Building Decarb Joint Action Plan

Executive Committee
Sept 25, 2020
Purpose

Feedback on draft request to BOD:

1. Adopt Building Decarb Joint Action Plan (abbrv. “Plan”) with six cornerstone actions

2. Approve budget allocation & timeline for Plan implementation
Outline

1. Background
2. Building Decarb Joint Action Plan
3. Next Steps
Outline

1. Background
2. Building Decarb Joint Action Plan
3. Next Steps
Overarching Approach

- Power Supply
- Energy Efficiency & Grid Integration
- Built Environment
- Mobility

Decarb Strategy & Programs Roadmap (2018)
Sector-Specific Plans

- Power Supply
- Energy Efficiency & Grid Integration
- Built Environment
- Mobility
- Integrated Resource Plan (biennial)
- EV Infrastructure Joint Action Plan (2019)
- Building Decarb Joint Action Plan (In Dev.)
Summary of Process

• Feb 2020: BOD approved development of Plan as program priority
• Mar 2020: BOD approved Integral Group (IG) contract for support
• Apr–Jun: IG & staff carried out the following to develop draft:
  o Background research & analysis (“Buildings Baseline Study”)
  o Stakeholder surveys
  o 3 virtual workshops (attendee list in appendix)
  o 1:1 strategic interviews with key stakeholders
• Jul-Aug: Draft plan released for stakeholder input
  o Additional stakeholder surveys
  o Additional strategic interviews
• Aug-Sep: IG & staff synthesized input & updated draft
Timeline of Stakeholder Feedback

Note: Updates to BOD included in monthly CEO report & quarterly programs update
Outline

1. Background
2. Building Decarb Joint Action Plan
3. Implementation
Community GHG Reduction Goals

ACHIEVING CA’S 2050 GHG GOAL WILL
REQUIRE AN ADDITIONAL 61-74%
REDUCTION BELOW FORECASTED 2030 LEVEL

THIS REDUCTION WILL REQUIRE AN UNPRECEDENTED SHIFT AWAY FROM
NATURAL GAS IN COMMERCIAL AND RESIDENTIAL BUILDINGS, AND GASOLINE VEHICLES

SVCE’s 2018 Decarb Strategy & Programs Roadmap
SVCE Community Building Stock
Emissions from Fuel Source to End Use

**Units: Metric Tons CO₂**

- **Gas:** 871,518
- **Electricity:** 175,798

- **Residential Gas:** 511,295
- **Single-Family Meters:** 455,053
- **Mobile Home:** 12,028
- **Multi-Family Meters:** 58,526
- **Commercial Gas:** 360,223
- **Commercial Electricity:** 161,486
- **Interior Lighting:** 44,247
- **Motors:** 5,329
- **Residential Electricity:** 14,312
- **Commercial Electricity:** 161,486
- **Interior Lighting:** 44,247
- **Motors:** 5,329

- **Space Heating:** 336,043
- **Water Heating:** 367,055
- **Dryer:** 15,961
- **Pool & Spa:** 16,282
- **Evaporative Cooling:** 55
- **Washer & Dryer:** 612
- **Television:** 1,809
- **Cooking:** 115,514
- **Other:** 29,491
- **Refrigeration:** 25,350
- **Office & Computer:** 17,812
- **Outdoor Lighting:** 8,850
- **Space Cooling:** 20,374
- **Ventilation:** 22,402
Overarching Approach

- Procure & maintain a sustainable, affordable and carbon-free power supply
- Electrify the built environment and mobility
- Promote energy efficiency & successful grid integration
The All-Electric “FutureFit” Home

- Induction Cooking
- Heat Pump Heating and Cooling
- Electric Dryer
- Heat Pump Water Heater
- Solar + Battery Storage
- Intelligent Control
- EV Charging
Key Barriers to Electrification

- Low Awareness & Interest
- Low Perceived Customer Value
- Low Perceived Contractor & Builder Value
- Low Availability
- Misaligned Policy

Barrier identification influenced by the Building Decarbonization Coalition’s “Building Decarbonization Roadmap”
Suite of Interventions

- Retail Products & Services
- Education & Outreach
- Public Policy
- Market Transformation
Actions Developed Using Decarb Roadmap 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?
- Innovation
- Data
- Partnerships
SVCE & Member Agency Roles

**SPHERES OF CONTROL**

**SVCE**
- Clean Energy Supply
- Electricity Generation Rates
- Grid Integration
- Regional Coordination
- Financing & Incentives
- Innovation

**Member Agencies**
- Local Codes, Standards & Policies
- Permitting
- Land Use Planning
- Municipal Buildings

**SPHERE OF INFLUENCE**

**Other Stakeholders**
- State Codes, Standards and Policies
- Regional Codes, Standards & Policies
- State & Regional Customer Programs
- Electric Grid Service, Rates & Modernization
- Industry Associations & Coalitions
- Environmental NGOs
- Manufacturers
- Labor & Workforce Associations
- Other CCAs, Local Governments, and Utilities
Building Decarb Plan

**New Construction**
Accelerate transition to all-electric new construction

**Existing Buildings**
Convert existing buildings to all-electric

**Market Development**
Cultivate regional ecosystem for advancing building decarbonization goals
Building Decarb Plan

**New Construction**

- **NC1**: Reach Code Initiative 2.0

**Existing Buildings**

- **EB1**: Feasibility Assessment for Natural Gas Phase Out by 2045
- **EB2**: Local Policy Options to Decarbonize Existing Buildings
- **EB3**: FutureFit Homes & Buildings
- **EB4**: Accessible Financing

**Market Development**

- **MD1**: Regional Coordination
# Building Decarb Plan

## New Construction

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Barriers Addressed</th>
<th>Cornerstone Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC 1: Reach Code Initiative 2.0</td>
<td>Evaluate the initial Reach Code Initiative and develop a second wave of Reach Code support that includes all new construction types as well as renovations.</td>
<td></td>
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</tbody>
</table>

**Public Policy**

**Misaligned Policy**
<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Barriers Addressed</th>
<th>Cornerstone Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EB1</strong></td>
<td>Feasibility Assessment for Natural Gas Phase Out by 2045</td>
<td>Carry out technical, economic and legal feasibility assessment of pathways to phasing out natural gas service by 2045.</td>
</tr>
<tr>
<td><strong>EB2</strong></td>
<td>Local Policy Options to Decarbonize Existing Buildings</td>
<td>Support member agencies in evaluating feasible pathways to regulate existing building emissions and help develop model policy approaches.</td>
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</tbody>
</table>
# Building Decarb Plan

## Existing Buildings

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Barriers Addressed</th>
<th>Cornerstone Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EB3: FutureFit Homes &amp; Buildings</strong></td>
<td>Provide comprehensive assistance to SVCE customers in navigating and accessing non-SVCE led energy programs and identify and address incentive gaps and layering opportunities.</td>
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<tr>
<td><strong>EB4: Accessible Financing</strong></td>
<td>Assess feasibility of financing mechanisms to unlock equitable financing, particularly for low-income communities.</td>
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# Building Decarb Plan

## Market Development

<table>
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<th>Activity Type</th>
<th>Barriers Addressed</th>
<th>Cornerstone Actions</th>
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</thead>
<tbody>
<tr>
<td>MD1: Regional Coordination</td>
<td>Low Perceived Customer Value</td>
<td>Initiate regular regional stakeholders meetings to coordinate program alignment; streamline access to incentive funds; identify strategies to lower costs; inform messaging and communication needs; and assess barriers and opportunities to workforce development.</td>
</tr>
</tbody>
</table>

MD1: *Regional Coordination*

- Initiate regular regional stakeholders meetings to coordinate program alignment;
- Streamline access to incentive funds;
- Identify strategies to lower costs;
- Inform messaging and communication needs;
- And assess barriers and opportunities to workforce development.
## Existing & Supportive Actions

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Existing &amp; Supportive Actions</th>
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</table>
| Retail Products & Services | • Virtual Power Plant Initiative  
                          |   • Retail Rates Assessment  
                          |   • Electrical Distribution & Panel Capacity Assessment |
| Education & Outreach   | • eHub (formerly “Customer Resource Center”)  
                          |   • Regional Positive Messaging Campaign  
                          |   • SVCE’s “Watts for Lunch” |
| Public Policy          | • State Policy Coordination & Advocacy  
                          |   • Regional Policy Coordination  
                          |   • Streamlining Community-Wide Electrification |
| Market Transformation  | • FutureFit Fundamentals Contractor Training  
                          |   • Innovation Partners & Innovation Onramp  
                          |   • Research & Development Support |

Item 3
PRESENTATION
Budget Allocation & Timeline of Plan Implementation

• Request for budget allocation to be structured similarly to EVI Plan*
  • Range: $4-6M
• Proposed phased implementation of programs to manage staff resources
  • 3-years, 2021-2023

*EVI Plan budget allocation was $8M over 4-year period
Outline

1. Background
2. Building Decarb Joint Action Plan
3. Next Steps
Next Steps

• Incorporate Exec Comm feedback
• Contingent upon Exec Comm feedback, bring request to BOD in Oct on regular agenda to:
  1. Adopt Building Decarb Joint Action Plan (abbv. “Plan”) with six cornerstone actions
  2. Approve budget allocation & timeline for Plan implementation
Appendix
## Attendees – Virtual Workshops in May 2020

### Workshop 1: Policy
- Carbon-Free Mountain View
- EHDD Architecture
- BAAQMD
- City of Sunnyvale
- City of Los Altos
- City of Mountain View
- Santa Clara County
- Sonoma County Regional Climate Protection Authority [RCPA]
- City of Cupertino
- City of Sunnyvale
- City of Mountain View
- City of Cupertino
- City of Morgan Hill

### Workshop 2: SVCE-Led Programs
- SMUD
- Infinera
- East Bay Community Energy
- Ardenna Energy
- City of Palo Alto
- Rocky Mountain Institute
- Carbon Free Mountain View
- California Energy Commission
- Peter Turnbull and Associates
- Peninsula Clean Energy
- Electric Power Research Institute

### Workshop 3: Overview
- MidPen Housing Corporation
- Google
- SummerHill
- Carbon Free Silicon Valley
- PG&E
- Joint Venture Silicon Valley
- City of Sunnyvale
- CalCCA
- Building Decarb Coalition
- CPUC
- Carbon Free Silicon Valley
- UA393
- Carbon Free Silicon Valley
Example Initial Survey Results – Prioritizing Decarb Policies

- No natural gas in new construction
- Major renovations to electrify
- Reduce barriers
- Reach Codes 2.0
- No-cost development incentives
- Embed electrification incentives into financing structure already in place
- Tax incentives
- 100% renewable energy for large buildings
- Municipal buildings to electrify
- Energy benchmarking ordinance
- Electrification measures at time of sale
- Building emissions cap
- Ensure building code compliance
Example Initial Survey Results – Feasibility of Policy Strategies

- **No natural gas in new construction**: Neutral
- **Major renovations to electrify**: Neutral
- **Reduce barriers**: Neutral
- **Reach Codes 2.0**: Neutral
- **No-cost development incentives**: Not Feasible
- **100% renewable energy for large buildings**: Absolutely Feasible
- **Embed electrification incentives into financing structure already in place**: Neutral
- **Tax incentives**: Neutral
- **Energy benchmarking ordinance**: Neutral
- **Municipal buildings to electrify**: Neutral
- **Electrification measures at time of sale**: Neutral
- **Building emissions cap**: Neutral
- **Ensure building code compliance**: Neutral

**Legend**:
- Red: Not Feasible
- Yellow: Likely Not Feasible
- Gray: Neutral
- Light Green: Somewhat Feasible
- Green: Absolutely Feasible
Example Initial Survey Results – Additional Strategies Suggested

- Research End of Gas Flow by 2035 ordinance
- County-issued Green Bond to finance electrification retrofits of local government or private sector facilities
- Work with PG&E on gas pipe replacement avoidance districts
- Encourage the design of grid adaptive buildings that help alleviate duck curve
- Technical support and market building for projects that directly benefit the community and consumer
- Develop combined washer/dryer lending program
- Align and amplify SVCE programs/messaging with City programs/messaging and vice versa
- Eliminate the sale of tankless gas water heaters
- “BE Ready” program requiring panel upgrades whenever major electrical work happens
- Promote community solar projects
- Make climate action and building decarb a Council/BOS priority applied by jurisdiction staff across all actions
- Engage with financing company like Redaptive or Carbon Lighthouse and/or build relationship with local credit unions to offer low or no-cost financing for electrification
- Member Agency policies that could help with market readiness for electrification?
- Time-of-sale gas usage disclosure report
- Utility Users Tax on natural gas
- Energy efficiency in general
Based on review of 150+ comments:

- **Reorganized structure** to emphasize scale of challenge, clarify organization of actions, and incorporate visuals

- **Distilled cornerstone actions**, emphasizing partnerships and related external activities

- **Clarified roles of SVCE and MAWG** in context of state and regional action

- Incorporated section on **tracking and evaluation**
PG&E Carbon-free Allocations for 2021 through 2023 Deliveries

Executive Committee
September 25, 2020
Recommend Board approve accepting PG&E’s large hydro and nuclear carbon-free allocations for 2021-23, and delegate authority to CEO to enter into necessary agreements
PG&E’s Carbon-free PCIA & Allocation History

• SVCE pays above market cost of PG&E hydro and nuclear via PCIA
  • *SVCE purchases carbon-free attributes from other suppliers*
• PG&E valued carbon-free attributes as worthless
• CPUC approved PG&E’s 2020 Carbon-free Interim Allocations
• April 2020, Board approved taking 2020 Large Hydro and Nuclear Allocations (July through December 2020)
SVCE’s 2020 Carbon-free Savings $500,000

• SVCE & PG&E confirmed allocations for July through December 2020
  • Large Hydro ~134,400 MWh
  • Nuclear ~474,000

• SVCE has a projected surplus in 2020, but still lots of uncertainty
• Not likely to sell surplus resources
PG&E’s Proposed Carbon-free Allocations 2021-23

• Requested CPUC approval nuclear and large hydropower allocations (August 27\textsuperscript{th} Advice Letter 5930-E)

• Possible decision by October 31\textsuperscript{st}

• Joint CCAs support allocations and timely approval of the Advice Letter
SVCE’s has large Carbon-Free Needs

<table>
<thead>
<tr>
<th></th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>2028</th>
<th>2029</th>
<th>2030</th>
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</thead>
<tbody>
<tr>
<td>CF Need (MWh)</td>
<td>2,193,184</td>
<td>2,234,386</td>
<td>2,179,293</td>
<td>1,945,542</td>
<td>1,965,918</td>
<td>1,980,473</td>
<td>2,100,382</td>
<td>2,107,585</td>
<td>2,119,752</td>
<td>2,131,463</td>
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<tr>
<td>Existing Contracts (MWh)</td>
<td>1,578,500</td>
<td>219,000</td>
<td>219,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NOP (MWh)</td>
<td>614,684</td>
<td>2,015,386</td>
<td>1,960,293</td>
<td>1,945,542</td>
<td>1,965,918</td>
<td>1,980,473</td>
<td>2,100,382</td>
<td>2,107,585</td>
<td>2,119,752</td>
<td>2,131,463</td>
</tr>
<tr>
<td>PG&amp;E Large Hydro Allocation (MWh)</td>
<td>380,568</td>
<td>380,568</td>
<td>380,568</td>
<td>380,568</td>
<td>380,568</td>
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</tr>
<tr>
<td>PG&amp;E DCPP Allocation (MWh)</td>
<td>936,000</td>
<td>936,000</td>
<td>936,000</td>
<td>860,351</td>
<td>303,879</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

Cost to buy Carbon-free energy depends on the price premium estimated at $3-$5/MWh, but can be higher in dry hydro years or as competition for CF resources increase.
SVCE’s Potential Savings 2021-23 $11-20M

• SVCE’s Clean Portfolio is ~50% carbon-free, non-RPS and ~50% RPS
• 2021-23 CF purchases to date ~17%
• PG&E Large Hydro allocation is 10% of SVCE’s load
• PG&E Nuclear allocation is 23% of SVCE’s load
• Allocations can potentially close SVCE’s CF open position (50%)
• $11 to $20 M savings assuming (1.5 to 3% of annual supply cost)
Request

Recommend Board approve accepting PG&E’s large hydro and nuclear carbon-free allocations for 2021-23, and delegate authority to CEO to enter into necessary agreements

Alternative:
• Accept only large hydro allocation – no nuclear
• 2021-23 savings $3 to $6 M (vs. $11-20M)
Next Steps:

- October 31, 2020 - CPUC approval of PG&E’s advice letter
- October 2020 Seek Board approval
- Recommendation for how to spend savings – for example:
  - Resiliency programs
  - Equity programs
  - Invest in local resources
  - Workforce training
  - Build financial reserves
Amend Master Consulting Agreements – Extend Term and Spending Authority

Executive Committee
September 25, 2020
Summary & Request

• Staff has relied heavily on use of consultants under Master Consulting Agreements and intends to fully use the $1M approved by Board

• Increased consultant needs due complexities of operations and delays in hiring and training new staff

• Ascend Analytics is providing the majority of consulting support

• SVCE to issue RFP for consultant and portfolio management services in 2021

1. Request amendment to MCA authority to increase NTE from $1M to $1.5M

2. Extend term expiration from September 30, 2021 to March 31, 2022
Master Consulting Agreement (MCA) History

• Board gave CEO spending authority up to $1M through September 30, 2021 (Nov 2018)

• Consultants: Hanover Strategy Advisors; Flynn Resources Consulting; Ascend Analytics; and E3
  • Direct Access - C/I Custom Product Offerings
  • Power Cost Indifference Adjustor analysis
  • Risk Management – Portfolio monitoring, reporting and training
  • Portfolio and Resource Valuation and Power Purchase Agreements
  • Integrated Resource Planning
  • CAISO Regulatory support
  • Virtual Power Plant and Distributed Energy Resources
  • Compliance Reporting
MCA Controls, Expenditures & Commitments

- Task Order approval process
- Quarterly Reporting to Board
- Conditional on Board appropriation of funds per FY

<table>
<thead>
<tr>
<th>Consultant</th>
<th>Expected Expenditures</th>
<th>Expenses</th>
<th>Remaining Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ascend Analytics</td>
<td>$870,557.00</td>
<td>$532,543.95</td>
<td>$338,013.05</td>
</tr>
<tr>
<td>Energy &amp; Environmental Economics (E3)</td>
<td>$15,000.00</td>
<td>$10,000.00</td>
<td>$5,000.00</td>
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<tr>
<td>Flynn Resources Consulting, Inc.</td>
<td>$80,000.00</td>
<td>$29,962.50</td>
<td>$50,037.50</td>
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<tr>
<td>Hanover Strategy Advisors, LLC</td>
<td>$26,700.00</td>
<td>$24,700.00</td>
<td>$2,000.00</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$992,257.00</strong></td>
<td><strong>$597,206.45</strong></td>
<td><strong>$395,050.55</strong></td>
</tr>
</tbody>
</table>

| Master Consultant Agreement NTE Authority | $1,000,000.00         |
| Remaining Balance                        | $7,743.00             |
Needs Under MCA Going Forward

• Increased complexity in operations
• Continued augmentation of Power Resource Department staff – recruitment in process
• 2021-30 Integrated Resource Plan and implementation –
• Enhanced risk management analytics, reporting and training
• Long Duration Storage project evaluation (new)
• Large customer custom product offerings
• Virtual Power Plant valuation
• Implementation of RPS PPAs
1. Increase MCA NTE authority from $1M to $1.5 M
2. Extend term of MCA authority from September 30, 2021 to March 31, 2022

Recommend Board approval of amendment to the resolution authorizing the CEO under Master Consulting Agreements to spend up to $1.5 M inclusive through March 31, 2022.
Long Duration Storage Procurement Efforts and Super Joint Power Agency (information only)

Executive Committee
September 25, 2020
Long Duration Energy Storage ("LDES")

- LDS are energy batteries with 8 hour minimum discharge duration
- Can be grid-charged
- Technologies – lithium ion, chemical flow batteries, gravity, pumped hydro, compressed air, etc.
- Used to integrate renewables onto the grid and support reliability
- Manage cost to serve load – Energy, Resource Adequacy & Ancillary Services
- CPUC’s Integrated Resource Plan (IRP) - LDS needed to meet GHG reduction goals
Long Duration Storage Efforts

1. Multi CCA Request for Information – June 2020
2. Multi CCA Request for Offers/Proposal – September 2020
3. Super JPA formation
4. Regulator/Legislator Outreach
Multi-CCA LDS RFO

1. 10 CCAs involved
2. SVCE hosting
3. Procure up to 500 MW of LDS
4. Technology Agnostic
5. In depth analysis – must be cost effective
6. Connect to the CAISO
7. Procure through Super JPA to de-risk
Super JPA Highlights

**Objective:** Develop a cost-effective, risk-minimized, CCA-controlled structure to develop or acquire necessary resources exceeding the procurement needs of a single CCA.

- **Structure:** Joint Powers Authority composed of CCAs
- **Interested Parties:** CCCE, EBCE, MCE, PCE, RCEA, SCP, SFPUC, SJCE, SVCE
- **Target Project:** Long Duration Storage – first project
- **JPA Timeline:** Form JPA by end of 2020
## Multi CCA LDS RFO & Super JPA Formation Schedule

### 1. Long-Duration Energy Storage (LDES) RFO & Transaction
   - **a.** RFI (done)
   - **b.** RFO
   - **c.** Shortlist Projects
   - **d.** Negotiate LDES & Participation Agreements

### 2. Super JPA Enabling Agreement & Project Principles
   - **a.** Develop Enabling-Agreement Super JPA document
   - **b.** Obtain individual member approvals of SuperJPA
   - **c.** Hire lead negotiator and associated support
   - **d.** Negotiate LDES & Participation Agreements

These two tasks are identical and merge the RFO and
Outreach & Feedback

1. California Public Utility Commission
2. State Legislator
3. California System Operator
4. Public Power
5. Financial Community
Next Steps for SVCE Executive Committee/Board

1. Approval of Super JPA Enabling Agreement – Dec 2020
2. Approval of Project Participation Agreement(s) – June to September 2021