

RICAPS

Regionally Integrated Climate Action Planning Suite

Multi-city Working Group
March 27, 2018

RICAPS technical assistance is available through the San Mateo County Energy Watch program, which is funded by California utility customers, administered by Pacific Gas and Electric Company (PG&E) under the auspices of the California Public Utilities Commission and with matching funds provided by C/CAG.

Agenda

- | | |
|--|----------------|
| 1. Introductions | 1:30 – 1:35 PM |
| 2. Electric Vehicle Charging Readiness Ordinances | 1:35 – 1:50 PM |
| <ul style="list-style-type: none">• Francesca Wahl, Senior Policy Associate, Tesla• Gina Goodhill Rosen, Senior Policy Associate, Tesla | |
| 3. Updating the San Mateo County Energy Strategy | 1:50 – 2:00 PM |
| <ul style="list-style-type: none">• Kim Springer, Resource Conservation Program Manager, San Mateo County Office of Sustainability | |
| 4. Financing Sustainable Cities | 2:00 – 2:30 PM |
| <ul style="list-style-type: none">• Sarah Moe, Senior Consultant, DNV GL | |
| 5. Property Assessed Clean Energy (PACE) Update | 2:30 – 2:50 PM |
| <ul style="list-style-type: none">• Rich Chien, PACE Program Manager, City and County of San Francisco | |
| 6. Wrap Up & Next Steps | 2:50 – 3:00 PM |
| <ul style="list-style-type: none">• RICAPS will be piloting two working groups: Municipal Green Building + Environmental Preferable Purchasing | |

TESLA



TESLA'S MISSION

To accelerate the world's transition to sustainable energy.

TESLA PRODUCTS



Vehicles



Storage



Solar

SECRET MASTER PLAN

Affordability



2008 - Roadster
2,600 vehicles produced
Starting Price: \$128,000



2012 - Model S | Model X
>120K vehicles produced
Starting Price: \$70,000



2017 - Model 3
Mass market vehicle production
Starting Price: \$35,000

Volume

MODEL S / MODEL X

Up to 315 miles of range
0-60 MPH in as little as 2.5 seconds
Digitally controlled AWD
Autopilot equipped
Highest Safety Rating in America

Seats up to 7 adults
Up to 289 miles of range
0-60 MPH in as little as 2.9 seconds
5,000 lbs of towing capacity

MODEL 3

> 215 miles of range

Starting price \$35,000

Designed to achieve 5-star safety rating in every category



TESLA CHARGING



Supercharging

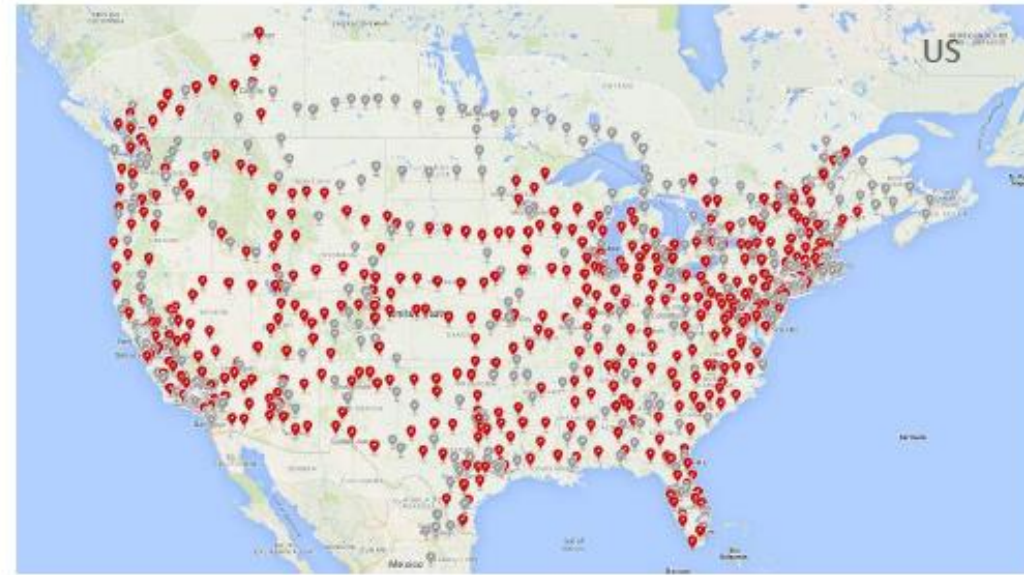
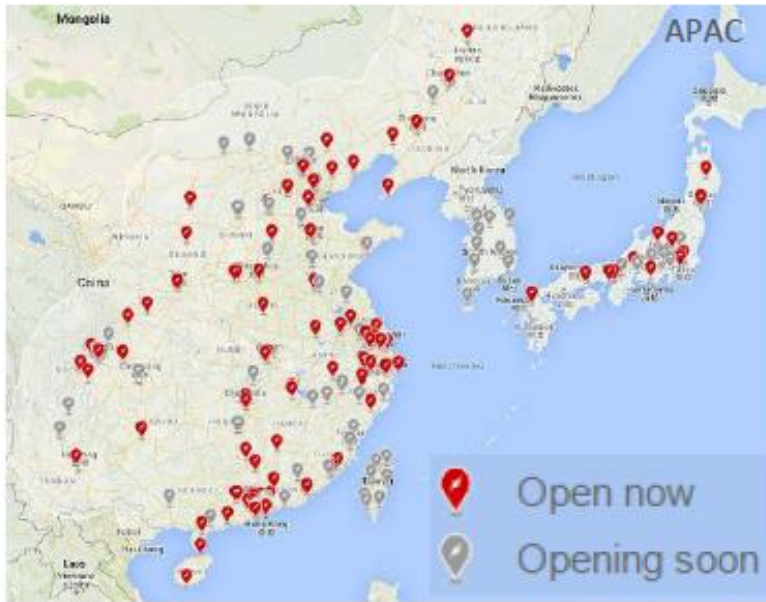


Destination Charging



Home Charging

LONG DISTANCE TRAVEL



1,130 Supercharger stations | 8,496 Superchargers

MASTER PLAN: PART DEUX

Beautiful
Solar and Storage

Self-driving 10X
Safer Than Humans

Your Car Makes
Money for You

Expand to Major
Vehicle Segments

Importance of Community Electric Vehicle Readiness

- California climate and air pollution targets
 - **Goal:** 1.5 M ZEVs by 2025 and 5M ZEVs by 2030
 - **Goal:** 250,000 ZEV chargers, including 10,000 direct current fast chargers by 2025
- Local Climate Action Plans and transportation efforts
- Consumer education and access to EV home charging
- New construction/retrofits vs. existing buildings

New Construction EV Ready

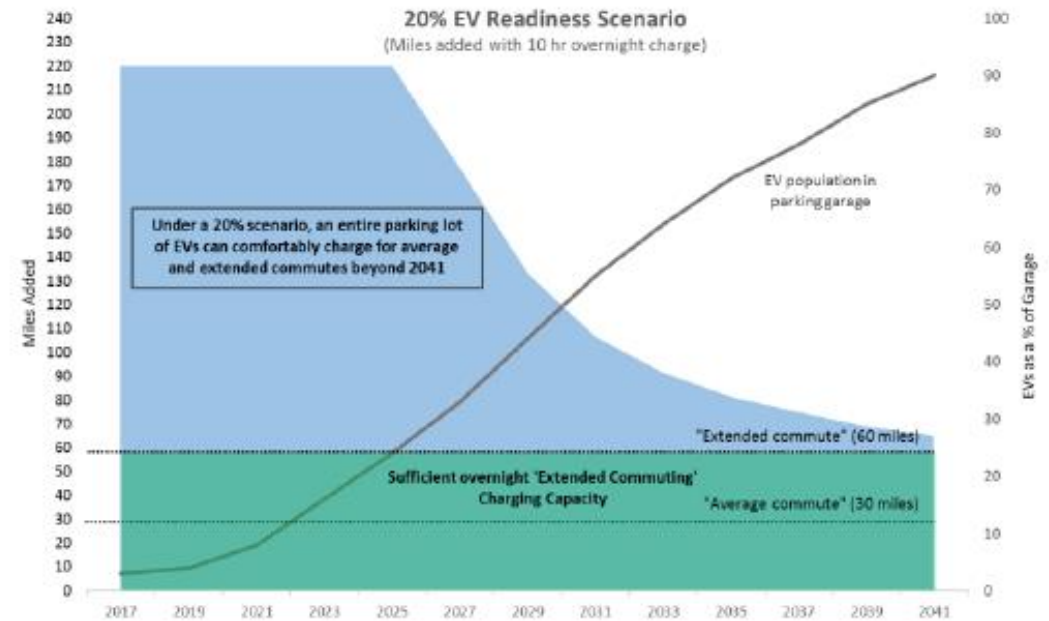
- Multi-unit dwellings (MUD), destinations and workplaces (commercial)
- Lifetime of building 50+ years
- Retrofitting parking structures is 4x to 8x more expensive
- Cost of make-ready infrastructure is **less than 1%** of total construction cost in both MUD and commercial new construction projects

Local Ordinances for EV Readiness

- 20% EV Ready and 100% EV Capable
 - “**EV-Ready**” - listed raceway (conduit), sufficient electrical panel service capacity, overcurrent protection devices, wire, and suitable termination points
 - “**EV Capable**” - listed raceway (conduit) and electrical capacity (breaker space) allocated in a local subpanel to accommodate future EVSE installations
- Examples: Palo Alto, Fremont, San Francisco, Oakland

Model Ordinance Key Components

- **Electrical Capacity** - 208/240V capacity, 40A breaker per space
- **Panels** - space to accommodate one 40A breaker, per EV space, for 20% of spaces
- **Conduit/Raceway** - throughout entire parking structure
- **Automatic Load Management**



Thank you!

Francesca Wahl

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Gina Goodhill

goodhill@tesla.com



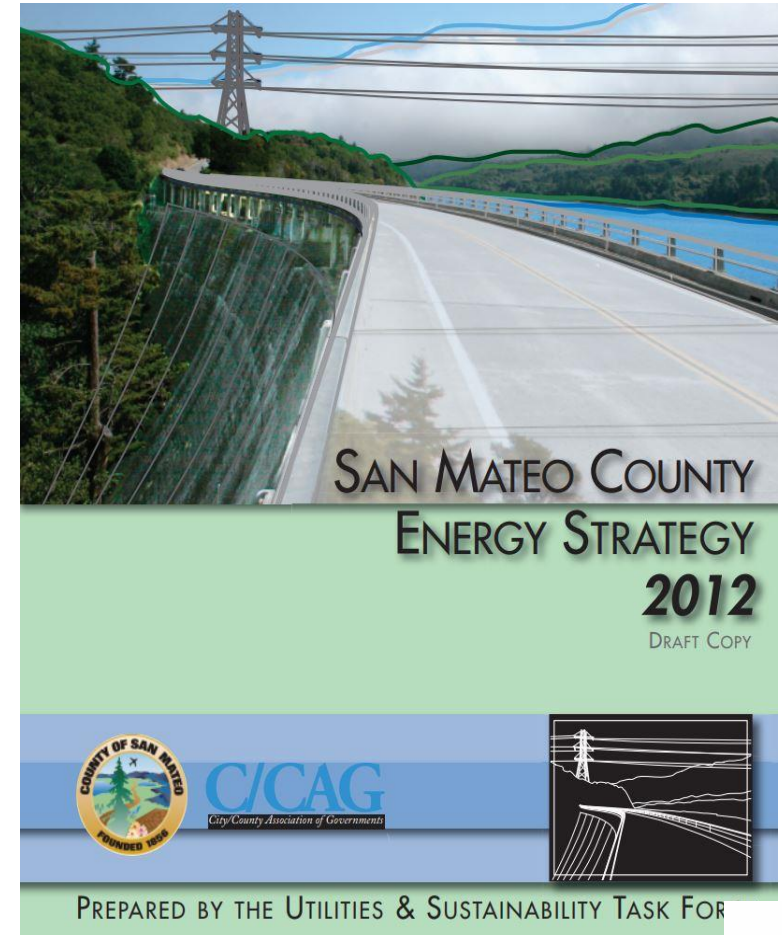
Updating the San Mateo County Energy Strategy

**Kim Springer, San Mateo County Office of
Sustainability**

San Mateo County Energy Strategy

History

- Written between 2006 and 2008
- Adopted by the County BOS in December 2009
- Adopted by every city in San Mateo County in CY 2009



Energy Strategy

Goals

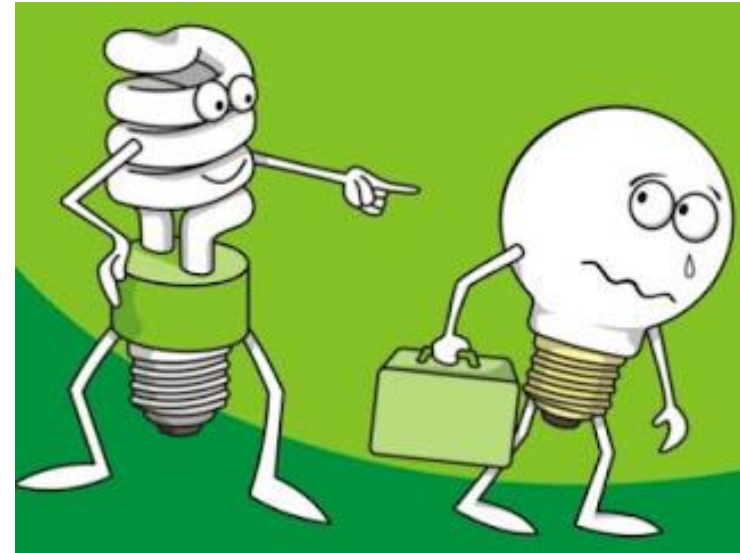
Energy – reduce by 25% from 2005 levels of non-renewable energy use – DONE

Water – 5.2 million GPD of conservation in 2030 from 2001 baseline – DONE

Collaboration – partner with Utilities across city boundaries to address environmental issues more effectively – ONGOING

Economy – support Clean Tech sector to strengthen the economic health of San Mateo County – ONGOING

Leadership – encourage environmental leadership from the top in the public sector, business, and community, to meet Energy Strategy goals - ONGOING



Life for the incandescent in 2007

Every
DRÖP
counts

Completely Different Baselines 2009 to 2018

- Energy efficiency
- Fear of additional infrastructure
- Rising cost of energy
- SMCEW was new
- Energy Upgrade just starting, BayREN didn't exist
- No CCE – just cleaner and greener
- Green was a word, but not sure about microgrid
- Few, if any, GHG emission inventories or CAPs
- CA Solar Initiative (CSI)
- Lack of staff at cities, technical knowledge
- Drought-tolerant plants
- Water conservation ordinance
- Meet SFPUC water reductions

It's very heartening, how far we come in less that 10 years

Proposed Project Time Line

| San Mateo County Energy Strategy 2025 - Workplan | | | | | | | | | | | | | | | | | |
|---|--------|--------|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| Action | Mar-18 | Apr-18 | May-18 | Jun-18 | Jul-18 | Aug-18 | Sep-18 | Oct-18 | Nov-18 | Dec-18 | Jan-19 | Feb-19 | Mar-19 | Apr-19 | May-19 | Jun-19 | |
| Develop, review, and comments initial Draft Workplan | Staff | RMCP | | | | | | | | | | | | | | | |
| Develop, review, and comments Sub workgroup List and Outreach Plan | Staff | Staff | RMCP | | | | | | | | | | | | | | |
| Develop, review, and comments Table of Contents – Topics for Study and Strategy Elements. | | | Staff | Staff | RMCP | | | | | | | | | | | | |
| Project Scoping and Contracting with DNV GL | | | Staff | Staff | | | | | | | | | | | | | |
| Monthly Sub workgroup Meetings (energy and water) | | | | | | | | | | | | | | | | | |
| RICAPS and other Stakeholder Meetings | | | Launch | | | | Update | | | | Update | | | | | | |
| Research, Study, and Writing of Energy Strategy Document | | | Consultant and Staff | | | | | | | | | | | | | | |
| RMCP Committee Progress Review | | | | | RMCP | RMCP | RMCP | RMCP | RMCP | RMCP | RMCP | RMCP | RMCP | RMCP | RMCP | RMCP | |
| Circulate to Stakeholders for Review and Comment | | | | | | | | | | | | | | Review | | | |
| Integrate Comments | | | | | | | | | | | | | | | Staff | Staff | |
| Presentation to City Managers and County Supervisors | | | | | | | | | | | | | | | Staff | | |
| Adoption by Counties and Cities | | | | | | | | | | | | | | | | Staff | Staff |



OFFICE OF
SUSTAINABILITY

COUNTY OF SAN MATEO

THANK YOU!

Questions?

Kim Springer
kspringer@smcgov.org

Financing Sustainable Cities

Sarah Isabel Moe, Senior Consultant

March 27, 2018



Financing Sustainable Cities

Your Goals

Financial Sources

Key Metrics

Potential Funders

Five Step Process

Introducing the USDN Financing Sustainable Cities Toolkit



- What are most useful financing vehicles for your CAP projects?
- How to craft investable deals



Pitching City Projects to 30 Investors

Convening in San Francisco, 2016

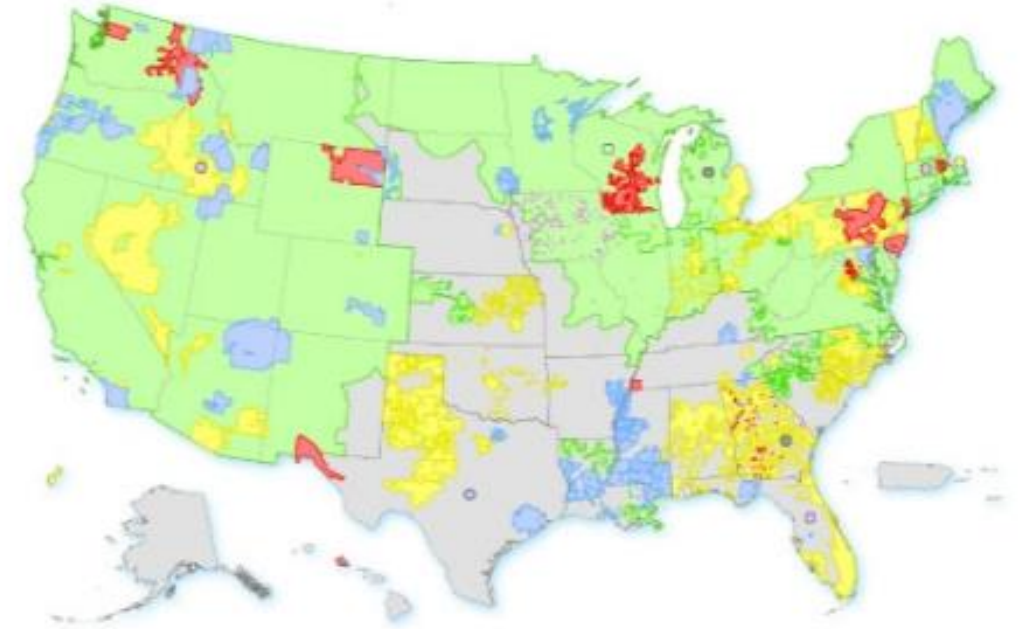
Project partners: Palo Alto, Oakland, Ithaca, Phoenix, Vancouver, Milwaukee, Ann Arbor

Energy Efficiency: Ithaca and Phoenix (LED), Vancouver (District), Milwaukee and Ann Arbor (PACE)

Circular Economy: Ann Arbor and Phoenix (Biodigesters)

Microgrids, Renewables + Storage: Palo Alto (EVs), Berkeley and Ithaca (Microgrids), Berkeley (Muni Buildings)

Green Infrastructure: Oakland, Milwaukee



**CREATE PACKAGE DEALS
FOR CITIES**

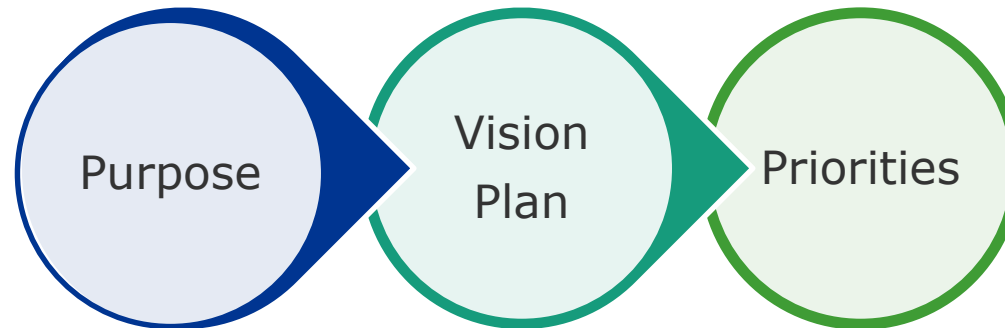
-EVs, LEDs, Muni-Buildings

Getting Started: Look at whole pipeline of CAP projects

What needs to be funded?

Shared vision, priorities specific enough to shape investments

- Convene
- Define Needs
- Assess Resources
- Set Priorities



Identify Priority CAP Projects and Build The Factsheet

FINANCIAL metrics

- Return on Investment, ROI (%)
- Payback (years)
- Net Present Value, or NPV
- Internal Rate of Return, IRR (%)

ENVIRONMENTAL metrics

- GHGs as comprehensive measure (tons)
- Impact from "externalities" (polluted water, air, land)
- Social cost of carbon pollution, including impact on health

CITIZEN engagement for top priorities

- Co-benefits

FACT SHEET TEMPLATE

Climate Action Goal: (energy/waste/water) _____

Geography/Place: _____

City Lead / Opportunity Owner: _____

| | |
|--|--|
| <p>Project Name – and Strategic Goal:</p> <p>Name: _____</p> <p>Strategic Goal: _____</p> | <p>How the Initiative Will Be Implemented</p> |
| <p>Where the Initiative Will Be Implemented:</p> <p>Description: _____</p> | <p>Timeline and Duration:</p> <p>Timeline to Setup: _____</p> <p>Expected Duration of Benefits: _____</p> |
| <p>ENVIRONMENTAL IMPACT: CLIMATE SOLUTIONS</p> <p>Energy = ____ (kilowatt hrs, megawatt hrs, joules)</p> <p>Waste = ____ (tons)</p> <p>Water = ____ (gallons)</p> <p>GHG = ____ (metric tons) ____ (metric tons/\$)</p> | <p>How does this project improve efficiency or benefit the environment:</p> |
| <p>COMMUNITY IMPACT:</p> | <p>BENEFICIARIES:</p> |
| <p>FINANCIAL CAPITAL REQUIRED (estimate)</p> <p>Total capital required: _____</p> <p>Description: _____</p> | <p>FINANCIAL RETURNS AND RATIOS</p> <p>Return on Investment (ROI) = ____%</p> <p>Net Present Value (NPV) (30 year term)</p> <p>Discount rate X% = 5 ____</p> <p>*determined by the risk of the project</p> <p>Financial Pay Back period (months, years) _____</p> |
| <p><input type="checkbox"/> Revenue</p> <p><input type="checkbox"/> Grant</p> <p><input type="checkbox"/> Debt</p> <p><input type="checkbox"/> Equity</p> | <p>Financial Analysis and Benefits over time:</p> <p>Revenue</p> <p>Cost reductions</p> <p>Changes in CapEx</p> <p>Expected Cash Flows</p> |
| <p>Comments</p> | |

Framework for Thinking about CAP Funding Sources



City Budget

Taxes

User Fees



Funders

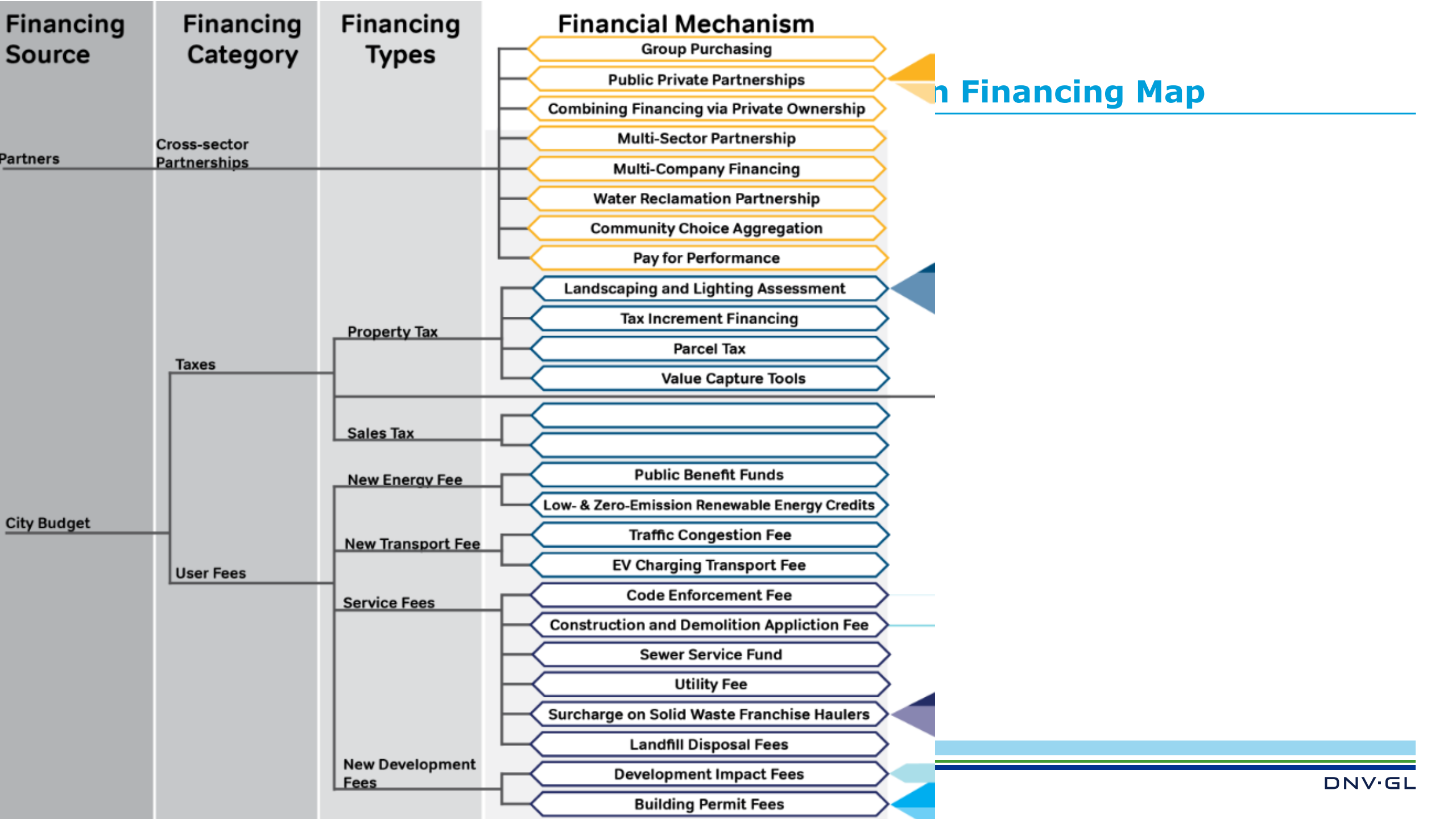
Investor Financing

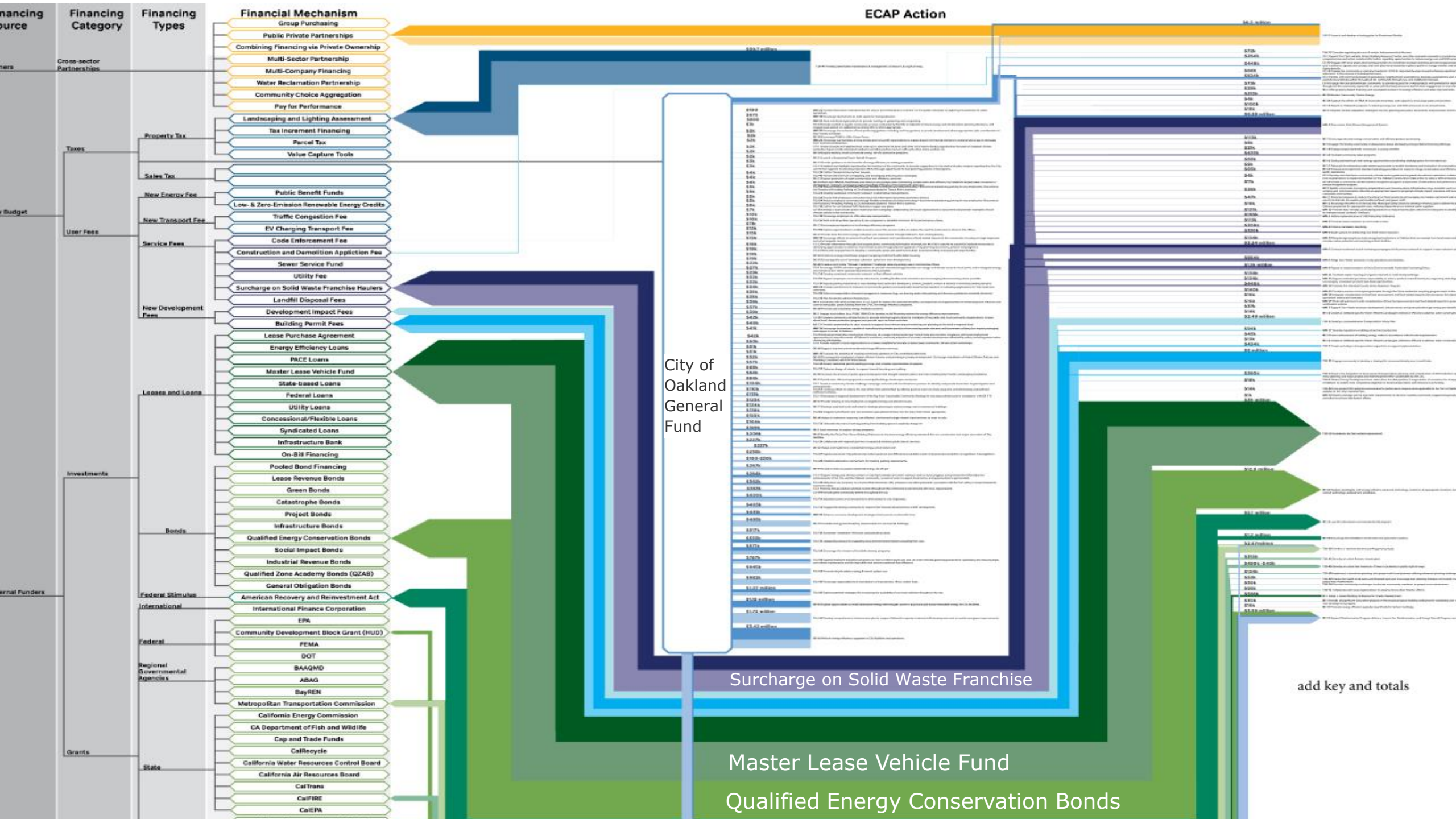
Donor Grants



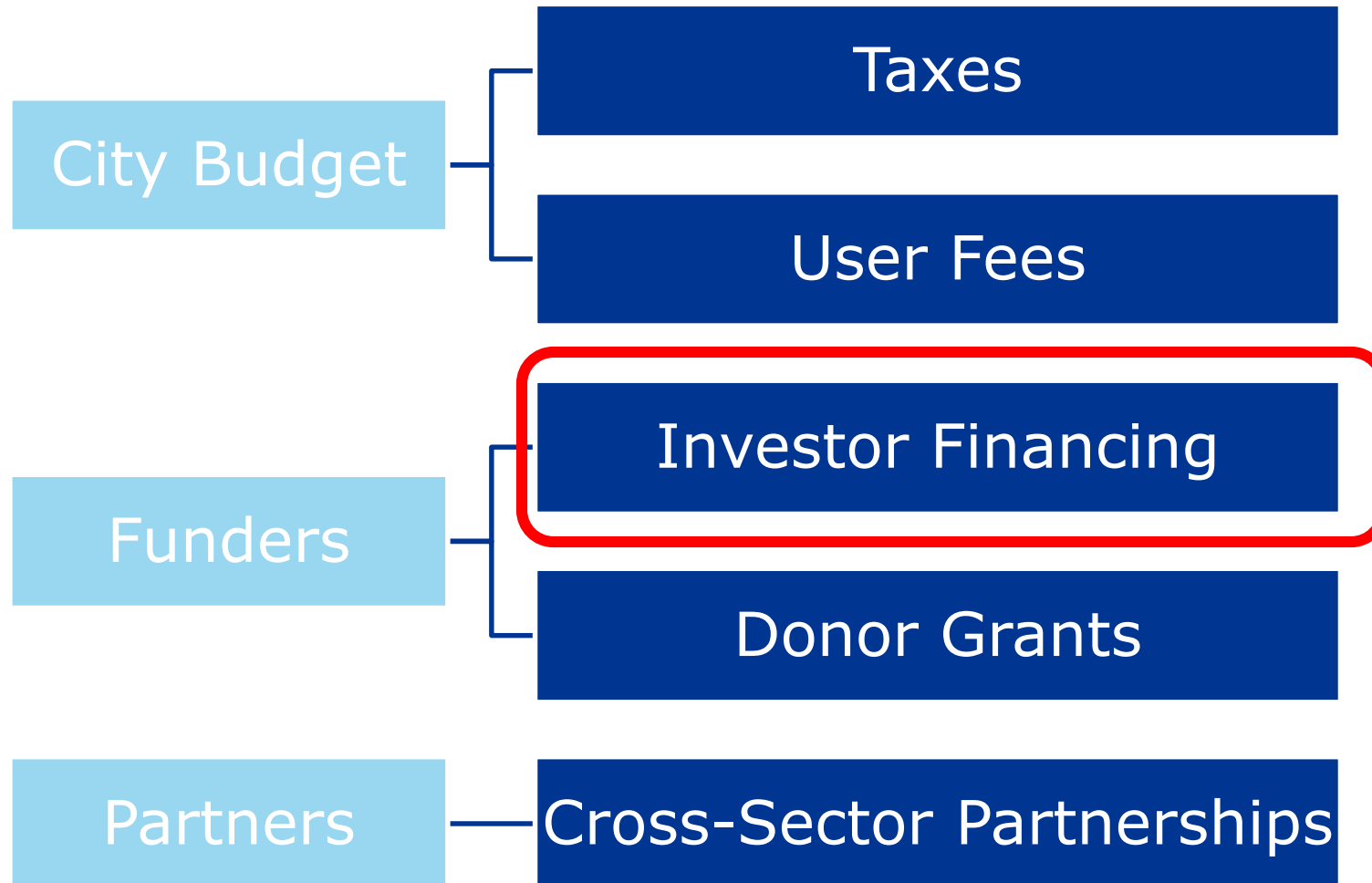
Partners

Cross-Sector Partnerships



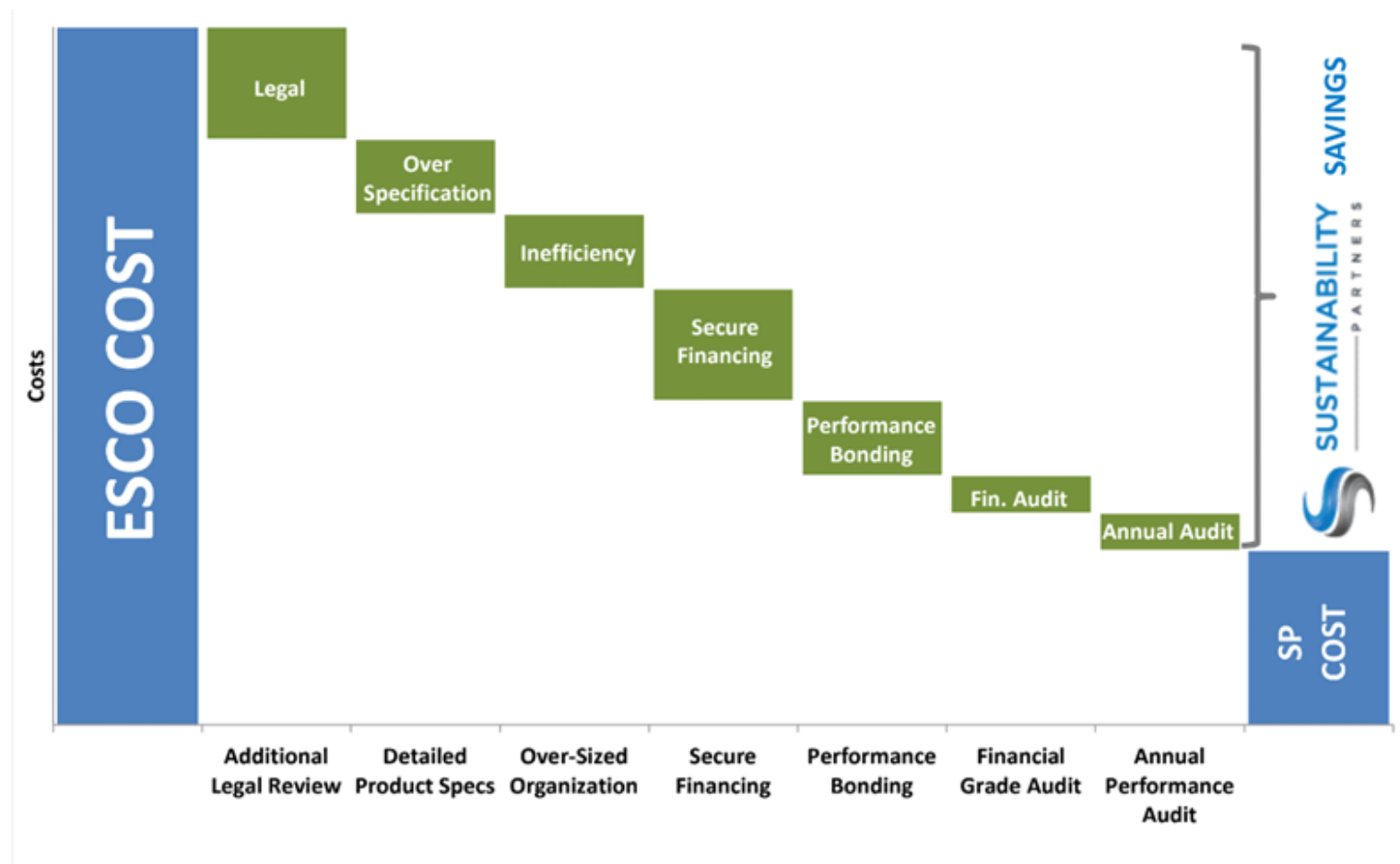


Framework for Thinking about CAP Funding Sources



Latest and Greatest: Sustainability as a Service

- ❑ No initial cost or fee
- ❑ Integrate energy savings through cloud/sensor
- ❑ City pays monthly service agreement for the provider who purchases and manages/maintain assets:
 - ❑ Lighting
 - ❑ HVAC
 - ❑ Boilers
 - ❑ Chillers
 - ❑ Fleets
 - ❑ Solar
 - ❑ EV Charging



Latest and Greatest: Sustainability as a Service



GSV Sustainability Partners | Customer Profile Galveston County Courthouse

"Partnering with GSV SP on the courthouse and jail projects contributed towards helping us meet our sustainability goals and will result in a large, meaningful impact for the County. We're using **fewer natural resources** and their model enabled us to do a utility-scale project without any related impact on County operating budgets. In fact, their Sustainability-as-a-Service™ model **returns money to the county.**"

J. Dudley Anderson
County Architect, Galveston County

- LED retrofits for 3 facilities (courthouse, justice center and parking garage)
 - Reduced energy costs
 - Eliminated maintenance/repair costs
-
- NEW CASE Studies to come: EV chargers



SUSTAINABILITY
PARTNERS

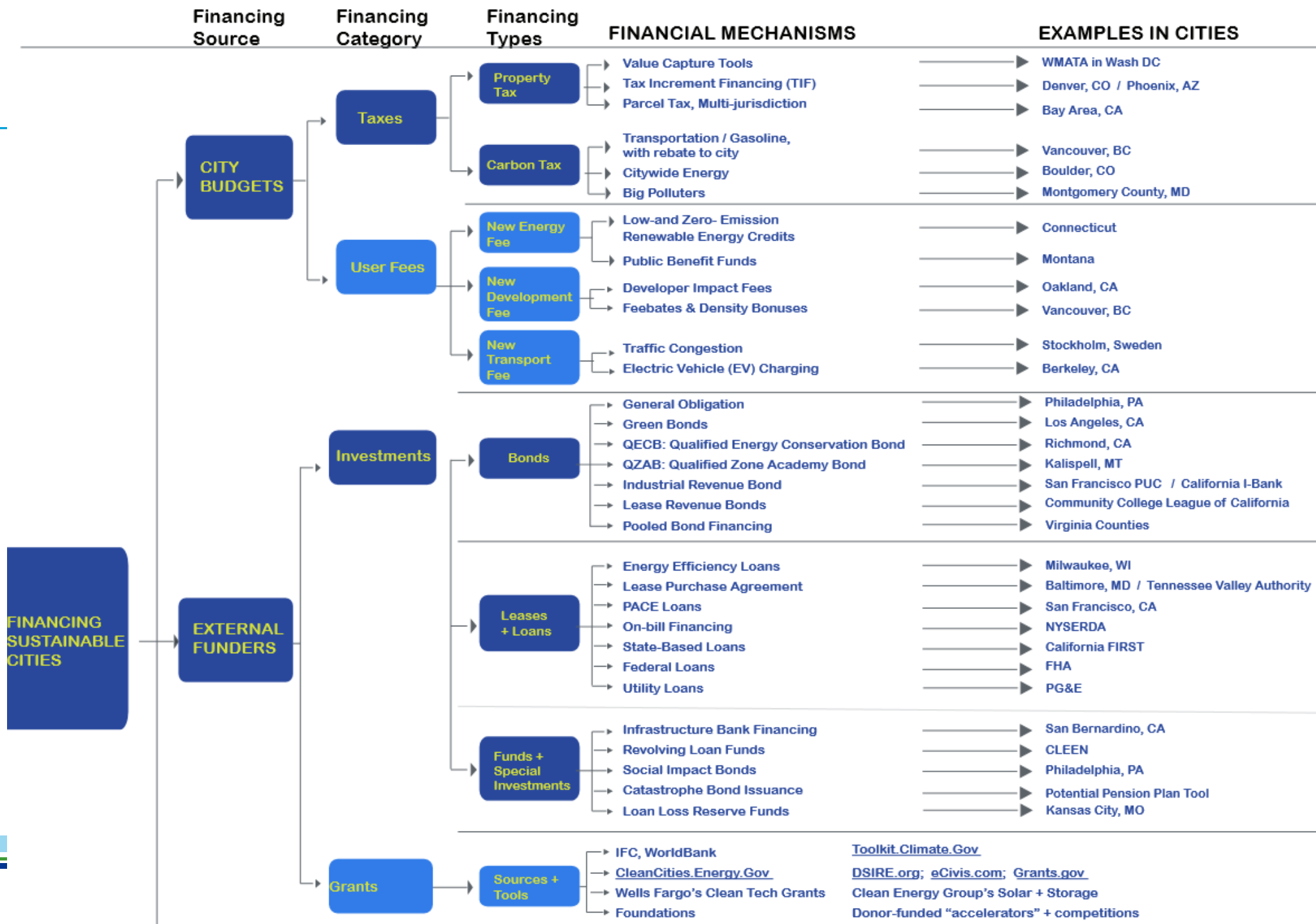
West Coast Mayors Want to Buy Electric Vehicles in Bulk

BY RACHEL DOVEY | JANUARY 12, 2017



(Photo by Paul Morigi/Invision for NRG eVgo/AP Images)

Use the Toolkit



www.usdn.org/public/page/32/Government-Operations#FinancingToolkit



If opportunity knocks.... open the door.

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SAFER, SMARTER, GREENER





***SF* Environment**

Our home. Our city. Our planet.

A Department of the City and County of San Francisco

PACE Update for RICAPS

Rich Chien, City and County of San Francisco

March 27, 2018



Agenda



1. Brief San Francisco history/background
2. ABAG Regional Collaborative Services Agreement (RCSA)
3. State PACE Legislation Update
4. BayREN Commercial PACE initiative
5. Q & A

Beginnings - GreenFinanceSF



- 2009-10: BerkeleyFIRST model, ARRA-funded
- Mello-Roos PACE CFD, \$150 million authorization
- Program Design
 - “Program Administrator” RFP/RFQ (contractual relationship)
 - Financing structure - SF issues mini-bonds to RF, takeout & recapitalization agreement
 - Contractors, eligible measures, Q/A
 - Marketing, outreach & education
- July 2010 - FHFA letters cause residential suspension

Commercial - 2012



Pier 1, San Francisco

- Owner: Prologis w/5 subtenants
- \$1,400,000 PACE bond purchased by Clean Fund, QECCB subsidy
- Johnson Controls turn-key whole building energy solution
- HVAC, lighting, 200kW rooftop solar=32% demand reduction (\$100K/year)
- Annual assessment < projected energy savings (positive cash flow)



Residential - 2017



5:1



CSCDA
OPENPACE



1:1



DIVIDEND

5:1



1:3



structured
finance
ASSOCIATES



12 Programs: 6 Resolutions

Considerations

1. Easy, turn-key, no-cost vs. loss of control, program design influence, obtaining data
2. How to better partner on these issues?

BayREN-ABAG PACE Agreement (RCSA)



- Alliance
- NRG/CounterpointeSRE
- Energy Efficient Equity
- Figtree/Dividend
- PACE Funding
- WRCOG (HERO)
- Spruce
- Ygrene

TAMING THE WILD WEST: REGIONAL COLLABORATIVE SERVICES AGREEMENT FOR PACE

**OVER 400 LOCAL GOVERNMENTS IN CALIFORNIA
HAVE VOTED TO AUTHORIZE PACE PROGRAMS IN
THEIR COMMUNITIES...**

DO YOU KNOW WHAT'S HAPPENING IN YOURS?

Currently over \$1.5 billion in residential PACE has been financed in California, primarily in the single family home market. Local jurisdictions typically make PACE available to property owners by passing an authorizing resolution to "opt in" to a Joint Powers Authority (JPA) that has partnered with PACE Administrators, private companies who have arranged capital to purchase the bonds, administer programs, vet and work with installation contractors, and service assessments in partnership with county tax collectors. Since the PACE provider's primary relationship is with the JPA, the local jurisdiction is giving up a great deal of oversight for PACE activities. *While opting into an existing program may be simpler, jurisdictions still should consider the level of control and transparency needed to ensure the program meets expectations and minimizes risk to constituents. Local governments are taking action.*

CALIFORNIA R-PACE ASSESSMENTS, 2009-#1 2015
SOURCE: LAURICOR WIREKEY NATIONAL LABORATORY, LLP

"WE ARE LOOKING INTO ADOPTION OF PACE PROGRAMS CONTINGENT UPON PARTICIPATION IN ABAG'S RCSA"
-CITY OF CUPERTINO, CALIFORNIA

The Association of Bay Area Governments (ABAG) has entered into a Regional Collaborative Services Agreement (RCSA) with active PACE administrators in the Bay Area. The intent of the RCSA is to collaborate with PACE providers on behalf of local governments to:

- Monitor PACE activities relating to consumer protections practices
- Ensure consistent application of best practices
- Improve program reporting and transparency
- Support complementary energy efficiency efforts in local communities
- Require disclosure of project level data to help the local government meet Climate Action Plan targets

Bay Area jurisdictions can sign an Acknowledgement Form for these terms to apply to PACE activities in their communities.

RCSA participants include:

- Alliant NRG
- Energy Efficient Equity
- Figtree Company, Inc.
- PACE Funding Group
- Western Riverside County Governments (HERO)
- Ygrene Energy Fund, California LLC

For more information on BayREN's Program Manager, Jennifer Berg, at:

- jenny@abag.ca.gov
- (415) 620-7947
- abag.ca.gov/BayREN

Association of Bay Area Governments

SPONSORED JOINTLY WITH PACE PROVIDERS AND:

Association of Bay Area Governments | SF Environment | BAY AREA Regional Energy Network



BayREN-ABAG PACE Agreement (RCSA)



Jurisdiction enables PACE Administrator and signs Acknowledgment to RCSA

Jurisdiction sends Acknowledgment to PACE Provider and ABAG

Jurisdiction notifies ABAG of any violation of RCSA

- Consumer protections, disclosure emphasis
- Data sharing
- Marketing guidelines coordinated with local jurisdiction

Consumer Protections Legislation



2016

- AB 2693: "PACE Preservation & Consumer Protection Act"; focus on disclosures ("know-before-you-owe"); property tax and PACE assessments cannot exceed 5% of the market value of home.
- Effective January 1, 2017

2017

- SB 242: Live multi-language recorded closing call; 3-day right to cancel; contractor/sales conduct and representations
- AB 1284: standardizes PACE underwriting & valuation methods, requires "ability-to-pay" review; PACE administrators to be regulated by CA Dept of Business Oversight licensing, and are responsible for contractor training and oversight
- Effective 2018-2019

BayREN Commercial PACE



- Sustainable Real Estate Solutions (SRS) - consultant
- Contractor support, project development tools/software, focus on cash flow
- Liaise with PACE capital providers
- First closing: Sept. 2017, \$117,000 PACE bond through SCEIP for light industrial facility in Petaluma (LED retrofit)
- New focus on small commercial HVAC contractors



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SF Environment

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SFEnvironment.org

RICAPS Piloting Two Working Groups

- Municipal Green Building + Environmental Preferable Purchasing
- During our poll let us know if you're interested
- After this meeting we will send out a doodle poll to those interested for our 1st call for each working group
- Be sure to join the first call!

Wrap Up & Next Steps

- **Next RICAPS Meeting**
 - In-person meeting on Tuesday, April 24th from 12:30 PM – 3:00 PM (lunch 12:30 – 1:00)
 - Foster City, City Hall, 610 Foster City Boulevard, Room 1D-EOC Ops/Training (Fire)
 - Topic: What's new with energy efficiency programs in San Mateo County?
- **Please complete the Post-meeting Survey!**



OFFICE OF
SUSTAINABILITY

COUNTY OF SAN MATEO

THANK YOU !

SAN MATEO COUNTY
energy
watch

RICAPS
Regionally Integrated Climate Action Planning Suite