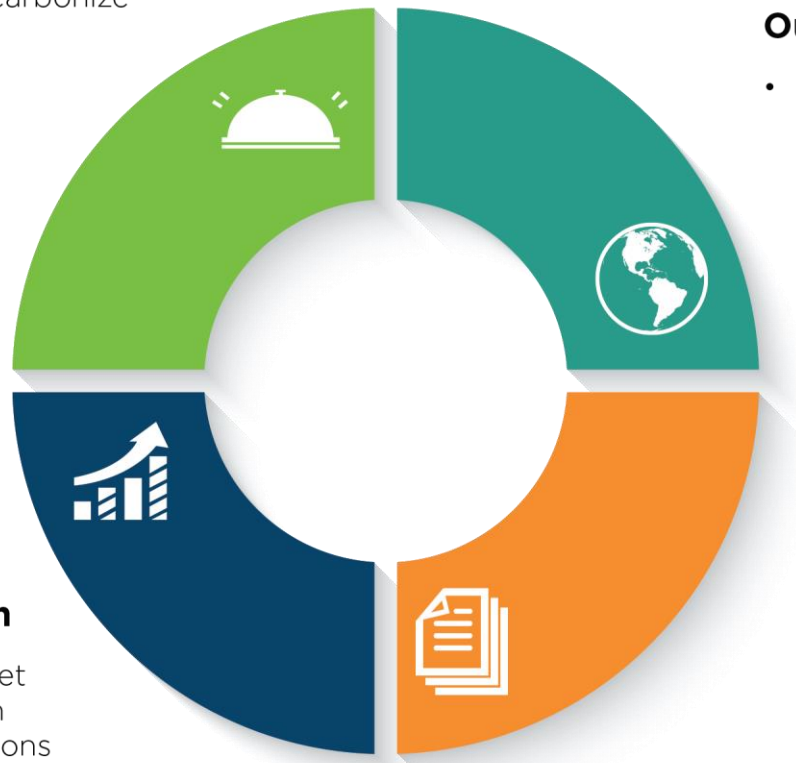
What will SVCE do?

Retail Products & Services

- Develop and support innovative new products and services to meet customer needs and decarbonize

Education & Outreach

- Increase public awareness and education on electrification and actions to reduce emissions



Market Transformation

- Catalyze market transformation through coalitions and partnerships with actors in industry and the innovation ecosystem

Public Policy

- Expand state and local policy activity on decarbonization, while strengthening local and regional agency coordination

How will we prioritize?

Customer & Community Value:

- Deliver value to our customers and larger community through program offerings and ongoing initiatives

Core Role for SVCE:

- Recognize activities where we can and must play a key role given our unique position of community-owned electricity provider

Equity in Service:

- Balance activities to reflect the diversity of our customer base and geography

Emissions Impact:

- Prioritize activities with greatest emissions reduction potential to achieve alignment with our mission

Scalable and Transferable:

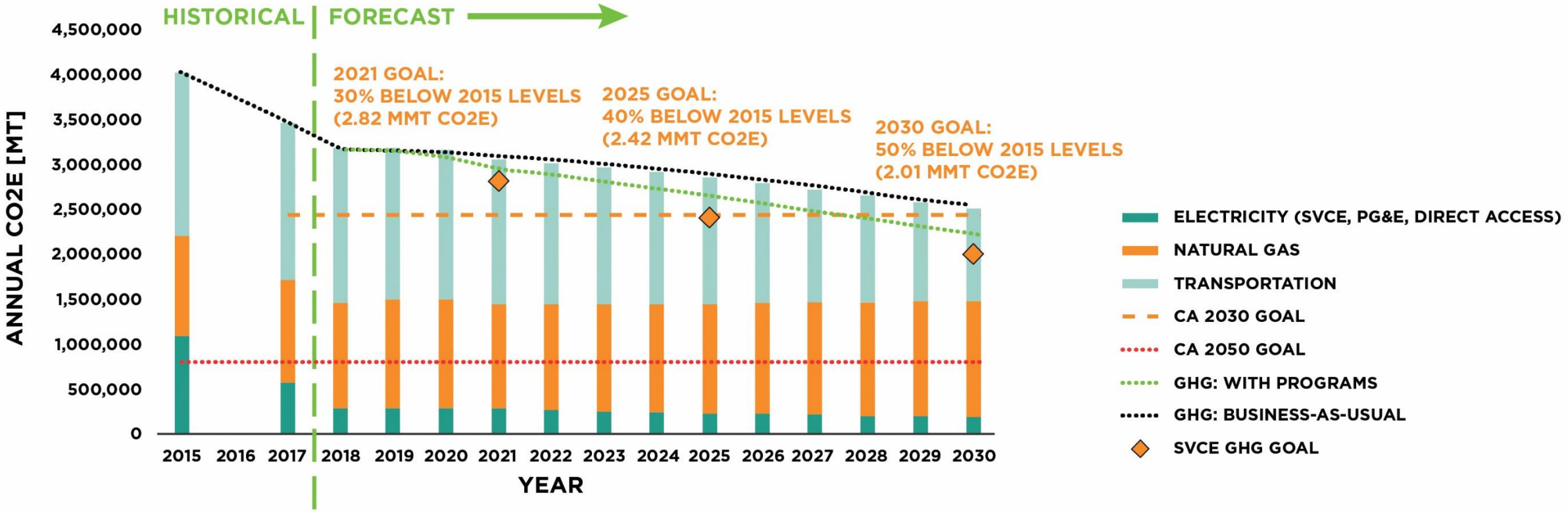
- Pursue solutions that can be expanded and adapted by others, to ensure impact both within and beyond our borders

GHG Emissions Goals

- SVCE's Strategic Plan included one GHG emissions goal:
  - 30% below 2015 levels by 2021
- GHG forecasting analysis used to inform proposed goals for later years:
  - 40% below 2015 levels by 2025 (newly adopted)
  - 50% below 2015 levels by 2030 (newly adopted)
- Proposed goals consistent with member agency CAPs
- Staff plan to revisit goals on an annual basis with GHG emissions inventory update to re-assess feasibility

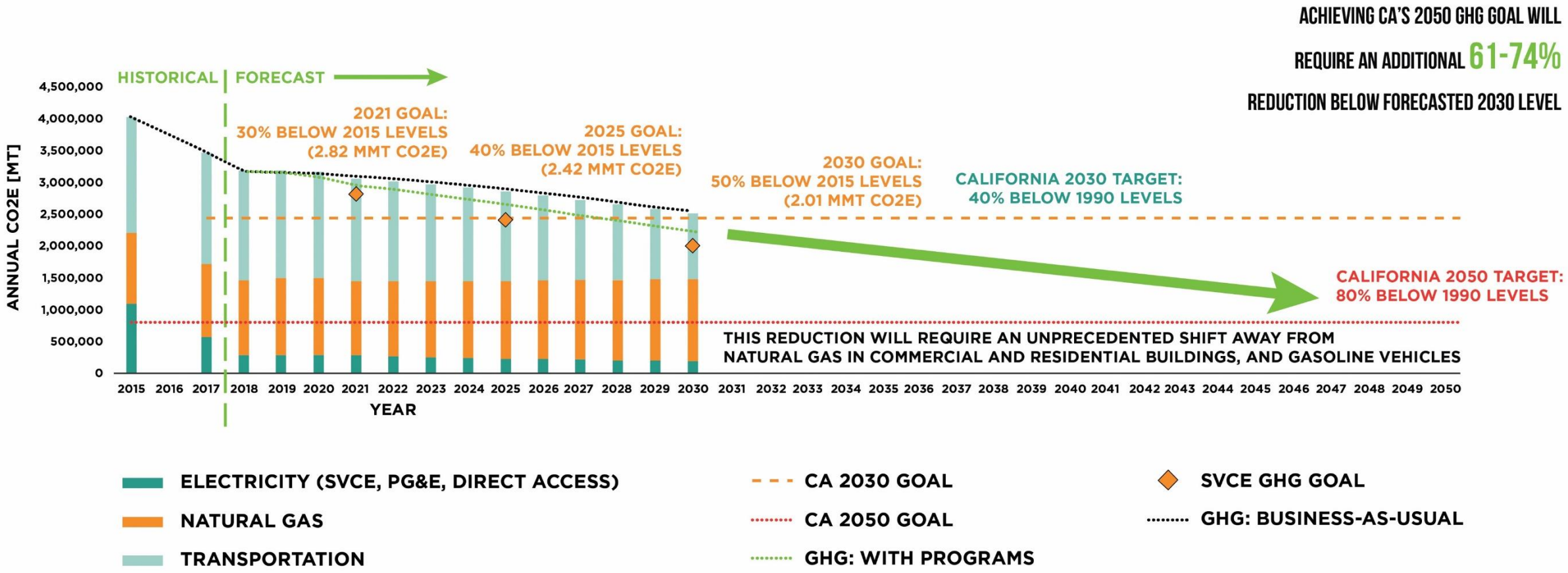
SILICON VALLEY CLEAN ENERGY

GHG Emissions Goals



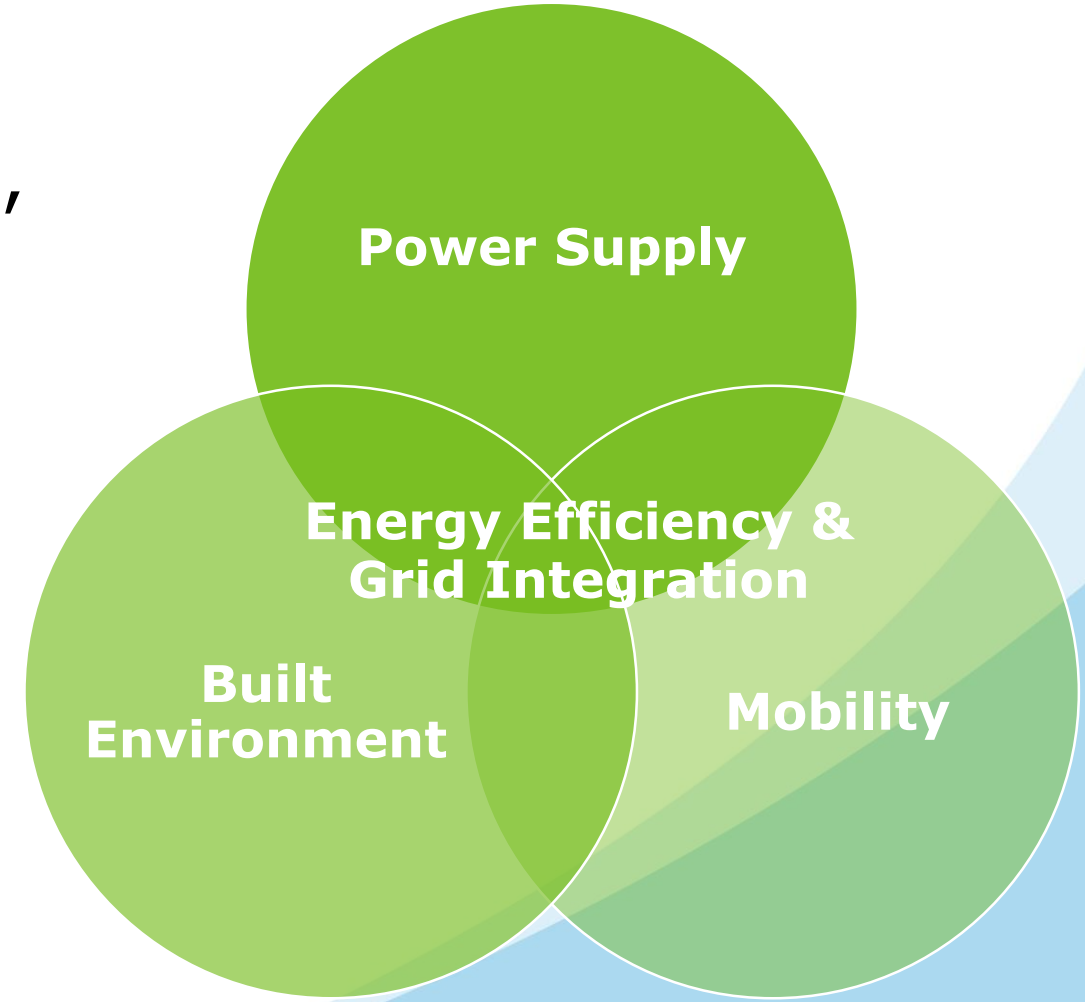
SILICON VALLEY CLEAN ENERGY

GHG Emissions Goals



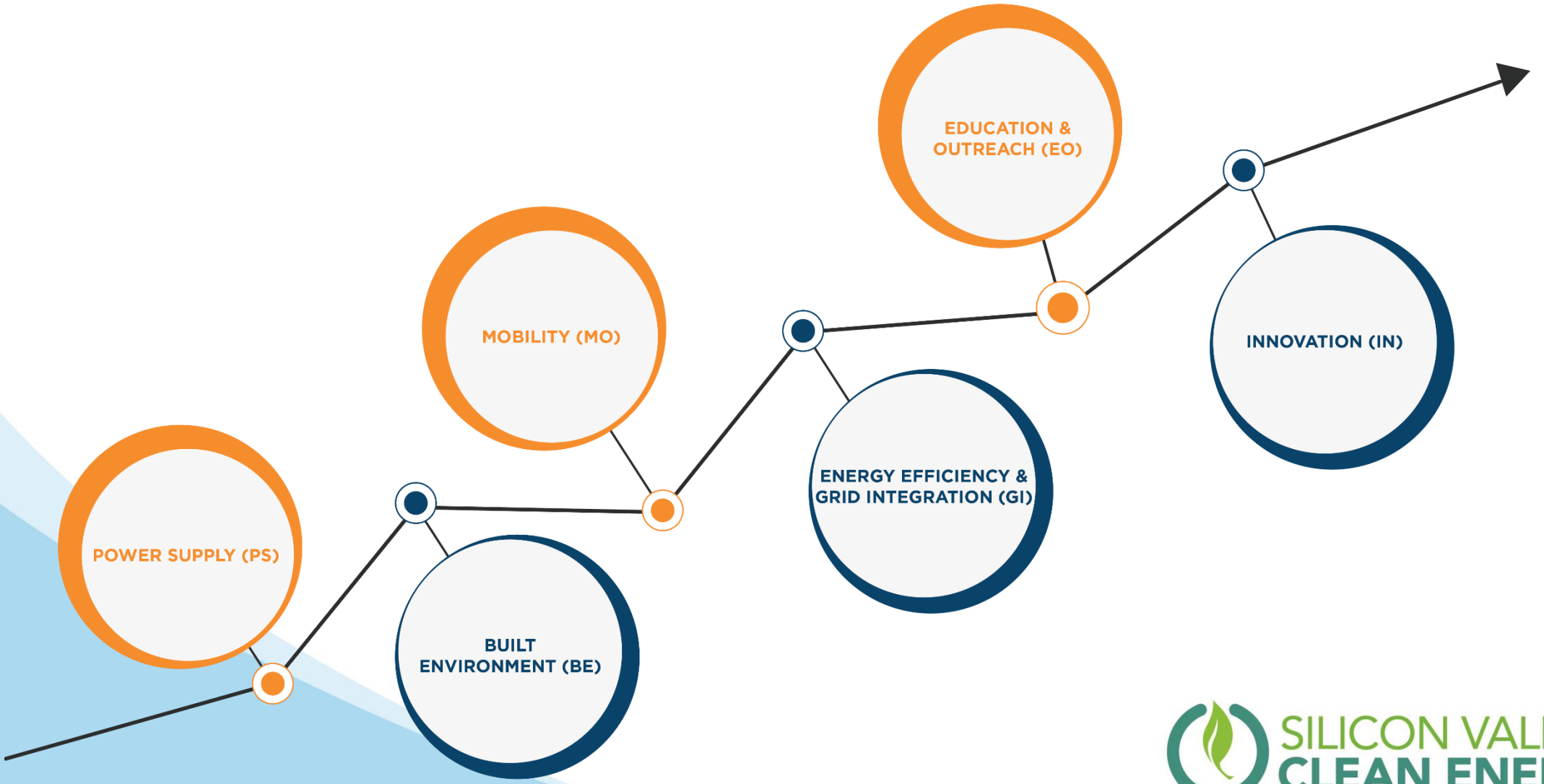
Overarching Program Strategy

- Procure & maintain a sustainable, affordable and carbon-free **power supply**
- Electrify the **built environment** and **mobility**
- Promote **energy efficiency** & successful **grid integration**



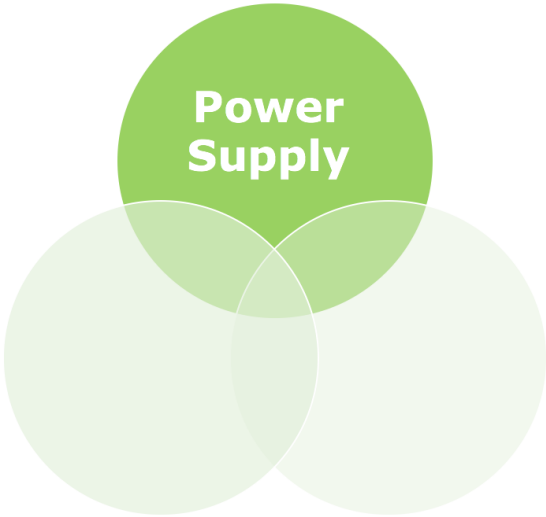
SILICON VALLEY CLEAN ENERGY

Programs Roadmap by Sector



SILICON VALLEY CLEAN ENERGY

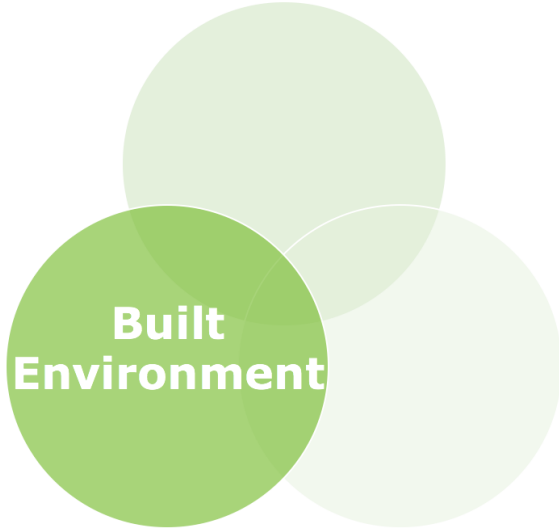
Power Supply



- C&I Clean Power Offerings: Develop, market and sell additional SVCE power offerings to address large C&I customers seeking to buy clean power at the most competitive rates
- Retail Rates Assessment: Carry out comprehensive assessment of retail rates to develop multi-phase plan for improvements and developments of pilot rates
- Integrated Resource Plan: Solicit community input to develop comprehensive strategy for supply portfolio (e.g. %RPS, short- vs. long-term contracts, local resource carve-out, etc.)
- Local Renewables: Research the availability and price for local resources, and evaluate costs/benefits of procurement

Color = 2019 Priority

Built Environment



- Reach Codes: Hire technical consultant to support SVCE and PCE member agencies in the development, review, adoption and implementation of reach codes supporting building electrification and EV charging infrastructure
- All-Electric Showcase Grants: Develop model requirements for all-electric buildings for architects, developers, practitioners & provide financial incentives and/or upfront design assistance for a specified number of showcase projects
- FutureFit Heat Pump Water Heater: Provide rebates to fuel-switch natural gas water heaters to heat pump electric water heaters (BAAQMD grant)
- Streamlining Community-Wide Electrification: Survey and review local city policies (codes, permitting, inspection, incentives, etc.) and develop model policies/processes

Color = 2019 Priority

Key Partner for Built Environment

BUILDING DECARBONIZATION COALITION

Transforming our buildings into safer, healthier, and more affordable spaces through clean energy and high performance, with the goal of 100% decarbonization--for all of us.

Market Transformation

Accelerate the expansion of building decarbonization technologies and practices.

Consumer Inspiration

Increase consumer awareness, understanding, and acceptance of the benefits of decarbonized buildings.

Public Policy

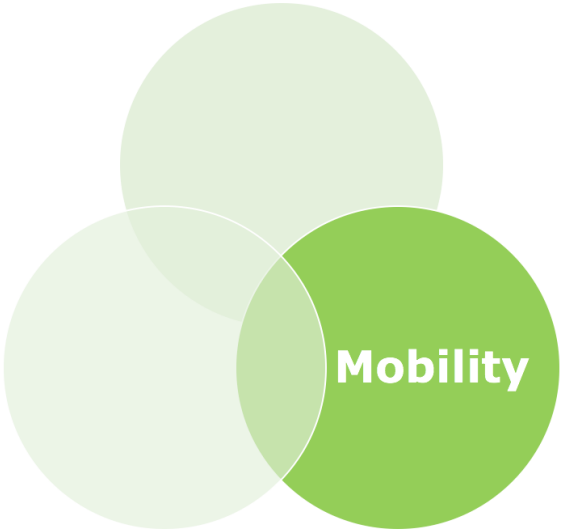
Develop and support policy that advances building decarbonization.

Research

Identify and address critical market gaps preventing building decarbonization through original and partnered research.

- National coalition, early focus on California
- SVCE a member since launch in Sept 2018
- Members represent labor, architects, developers, utilities, environmental advocacy, and others
- Work supports multiple SVCE programs: Design Grants, FutureFit HPWH, Resource Center, etc.

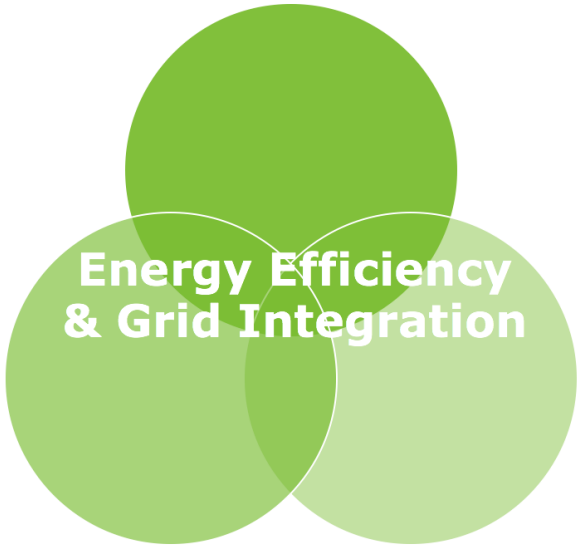
Mobility



- EV Charging Infrastructure Strategy and Plan: Create an SVCE-wide EV readiness and infrastructure strategy considering permitting practices, ordinance/reach code integration, siting, rate design
- EV Fast Charging Pilot Depots: Work with private sector, member agencies, and regional partners to develop one or more EV fast charging pilots (e.g. for ride-hailing electrification, real-time pricing, "last mile")
- EV Incentives for Low Income: Provide rebates for used EVs for low-income qualified customers in collaboration with Peninsula Clean Energy
- EV Charging for Multi-Unit Dwellings: Provide flexible grant offerings to address market gaps with multi-unit dwelling and small and medium business workplace charging
- Fleet Electrification: Support member cities and commercial customers in evaluating options to electrify their vehicle fleets

Color = 2019 Priority

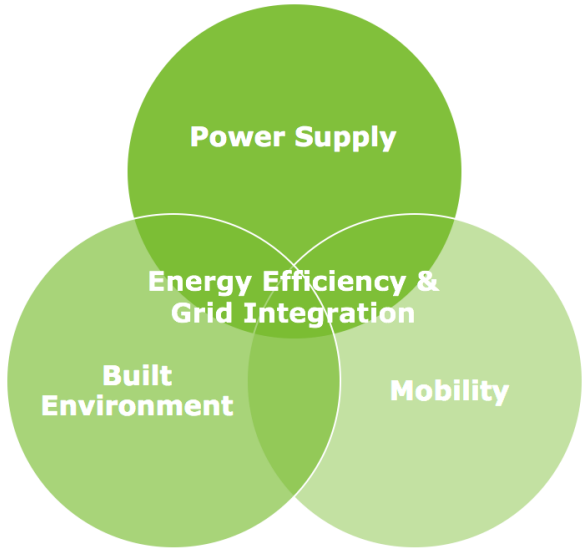
Energy Efficiency & Grid Integration



- Virtual Power Plant: Procure capacity from "virtual power plants" made up of cloud-based aggregations of customer-cited resources to support grid integration and monetize value from connected, controllable loads
- Non-SVCE Programs: Promote existing, non-SVCE led energy programs through the Customer Resource Center and other channels.

Color = 2019 Priority

Cross-Sector: Education & Outreach

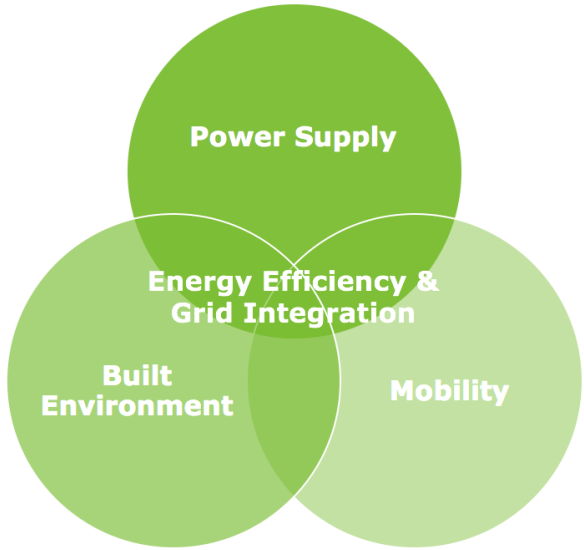


- Customer Resource Center: Develop customer resource center to enable engagement and awareness-building, education and action related to vehicle and building electrification
- Community Engagement Grants: Partner with local organizations in under-reached customer segments to promote SVCE accomplishments and programs

Color = 2019 Priority

SILICON VALLEY CLEAN ENERGY

Cross-Sector: Innovation



- Innovation Partners: Engage with key strategic partners to participate in the local innovation ecosystem to provide a voice for SVCE customers and the decarbonization mission
- Innovation Onramp: Provide small grants to support innovation through pilot projects with external partners

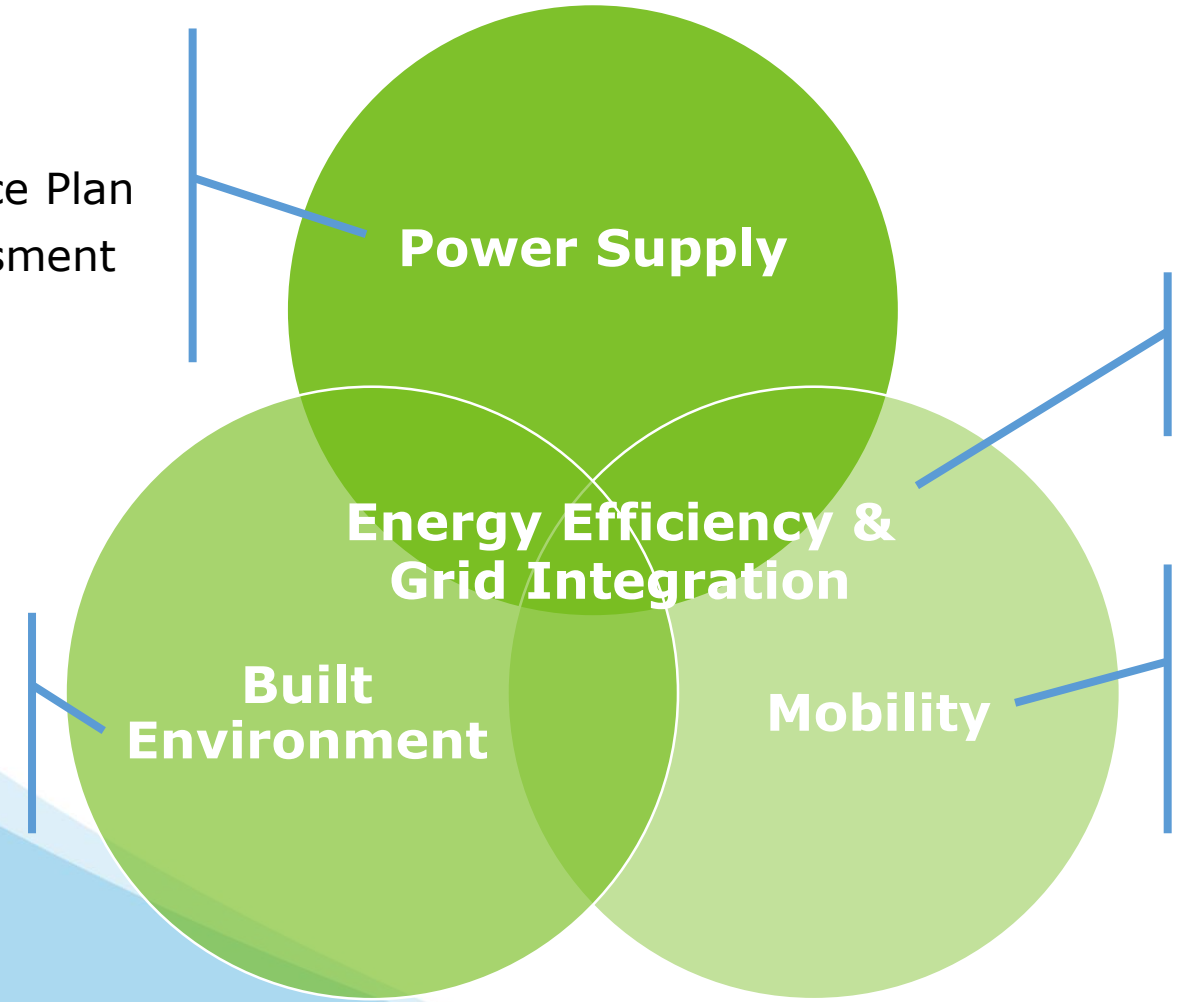
Color = 2019 Priority

Programs Portfolio

Cross-Sector:

- Innovation Partners
- Innovation Onramp
- Customer Resource Center
- Engagement Grants

- C&I Clean Power Offerings
- Integrated Resource Plan
- Retail Rates Assessment
- Local Renewables



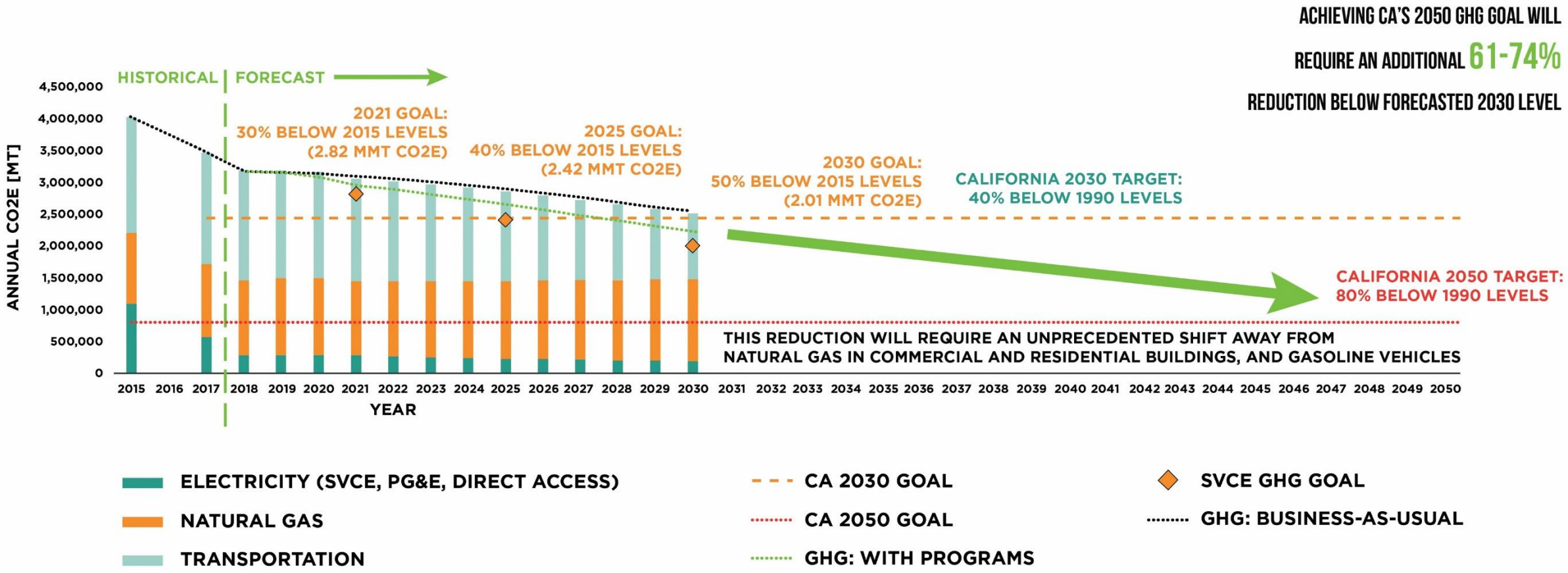
- Virtual Power Plant
- Non-SVCE Efficiency Programs

- Reach Codes
- All-Electric Showcase Grants
- FutureFit HPWH
- Streamlining Community-wide Electrification

- EV Charging Infrastructure Strategy & Plan
- EV Fast Charge Depot Pilots
- EV Incentives for Low-Income
- EV Charging for Multi-Unit Dwellings

Color = 2019 Priority

GHG Emissions Goals



Regulatory and Legislative Work at SVCE

Hilary Staver
Manager of Regulatory and Legislative Affairs

Regulatory & Legislative Affairs

Hilary Staver

Manager of Regulatory & Legislative Affairs

Poonum Agrawal

Senior Regulatory Analyst

SILICON VALLEY CLEAN ENERGY

Agenda

- Goals for policy work
- Understanding the landscape
- Current events and future outlook

SILICON VALLEY CLEAN ENERGY

Why get involved?

1. Protect the integrity of the CCA model so we can continue to serve our customers

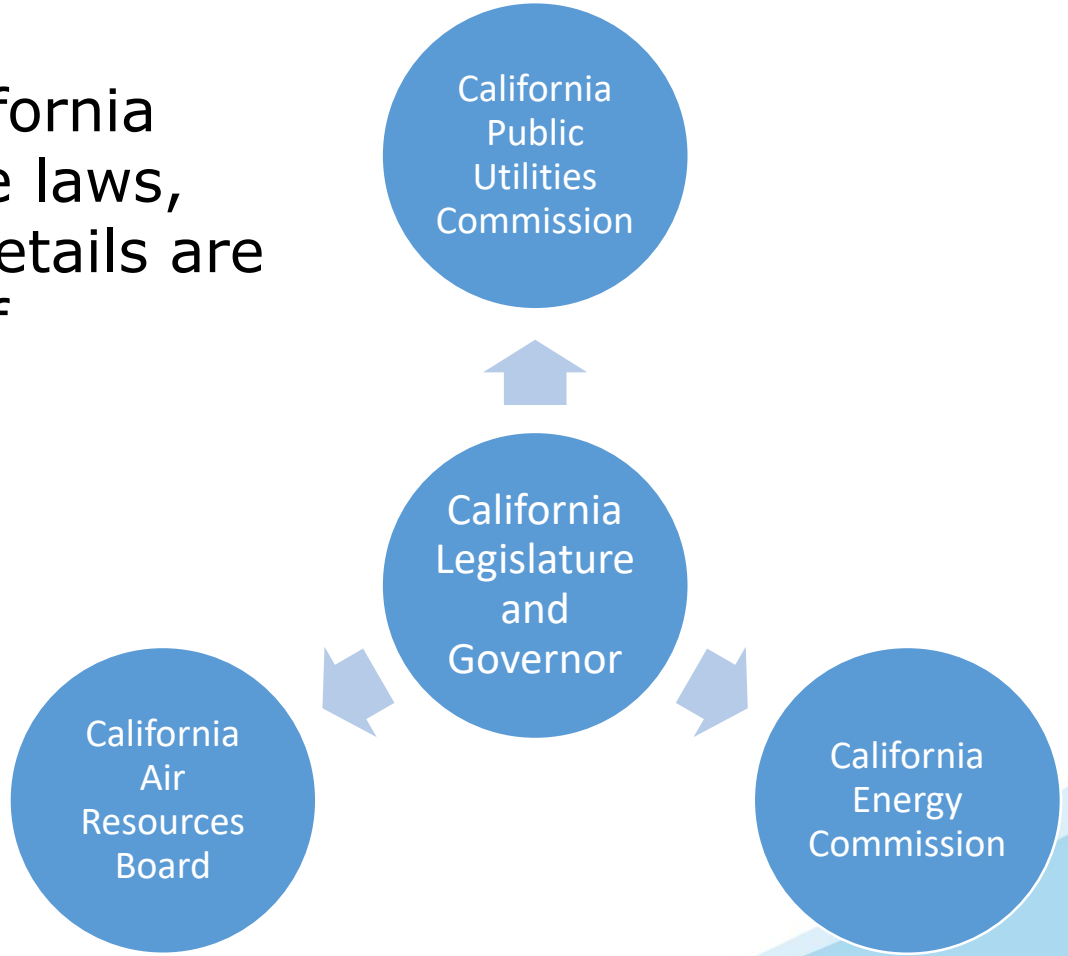
2. Craft decarbonization policy that supports SVCE's mission to reduce GHG emissions

3. Generally help build a safe, affordable, reliable, equitable, and low-carbon energy system

SILICON VALLEY CLEAN ENERGY

Where We Work

- The governor and California state legislature create laws, but many significant details are left to the discretion of executive agencies



SILICON VALLEY CLEAN ENERGY

Diving Deeper: Regulatory

- **California Public Utilities Commission (CPUC)**
  - Primary regulatory agency for CCAs
  - Five commissioners appointed by the governor for six-year terms
  - Operates through proceedings designed to build a record
- **California Energy Commission (CEC)**
  - Controls many areas relevant to CCA programs, such as building standards and funding for EV infrastructure
- **California Air Resources Board (CARB)**

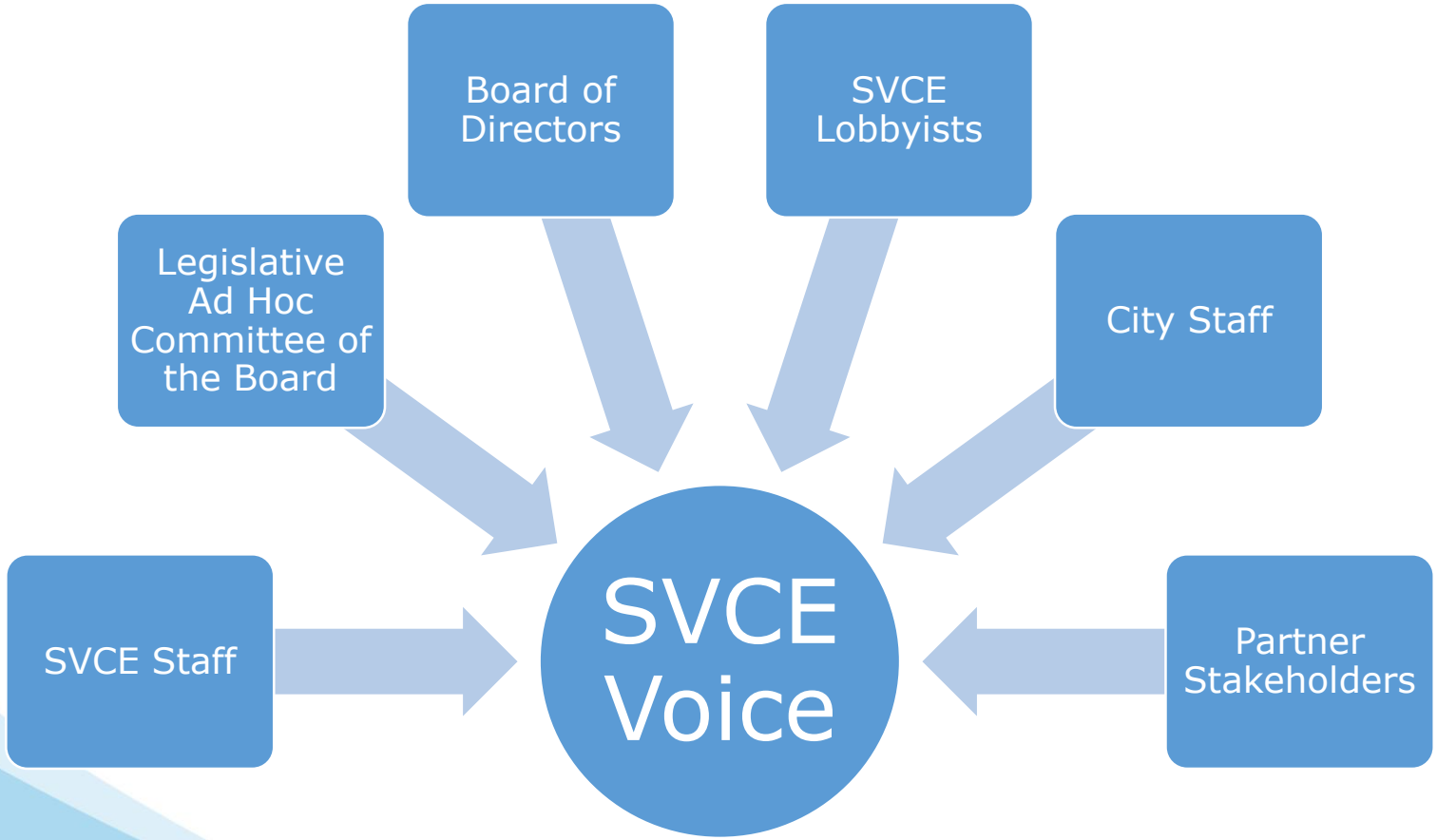
SILICON VALLEY CLEAN ENERGY

Diving Deeper: Legislative

Assembly	Senate
Assemblymember Marc Berman (D-24)	Senator Bob Wieckowski (D-10)
Assemblymember Kansen Chu (D-25)	Senator Jerry Hill (D-13)
Assemblymember Ash Kalra (D-27)	Senator Jim Beall (D-15)
Assemblymember Evan Low (D-28)	Senator Bill Monning (D-17)
Assemblymember Mark Stone (D-29)	
Assemblymember Robert Rivas (D-30)	

SILICON VALLEY CLEAN ENERGY

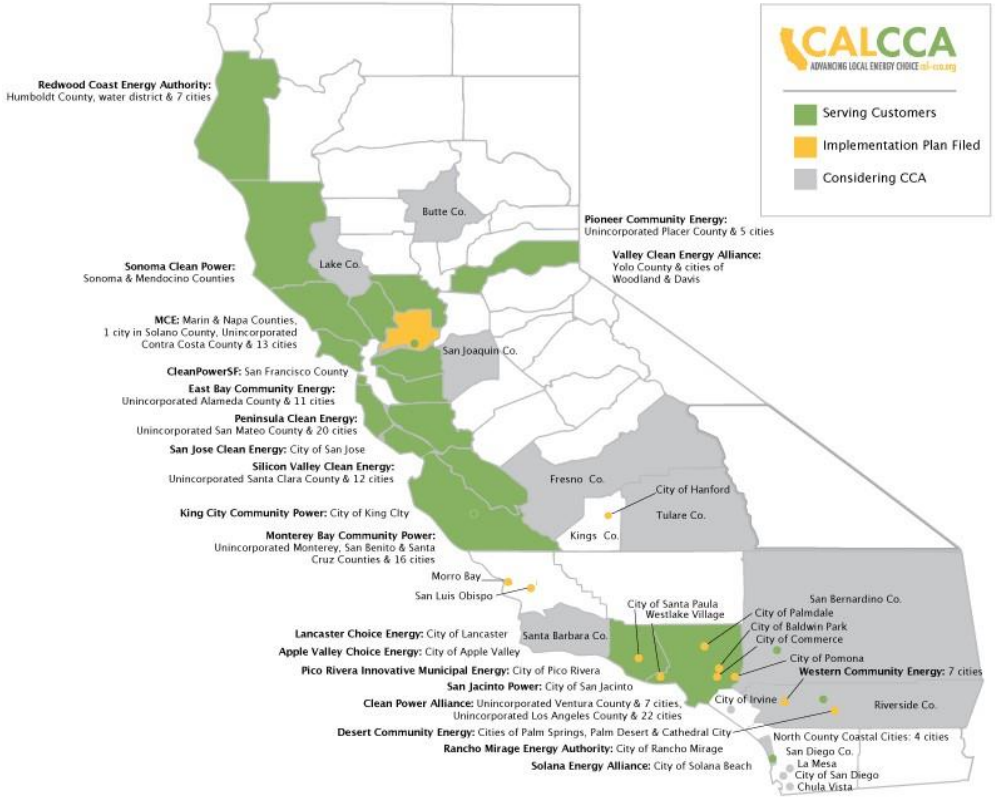
It Takes a Community



SILICON VALLEY CLEAN ENERGY

The CalCCA Factor

- CCA trade organization
- A voice for the CCA community at large
- Facilitates coordination on regulatory and legislative advocacy



SILICON VALLEY CLEAN ENERGY

Some more history

- **AB 117 (2002)**
  - CCA model created as a response to the energy crisis
- **The First Generation (2010 – 2016)**
  - MCE launch prompts "CCA Bill of Rights"
  - CCAs form in Marin, Sonoma, Lancaster, San Francisco, and San Mateo County
- **The Wave (2017 - ??)**
  - SVCE leads the wave in April 2017!
  - CalCCA picks up members 7 – 19

SILICON VALLEY CLEAN ENERGY

Regulatory déjà vu

- The broader dynamics at work in the electricity sector mean that a handful of common themes run through many of the most CCA-relevant proceedings
- **Procurement authority and responsibility for state policy goals**
  - E.g. Resource Adequacy, Integrated Resource Planning,
- **Cost allocation and customer indifference**
  - Power Charge Indifference Adjustment (PCIA), Resource Adequacy, policy-driven non-bypassable charges
  - CCA model created as a response to the energy crisis

SILICON VALLEY CLEAN ENERGY

A look at the last year

- SB 100 – Carbon-free California by 2045!
- SB 237 – Expanded direct access and increased competition
- PCIA reform and the need for transparency
- Integrated Resource Planning, AB 1110, and the rise of time-dependent GHG accounting

SILICON VALLEY CLEAN ENERGY

A Look Ahead

- Fires, bankruptcy, and restructuring
- SB 295 – A bill of our own
- Resource adequacy and the central buyer question
- Continued PCIA reform
- Overall, a new status quo

SILICON VALLEY CLEAN ENERGY

Final Takeaways

- Policy advocacy is about building an environment where SVCE, its communities, and the values it represents can thrive.
- Significant changes to California's energy system are on the horizon, and with them opportunities to further empower SVCE to fulfill its mission.
- The Board of Directors is a crucial part of SVCE's voice.

SILICON VALLEY CLEAN ENERGY

JEOPARDY!

SILICON VALLEY
CLEAN ENERGY

Stay Connected

SVCleanEnergy.org

844-474-SVCE (7823)

Billing & Customer Service:
customerservice@svcleanenergy.org

General Info:
info@svcleanenergy.org

@SVCleanEnergy

SILICON VALLEY CLEAN ENERGY