



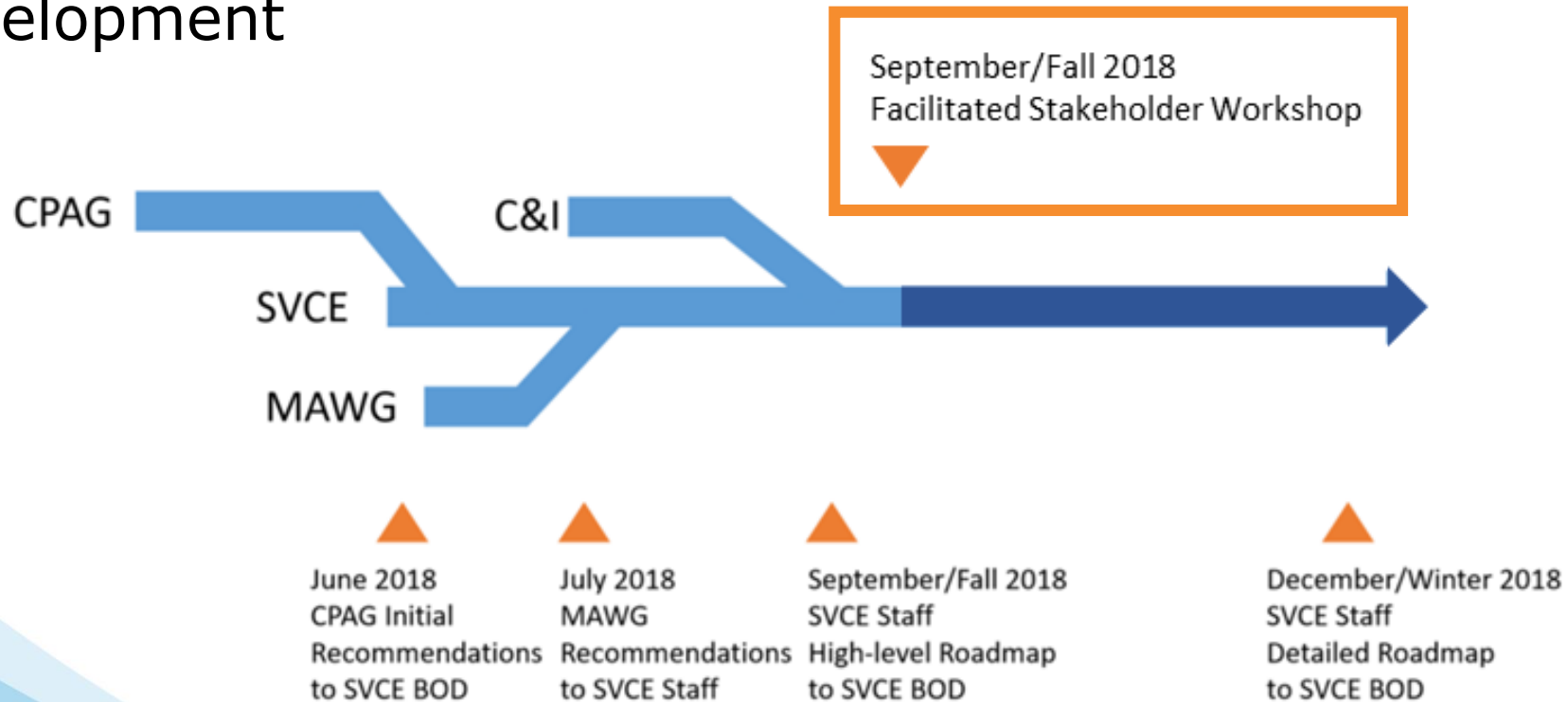
Customer Program Advisory Group

October 10, 2018

Item 3) SVCE Design Charrette: The Future is Electric

Roadmap Development Process

- Multi-month stakeholder engagement process for roadmap development



Stakeholder Groups

- Existing advisory groups/forum represent customers and member agencies
 - Residential → Customer Program Advisory Group
 - Commercial → C&I Customers/Watts for Lunch Forum
 - Member Agencies → Member Agency Working Group
- Full stakeholder landscape more extensive: includes academics, entrepreneurs, practitioners, financiers, etc.
- Engaging broader stakeholder group critical to design, develop, launch successful programs
- SVCE chose to engage diverse stakeholders using day-long workshop format



Broader Stakeholder Landscape



Customers, Staff, Committees, Board

Research Universities & National Labs



Federal, State & Regional Government & Regulatory Entities



National Environmental Nonprofits



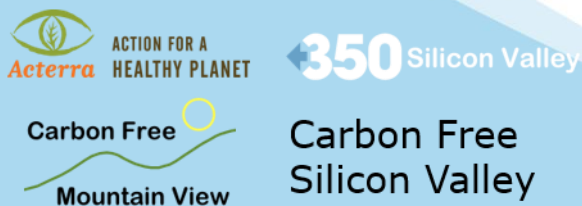
Member Communities



CCE Peers & Industry Agencies



Grassroots Environmental Organizations



PG&E & Local Munis



And more!

Broader Stakeholder Landscape

EV OEMs



EVSE OEMs



Customers, Staff, Committees, Board

Accelerators & Innovation Platforms



Solar, Battery & Other Cleantech Companies



Practitioners/Other

- Architects
- Developers
- Solar installers
- HVAC installers
- Plumbers
- Automobile dealerships
- Financiers
- Low-income/DAC
- Etc.

And many more!

Participants

- **Academia/National Labs**
UC Davis, LBNL, NREL, EPRI, Stanford/SLAC
- **Industry Practitioners**
Integral Group, Sharper Development, Cinnamon Energy Systems, Paired Power, HEA
- **Financiers**
Heritage Bank, Mosaic, Cutting Edge Capital
- **Entrepreneurs**
Prospect Silicon Valley, SunWork Renewable Energy Projects
- **Federal/Regional Agencies & Peers**
US DOE, BAAQMD, Joint Venture Silicon Valley, Sonoma Clean Power, Palo Alto Utilities
- **Customer/Community Reps**
LinkedIn, Google, CPAG, MAWG, CFSV, CFMV
- RMI (facilitators); SVCE (support)



Sept 18 SVCE Design Charrette Group Photo



SVCE Design Charrette

Summary

All-day, hands-on rapid prototyping workshop where participants engaged in productive problem-solving and ideation to design potential flagship programs to realize SVCE's bold vision of a decarbonized electric future.

Meeting Objectives

- Coaching and feedback on the draft decarb strategy & roadmap
- Conceptual design of several flagship programs
- Develop a working relationship with a diverse group of stakeholders

Agenda

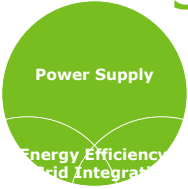
- Part 1: Feedback on draft decarb strategy and roadmap
- Part 2: Rapid prototyping of flagship programs



Agenda, Part 1

- Draft, high-level decarb strategy and roadmap presented to participants - a synthesis from CPAG, MAWG, C&I customers and SVCE staff work
- Participants gave feedback via “voting dots” and stickies
- Feedback largely validates the overarching decarb strategy, strategic framework, and programs shortlist identified by advisory groups and staff

Overarching Decarbonization Strategy



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

Strategic Framework

What will we do?

- Retail Products & Services
- Education & Outreach
- Public Policy
- Market Transformation

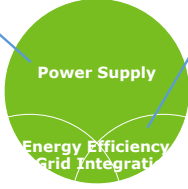
Which priorities will guide us?

- Customer & Community Value
- Emissions Impact
- Scalable and Transferable
- Equity in Service
- Core Role for SVCE

How will we do it?

- Innovative Platform
- Focus on Data
- Partnerships

Programs Identified by Key Advisory Groups & Staff



- Develop new rate products, e.g. all-electric, C&I load-following renewable, dedicated supply
- Issue RFP for local, distributed energy resources
- Community input in development of an integrated resource plan for our electricity supply portfolio
- “Peak Day Pricing” program for C&I (existing program)
- Managed EV charging incentives
- Develop online resource center for customer education on efficiency, electrification, and available programs
- Review and remove barriers to electrification in existing municipal policies
- Develop model specifications, building standards, reach codes and related policies for all-electric buildings
- All-electric development incentives, showcase projects
- Launch heat pump water heater retrofit program
- Expand state policies for building decarbonization
- Carry out community-wide EV readiness and infrastructure plan
- Address market gaps in multi-family and mixed use commercial EV charging
- Work with member agencies to electrify their vehicle fleets

Cross-Sector:

- Community engagement grants
- Innovation platform
- Flagship program(s)

Subset of content presented to participants

Excerpt - Detailed Feedback on Overarching Decarb Strategy

Questions and Feedback: Decarbonization Strategy

MARKETS & PRICING

- Participate actively in market transformation
- Embrace hourly carbon content (rather than ignoring)

BUILDINGS & PLANNING

- Electrified buildings also need new capabilities in the building sector. - suggest training & education programs
- Have code address the embedded energy in building materials (concrete) and motivate builders to use responsible materials
- Buildings as active and intelligent resources for DS & DR
- Does urban planning fit in this strategy?

MOBILITY

- Regarding mobility: what is SVCE's best role?
- New electrified mobility needs a new workforce and awareness. Suggest considering education programs.
- Include commuter shuttles & ride, hail, car share

GOALS, PRIORITIES, & STRATEGIES

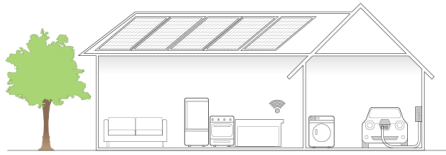
- Are these prioritized?
- Is energy efficiency really a SVCE priority?
- How can SVCE demonstrate additionality for RE and/or CO₂ emissions reductions?
- Is goal to move from carbon-free to renewable?
- How to tackle shaping? RA?
- Pilot innovative strategies and implement known EE
- Potential biggest *system* value is reducing infrastructure needs. Using demand-side resources to demonstrate this could be productive

Agenda, Part 2

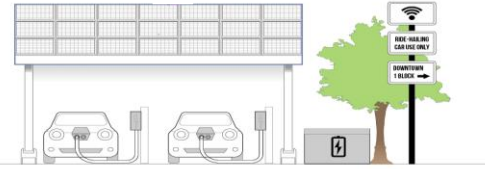
- Participants presented with several “snapshots” 2030
- Break-out groups asked to work backward to design a program to achieve the future depicted in the “snapshot”
- Groups completed template to identify objectives, interventions, next steps, stakeholders, etc. for each prototype program

Summary of Snapshots

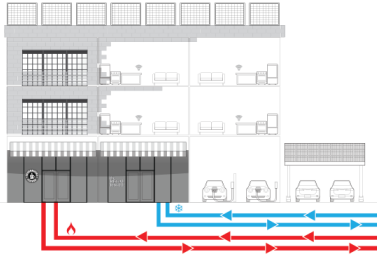
#1: Suburban Home




#3: Ride-Hailing Charging Depot



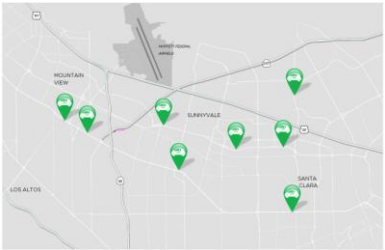
#2: Urban Village



#4: Mobility for the Workplace



#5: EVs as Grid Resources



eLab
Electricity Innovation Lab
ROCKY MOUNTAIN INSTITUTE

Summary of snapshots

Excerpt - Prototype Program (1/2)

Ride-hailing Charging Depot

Final Presentation

1/2

Program Objective

- Deploy grid-integrated TNC charging depot(s) that enables cheap rides, and better mobility for underserved communities

Why SVCE can uniquely lead

- Control over fuel cost for service providers
- Able to support EVSE that the private sector currently cannot

Key Interventions

- Favorable rate design that include TOU or real-time pricing
- Lead multi-stakeholder partnership
- Demonstrate the value proposition

Immediate Next Steps

- Fund analysis to identify value proposition, including for underserved communities
- Engage with DOE, TNCs, EVSE, transit, cities, regulators, economic development organizations
- Launch a pilot

Key Stakeholders

- Distribution utilities
- TNCs and TNC drivers
- Transit agencies
- Municipalities
- EVSE providers
- Disadvantaged communities

Excerpt - Prototype Program (2/2)

Ride-hailing Charging Depot

Milestones

2/2

How is the future different from today?

- Cheap EV rides
- Avoid new distribution investments
- Network decision
- Optimize use of land (e.g. schools, parking lots)
- Selling miles instead of kWh
- Better time-value decisions
- Improved community health metrics (e.g. indirect commute time)
- More low-cost, shared transport for low-income

Central elements to the scenario

- Electrification of ride hailing
- Joint holistic planning
- TOU/real-time pricing

Milestones of success

- **2020:** Demonstrate charging depot
 - Depot incorporated into mapping, grid planning, regional planning
- **2025:** New rate product to support depot model
 - x% of TNC miles are electric

Major actions to achieve milestones

- SVCE form partnership with transit, TNCs, EVSE providers, and developers
- Set electric mile goal with TNCs
- SVCE (and possibly PG&E) experiment with rate and revenue models

Program Risks

- Innovative rate products fail to be deployed
- Depot quickly becomes obsolete → stranded asset
- Multi-entity partnership is not able to form

Quotes from the Day

"Governments are afraid to fail. Let's not innovate needlessly – sometimes old ideas help us move forward, and there's no better place to do this than in Silicon Valley."

"Envision where you want to be in the future and start acting that way now. If you do this, you will get to the goal in the future."

"People in Silicon Valley are world leaders when it comes to thinking big, but all that innovation has been focused on the private sector. We are coming here to come up with bold, expansive solutions for the public sector."

"Status quo biases exists. We need to resist the urge to conform."

Was the workshop a success?

- Workshop achieved event objectives:
 - Coaching and feedback on the draft decarb strategy & roadmap
 - Conceptual design of several flagship programs
 - Develop a working relationship with a diverse group of stakeholders
- Participants who completed event feedback survey either “satisfied” or “very satisfied” overall with workshop
- Feedback largely validates draft, high-level decarb strategy and roadmap
- Many new conceptual program ideas, concerns, perspectives from diverse industry participants discussed and documented for consideration

Future Engagement

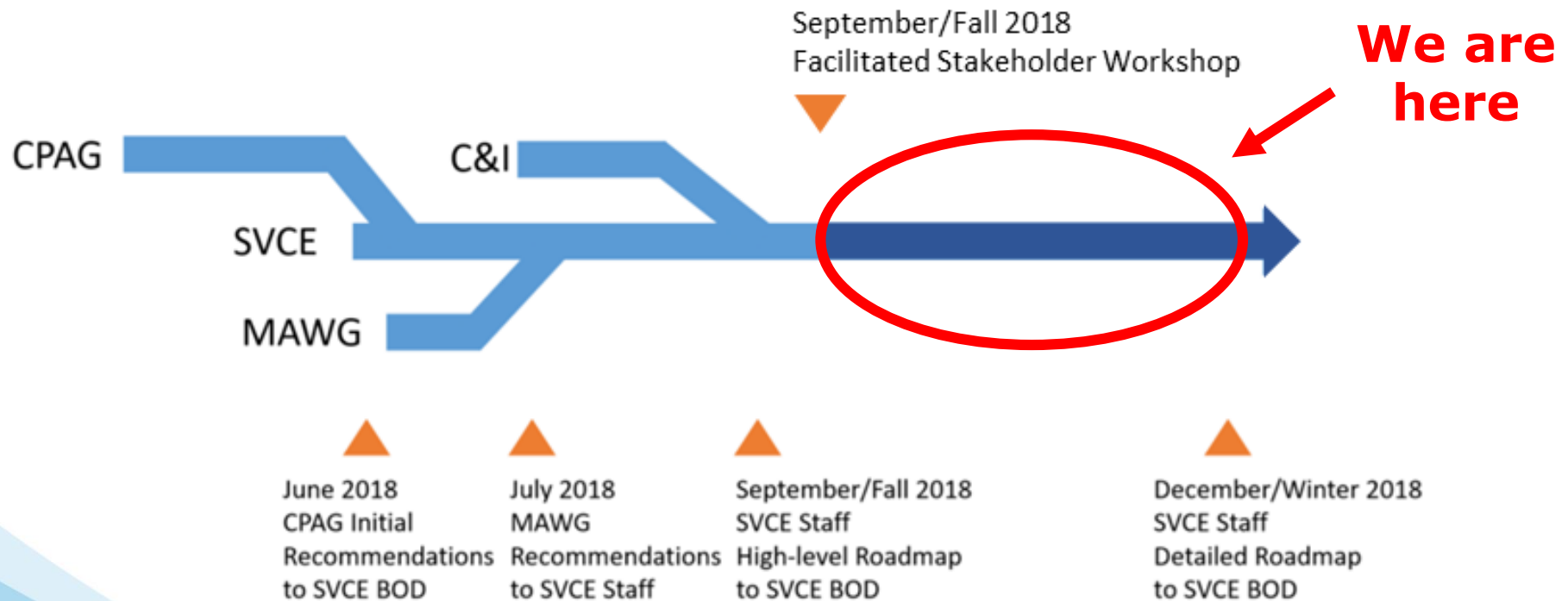
- Follow-up e-mail and/or webinar planned for end of 2018/beginning of 2019 to update participants on progress, how their feedback was used
- Multiple participants provided specific offers of support
 - SVCE staff will engage subject matter experts directly and seek focused feedback on specific program design (e.g. electric mobility experts providing next level of review of mobility-related program design)
- SVCE could organize similar event on an annual or biennial basis to provide consistent mechanism for gathering broader stakeholder feedback

Questions?

Item 4) Programs Roadmap Update & Deep Dive on Potential Innovation Mechanisms

Roadmap Development Process

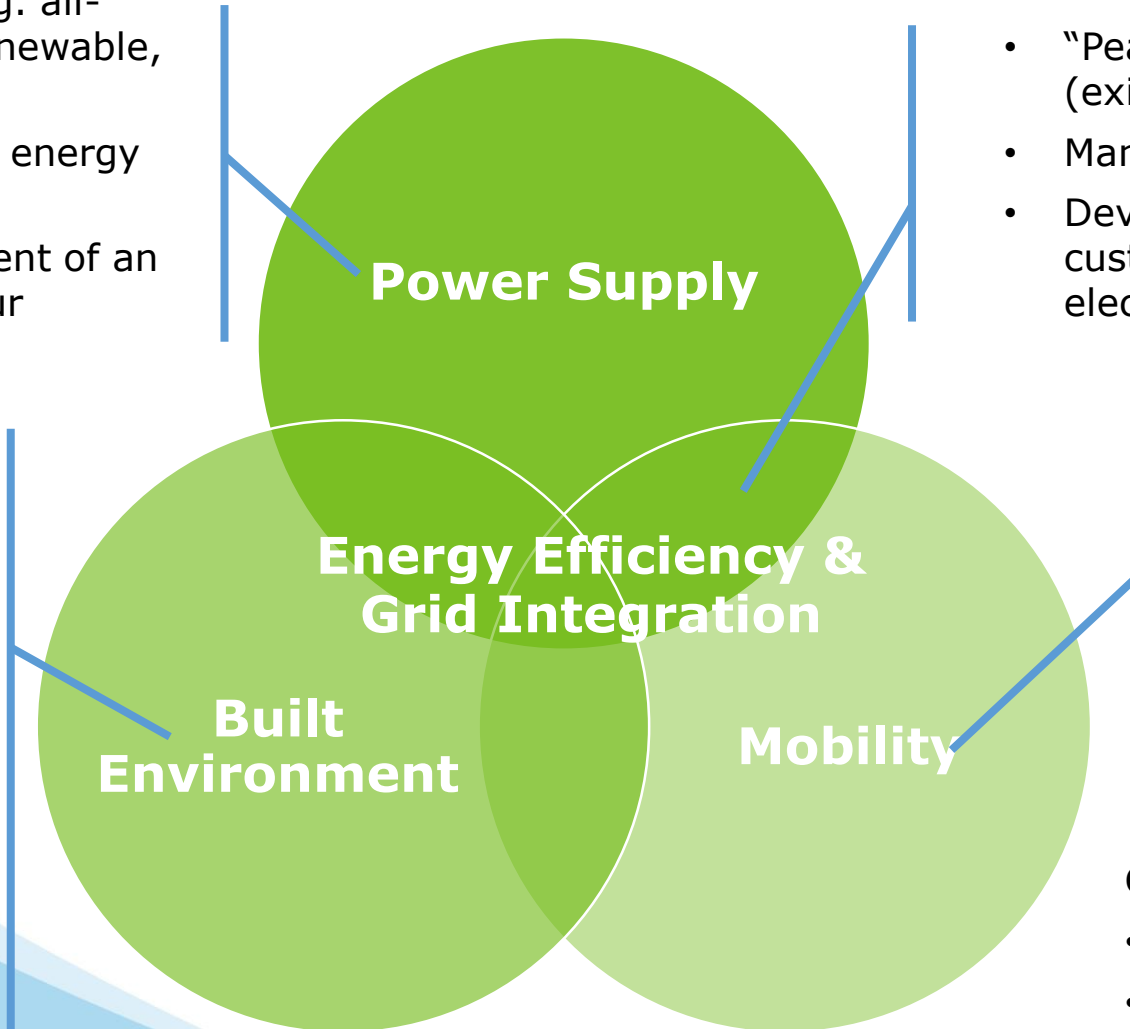
- Staff currently working on detailed roadmap, for Dec BOD meeting



Recall Draft Program List...

- Develop new rate products, e.g. all-electric, C&I load-following renewable, dedicated supply
- Issue RFP for local, distributed energy resources
- Community input in development of an integrated resource plan for our electricity supply portfolio

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Cross-Sector:

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Similar version shared at Sept 12 Board Mtg

Current/Upcoming Requests for Input from CPAG

- SVCE staff will present draft detailed roadmap at November CPAG meeting for input/feedback (stay tuned!)
- Now, seeking input on ways to leverage finite resources and catalyze innovation via:
 - Program for pilot partnerships
 - Other innovation mechanisms
- General concept: SVCE is considering devoting portion of resources (\$, staff) to high-leverage mechanisms to activate the private sector
- Such “innovation mechanisms” would complement staff-directed, customer-facing programs

Example: Program for Pilot Partnership

- Program to fund rapid, limited-scope projects with external partners, modeled off of City of Palo Alto Utilities' Program for Emerging Technologies*
 - Transparent application process with quarterly or rolling deadline
 - Evaluation criteria and other program terms defined, published
 - Pre-approved partnership agreement minimizes admin burden
 - Total annual budget cap, and individual project cap

Questions? Thoughts? Feedback?

*<http://cityofpaloalto.org/UTLinnovation>

Other Innovation Mechanisms

- How else might SVCE leverage finite resources, and activate the private sector to address decarbonization?
 - A prize
 - “Pay-for-performance” program structure
 - Hackathons
 - Other?

Questions? Thoughts? Feedback?