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City of Sunnyvale

svcleanenergy.org

333 W El Camino Real
Suite 290
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**Silicon Valley Clean Energy Authority
Board of Directors Meeting**

Wednesday, June 13, 2018
7:00 pm

Cupertino Community Hall
10350 Torre Avenue
Cupertino, CA

AGENDA

Call to Order

Roll Call

Public Comment on Matters Not Listed on the Agenda

The public may provide comments on any item not on the Agenda. Speakers are limited to 3 minutes each.

Consent Calendar (Action)

- 1a) Approve Minutes of the May 9, 2018, Board of Directors Meeting
- 1b) Approve Minutes of the May 9, 2018, Board of Directors Special Meeting (Board Workshop)
- 1c) Approve Minutes of the May 9, 2018, Board of Directors Special Meeting
- 1d) April 2018 Treasurer Report
- 1e) Adopt Resolution Amending the Authority's Conflict of Interest Code to Amend Five Position Titles, Add Two Positions, and Delete Two Positions
- 1f) Approve Amendment to Reserves Policy
- 1g) Authorize the Chief Executive Officer to Negotiate an Office Lease Agreement to Expand Existing Office
- 1h) Approve Amendment to Employee Handbook to Establish Flexible Spending Accounts
- 1i) Approve Employee Recruitment Incentive Policy
- 1j) Approve Workplace Electric Vehicle Charging Policy



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Regular Calendar

- 2) Employee Recognition and Introductions (Discussion)
- 3) **Customer Program Advisory Group Progress Update Report (Discussion)**
- 4) Adopt Resolution Authorizing the CEO to Execute a 15-year Power Purchase Agreement (PPA) for Renewable Supply with Duran Mesa LLC (Action)
- 5) SVCE Employee Compensation and Benefits Strategy (Discussion)
- 6) **CEO Report (Discussion)**
- 7) Executive Committee Report (Discussion)
- 8) Finance and Administration Committee Report (Discussion)
- 9) Legislative Ad Hoc Committee Report (Discussion)

Board Member Announcements and Direction on Future Agenda Items

Adjourn

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Staff Report – Item 3

To: Silicon Valley Clean Energy Board of Directors

From: Girish Balachandran, CEO

Item 3: Customer Program Advisory Group Progress Update Report

Date: 6/13/2018

RECOMMENDATION

Receive progress update report from Customer Program Advisory Group (CPAG).

BACKGROUND

In October of 2017, the SVCE Board of Directors voted to form the CPAG, chartered to:

- Serve as a conduit for community input and review of prospective residential customer programs
- Consider residential customer program recommendations through qualitative analysis
- Prioritize and recommend candidate programs through quantitative analysis
- Communicate and promote Board-adopted programs

The work of the CPAG will expand and complement programmatic input from the Member Agency Working Group (MAWG). The MAWG, formed by the CEO earlier in 2017, meets monthly and is comprised of staff representatives from SVCE's member agencies with roles in sustainability, communications, and general administration.

The MAWG reviewed and provided input to the CPAG charter. Qualitative analysis performed by the CPAG will consider community needs, priorities and engagement opportunities in the recommended set of programs. It was established that detailed quantitative analysis of prospective programs would be completed utilizing program measurement criteria and metrics established by staff and the MAWG. CPAG members will not be expected to perform the calculations; however the quantitative analysis will be an important process for CPAG members to understand. In addition, the CPAG can play a critical role as a focus group, providing input on how to make proposed programs as relevant as possible to SVCE customers.

An initial readout of program recommendations from the CPAG was set for June of 2018. In subsequent monthly meetings of the CPAG, the group will act on input from the SVCE Board, and provide additional customer input on key programs recommended by staff.

ANALYSIS & DISCUSSION

Initial program recommendations and subsequent input from the CPAG will be folded into an overall SVCE process for forming a program roadmap. As outlined below, SVCE staff is also working with the MAWG to establish common electrification and decarbonization program priorities across the member agencies.

Several member agencies, including the Cities of Sunnyvale and Mountain View, have detailed climate action planning (CAP) updates in process. Similar to the purpose of the CPAG, these cities have established citizen taskforces to provide input to City staff in development of their CAP updates. At the July meeting of the MAWG, member agency representatives will share their respective CAP priorities with respect to decarbonization and electrification. The MAWG will then work to determine common electrification and decarbonization program priorities, a critical input into SVCE's program roadmap development process.



Candidate programs addressing the needs of commercial and industrial customers will be included in the SVCE program roadmap, through input provided by large commercial and industrial customers via SVCE workshops focused on electrification of transportation, the built environment, and energy storage and demand management (grid innovation). The roadmap will outline goals, strategies and tactics that extend over a multi-year period. Development of a multi-year roadmap is essential to establish decarbonization goals and, prioritize program and spending goals.

The program roadmap development process will be supported by SVCE's new Director of Decarbonization and Grid Innovation, joining the SVCE staff in June of 2018. A high-level program roadmap will be presented by SVCE in Fall of 2018, and in a more detailed format in Winter 2018. A multi-stakeholder workshop to receive input for the roadmap development is expected to be held in late-summer/early Fall.

STRATEGIC PLAN

The work of the Customer Program Advisory Group supports SVCE's strategic plan Goal 5, 'work with the community to achieve energy and transportation GHG reductions of 30% from the 2015 baseline, by 2021'.

FISCAL IMPACT

Input from the CPAG will help launch and guide SVCE's program roadmap development efforts. The roadmap will direct approximately \$5M in annual program investments currently budgeted by SVCE.

CONCLUSION AND RECOMMENDATIONS

Staff recommends that the Board receive the Customer Program Advisory Group's progress update report and provide input and direction for the CPAG, in the context of SVCE's overall program roadmap development process.

ATTACHMENTS

1. CPAG Progress Update Report from CPAG Chair, Peter Evans



Customer Program Advisory Group Progress Update

To: Silicon Valley Clean Energy Board of Directors

From: Peter Evans, CPAG Chair

Date: 6/13/2018

Progress Update from SVCE's Customer Program Advisory Group

Summary

In this report the CPAG provides our list of potential SVCE residential customer programs, prioritized by the committee, with accompanying quantitative and qualitative evaluation.

The committee's purpose here is to provide to the Board a list of potential residential energy customer programs that address topics the committee cares about and that the committee believes the communities and customers care about. The committee identified twelve potential programs, of which four received the strongest support:

- Residential Electricity Monitoring
- Electricity Bill Explorer
- Residential BE Ready Program, SF + MF Variants
- Residential & MF EV Charging - encourage vehicle electrification

The programs the committee considered are drawn from a fresh look at potential benefits residential energy customer programs might provide and what initiatives might achieve those benefits. The committee evaluated these programs for their potential to contribute to these benefits, for other factors the committee felt were important, and ultimately, based on individual committee members' preferences.

The programs themselves are not presented as defined in their final form, and the cost estimates are general, for comparison purposes. The CPAG anticipates this list is one input into a larger program selection, refinement and implementation process, which the committee looks forward to continuing to support.

Process

The SVCE Customer Program Advisory Group (CPAG) was created by SVCE's Board of Directors at its November 29, 2017 meeting. CPAG members were nominated by SVCE Board members and by the Board Chair; they represent ten of the SVCE member communities and unincorporated Santa Clara County.

Upon formation the CPAG was chartered to:

1. Serve as a conduit for community input and review of prospective residential customer programs.
2. Prioritize and recommend candidate programs through quantitative analysis.
3. Consider residential customer program recommendations through qualitative analysis.
4. Communicate and promote board-adopted programs.

We interpreted this charter as having two key elements that guided our process. The CPAG should consider new ideas from members (i.e., not just review and comment on existing proposals), and the CPAG should give voice to community and customer priorities and needs.

Potential Benefits of Customer Programs (February Meeting)

The committee first conducted an exercise to list the possible benefits that SVCE customer programs should provide, from CPAG members' perspectives. The initial list of customer benefits identified by the committee follows.

- Increase customer energy literacy
- Provide personalized customer engagement; promote active choices (e.g. upgrading to GreenPrime); increase SVCE awareness
- Engage customers in their energy use through comparisons with peers, benchmarks, their own trends (gamification)
- Improve transparency on decisions for customers
- Provide customers more choices and local control
- Increase engagement and participation in energy programs for disadvantaged communities
- Provide customer services or programs not offered by PG&E and leverage services and programs offered by PG&E
- Reduce customer bills by reducing usage and shifting usage from peak price periods
- Reduce customer costs in purchasing and using energy-consuming devices
- Reduce demand during peak hours and increase demand during peak PV production (duck curve)
- Reduce the need for/use of carbon-emitting peaker plants
- Reduce GHG emissions through reduced electricity use
- Promote local jobs and economic development
- Provide customer backup power
- "Transform markets"
- Accelerate adoption of clean energy devices and practices
- Alleviate climate change impacts (GHG reduction)
- Increase readiness for expanded use of clean electricity
- Improve indoor/outdoor air quality
- Increase SVCE sales of clean electricity

The committee intentionally did not assign priority to these potential benefits. For readability they are listed in a loose grouping – customer empowerment, demand/supply alignment, customer cost savings, and GHG reduction – that emerged in subsequent meetings.

Potential Program Ideas (March Meeting)

At its next meeting, the committee held an open and creative process to come up with as many program ideas as possible to address one or more of the potential program benefits identified in the prior meeting.

Between the March and April meetings, the CPAG members broke into sub-committees to develop "program briefs." These briefs were intended to provide enough information about each potential program – its use case, program elements, SVCE's role in the program, and what a successful program would look like – to allow the full committee to discuss it. A list of the program briefs the sub-committees produced follows.

- Residential Storage - reduce duck curve impacts
- Connected Home Devices - customer understanding and load management

- Residential & MF EV Charging - encourage vehicle electrification
- MF Residence Energy Efficiency - GHG and customer cost reduction
- Safety Preparedness & Resilience with Micro Grids
- Incentives or Rebates for Used Electric Cars and Smart Chargers
- Electricity Bill Explorer
- Residential Electricity Monitoring
- Residential BE Ready Program, SF + MF Variants
- Pilot "Mass Produced" Zero Emission Retrofit Approach
- Electrification Process "Survivorship Curve" Analysis
- BE Smart Residential Water and Space Heating Upgrade

Again, the committee did not give these program briefs any order or grouping. They are listed here in the order in which they were presented. The full text of the program briefs is provided as Attachment 1.

Program Evaluation (April and May Meetings)

At the April meeting, each sub-committee presented its program brief to the full committee. In turn, each CPAG member completed an evaluation of whether that program would directly contribute to, or detract from, or would be neutral to, each potential benefit. Attachment 3 shows, for each program, the total of the committee scores for a positive contribution to each benefit, and the total for all benefits. Attachment 4 shows, for each program, the total of the committee scores for a negative contribution to each benefit, and the total for all benefits. The green color indicates the programs with the highest third of total positive contributions to benefits and lowest third of negative contribution to benefits.

The committee also came up with a list of factors other than pure benefits that the committee viewed as relevant to a decision to adopt or implement a customer program. This list of other factors follows:

- Scalability (high/low)
 - high = can expand program with minimal additional resources
 - low = expansion requires additional or increasing resources
- Customer participation (broad/narrow)
 - broad = most customers can/will participate
 - narrow = few customers can/will participate
- Time to implement (short/long)
 - short = can be implemented immediately
 - long = may take more than one years to implement
- Time to outcomes/benefits (short/long)
 - short = within 1 yr
 - long = 3 yrs or more
- Uncertainty of outcomes/benefits (high/low)
 - low = uptake and outcomes are demonstrated
 - high = uptake or outcomes are undemonstrated
- Cost (high/low)*
- Cost of Carbon (high/low)*

*To support this evaluation, the chair developed rough range-of-cost and GHG reduction estimates for each program based on the program scope proposed by the program sub-committee. Staff reviewed these, but they are not the staff's product. These program cost, GHG reduction, and cost of carbon estimates and explanatory notes are included as Attachment 6.

CPAG Progress Update

Agenda Date: 6/13/2018

At the May meeting, the committee evaluated each of the briefed programs for these other factors, and the aggregated results were presented to the committee. Attachment 5 provides for each program the committee total pro and con scores for each of these other factors. Green color indicates where the committee predominantly saw the factor as "pro" for the program, and orange color where the committee predominantly saw the factor as "con" for the program.

Importantly, in addition to these evaluation steps, the committee also hosted presentations followed by group discussions to illuminate real-world energy customer conditions and potential solutions. These included multifamily housing, residential heat pump hot water heater retrofits, and "mass produced" energy efficiency upgrades.

Finally, in the May meeting, to arrive at the group's prioritization of the briefed programs, CPAG members selected their favored programs using a three-dot vote. A ranked list of the programs follows, and the dot rank scores are included in Attachment 1; a second round of voting did not change the ordering.

1. Residential Electricity Monitoring
2. Electricity Bill Explorer
3. Residential BE Ready Program, SF + MF Variants
4. Residential & MF EV Charging - encourage vehicle electrification
5. Residential Storage - reduce duck curve impacts"
6. BE Smart Residential Water and Space Heating Upgrade
7. Incentives or Rebates for Used Electric Cars and Smart Chargers
8. MF Residence Energy Efficiency - GHG and customer cost reduction
9. Pilot "Mass Produced" Zero Emission Retrofit Approach
10. Connected Home Devices - customer understanding and load management
11. Electrification Process "Survivorship Curve" Analysis
12. Safety Preparedness & Resilience with Micro Grids

The top one-third (four) programs received broad support from the committee and generally also evaluated well in terms of their potential contribution to program benefits identified by the committee and in terms of the other factors the committee valued. That said, the precise ordering is probably not determinative -- the committee saw merit in all of these programs, and further refinement could change the order.

Going Forward

Now that the CPAG has identified and ranked some of the proposed programs, we will use the following meetings to further explore the top program ideas. Staff will provide additional input on program design considerations, such as lessons learned from other utilities, market opportunities and barriers.

In particular, we believe the committee provides a unique, close-to-the-customer perspective. Arguably whether a program is valued and embraced by customers is as important as its posited contribution to policy goals.

ATTACHMENTS

1. 12 Program Briefs
2. Program Dot Rank Results
3. Program Benefits Positive Results
4. Program Benefits Negative Results
5. Other Factors Results
6. Program Cost and Cost of Carbon Assessment



Title & Use Case (Do "x" for "y".)	Residential Storage Program Expand the use of residential storage to reduce duck curve impacts.
Specific Elements	<ul style="list-style-type: none"> • Pre-engineered package • Residential • 3 – 5 KW • Pair with solar? • New construction and/or retrofit? • Single family or MUD? • Financial modeling tools • Group buy • Permit assistance
SVCE's Role <i>(possible partners or collaborators)</i>	<ul style="list-style-type: none"> • Promotion • Bulk purchase • Storage-friendly rate structure • Installer pre-qualification • Collaborate with installers, startups and established manufacturers
Success <i>(define success)</i>	<ul style="list-style-type: none"> • Number of deployments as a direct result of program offering • Kilowatt hours under management • Kilowatt peak reduction



Title & Use Case (Do "x" for "y".)	Connected home for customer understanding and management of their loads and for load management
Specific Elements	<ul style="list-style-type: none"> ● web connected thermostats (off the shelf) ● web-connected pool pump controller (off the shelf?) ● app for customers with device operation and consumption data ● additional analytics ● device/load management capability (with customer over-ride) - e.g. peak reduction or summer-only AC management ● ability to move between solar production to grid and solar storage to optimize viz the Duck Curve for single family homes with solar.
SVCE's Role (possible partners or collaborators)	<ul style="list-style-type: none"> ● rebates for new participants? <ul style="list-style-type: none"> ○ rebates for thermostats ○ rebates for storage ● enlistment & customer permission ● work with one or more 3rd parties (e.g. Nest) - really its their platform; downselect from proposals
Success (define success)	<ul style="list-style-type: none"> ● participation rate (different targets for different devices) - find out how willing customers are to participate; maybe pilot 2,500 volunteer Nests with a history ● customer feedback (are they willing to continue) ● How much demand reduction there is (what does 2,500 participants map to in kW demand reduction); use control group



Title & Use Case <i>(Do "x" for "y".)</i>	Electric Vehicle Residential Charging Station Incentive program in order to encourage vehicle electrification.
Specific Elements	<ul style="list-style-type: none"> Financial assistance in the form of a rebate or reduced-interest loan to prepare for and install a vehicle charging station. Aimed to offset the split incentive problem.
SVCE's Role <i>(possible partners or collaborators)</i>	<ul style="list-style-type: none"> SVCE would offer the program to residential home and multi-family residence owners and tenants. Streamline the process with: <ol style="list-style-type: none"> 1) Reduced-cost of charging unit from bulk discount 2) Preferred contractors to carry out work 3) Streamlined permitting process Tenant – educate on cost and benefits of EVs with recommended tariffs, \$ benefits and GHG reduction. Property owner – inform about benefits of having a charging station on-site. e.g. better occupancy rates. Inform property owner about any incentives from city/state/government. SVCE would process the administration and billing of the charging stations on behalf of the landowner.
Success <i>(define success)</i>	<ul style="list-style-type: none"> Take up of program – measured vs a target based on installation and utilization of charging units at residences. This program is a double win for SVCE. Reduced GHG from EV use vs gasoline-fueled cars and electricity sourced from carbon-neutral sources.



Title & Use Case (Do "x" for "y".)	Multifamily (MF) residence energy efficiency program – program to reduce cost of living to residents and to reduce GHGs.
Specific Elements	<ul style="list-style-type: none"> • Incentives/financial assistance to increase energy efficiency at MF residences. • Suggested changes: solar panels, energy efficient appliances (e.g. washers and dryers), energy efficient AC and heating, switch from natural gas/propane to electric cookers. • EV Charging • Power storage to smooth demand • Ability for landowner to sell back excess electricity to reduce split incentive problem. • Either replace at end of life or retrofit energy efficient devices. • Energy rating scheme to incentivize landowners and inform tenants.
SVCE's Role (possible partners or collaborators)	<ul style="list-style-type: none"> • Financial assistance for work carried out. Either in the form of rebate, discount, or reduced interest-loan. • Streamlined permitting process with municipalities. • Inform end users and landowners on \$ and environmental benefits of specific energy efficient appliances and equipment. • Pilot these benefits in an everyday-use scenario. • Model the acceptance rate of each recommendation and the actual GHG reduction. (e.g. which devices/appliances had the biggest GHG-reduction impacts in aggregate). • Measure the customer experience. • Provide an energy efficiency rating. Measure \$ benefit to the landowner. • Inform about government rebates/tax benefits available to landowner. • Recommend energy tariffs to customers to maximize benefit. (e.g. solar or TOU tariff). • Partner with housing authorities, construction firms.
Success (define success)	<ul style="list-style-type: none"> • A numerical goal of customer monetary savings and GHG savings over 10 years balanced with a positive customer experience.

SVCE CPAG —Beneficial Electrification Subgroup—Not on Original List

April 16, 2018

<p>Safety Preparedness and resilience with micro grids</p>	<p>Assuring functional government and community safety in massive emergencies by assuring communications and functionality with micro grids for civic centers/Public Safety. Providing resilience with a distributed grid and power system.</p>
<p>Specific Elements</p>	<ul style="list-style-type: none"> • Separable from PGE grid in emergencies • Critical civic emergency response • Minimal renewables and storage on site for generation • Critical crisis response for regional governments • Critical services for residents and displaced people • Business continuity and disaster recovery • Possible connection to Electrification Readiness program
<p>SVCE’s Roles and possible partners or collaborators</p>	<ul style="list-style-type: none"> • SVCE with PGE as regional support and resources for grid assessment and design requirements especially as cities update their Civic Government buildings <p>Other potential collaborators:</p> <ul style="list-style-type: none"> • Cities • School Districts • Regional communications systems
<p>Success as defined by...</p>	<ul style="list-style-type: none"> • Emergency command centers up and running within 5 minutes • Functional government communication systems <p>Benefits</p> <ul style="list-style-type: none"> • Local and regional resilience • Community services including phone and computer charging availability in micro-grid areas • Enhanced local safety for government, residents, and businesses • Faster more efficient and effective emergency response • Fewer lives lost

SVCE CPAG —Beneficial Electrification Subgroup

April 16, 2018

<p>SVCE modified Sonoma Clean Power EV and Charger Program</p>	<p>Incentives or rebates for Used Electric Cars and Smart Chargers...</p>
<p>Specific Elements</p>	<ul style="list-style-type: none"> • Reduce GHG emissions • Help Grid balancing • Move from fossil fuels to clean electricity
<p>SVCE’s Roles and possible partners or collaborators</p>	<ul style="list-style-type: none"> • Provide Smart chargers to EV Customers • Possible rebates for used electric cars <p><u>Incentives:</u> Purchased Electric Vehicles qualify for government tax credits and state rebate programs:</p> <ul style="list-style-type: none"> • Federal Income Tax Credit for up to \$7,500. Learn more at fuelconomy.gov • California Rebates: \$1,500 to \$2,500 depending on the vehicle type. Learn more at cleanvehiclerebate.org • Carpool Lane Access: A limited number of single-occupancy carpool lane stickers are available for EV drivers. Learn more at dmv.ca.gov <p>Collaborators:</p> <ul style="list-style-type: none"> • Sellers of new and used EVs • Shared economy providers of things like Zip car services • Companies like Lyft
<p>Success as defined by...</p>	<ul style="list-style-type: none"> • Quantity of purchasers = GHG reduction • Thanks to Silicon Valley Clean Power’s clean electricity mix, charging an EV significantly reduces greenhouse gas emissions. An EV charged with our Green Prime product has 96%+ fewer emissions than a Toyota Prius Hybrid.



Title & Use Case (Do "x" for "y".)	Electricity Bill Explorer Make bills easy to understand and show how customers can reduce their bills and/or reduce carbon emissions
Specific Elements	<ul style="list-style-type: none"> • Import bill data (GreenButton standard or direct from PG&E) • Show how different rate plans would impact customer bill • Provide personalized comparisons of customer's usage with norms, peers, and customer's own past patterns to inform outliers and alert changes in usage. • Show how much money & CO2 emissions SVCE saves • Show how little it would cost to switch to GreenPrime (if not already a GreenPrime customer)
SVCE's Role <i>(possible partners or collaborators)</i>	<ul style="list-style-type: none"> • Develop system
Success <i>(define success)</i>	<ul style="list-style-type: none"> • Number of customer bills analyzed by system • Number of customers upgrading to GreenPrime after using system • Customer feedback



Title & Use Case (Do "x" for "y".)	Residential Electricity Monitoring Facilitate appliance-level (disaggregated) electricity monitoring to increase energy literacy and reduce electricity use
Specific Elements	<ul style="list-style-type: none"> • Customer site electricity monitoring with smart phone interface • RFP process to select appropriate monitoring vendor • Facilitate installation of devices • Study to follow up on energy literacy and electricity usage after installation
SVCE's Role <i>(possible partners or collaborators)</i>	<ul style="list-style-type: none"> • Conduct RFP for monitoring solution • Bulk purchase and/or rebate for devices • Connect customers to approved electricians able to install devices • Provide online forum for customers to discuss project among themselves • Possible partners: Sense Labs, Bidgely
Success <i>(define success)</i>	<ul style="list-style-type: none"> • Number customers participating in program • Increased energy literacy for participants • Reduced electricity usage for participants (lower bills & reduced carbon emissions)



<p>Title & Use Case (Do "x" for "y".)</p>	<p>Residential BE Ready Program (SF + MF variants) Increase readiness for planned, economic migration from fossil-fuel use to efficient, clean electricity ("Beneficial Electrification") use in residential homes. <i>(Two variants to address both Single-Family and Multi-Family homes.)</i></p>
<p>Specific Elements</p>	<ul style="list-style-type: none"> • Stand-alone program or combine as companion program to any Electrification Migration program. • Combine with Green Lease program for rental homes (SF & MF) that aligns cost-benefit interests of renters and landlords. • Promote pre-planning for a retrofit migration to a more-efficient and cleaner/safer electric home. • Promote an economic and ecological bundle of Beneficial Electrification technologies <ul style="list-style-type: none"> ○ Various applicable combinations of electric car/charger, heat-pump water heater, solar PV, heat-pump heat & cool, energy efficiency measures and energy storage. ○ Press the bundle/package concept since savings from EVs, solar and/or EE more than cover added expense over business-as-usual for heat-pumps until costs get lower. • Standard and simple BE Ready Assessment form, which would lead to educated customer, cost estimate and electrification migration Plan. (See attached examples of Assessment and Plan; focus on biggest impact items, but can lead to a complete all-electric plan.) • Pre-engineered best standard options for panel/sub-panel needs for going all-electric. • Promote that trade allies (electricians, solar contractors, HVAC contractors, others?) pitch and conduct a BE Ready Assessment of home as desired and whenever any electric-related work is to be done. (See attached draft BE pitch slide – with draft BE talking points.) • Draft program design research survey (attached) can morph into lead generation survey form.
<p>SVCE's Role <i>(possible partners or collaborators)</i></p>	<ul style="list-style-type: none"> • Recruit, qualify? and train trade ally "participating" contractors to make BE Ready pitch and Assessments, leading to increased business opportunities for them.



	<ul style="list-style-type: none"> • Finalize program documents/outputs for Pitch, Assessment/Plan, Lead-Generation survey and standard set of best panel/sub-panel configs. • Education and Outreach to customers. • Possible nominal participation incentive, depending on how well the bundled-savings pitch works. • Coordinate integrated BE-favorable local policies of SVCE member jurisdictions (for remodels and new) <ul style="list-style-type: none"> ○ Green building codes ○ Permit fee and inspection streamlining • PG&E partner on local distribution service needs and energy efficiency savings programs/promotion • For Multi-family program variant, partner with union labor organizations, and apprenticeship programs (e.g. from NOVA). • For Multi-family variant, consider program design and partner collaboration options for different types of MF buildings, landlords and potential HOA partners. • Potential partnership/collaboration with BAAQMD and/or local water districts on grants, incentives. • Extend outreach and education via allied non-profit and climate advocacy groups, as well as members.
<p>Success <i>(define success)</i></p>	<ul style="list-style-type: none"> • Number of participating customers. <ul style="list-style-type: none"> ○ # with completed Assessments/plans ○ # of BE Ready work projects completed ○ # of Electrification-related technologies adopted (total and per home) • Kilowatt hours per customer. • Number and engagement level of participating trade allies. • Number of aligned policies among SVCE members. • Number of new Green Leases adopted. • Estimated total \$ savings for participants • Estimated total GHG reductions for participants



<p>Title & Use Case (Do "x" for "y".)</p>	<p>Pilot "Mass Produced" Zero Emission Retrofit Approach</p> <p>Run pilot program that attempts to locally replicate approach pioneered by "EnergieSprong" (http://energiesprong.eu/) in the Netherlands, to reduce hassle and upfront cost of Zero Emission housing retrofits using combination of financing techniques and demand aggregation that makes robust project coordination and more economical manufacturing (offsite prefabrication) feasible.</p> <p>3-minute overview video: https://youtu.be/gm_EIE99W0o</p>
<p>Specific Elements</p>	<p>Coordinate energy-efficiency+electrification retrofit project that aims to address all housing units in a defined area (e.g. a housing tract, or a single block within one) at once. Project has following characteristics:</p> <ul style="list-style-type: none"> ● Financing <ul style="list-style-type: none"> ○ Costs financed rather than paid up-front, using "Pay as you save" (PAYS) model – savings from increased efficiency cover monthly finance cost ● Timing <ul style="list-style-type: none"> ○ Everything that's aging out and/or ○ Strategically phased implementation ● Single solution provider <ul style="list-style-type: none"> ○ One party designing, coordinating, installing and financing ● Minimize Disruption to Homeowners' Lives <ul style="list-style-type: none"> ○ Fast installation due to pre-fabricated components made possible by similar housing stock (e.g. a housing tract) ○ Desirable improvements make it worthwhile
<p>SVCE's Role (possible partners or collaborators)</p>	<ul style="list-style-type: none"> ● Provide on-bill financing mechanism ● Identification of potential vendors ● (Potentially) Project Management ● Identification of potential pilot sites: institution/company that owns large amount of



	existing housing stock (e.g. university, large-scale private landlord)
Success <i>(define success)</i>	<ul style="list-style-type: none">• Pilot site retrofits completed; GHG emissions reduced at pilot site• Vendors identified for similar future projects (assuming they performed well)• SVCE gains knowledge/experience about how to facilitate these retrofit projects• Successful pilot gives later potential project sites example that "shows it can be done"



<p>Title & Use Case (Do "x" for "y".)</p>	<p>Electrification Process "Survivorship Curve" Analysis</p> <p>Identify current "theoretical maximum" number of existing homes that are potentially ready to fuel switch key fossil fuel end uses to electricity, and which prerequisites for electrification form the biggest barriers to increasing that pool of electrification-ready homes.</p> <p><i>NOTE: This program is not an end in itself, rather it is intended to create a clear decision-making tool that SVCE's policymakers can use over time to consider tradeoffs and effectively prioritize potential programs being considered for driving fuel switching from fossil fuels to electricity.</i></p>
<p>Specific Elements</p>	<ul style="list-style-type: none"> ● Identify bundle(s) of end uses to be converted (there may be several, e.g. "EV only," "EV+Water Heater" etc.) ● Map out key criteria that must be met before a home is ready to electrify the target set of end uses in each bundle (sufficient utility service connection, large enough panel for that bundle, etc.). Note that the definition of a criterion can vary depending on the bundle, e.g. the power requirements for a "sufficient" service connection go up as you attempt to electrify more end uses. ● Identify logical sequence in which those criteria would be addressed (e.g. a homeowner would not enlarge electrical panel if service connection cannot supply enough power) ● Starting with "all homes" (100%), graph for each successive criterion (for each bundle) how many homes in SVCE service area (or relevant sub-geography or sub-set of customers) meet that criterion, to produce a graphical depiction of where the current biggest opportunities are for SVCE's programs.
<p>SVCE's Role (possible partners or collaborators)</p>	<ul style="list-style-type: none"> ● Gather data for each criterion and update over time



	<ul style="list-style-type: none">• Partners: PG&E, member cities (sources of needed data)
Success <i>(define success)</i>	<ul style="list-style-type: none">• Clearly identify where the current opportunities are so that programs may be targeted appropriately.• Allow consideration of tradeoffs between depth of electrification (more electrified end uses at a site) vs. breadth (more sites electrified but with fewer end uses converted to electricity)



Based on a proposal by Carbon Free Palo Alto in collaboration with Carbon Free Silicon Valley for potential adoption by SVCE, PCE, City of Palo Alto Utility and other CCEs, Munis.

Title & Use Case (Do "x" for "y".)	BE Smart Residential Water & Space Heating Upgrade Program Mass B eneficial E lectrification for residential buildings
Specific Elements	<ul style="list-style-type: none"> • See also attached presentation & context slides. • On-bill financing of extra upfront costs: Customer still pays what would have paid for otherwise Business as Usual (BAU) case of a just another new natural gas (NG) unit, but extra up-front costs associated with new efficient electric heat pump water heaters or HVAC systems is financed on the customer bill to eliminate key barrier to adoption. Only about \$13/month extra, not including potential program rebate options. • Planned proactive replacement of units before usual failure at end of useful lives of 13 and 20 years for water heaters and furnaces, respectively, to avoid emergency replacement scenario that would prevent fuel-switching. • Concierge service: Managed by third-party contracted to SVCE – made easy for customers. • SVCE rebates optional. • Some details to decide on how to handle sale of home or other possible exceptions – customer may need to pay off remainder of financed amount. • Can integrate with potential BE Ready electrification readiness program.
SVCE's Role <i>(possible partners or collaborators)</i>	<ul style="list-style-type: none"> • Contract with third-party program manager to implement program details. • Possibly combine with Green Lease program for rental homes (SF & MF) that aligns cost-benefit interests of renters and landlords. • Arrange with PG&E for line item on bill for financing. • Education and Outreach to customers. • Possibly add rebate to make even more attractive to customers, although reduces budget available for other programs. • Coordinate integrated BE-favorable local policies of SVCE member jurisdictions (for remodels and new) <ul style="list-style-type: none"> ○ Permit fee and inspection streamlining ○ Green building codes, including, but not limited to:



Based on a proposal by Carbon Free Palo Alto in collaboration with Carbon Free Silicon Valley for potential adoption by SVCE, PCE, City of Palo Alto Utility and other CCEs, Munis.

	<ul style="list-style-type: none"> ▪ Add BE conduits/wires for HP water heater and EV charger, and possibly HP Heat/Cool, as a required component of solar PV installations. ▪ Other specific green codes to add? • Potential partnership/collaboration with BAAQMD and/or local water districts on grants, incentives. • Extend outreach and education via allied non-profit and climate advocacy groups, as well as members.
<p>Success <i>(define success)</i></p>	<ul style="list-style-type: none"> • Estimated total GHG reductions for participants • Number of participating customers. • # of Electrification-related technologies adopted (total and per home) • Kilowatt hours per customer. • Number and engagement level of participating trade allies. • Number of aligned policies among SVCE members. • Number of Green Leases adopted by participants.

**SVCE CPAG Program Evaluation
Worksheet -
DOT RANKING**

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Dot Score												
Total Blue Dots	7	6	6	5	4	4	3	2	2	0	0	0



SVCE CPAG Program Evaluation Worksheet - PROGRAM BENEFITS

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Program Benefits (+)												
Increase customer energy literacy	13	13	10	3	6	9	3	11	6	13	7	2
Provide personalized customer engagement; promote active choices (e.g. upgrading to GreenPrime); increase SVCE awareness	12	13	7	4	7	9	9	7	7	11	6	2
Engage customers in their energy use through comparisons with peers, benchmarks, their own trends (gamification)	12	8	4	4	7	4	3	7	4	13	4	1
Improve transparency on decisions for customers	11	11	7	3	5	7	4	7	4	10	7	3
Provide customers more choices and local control	9	10	13	8	11	8	10	9	8	8	7	10
Increase engagement and participation in energy programs for disadvantaged communities	4	7	6	5	3	9	10	10	12	2	6	4
Provide customer services or programs not offered by PG&E and leverage services and programs offered by PG&E	6	3	10	6	10	10	10	6	9	3	6	11



SVCE CPAG Program Evaluation Worksheet - PROGRAM BENEFITS

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Program Benefits (+)												
Reduce customer bills by reducing usage and shifting usage from peak price periods	12	8	4	5	13	6	5	10	6	10	2	2
Reduce customer costs in purchasing and using energy-consuming devices	10	6	10	6	7	13	11	14	8	11	4	0
Reduce demand during peak hours and increase demand during peak PV production (duck curve)	10	8	6	5	14	5	5	6	8	13	2	5
Reduce the need for/use of carbon-emitting peaker plants	6	7	6	6	13	5	4	9	9	12	2	6
Reduce GHG emissions through reduced electricity use	9	8	6	7	5	7	4	10	10	12	5	2
Promote local jobs and economic development	2	0	10	10	10	11	4	10	11	3	4	7
Provide customer backup power	1	0	2	2	13	0	3	2	1	1	1	11
Transform markets (accelerate adoption of clean energy devices and practices)	6	6	13	7	7	10	9	12	10	5	11	4



SVCE CPAG Program Evaluation Worksheet - PROGRAM BENEFITS

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Program Benefits (+)												
Alleviate climate change impacts (GHG reduction)	9	9	12	14	12	13	13	13	13	11	6	6
Increase readiness for expanded use of clean electricity	5	5	13	7	9	12	6	10	11	4	10	7
Improve indoor/outdoor air quality	6	5	9	11	5	10	10	8	11	2	3	5
Increase SVCE sales of clean electricity	5	4	12	13	6	9	13	6	6	1	3	4
Total Pluses	148	131	160	126	163	157	136	167	154	145	96	92

SVCE CPAG Program Evaluation
Worksheet -
PROGRAM BENEFITS

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Program Benefits (-)												
Increase customer energy literacy	0	0	0	0	0	0	0	0	0	0	-1	-1
Provide personalized customer engagement; promote active choices (e.g. upgrading to GreenPrime); increase SVCE awareness	0	0	0	0	-1	0	0	-1	0	0	-1	-1
Engage customers in their energy use through comparisons with peers, benchmarks, their own trends (gamification)	0	0	-1	0	0	0	0	0	0	0	-2	-1
Improve transparency on decisions for customers	0	0	-1	-1	-1	0	0	-1	0	0	-1	-1
Provide customers more choices and local control	0	0	0	-1	-1	0	0	-1	0	-1	-1	-1
Increase engagement and participation in energy programs for disadvantaged communities	0	0	-1	-3	-7	0	0	-1	0	-2	-1	-1
Provide customer services or programs not offered by PG&E and leverage services and programs offered by PG&E	0	-1	-1	-1	0	0	0	-1	0	-2	-1	0

SVCE CPAG Program Evaluation
Worksheet -
PROGRAM BENEFITS

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Program Benefits (-)												
Reduce customer bills by reducing usage and shifting usage from peak price periods	0	0	-2	-2	0	0	-3	-1	0	0	-1	-1
Reduce customer costs in purchasing and using energy-consuming devices	0	-1	-1	-1	-1	0	0	0	-1	0	-1	-1
Reduce demand during peak hours and increase demand during peak PV production (duck curve)	0	0	-1	0	0	-1	-1	0	0	0	-1	-1
Reduce the need for/use of carbon-emitting peaker plants	0	0	-1	-1	0	0	-3	-1	0	0	-1	0
Reduce GHG emissions through reduced electricity use	0	0	-1	-1	-3	0	-3	0	0	0	-1	0
Promote local jobs and economic development	0	-1	0	0	0	0	0	0	0	0	-1	-1
Provide customer backup power	-1	-1	-1	-2	0	-1	0	-1	0	-1	-2	0
Transform markets (accelerate adoption of clean energy devices and practices)	0	0	-1	0	-1	0	0	0	0	0	-1	-1

**SVCE CPAG Program Evaluation
Worksheet -
PROGRAM BENEFITS**

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Program Benefits (-)												
Alleviate climate change impacts (GHG reduction)	0	0	-1	0	0	0	0	0	0	0	-1	-1
Increase readiness for expanded use of clean electricity	0	0	0	0	0	0	0	0	0	0	-1	-2
Improve indoor/outdoor air quality	0	0	-1	0	0	0	0	0	0	0	-1	-1
Increase SVCE sales of clean electricity	-2	-2	-1	0	-3	-1	0	-4	-3	-5	-2	-1
Total Minuses	-3	-6	-15	-13	-18	-3	-10	-12	-4	-11	-22	-16



SVCE CPAG Program Evaluation Worksheet - Other Factors SCORING SHEET

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Other Factors												
Scalability (high/low)	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>
	9	12	8	3	5	8	6	8	0	9	7	2
	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>
	3	0	2	7	7	4	1	2	11	2	2	9
Customer participation (broad/narrow)	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>	<u>BROAD:</u>
	8	11	6	4	2	5	5	7	1	7	5	3
	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>	<u>NARROW:</u>
	3	1	4	7	9	6	5	4	11	4	5	9
Time to implement (short/long)	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>
	9	10	4	3	8	3	10	5	0	9	6	1
	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>
	2	1	6	8	5	8	1	6	10	3	2	11
Time to outcomes/benefits (short/long)	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>	<u>SHORT:</u>
	10	10	5	8	9	4	9	8	1	10	8	2
	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>	<u>LONG:</u>
	3	2	7	4	4	7	3	4	10	2	2	10
Uncertainty of Outcome (high/low)	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>
	3	4	4	0	9	6	5	3	9	7	6	6
	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>
	8	6	6	5	3	5	7	7	2	3	3	5
Cost (high/low)	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>
	4	1	4	5	7	6	6	7	8	3	1	7
	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>
	8	8	6	5	6	5	4	4	3	9	9	3
Cost of Carbon (high/low)	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>	<u>HIGH:</u>
	1	0	2	0	3	3	0	5	7	5	2	3
	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>	<u>LOW:</u>
	6	8	6	9	9	6	10	5	2	4	5	2

SVCE CPAG Program Evaluation Worksheet - COST and CARBON

	Residential Electricity Monitoring	Electricity Bill Explorer	Residential BE Ready Program, SF + MF Variants	Residential & MF EV Charging - encourage vehicle electrification	Residential Storage - reduce duck curve impacts	BE Smart Residential Water and Space Heating Upgrade	Incentives or Rebates for Used Electric Cars and Smart Chargers	MF Residence Energy Efficiency - GHG and customer cost reduction	Pilot "Mass Produced" Zero Emission Retrofit Approach	Connected Home Devices - customer understanding and load management	Electrification Process "Survivorship Curve" Analysis	Safety Preparedness & Resilience with Micro Grids
Cost & Carbon												
Program Scale	11k/yr	11k/yr	10s of thousands of participants	10k in 5 yrs	1,000 pilot then assess peak reduction benefit	4300/yr HPHWH, 2800/yr HPSC	350/yr used EV rebates, 750/yr smart chargers	6k/5 yrs	pilot site; but critical mass	2,500 pilot then assess peak reduction benefit	one-time analysis/market assessment	3 sites in 5 yrs
	[5]	[5]		[1]		[6]	[4]	[2]				[3]
5 Yr Program Cost Range	\$1m-\$5m	\$1m-\$5m	\$500k - \$1m	\$5m - \$10m	< \$500k	\$50m-\$100m	\$5m - \$10m	\$10m-\$50m	\$1m-\$5m	< \$500k	< \$500k	< \$500k
	[13]	[13]	[14]	[9]	[7]	[15]	[12]	[10]	[14]	[8]	[14]	[11]
	1. 10% MF penetration in 5 yrs					9. \$500/unit direct financial support plus program costs						
	2. About 25% capture of 1/20 annual renovation rate					10. \$1500/unit direct financial support plus program costs						
	3. 13 member agencies and 30 year facility refit interval (2 in 5 years) plus one other site					11. No direct financial support						
	4. Scaled from SCP experience					12. \$2k used vehicle rebate, \$400 smart charger rebate plus program costs						
	5. 5% per yr uptake rate					13. \$35/yr per endpoint plus program costs						
	6. 25% capture of 1/13 WH and 1/20 SC annual replacement rates					14. Program costs only						
	7. Pilot only; No direct financial support					15. HPHWH installs only; incremental cost: \$1000 plus \$1,700 installation; direct support or financing						
	8. Pilot only, based on 2017 Nest 'Seasonal Savings' quote											
Program GHG (mTCO2)	indirect	indirect	indirect	212,500	6,554	194,081	42,674	54,162	90	910	indirect	
				[19]	[16,17]	[20]	[21,22]	[20]	[20,23]	[16,18]		
Cost of Carbon (\$/mTCO2) at midpoint of cost range				35	38	386	176	554	33,234	275		
	16. 0.133 mTCO2/MWh benefit shifting from high GHG emission period (CAISO, NPT analysis)					22. half of 0.133 mTCO2/MWh shifting benefit per unit smart EVSE , 4.4 MWh/yr per unit						
	17. 13.5kWh/d load shift per unit (Powerwall rating)					23. Assumes 10 units converted in pilot						
	18. 2h shift of 1.5 kW load, or 3 kWh/d per unit, daily, 3mo/yr											
	19. Assumes every charger results in one EV, 4.25 mTCO2/yr per unit											
	20. HPHWH only; 170 T/yr avoided per unit (Carbon Free PA); 0.00531 mT/T nat gas emission factor (PG&E)											
	21. Gives full "additional" CO2 credit to used vehicles; 4.25 mTCO2/yr per unit, no "additional" CO2 credit to smart chargers											



Staff Report – Item 6

To: Silicon Valley Clean Energy Board of Directors

From: Girish Balachandran, CEO

Item 6: CEO Report

Date: 6/13/2018

REPORT

SVCE Staff Update

Our new Power Contracts and Compliance Manager, Monica Padilla, started with us on June 4. Monica worked for Palo Alto Utilities for 31 years, and brings experience in the development and implementation of long term integrated resource and strategic plans, supply contract negotiations, rate design and reserve policy development, and power procurement.

Aimee Gotway Bailey has been selected as SVCE's Director of Decarbonization and Grid Innovation; she will join us on June 25. Aimee most recently worked for EDF Innovation Lab as a Principal Energy Analyst, and previously worked for Pacific Gas & Electric, City of Palo Alto Utilities, Global Environmental Institute (Beijing, China) and the U.S. Department of Energy. Aimee has a BSE in materials science from the University of Pennsylvania in Philadelphia and a PhD in physics from Imperial College in London.

2017 Power Content Labels

Staff have submitted to the California Energy Commission (CEC) the 2017 Power Content Labels for SVCE's Green Start and Green Prime product offerings, as part of the CEC's annual Power Source Disclosure Program compliance requirements.

Long-Term Joint RFO Update

SVCE staff, along with staff from Monterey Bay Community Power (MBCP), have been in negotiations with three developers, simultaneously, to acquire long-term rights to the output of three projects. One of the 3 projects has been presented today for Board approval, and negotiations continue with the two Solar PV + Storage projects. Staff's goal is to bring at least one to the July Board meeting for approval.

IRP Update

A memorandum to the Board is attached.

Marin Clean Energy's Credit Rating

Moody's Investors Services, one of the three major rating agencies, issued a Baa2 rating to Marin Clean Energy (MCE) in May. This is the first credit rating for a CCA, and is exciting news for the CCA community. Moody's report outlays the areas for SVCE to focus on, such as liquidity and risk management of power procurement, in obtaining a rating in the future. SVCE is already on a solid path to meet or exceed

Agenda Item: 6**Agenda Date: 6/13/2018**

expectations in the scoring matrix for a strong rating but will most likely require another 2 years of operating history. A copy of the report is attached to the Amended Cash Reserves Policy staff report.

The table below provides an overview of the credit rating scales utilized by the three United States rating agencies.

Moody's		S&P		Fitch		Rating description	
Long-term	Short-term	Long-term	Short-term	Long-term	Short-term		
Aaa	P-1	AAA	A-1+	AAA	F1+	Prime	Investment-grade
Aa1		AA+		AA+		High grade	
Aa2		AA		AA			
Aa3		AA-		AA-			
A1	P-2	A+	A-1	A+	F1	Upper medium grade	
A2		A		A			
A3		A-		A-			
Baa1	P-3	BBB+	A-2	BBB+	F2	Lower medium grade	
Baa2		BBB		BBB			
Baa3		BBB-		BBB-			
Ba1	Not prime	BB+	B	BB+	B	Non-investment grade speculative	
Ba2		BB		BB			
Ba3		BB-		BB-			
B1		B+		B+		Highly speculative	
B2		B		B			
B3		B-		B-			
Caa1	Not prime	CCC+	C	CCC	C	Substantial risks	
Caa2		CCC				Extremely speculative	
Caa3		CCC-				Default imminent with little prospect for recovery	
Ca		CC					
C	C						
/		D	/	DDD	/	In default	
				DD			
				D			

Source: https://en.wikipedia.org/wiki/Bond_credit_rating

CEO Agreements Executed

The following agreements have been executed by the CEO, consistent with the authority delegated by the Board:

- 1) Epoch Times: Agreement for advertising services, not to exceed \$5,000

CEO Power Supply Agreements Executed

The following power supply agreements have been executed by the CEO, consistent with the authority delegated by the Board:

- 1) Marin Clean Energy: Two agreements; one for purchase of System Resource Adequacy, and one for sale of Local Resource Adequacy for the period October through December 2018.

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- 2) NRG Power Marketing: One agreement for purchase of Resource Adequacy for the period January through December 2019
- 3) Pacific Gas & Electric: Two agreements for purchase of Resource Adequacy for the period July 2018.
- 4) Monterey Bay Community Power: Two agreements for sale of Resource Adequacy for the period July 2018.
- 5) High Desert Power Project: One agreement for the purchase of Resource Adequacy for the period January 2019 through December 2020

These agreements are attached.

Lobby Day

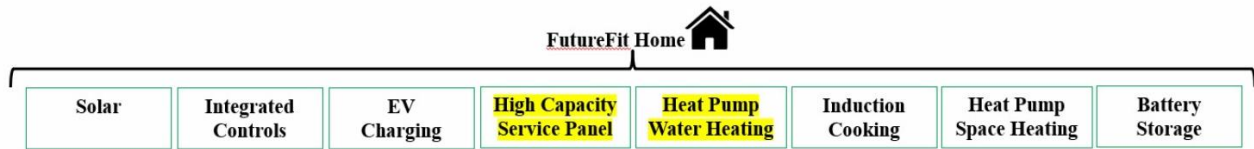
SVCE and MBCP undertook a Sacramento Lobby Day on May 16. The SVCE delegation was led by Directors Nancy Smith and Rod Sinks. The MBCP delegation was led by Directors Bruce McPherson and Trina Coffman-Gomez. It was an extremely busy day and outside of a 60 minute break mid-morning, the team was going from office to office all day. We visited the offices of ten legislators and met with six. The letter signed by all SVCE Board members was effective in carrying our message. This letter combined with the visit sets up a foundation and framework from which we can follow-up with staff and legislators in the coming weeks and months.

The key points made in the SVCE Board letter and the accompanying materials were communicated very effectively by Directors Smith and Sinks. They led the discussions at all the offices where the legislator had the majority of their district in the SVCE service area. MBCP elected officials led the discussions in the remaining offices. All the offices had questions that were answered and we also engaged in several strategic discussions related to the energy industry and its future.



BAAQMD Grant – SVCE Awarded \$325,000

The BAAQMD Board approved a \$325,000 grant to SVCE for its Future Fit home grant application.



This initiative serves as the foundation for the all-electric home of the future:

- Switch Natural Gas water heaters to Electric Heat Pump Water Heaters
- Create public data sets on impacts of fuel switching – usage and costs

Next steps:

- Review Terms & Conditions of Air District Grant award
- Develop Program guidelines and allocate Staff resources

Ultimately, this grant+program still needs to be approved by the Board.

BAAQMD had set aside \$4.5 million to funds programs in two categories: Reducing GHG Emissions in Existing Buildings, and Fostering Innovative Strategies. It received a total of 22 applications requesting \$6,123,884. Four projects, including SVCE’s application, requested approximately \$500,000. According to BAAQMD staff, several of these applications contain activities that overlap with other applications and therefore their recommendation to award lower levels of funding than was requested is based on potential overlap in activities across applications and the desire to allow for more funding to be offered to other worthy applications.

Creating a New JPA to achieve economies of scale in procurement of capacity, renewable power and energy services

At CalCCA, we are working on creating a new joint powers agency that will focus on achieving economies of scale for purchase of capacity, renewable energy and energy services. The experience we have had over the last year or so has made clear that efficiencies could be obtained via joint procurement. The areas of interest and value include the acquisition of wholesale power supplies, resource adequacy and renewable attributes, the provision of joint consulting and contracting services via master agreements and bulk purchasing and financing of decarbonization products, the offering of energy risk management and CAISO scheduling services and other energy related programs. Benefits include achieving economies of scale, shared risks and opportunities and enhancing weaker credit.

The issues around RA procurement and credit support for renewable contracts make clear that a joint approach to purchasing could result in immediate benefits from cost and strategic viewpoints. At the July Board meeting and in committee meetings we plan to discuss this initiative and obtain feedback from the Board. We expect to bring an agreement to the SVCE Board in September.

SVCE Award

Our "Understanding your Bill" video gold award has arrived; a reminder that SVCE won this award in the 'government – electronic media' category of the Hermes Creative Awards. These awards are administered and judged by the Association of Marketing and Communication Professionals in an international competition.

**ATTACHMENTS**

1. Memorandum to the Board re: IRP Update
2. Power Supply Agreements Executed
3. Regulatory/Legislative Update, June 2018
4. Community Outreach Update, June 2018
5. Agenda Planning Document, June 2018 – November 2018