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CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY

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Agenda

Resource Management and Climate Protection Committee (RMCP)

Date: Wednesday, April 18, 2018

Time: 2:00 p.m. to 4:00 p.m.

Location: San Mateo City Hall

330 West 20th Avenue San Mateo, CA

Conference Room C (across from Council Chambers)

1. Introductions
2. Public Comment
3. Approval of Minutes from February 21, 2018 and March 21, 2018 Committee meetings
(Kim Springer – Committee Staff) Action
4. Presentation on Advanced Energy Community residential microgrid proposal
(Daniel Hamilton, City of Oakland) Presentation
5. Update on California Public Utility Commission’s Business Plan process, proposed decision
(Kim Springer – Committee Staff) Presentation/Discussion
6. Review and comment on San Mateo County Energy Strategy 2025 draft proposed documents:
guiding principles, comparative review and contents, and stakeholder lists
(Kim Springer – Committee Staff) Presentation/Discussion
7. Committee Member Updates
8. Next Meeting Date: May 16, 2018 – Bovet Rd, San Mateo

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Minutes

Resource Management and Climate Protection Committee (RMCP)

Date: Wednesday, February 21, 2018

In Attendance:

Maryann Moise Derwin, Committee Vice Chair, Mayor Portola Valley*

Deborah Gordon, Committee Chair, Woodside Town Council*

Rick DeGolia, Town of Atherton*

Adrienne Carr, BAWSCA*

Don Horsley, County Supervisor*

Beth Bhatnagar, SSMC Board Member*

Kim Springer, County Office of Sustainability

Andrea Chow, County Office of Sustainability

Rachael Londer, County Office of Sustainability

Dave Pine, County Supervisor*

Michael Barber, Supervisor Pine's Office

Diane Papan, Councilmember, San Mateo*

Janet Borgens, City Council of Redwood City

Sandy Wong, C/CAG

Betty Seto, DNV GL

Not in attendance:

Pradeep Gupta, South San Francisco City Council*

Ortensia Lopez, El Concilio of San Mateo County*

Bill Chiang, PG&E*

Robert Cormia, Professor Foothill-DeAnza*

* Committee Member (voting)

1. Introductions

Committee members and guests made introductions.

2. Public Comment

There were no public comments.

PUBLIC NOTICING: All notices of C/CAG Board and Committee meetings are posted at:
San Mateo County Transit District Office, 1250 San Carlos Ave., San Carlos, CA.

3. Approval of Minutes from January 17, 2018 Committee meeting **Action**

Horsley/Derwin - Passed

4. Presentation on Energy Efficiency Program Updates for Member Agencies in San Mateo County **Presentation**

Andrea Chow, County Office of Sustainability gave a presentation on the BayREN Energy Home Upgrade program and the San Mateo County Energy Watch, and the customer segments they each serve. The Committee is familiar with the SMCEW program, and Chow presented more details on the Single-family and Multi Family Upgrade programs. She also presented the Codes and Standards, and other elements of the program under BayREN. The presentation included outcomes since FY 2013, and a review of program outcome update reports that will be provided to cities in San Mateo County, served by these two programs.

Gordon: Does this report show the actual savings in kWh as program results?

Chow: It's not currently included, but we can provide that information.

Chow explained that the report would be going out to staff at cities shortly.

5. Presentation on DNV GL's Global and Regional Forecast of the Energy Transition to 2050 **Presentation**

Betty Seto presented global work on the part of researchers, independently at DNV GL, a prediction of likely global energy markets through 2050, The Energy Transition Outlook. The report considers where we were in 2015 and projects into the future. The report is one piece of a total of four reports on different energy markets, the Transition document being one of the four. DNV GL has 13,000 employees worldwide, and so is a large consultant in the energy sector.

Gordon: With 13,000 employees, what markets does DNV GL serve?

Seto: Advisory service, due diligence, renewable energy project valuation, independent engineering, climate and energy programs, and some CEQA and environmental compliance.

In contrast to some other studies, this report is about the most likely future of energy worldwide. The prediction is environmentally positive, highlighting population and GDP will continue to increase worldwide, but still, energy and GHG emissions peak around 2030 and begin to decrease. The analysis is based on a model which includes multiple inputs.

A few of the outcomes show that, for instance, EV will reach cost parity around 2020. In the building sector, the energy use per square foot will continue to decrease at about 1.2% per year. World energy demand is predicted to flatten out over time through 2030. There are other indicators that lead to the conclusions in the report.

Gordon: does the model include transition to electric and other alternative fuels.

Seto: Yes, it's predicted that there will be a steady transition, and fuel switching in other sectors is also expected, and energy use worldwide is expected to be carbon free by 2050.

DeGolia: Do you consider nuclear and hydro to be carbon free.

Seto: Yes

Gordon: Are you expecting countries, even China to move away from Coal without going through a

long-term phase of nuclear?

Seto: The model says that we will even be moving away from nuclear as a carbon-free energy source by 2050.

Seto shared that all of this is good news, but there is some bad news related to the two-degree C goal under the Paris Agreement. There is a range in the prediction, but the model predicts that there will be an overshoot of that two-degree limit globally.

Seto moved on to explain both the national and state outcomes from the research. The research shows that the duck curve is exacerbated by the addition of additional renewables and the increase use of EVs. This is an issue that will need to be addressed. When DNV GL mapped the existing CA policy energy and climate policy goals to national goals, projected North American outcomes pretty much matched the CA goals.

Gordon: Do you do sensitivity analysis on your results, and have you looked to see if something disruptive changed, how would it change the results?

Seto: I don't have an answer to that, but we did look at learning curves for adoption.

Gordon: It would be good to know because it could greatly affect the time frames in the results.

Seto: I believe that change is battery density, for instance, was included in the model, and this is where the scenario analysis is most useful.

The model is set up and the plan is to run the model again in a couple of years.

DeGolia: Battery is a huge issue and where batteries are placed and how they are used has a huge impact. For instance, we want to hold off on the investment of batteries if the density is going to change. The question is where to encourage investment. Also, what are the best DERs and where do we focus on energy generation. We need to understand the costs and benefits.

Gordon: We need to look at what is the best in terms of battery ownership.

DeGolia: We should also look at used auto batteries as a resource for local renewable. We should do some analysis on these topics.

6. Discussion about RMCP Committee priorities for calendar year 2018 Discussion

Kim Springer introduced a discussion on potential projects that the Committee could undertake in 2018. Springer suggested that, regarding the Energy Strategy, it may make sense to update the document in five-year cycles given the uncertainty in energy technologies. Springer also mentioned the Governor's Conference.

Comments were:

Papan: Does the Energy Strategy need to have the same elements?

Springer: Not necessarily.

Papan: I think we should consider exploring the planning and investment in storage.

Gordon: I agree that this should be considered and evaluated with San Mateo County specifically in mind.

Pine: Should we look at developing the next strategy out to five years, or maybe further?

Springer: The baseline has changed so much. The first round was written by a consultant, and we couldn't even mention climate. We should probably involve more stakeholders around grid issues and storage, and DER.

DeGolia: It's a very provocative idea to be considering these topics and building a plan around it.

Gordon: It makes sense to consider the economics in these issues, like DNV GL did in their analysis.

DeGolia: We completed this 8-9 years ago. No doubt we need a good energy strategy and we now have PCE, and there is PG&E. Maybe a first step would be to have a discussion between PG&E and PCE and this Committee.

Springer suggested that at the next meeting, staff come back with a work plan to help move the effort forward.

About the Governor's Climate Summit, the Committee considered the letter and suggested it be sent to city council members, city managers, and SAMCEDA staff.

7. Review and approve RMCP Committee meeting dates for calendar year 2018 Action

The Committee moved to include all monthly meeting dates for 2018: Derwin/Carr – Passed.

Springer said he would post the 2018 meeting dates and send out calendar dates to the committee.

8. Committee Member Updates

Committee member Pine provided information on the Water Summit scheduled for March 30th at Canada College.

9. Next Meeting Date: March 21, 2018

All presentations have been posted on the C/CAG RMCP website.

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Resource Management and Climate Protection Committee (RMCP)

Minutes of March 21, 2018 Meeting

In Attendance:

Dave Pine, County Supervisor*
Diane Papan, Councilmember, San Mateo*
Pradeep Gupta, South San Francisco City Council*
Maryann Moise Derwin, Committee Vice Chair, Mayor Portola Valley*
Rick DeGolia, Town of Atherton*
Adrienne Carr, BAWSCA*
Michael Barber, Supervisor Pine's Office
Keith Malone, California Fuel Cell Partnership
Kim Springer, County Office of Sustainability
Danielle Lee, County Office of Sustainability
Andrea Chow, County Office of Sustainability

Not in attendance:

Deborah Gordon, Committee Chair, Woodside Town Council*
Don Horsley, County Supervisor*
Bill Chiang, PG&E*
Robert Cormia, Professor Foothill-DeAnza*
Beth Bhatnagar, SSMC Board Member*
Ortensia Lopez, El Concilio of San Mateo County*

* Committee Member (voting)

1. Introductions
2. Public Comment
3. Approval of Minutes from February 21, 2018 Committee meeting: No Quorum – postpone to following meeting

PUBLIC NOTICING: All notices of C/CAG Board and Committee meetings are posted at:
San Mateo County Transit District Office, 1250 San Carlos Ave., San Carlos, CA.

4. Presentation on California plans for deployment of Hydrogen vehicles

Keith Malone delivered a presentation on the California Fuel Cell Partnership (CaFCP), the planned deployment of Hydrogen fueling infrastructure, and expected growth of HFC vehicles in CA.

CaFCP is a public private partnership since 1999 with a variety of public agencies (local, regional, federal) and fuel cell operators and manufacturers. They provide a variety of services to members including emergency response training, legislative outreach; with the mission of collaborating to advance fuel cell technology.

Electric Vehicles (EVs) have either battery or fuel cell technologies. Fuel cells are comprised of thin metallic wafers, stacked like a loaf of bread and range in size from smaller transportation fuel cells to larger fuel cells that provide combined heating and power for homes. Fuel cells can rely on a variety of fuels, for Fuel Cell Electric Vehicles they rely on Hydrogen.

Gupta: What is the average life expectancy of a fuel cell?

Malone: Roughly 5,000 hours, 100,000-150,000 miles of life expectancy.

Gupta: What wears out in a fuel cell after 5,000 hours?

Malone: Probably material builds up on the plates, but not completely sure.

Pine: What is the main powering mechanism in the FCEV?

Malone: The vehicle is fuel cell dominant, meaning the fuel cell provides electricity directly to the drive system, and the battery is used to balance energy supply.

Fuel Cell Vehicles achieve roughly 350 miles on a fill up; New Fuel Cell vehicles include the Toyota Murai, Honda Clarity, and Mercedes. Others, soon to come to market with include Nissan and Huyandi

Gupta: Is there a dominant manufacturer of the fuel cells themselves?

Keith: Most companies develop and work on their fuel cells in house, with the exception of Volkswagen that uses Ballard Power Systems in Canada.

The goal for California is to install 100 stations by 2025, with Hydrogen station most likely to be installed at existing gas stations.

DeGolia: Who pays for the pumps?

Malone: At this point, Hydrogen stations are 95% funded by the State of California, and there is currently a solicitation open from the CEC for new stations.

Gupta: Have the potential hazards with pumping hydrogen been resolved?

Malone: CaFCP focuses on firefighting training and emergency response. Hydrogen escapes quickly, rising into the air at a high speed, unlike gasoline, which pools. Fuel Cell Vehicles have undergone testing to ensure that the fuel cells are difficult to penetrate.

Lee: What is the timing for the development of a hydrogen station?

Malone: 18-24 months for design.

Pine: How do these station locations get chosen?

Malone: Funders look for the highest concentration of early Hydrogen adopters. Automakers have also influenced the station locations.

Michael: How much is a typical fill up?

Malone: \$16/kg at about 4-5kg per tank, so around \$70 per fill up.

DeGolia: How does a gallon of gasoline compare in terms of the amount of energy?

Malone: 1kg equals about 1 gallon of gas in terms of energy.

Currently, 21 Hydrogen buses are in services and 32 more are funded. Some users are: AC Transit and Orange County Transportation authority. Trucks are still a work in progress but can also be run on Hydrogen.

Hydrogen is on a renewable pathway CA requires 33% of hydrogen fuel to be renewable?

Barber: At \$16/kg; what efforts are upcoming to make this a more affordable/viable option

Malone: Currently 4000 vehicles on the road; Production volume should help to drive down costs.

Barber: Would you say that operations and maintenance is less or more than standard cars?

Malone: expectation that since there are less moving parts, should be cheaper but fuel cells are not cheap; e.g., brake system maintenance is cheaper since there is a reliance on regenerative braking systems.

The presentation for this item has been posted on the C/CAG RMCP website.

5. Presentation of a Work Plan for development of San Mateo County Energy Strategy 2025 for review and comment

As a follow-up to the February meeting, Kim Springer prepared and presented a Workplan for development of the San Mateo County Energy Strategy 2025. Tentative timeline supports the meeting of working groups, RMCP committee feedback and city feedback during RICAPS meetings. If the work plan is followed, the updated San Mateo County Energy Strategy 2025 could begin to be presented for adoption by each city and town starting April 2019.

Gupta: The cities are the audience for the document, document should address issues that the cities face (e.g., microgrids, small nuclear)

Springer: With the original Energy Strategy, we focused on educating city staff and councils, so that any new policy worked with the goals and strategies outlined in the document.

Pine: Need to address PCE; does this address adoption of electric vehicles and clean transportation?

Springer: Yes, I think you can't talk about energy and the grid any longer without considering this.

As next steps, staff will develop suggested stakeholders for one energy and one water working group, and additional recommendations as a starting point for topics to be covered.

Papan: Suggest an approach where Energy and Watery supply act as substantive topics, but

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leadership, collaboration and economics act as subject areas for each substantive topics.

Pine: There is a need for everyone to look at the existing Energy Strategy, highlight areas that cities/county can collectively work on together

Lee: How do climate action plans and the energy strategy interact? Climate Action Plans should include resilience and adaptation; resilience vs. mitigation.

Springer: The energy strategy is not really a climate action plan, as it doesn't set an emission reduction target.

Gupta: The strategy should focus on existing research to address actual issues?

Springer: I hope that it will also address, resilience of electric grid and critical infrastructure, microgrids, etc.

DeGolia: 2025 is a good target, within reach, CAPs focus on 2025 and 2030. The Strategy should look at County as a whole as opposed to City-level, as a CAP does. Is transportation within the reach of the Strategy?

Springer: Yes, I think it must be included.

Kim said that staff will review the existing Energy Strategy, identify topics for the update, and make some comparisons. Staff will also propose a list of stakeholders.

6. Update on current water supply conditions and recent State actions

Adrienne Carr delivered a presentation on water supply for the SFPUC and recent state actions.

Upcountry precipitation is likely to be above the median by end of week. In an average year, the entire Hetch Hetchy system fills.

Upcountry snow pack is approaching 75% of median due to recent storms but will likely not reach 100%. The total system storage is 73%, normally at 80% but maintenance at Cherry reservoir reduced the amount stored, which brings the average down. Other California reservoirs are at historical average.

In terms of water use, there has been an uptick of water consumption in 2017 since the last year of the drought (2016); outdoor water use rebounded and residential users are generally conserving less throughout the state.

Carr showed a chart of lowest water users in the Bay Area (residential per capita usage and South San Francisco has the lowest use.

The state has been working to enact legislation to make water conservation a way of life in California. 1) Use water more wisely 2) Eliminate Water waste (leak detection) 3) strengthen local drought resilience (Urban water management, drought action plans) and 4) improve agricultural water use efficiency and drought planning.

BAWSCA is helping agencies comply with proposed legislation, including studies of indoor vs. outdoor water usage, a commercial, industrial and institutional (CII) water users audit pilot

program, automated metering infrastructure (AMI) workshops and information sharing, and possible aerial measurements.

AB 1668 and SB 606 are current vehicles for long-term conservation. Legislation has improved but BAWSCA is concerned about a no variance process for agencies with minimal outdoor water use, ongoing costs for landscape area measurement, and administrative challenges.

The presentation for the item has been posted on the C/CAG RMCP website.

7. Update on Governor’s Climate Summit, city information-gathering effort, for comment

Kim Springer delivered an update on the efforts to collect information from cities for making a case for greater participation in the Governor’s Global Climate Action Summit in September 2018 in San Francisco. A letter from C/CAG went out to City Managers and Elected officials, and staff has heard updates from agencies that they are working on collecting this information. Once info is collected, staff will work on how to package the information.

The letter that was sent to the cities is included in the packet for this meeting.

8. Committee Member Updates

9. Next Meeting Date: April 18, 2018 – Redwood City location

C/CAG AGENDA REPORT

Date: April 18, 2018
To: Resource Management and Climate Protection Committee
From: Kim Springer, RMCP Committee Staff
Subject: Presentation on Advanced Energy Community residential microgrid proposal

(For further information contact Kim Springer at 650-599-1412)

RECOMMENDATION

Receive a presentation on Advanced Energy Community residential microgrid proposal.

FISCAL IMPACT

Staff time is paid for by funding under the C/CAG – PG&E Local Government Partnership (LGP) agreement or from Congestion Relief Funds for staffing of the RMCP Committee.

BACKGROUND/DISCUSSION

The City of Oakland has developed a residential EcoBlock concept which integrates solar, microgrid, energy efficiency, fuel switching, and EV charging, in a one block by one block integrated project.

Daniel Hamilton, Sustainability Program Manager for the City of Oakland, will present the project concept. The project should be of interest to the Committee, considering the effort to update the current San Mateo County Energy Strategy, as it integrates many of the elements and concepts for microgrid and associated resiliency.

A look at the Oakland EcoBlock photo and diagram is attached.

ATTACHMENTS

EcoBlock Concept Diagram

Oakland EcoBlock

Residential Solar + Storage Microgrid Paired with
Energy Efficiency and Fuel Switching



March 27, 2018

C/CAG AGENDA REPORT

Date: April 18, 2018
To: Resource Management and Climate Protection Committee
From: Kim Springer, RMCP Committee Staff
Subject: Update on California Public Utility Commission's Business Plan process, proposed decision

(For further information contact Kim Springer at 650-599-1412)

RECOMMENDATION

Receive an update on California Public Utility Commission's Business Plan process, proposed decision.

FISCAL IMPACT

Staff time is paid for by funding under the C/CAG – PG&E Local Government Partnership (LGP) agreement and from Congestion Relief Funds for staffing of the RMCP Committee.

BACKGROUND/DISCUSSION

The California Public Utilities Commission (CPUC) recently released a decision, which will affect the San Mateo County Energy Watch – Local Government Partnership program.

The proposed decision, so-called because it is a draft will eventually be voted on by the Commission, approved energy efficiency business plans of the following Program Administrators (PAs): four investor owned utilities, three regional energy networks (RENs), and one community choice aggregator, Marin Clean Energy.

The original business plan process began in October 2015 as an adopted decision to establish a rolling portfolio cycle, which will allow the CPUC and PAs to update programs mid-cycle, reducing disruption of programs to energy efficiency customers.

Staff will give a brief overview of the proposed decision and provide additional information on discussions with PG&E on potential changes in the new program cycle, which may begin on January 1, 2019.

A link to the proposed decision is provided as an attachment.

ATTACHMENTS

<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M212/K763/212763072.PDF>

C/CAG AGENDA REPORT

Date: April 18, 2018
To: Resource Management and Climate Protection Committee
From: Kim Springer, RMCP Committee Staff
Subject: Review and comment on San Mateo County Energy Strategy 2025 draft proposed documents: guiding principles, comparative review and contents, and stakeholder lists

(For further information contact Kim Springer at 650-599-1412)

RECOMMENDATION

Review and comment on San Mateo County Energy Strategy 2025 draft proposed documents: guiding principles, comparative review and contents, and stakeholder lists.

FISCAL IMPACT

Staff time is paid for by funding under the C/CAG – PG&E Local Government Partnership (LGP) agreement and from Congestion Relief Funds for staffing of the RMCP Committee.

BACKGROUND/DISCUSSION

At the February 21, 2018 RMCP Committee meeting, the Committee decided to move forward with an update to the San Mateo County Energy Strategy 2012 document, and there was discussion that the cycle of this and future updates may need to be more frequent (than 10 years).

At the March 21, 2018 RMCP Committee meeting, staff presented a draft workplan and time line for the San Mateo County Energy Strategy 2025 update project.

As a next step, RMCP Committee staff has prepared the attached document, which includes, a list of guiding principles for the Energy Strategy 2025 update, a topic comparison of the energy and water sections, between the original document and the proposed update, and a proposed list of stakeholders to the update for energy and water.

Staff requests that the Committee review and comment on the attachment provided.

ATTACHMENTS

Document: Guiding Principles, Energy Strategy Content Review, and Proposed Stakeholders

San Mateo County Energy Strategy 2025
Guiding Principles

The following are Guiding Principles and provide a starting vision for the outcome of work of the RMCP Committee and stakeholders engaged in the development of the San Mateo County Energy Strategy 2025 document.

Energy and Water supply in San Mateo County will be:

Sustainable

- the lowest possible carbon footprint for delivered and consumed energy and water

Equitable

- the energy and water is provided equally, regardless of socioeconomic or other status

Abundant

- water and energy is available at a capacity to serve current and future needs

Reliable

- energy and water is there when you go to use it

Resilient

- energy and water is there when you go to use it, even if it isn't somewhere else

Affordable

- at a cost that is competitive or economically stable

Safe

- not a hazard, safe to consume, for utility workers, and others

San Mateo County Energy Strategy – Energy and Water

Topics and Stakeholders

Energy Section

Original Document

- Current and historic snapshot of energy supply and issues
- Making energy conservation and energy efficiency standard practice
- Promoting greener and cleaner sources of energy
- Understanding baseline use
- Improving government facilities and operations
- Integration into government policies
- Create Energy Watch – Local Government Partnership
- Voluntary, incentivized, and mandatory green building ordinances (reach codes)
- Leveraging Energy Service Companies (ESCOs)
- Updating General and Strategic plans
- Green Building Policy
- Setting up revolving funds for energy efficiency
- Demand Response
- Loading order of energy generation fuels
- Self-generation
- Energy and Climate
- Energy-Water Nexus (intersection of energy efficiency and water conservation)

New Document

- Current and historic snapshot of energy supply and issues
- Energy efficiency
- Renewable energy
- Demand-side programs
- Microgrid
- Smart grid
- Electrified transportation
- Battery storage
- Energy-Water Nexus
- Fuel switching

Energy Stakeholder List

Peninsula Clean Energy	El Concilio or other nonprofit in energy
County of San Mateo	San Mateo County Community College District
Clean Coalition	City/Town Council (2)
SamTrans/Caltrain	City/Town Public Works/Fleet Vehicles (2)
Electric vehicle/bus manufacturer	Battery Storage Integrator
PG&E	Solar Company

Water Section

Original Document

Current and historic snapshot of water supply and issues

Drought tolerant plants and water conserving landscape infrastructure

Water conservation ordinances

High efficiency toilets and other water conserving fixtures

Update general plans to include water conservation and state-mandated landscape guidelines

Switch to artificial turf

Implement a water conservation rate structure

Encourage retail participation

Pre-plumb for greywater

Desalinization and re-use sources of water

Rainwater collection

New Document

Current and historic snapshot of water supply and issues

Leak detection – addressing water loss, utility and customer sides of the meter

Water auditing and efficiency – commercial, industrial, and institutional (CII) customers

Continuing work on development of alternative water supplies

Groundwater

Reuse

Onsite reuse

Desalination

Water Stakeholder List

BAWSCA

County of San Mateo

Water agencies (2-3)

Environmental Health

Silicon Valley Clean Water

San Mateo WWTP

Satellite Facility – Upstream treatment - West Bay Sanitary District