

C/CAG

CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY

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Millbrae • Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside*

Agenda

Resource Management and Climate Protection Committee (RMCP)

Date: Wednesday, January 15, 2020

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

Location: 455 County Center – 2nd Floor, 201 Conference Room (across from Elevator)

1. Introductions
2. Public Comment
3. Approval of Minutes from August 21, 2019, October 16, 2019, and November 20, 2019 RMCP Committee meetings
(Kim Springer – Committee Staff) Action
4. Review and approval of RMCP Committee meeting dates for calendar year 2020
(Kim Springer – Committee Staff) Action
5. Update on RICAPS 2030 template document and San Mateo County Energy Strategy 2025
(Kim Springer – Committee Staff) Information/ Discussion
6. Presentation on City of Brisbane Building Energy Program and ordinance
(Adrienne Etherton – City of Brisbane) Information/ Discussion
7. Presentation on Stanford University - Codiga Resource Recover Center testing of Fluence sanitary sewer wastewater treatment system, results and potential applications in San Mateo County
(Ronan Barkan – Fluence Corporation) Information/Discussion
8. Committee Member Updates
9. Next Scheduled Meeting Date: February 19, 2020 (tentative)

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PUBLIC RECORDS: Public records that relate to any item on the open session

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PUBLIC PARTICIPATION: Public comment is limited to two minutes per speaker. Persons with disabilities who require auxiliary aids or services in attending and participating in this meeting should contact Mima Guilles at (650) 599-1406, five working days prior to the meeting date.

If you have any questions about this agenda, please contact C/CAG staff:

Executive Director: Sandy Wong (650) 599-1409

RMCP Committee Staff: Kim Springer (650) 599-1412

C/CAG - Resource Management and Climate Protection Committee (RMCP)

Minutes of August 21, 2019 Meeting

In Attendance:

Doug Silverstein, Green San Mateo County*
Donna Colson, Mayor Burlingame*
Adrienne Carr, Committee Vice Chair, BAWSCA*
Maryann Moise Derwin, Committee Chair, Councilmember Portola Valley*
Christine Zaugg, Executive Director SSMC*
Diane Papan, Councilmember San Mateo*
Rick DeGolia, Councilmember Atherton*
Ortensia Lopez, Executive Director El Concilio*
Sandy Wong, Director C/CAG
Kim Springer (Staff)
John Allan (Staff)
Lisa Schmidt, Home Energy Analytics (Presenter)
James Tuleya, Home Energy Analytics (Presenter)
Lillian Mirviss, OhmConnect (Presenter)

Not an attendance:

Don Horsley, County Supervisor*
Drew Combs, Councilmember Menlo Park*
Janet Borgens, Councilmember Redwood City*
Bill Chiang, PG&E*

*Committee Member (voting)

1) Introductions

2) Public Comment

3) Approval of Minutes from May 15, 2019 RMCP Committee meeting

No quorum initially, this was moved to between Item 3 and Item 4. Motion to approve by Adrienne Carr, second by Dianne Papan. Motion passes with 1 abstention (Christine Zaugg)

4) Update on San Mateo County Energy & Water Strategy 2025 project

John Allan provided a progress update on the San Mateo County Energy & Water Strategy 2025. The Strategy is under revision after receiving feedback from a larger stakeholder group. Feedback is still being incorporated and a future version will be sent to elected officials for further feedback.

- Donna Colson requested the Strategy be sent to municipal public works staff.
- Christine Zaugg suggested we make sure safety in terms of water quality be included

Kim Springer explained that the scope of the SMC Energy and Water Strategy will be included in the document, and that flood and sea level rise are not wholly included, that some related to water supply will be included.

5) Presentation on HomeIntel residential energy efficiency Program

Lisa Schmidt and James Tuleya from Home Energy Analytics (HEA) delivered a presentation on the benefits of their PG&E-sponsored energy efficiency program which is available to all PG&E customers and focuses on using smart meter data to save energy without significant equipment upgrades or retrofits. HEA is paid based on the site performance savings they help customers achieve and approach each customer as a unique opportunity because they each have unique energy profiles and there is no “typical home”

Since the program launched in August 2017, they've had 1,448 participants and saved 11,960 MMBTUs.

- Rick DeGolia - Why doesn't PG&E allow this program for net energy metering (solar) customers?
- Shmidt - There are data constraints, PG&E doesn't necessarily have access to NEM data.
- DeGolia – This is an example of how PG&E doesn't support solar
- Ortensia Lopez - Is this program available in multiple languages?
- Tuleya – We are not specifically geared for this, but we try to make it work. Promotional materials are in Spanish and Chinese
- Lopez – This is a great product for low-income communities and customers that are just above the low-income threshold.
- Lopez - How are you working with CCAs?
- Shmidt - There are no issues with this but we don't necessarily work with PCE directly. We are involved in the analysis for the electrification pilot
- Maryann Moise Derwin – I've been familiar with this effort for a while and would like to encourage the program as much as possible.
- DeGolia suggested having municipal staff send out in weekly newsletters/blasts
- Donna Colson requested specific language on the program to share with her community.
- Papan – What percent of projects require more substantial fixes?
- Tuleya - The majority of problems (80%) are related to plug load and behavior and negligence.
- Doug Silverstein – Commenting that there's a few different ways to address energy efficiency. He prefers Ohmconnect's model and thinks policy change is the most effective.
- Tuleya – To be clear, this goes beyond what people are used to and helps people understand the problems you're pointing out.

6) Presentation on OhmConnect community demand response program

Lillian Mervis with OhmConnect government affairs presented an overview of the OhmConnect business model where customers are paid based on their savings during select hours.

- DeGolia – Does it work for NEM customers?
- Mervis - Yes, they're marked at 0 (no benefit) if they have negative use

Everything is based on an online platform that includes a dashboard to show savings, progress to goals, etc. Ohm connect makes money through demand response auction mechanism. OhmConnect essentially functions as a power plant but instead of adding energy to the grid, they reduce demand. During the summer of 2019, OhmConnect paid out over \$11M to customers and reduced electricity consumption by 855 megawatt hours. OhmConnect has a strong focus on DACs which account for 15-20% of user base.

- Papan – Can a customer lose money on this program?
- Mervis -You can lose profits, but you can't go below 0
- Lopez – What are your cultural competencies?
- Mervis - This is a priority for us right now
- Springer – How is a baseline calculated?
- Mervis - We create an updated baseline based on the past 10 days use.

7) Update on countywide Reach Code adoption effort

Springer provided background information on reach code effort including timeline, project partners and the adoption process. Springer provided an update on where each city and town is in the process. Springer emphasized that these are not the most exact details as things are moving quickly and each city is individualizing their approach.

- Zaugg – SSMC will likely be presenting awards to cities that pass reach codes.
- Silverstein – There’s been a lot of investment in this effort but feels like we aren’t getting the best return on investment. There is more opportunity for cities to take stronger codes. It’s on the leadership of the cities to push for this. There have been two cities that have introduced codes (San Mateo and Menlo Park)
- Papan – How many cities are updating versus adopting brand new codes? It seems like it will be much easier for the cities that have already been through the process.
- Silverstein – There are still opportunities to push this further, but time is running short. I don’t want to be sitting here 2 months later and wishing we could have done more. Looking at other jurisdictions around the bay area and recent news on reach codes, there are different types of codes based on fuels. Menlo Park has gone all electric by saying it’s just easier to implement the codes.
- DeGolia – Clarifying which buildings are all-electric.
- Silverstein – Cities that have already passed reach codes have already done the work for the rest of the cities because the staff reports, and studies are completed. Timing will be the biggest issue for the cities.
- DeGolia - Timing is irrelevant, codes can be adopted later. In order to make this successful, the cities need to understand that the reach code doesn’t need to be taken as is. For every city, there is some modification that will work. PCE needs to pitch this properly. Incremental savings are better than no savings at all.
- Colson – Cities should work on a bonus or incentive program rather than penalizing developers for not going all-electric.
- Silverstein - Incentives don’t work as well because people aren’t always concerned about costs. The consistency is better for city staff. There are also concerns that complex requirements create opportunities for loopholes.
- Silverstein – Is it appropriate to set an aspirational goal?
- Derwin – We can set a goal, but it won’t necessarily be met
- DeGolia– We just need more staff and advocates that are bringing it to the council’s attention.

8) Presentation on San Mateo Plain Groundwater Basin water elevation monitoring project

Springer delivered a short presentation on the groundwater situation in SMC and the history of groundwater use. Hetch Hetchy replaced the use of groundwater for the most part. There has been little historical monitoring of groundwater levels and data shows that the basins are full. Groundwater quality is poor currently but better than before. There are still some communities (EPA, Atherton, Menlo Park) that rely on groundwater.

- There were multiple questions clarifying areas and uses of groundwater which were answered by Adrienne Carr.

The Groundwater assessment completed in 2018. SMC not required to manage basin under SGMA. However, monitoring is still a good idea so extra money is being used for a new monitoring project. EKI Environment and Water, Inc was selected to conduct CASGEM monitoring and create a plan for monitoring including identifying specific wells and setting up a database portal. The hope is to put together a funding commitment for ongoing monitoring at 6-month intervals. EKI is working on finalizing stakeholders and reaching out to well owners

- Carr – This has been in the works for a while but has fallen apart without state requirements. It’s great that the County is pulling this together. It won’t be a large commitment.

9) Committee Member Updates

- Zaugg – SSMC Indicator Reports – Next effort launching Oct 31st @ Oracle
- Zaugg – SSMC Award Ceremony – April 2nd, 2020
- Silverstein – Land & Water Policy: Backing our Coastside Neighbors – August 28th

10) Next Scheduled Meeting Date – September 18, 2019

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RMCP Committee Meeting Minutes

October 16, 2019

In Attendance:

Janet Borgens*
Ortensia Lopez*
Maryann Moise Derwin*
Adrienne Carr*
Doug Silverstein*
Donna Colson*
Kim Springer, OOS
Danielle Lee, OOS
Susan Wright, OOS
John Allan, OOS
Jim Eggemeyer, OOS
John Sarter, Clean Coalition
Negin Ashoori – BAWSCA
Carol Stanfield, Sierra Club Loma Prieta Chapter
Tom Francis – Water Conservation Manager BAWSCA
Drew, Public

Not in Attendance:

Don Horsley*
Drew Combs*
Rick DeGolia*
Diane Papan*
Bill Chiang*
Christine Zaugg*

1. Introductions
2. Public Comment
 - a. **Carol Stanfield**– Water resilience plan input process – Looking for input from stakeholder on how to be more resilient. Sierra Club, Loma Prieta Chapter is working with national organizations.
3. Approval of Minutes from August 21, 2019 RMCP Committee meeting
 - a. No quorum - Continued
4. Presentation on RICAPS template and tools updates – Susan Wright

Susan Wright provided background on the RICAPS program including the program history, purpose and tools. Recent updates include updated CAP templates, electrification measures funded by PCE, and GHG Inventories. Newer work is focusing on an updated CAP template as well as regional approaches to Climate action planning in partnership with BayREN. Previous funders of RICAPS include PG&E, C/CAG and BAAQMD.

Cap 2.0: This new template is looking at deeper systemic changes that streamline measures and include flexibility to accommodate technological advances. Other considerations include consumption-based inventories, equity and resilience.

Factors affecting the update are new state and local goals/policies, especially the San Mateo County Climate Emergency Declaration. Targets include a minimum 40% reduction by 2030 but other cities can be more aggressive. Other pieces that may be included are carbon sequestration, landfill measures and adaptation/resilience measures. This approach would also consider common KPIs that will allow jurisdictions to be compared more readily.

Stakeholder engagement of Template includes leveraging community groups, engaging businesses and act as a convener to bring stakeholders together. Formatting will also be updated to maximize accessibility.

Kim Springer Clarified that the template is being modernized to address current issues and think regionally on the problems we all counties are concerned with. Cities will still take this and make their own changes to the template to fit their individual city needs.

Silverstein: 5 cities have finished CAP updates through 2030 and many are using consultants. It may be more important for cities to work with consultants than use this set of tools.

Susan Wright– the cities that have reached out are in need of support and have planned to use the RICAPS tools.

Stanfield– A template is worthwhile, but we need to identify specific implementation pathways.

Drew – Many areas in climate action are ignored due to siloes – for example traffic signals can be optimized which can result in GHG reductions – As a homeowner, water vs. energy can be siloed as well. A lot of these systems should be more integrated.

Ortensia Lopez – How will equity be further integrated? Low income and DAC absolutely must be a part of the solution

Wright – We haven't specifically identified but it will be baked in to the entire template

Silverstein– We also need to think about green jobs and how they will or can play a role in this sector

Donna Colson – How do we consider the circular economy, for example, the lifecycle of solar panels or working conditions for factory workers outside of the country

Wright – This is exactly what the consumption-based inventory starts to consider

Silverstein – There are many reports that look at this exact lifecycle analysis

Wright – This is something we'll definitely want to acknowledge in the template.

Colson – How can new technologies help decarbonize? Ie: AR/VR allowing for increased telecommuting

5. Presentation by Clean Coalition on economic and resilience opportunities implementing microgrid, and new technologies – John Sarter, Clean Coalition - **after Item 7**

John Sarter provided an overview the process to establish a community microgrid in Calistoga, which includes a feasibility assessment including solar siting, planning and engineering including economic and technical analysis, and RFP/Project completion. The Calistoga solar siting survey identified over 25MW of space for solar, and identified two schools, a grocery store, WWTP, fire station and fairgrounds. Stakeholder engagement included business, city council and facility managers.

Another project, the Goleta Load Pocket, and area served by 1 transmission line is highly vulnerable. The project includes 200 MW of solar and 400 MWh, which will provide 100% protection against mass outage

Community microgrids are cheaper than developing new gas peaker plants. The Montecito community microgrid overview is 10% of load 100% of time, 100% of load at least 25% of the time.

John provided an overview of a new, Vehicle to X (Building or Grid), Canadian company DCBEL which will soon be selling a V2B solar inverter and bidirectional EV charger. This will allow EVs to, essentially, act as backup generators

Colson – Can these technologies can help with load shaping?

Sarter – Yes, absolutely. Not quite ready for commercial use though. Launching early next year, won multiple awards with over 200 patents

Wright– Does the payback calculation include peak shaving?

Sarter - Yes, as well as equipment replacement

Stanfield – How does one get started with a microgrid?

Sarter – Hire consultant and look at rebates/incentives.

Stanfield – but how do we figure where to site even before that?

Sarter – Generally, places of refuge, energy storage costs are coming down

Stanfield – How does Clean coalition get involved?

Sarter – Responding to RFPs

6. Presentation on solar cost and efficiency trends – Blake Herrschaft – DNV GL

- a. **Item removed and moved to next meeting**

7. BAWSCA water conservation programs update – Tom Francis **After Item 8**

Tom Francis provided and overview of new BAWSCA water conservation programs:

QWEL Qualified Water Efficient Landscape Training, which is a program to train professionals on water efficiency. It is a 20-hour (3 day) course including field work, taught in English or Spanish and provides a certificate after passing exam – listed on WaterSense website

There is also a new, Regional Smart Controller Program, which is a rebate program for installation of smart irrigation controllers. For agencies, this is a subscription-based program implemented in partnership with Regional Water Authority. It provides an overview of smart irrigation controllers – controllable, wireless. More details to come.

Tom also reminded the Committee of existing programs:

- Lawn be gone revamp
- High efficiency toilet program, which is ending, after the end of the year

Tom also shared that there are new Water Use Efficiency Standards, tied to AB 1668 and SB 606, making water conservation a California way of life. BAWSCA is looking to get ahead of these requirements through their Conservation Strategic Plan

Other efforts:

- Baseline Assessment of agency capabilities
- Implementation of water loss Management Program
- Commercial/Industrial customer self-audit pilot program
- Residential Indoor/Outdoor water use study

BAWSCA completing Demand Study to project demands and conservation savings through 2045.

Stanfield – CalWater has been resistant to Sierra Club efforts. Has BAWSCA considered adopting SFPUC programs? For example, SF has time of sale audit and retrofit requirements or onsite reuse requirements

Francis – Our challenge is that we aren't the utility or city, most of these programs are up to the city to develop or implement

Stanfield – It would be great if BAWSCA served as a model for their member agencies

Janet Borgens – Really important to know how many people are living in a home due to the current housing crisis with multiple families living in the same unit.

Colson – We're expecting significant increases in density, how will new state requirements affect this?

Francis – It's per capita for residential and commercial is still being figured out.

Borgens – Recycled water is playing a big part of this in Redwood City

Maryann Derwin – Is QWEL training happening now?

Francis – Will happen early spring 2020. Location TBD based on member agencies.

Drew – Consideration of silos again. These water conservation programs and greywater programs could benefit from integration

Drew – Lawn begone program, I'm penalized because I let my lawn die responsibly

Stanfield – Greywater system programs are already working around the state

8. Committee Member Updates - **after Item 4**
 - a. **Colson** – SeaChange Burlingame Meeting, FSLRRD has been approved,
 - b. **Doug Silverstein** – CEC Burlingame event to Save Water Energy and Money
 - c.
9. Next Scheduled Meeting – November 20th

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RMCP Committee Meeting Minutes

November 20, 2019

In Attendance:

Maryann Moise Derwin, Committee Chair, Mayor Portola Valley*
Doug Silverstein, Non-Profit Seat*
Adrienne Carr, Committee Vice-Chair, BAWSCA*
Janet Borgens, Councilmember, Redwood City*
Christine Zaugg, Sustainable San Mateo County*
Rick DeGolia, Councilmember, Town of Atherton*

Sandy Wong, Director, C/CAG
Kim Springer, County OOS
John Allan, County OOS
Susan Wright, County OOS
John Baker, CPUC
Drew, Resident
Brett Gentry, Start-up Business Mentor
Blake Herrschaft, DNV GL

Not in Attendance:

Don Horsley, County Supervisor*
Ortensia Lopez, El Concilio San Mateo County*
Drew Combs, Councilmember, Menlo Park*
Diane Papan, Councilmember, San Mateo*
Bill Chiang, PG&E*

1. Introductions
2. Public Comment
 - a. None
3. Approval of August 21, 2019 and October 16, 2019 RMCP Committee meeting minutes
 - a. No quorum to approve minutes
4. Review and approval of RMCP Committee meeting dates for CY 2020 and set next meeting date
 - a. No quorum to approve meeting dates
5. Update on RICAPS 2030 template document enhancements – Kim Springer
 - a. Springer provided an update on RICAPS technical assistance including an overview of the history and funding. RICAPS is looking to update the CAP template to better reflect trends in Climate Action Plans as the cities look to complete their 2030 CAPs. Existing language around climate policies is outdated. Considered updates to the template

remove emissions. There are existing technologies that can help this, but new technologies take years develop and scale. Startups have challenges related customer discovery, piloting and funding.

- b. Gentry asked for initial thoughts on public-private partnerships and posed a few suggestions how local governments can promote startups here in San Mateo County. For example, a startup that packs used EV batteries into shipping containers.
 - c. Discussion revolved around how many of the items that come in front of the RMCP committee are based on technologies that were cleantech startups years ago. The consideration of carbon sequestration is already happening in some capacity. Some committee members are interested in bringing this back to their cities for further discussion.
8. BAWSCA Update – Adrienne Carr
- a. 2019 upcountry snowpack was 75% above long-term median
 - b. Reservoir storages - we're at 87.8% which is above average of 79.4
 - c. Silverstein – Question about water bank
 - i. Carr explains the Don Pedro reservoir is a bank where the water is not cannot be accessed by BAWSCA agencies but can be traded with other agencies to buy more access to Hetch Hetchy water.
 - d. Precipitation forecast isn't looking very good with almost no rain so far and little in the coming months.
 - e. Carr announced that she is leaving BAWSCA and will be the new general manager of North Coast County Water District. Nicole Sandkulla will likely stand in.
9. Announcements
- a. Zaugg – Key Indicators Program, and Request for Nominations for Sustainability Awards, Reach Code Recognition Awards, and PCE EV Discounts
 - b. Silverstein – Working with SMCOE to find agencies that would like to host summer interns
10. Next Scheduled Meeting Date:
- a. TBD, December 18th meeting to be cancelled

C/CAG AGENDA REPORT

Date: January 15, 2020
To: Resource Management and Climate Protection Committee
From: Kim Springer, Committee Staff
Subject: Review and approval of RMCP Committee meeting dates for calendar year 2020

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

RECOMMENDATION

Review and approve of RMCP Committee meeting dates for calendar year 2020.

FISCAL IMPACT

None

SOURCE OF FUNDS

Funding for the RMCP Committee comes from C/CAG Congestion Relief Funds.

BACKGROUND/DISCUSSION

At the change of each calendar year, the Committee reviews and approves the meeting dates for the following calendar year. The RMCP Committee will continue to meet on third Wednesdays from 2:00 to 4:00 p.m., provided staff has enough business to conduct at the meeting.

Staff may cancel a meeting or shift a meeting date with notice to the committee and the public. Meetings will continue to be held (as a preference) at the 155 Bovet Rd., San Mateo location for 2019. The optional meeting location will, generally, be at County Center in Redwood City.

The following dates and meeting locations are those recommended for the RMCP Committee in calendar year 2020, and the date for January 2021. Once approved, staff will update the C/CAG RMCP Website and provide Committee members appropriate calendar appointments.

January 15	Redwood City
February 19	San Mateo
March 18	San Mateo
April 15	San Mateo
May 20	Redwood City
June 17	San Mateo
July 15	Redwood City
August 19	San Mateo
September 16	San Mateo
October 21	San Mateo
November 18	Redwood City
December 16	San Mateo

January 20, 2021 TBD

ATTACHMENTS

None

C/CAG AGENDA REPORT

Date: January 15, 2020
To: Resource Management and Climate Protection Committee
From: Kim Springer, County Office of Sustainability
Subject: Update on RICAPS 2030 template document and San Mateo County Energy Strategy 2025

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

RECOMMENDATION

Receive an update on RICAPS 2030 template document and San Mateo County Energy Strategy 2025.

FISCAL IMPACT

None

BACKGROUND/DISCUSSION

In calendar year 2019, considerable progress was made on the update of two important documents, the template climate action plan document in the Regionally Integrated Climate Action Planning Suite (RICAPS) tools, and the San Mateo County Energy Strategy 2025 document. At the November 20, 2019 Committee meeting, staff provided an update on proposed changes to the RICAPS template document. Comments from the Committee and stakeholders, to both documents, have been incorporated, and further comments will be requested.

Staff will provide a brief progress update and time line in 2020 for completion of these two documents.

ATTACHMENTS

None

C/CAG AGENDA REPORT

Date: January 15, 2020
To: Resource Management and Climate Protection Committee
From: Adrienne Etherton, City of Brisbane
Subject: Presentation on City of Brisbane Building Energy Program and ordinance

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

RECOMMENDATION

Receive a presentation on City of Brisbane Building Energy Program and ordinance.

FISCAL IMPACT

None

BACKGROUND/DISCUSSION

California Assembly Bill, AB 802 (2015), required the California Energy Commission (CEC) to develop a building energy benchmarking program. The resulting Building Energy Benchmarking Program requires owners of large commercial buildings to report energy use to the Commission by June 1, annually. Energy benchmarking compares use of energy per square foot against a standard, either other buildings of the same type or, for instance, the previous year. In the case of this CEC program, building owners use an existing tool, the EPA Portfolio Manager, which will allow owners to benchmark against buildings of the same type (office, multifamily, retail, etc.).

Mandatory reporting began in 2018 (June 1) for non-residential units over 50,000 square feet, and residential units of 17 units or more. The data submitted becomes public. There are many specific rules and exceptions, too detailed to provide in this staff report. The following link is to the CEC website for this program with more details: [CEC Building Benchmarking website](#).

This CEC program does not preclude cities or counties from developing their own building benchmarking ordinance. The following is a link to some cities' local benchmarking ordinances: [Local Benchmarking Ordinances](#). City of Brisbane, though not listed, recently passed their own benchmarking ordinance: the Brisbane Building Efficiency Program. Adrienne Etherton, Sustainability Management Analyst with the City of Brisbane, will share the justification, process, and considerations as they developed their new ordinance, funded by the Bay Area Air Quality Management District. A link to Brisbane adopted ordinance is provided as an attachment.

ATTACHMENTS

Link to adopted City of [Brisbane Building Efficiency Program](#)

C/CAG AGENDA REPORT

Date: January 15, 2020
To: Resource Management and Climate Protection Committee
From: Ronan Barkan, Fluence Corporation
Subject: Presentation on Stanford University - Codiga Resource Recover Center testing of Fluence sanitary sewer wastewater treatment system, results and potential applications in San Mateo County

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

RECOMMENDATION

Receive a presentation on Stanford University - Codiga Resource Recover Center testing of Fluence sanitary sewer wastewater treatment system, results and potential applications in San Mateo County

FISCAL IMPACT

None

BACKGROUND/DISCUSSION

Fluence Corporation, previously Emefcy Bioenergy Systems, has a wastewater treatment system based on a technology called a Membrane Aerated Biofilm Reactor (MABR). The company came to the attention of staff and the RMCP Committee in early 2016. Emefcy first presented to the Committee on April 20, 2016 as part of a report about a California – Israel Clean Tech Partnership, which developed as a result of collaborative technology-sharing memorandum, signed by Governor Jerry Brown and Prime Minister of Israel, Benjamin Netanyahu in late 2014. Staff has been following developments in the testing of Fluence’s MABR technology.

In January 2018, a Fluence MABR treatment system was shipped to the Bay Area and installed at Stanford’s Codiga Resource Recovery Center (CR2C), a testing facility for water treatment systems. The goal for Fluence was to prove the stated performance of their system, and how it can meet non-potable water use standards set by the State of California. An executive summary about the system and testing, with additional (and more technical) information is provided in the Fluence MABR Executive Summary attached to this Staff report.

The testing is complete and Ronan Barkan, US Sales Manager for Fluence, will share the results and information about how the system might be applied to the water needs of San Mateo County.

ATTACHMENTS

Fluence MABR Executive Summary

Fluence's MABR at the Codiga Resource Recovery Center Stanford University, Stanford, California

A Membrane Aerated Biofilm Reactor (MABR) manufactured by Fluence Corporation (Fluence) was installed at Stanford's Codiga Resource Recovery Center (CR2C) in January 2018. The system was tested with domestic wastewater diverted from Stanford's sanitary sewer. Treatment performance was evaluated according to two benchmarks: California Title 22 standards for non-potable water reuse (T22) and a Total Nitrogen limit of 10 mg-N/L. T22 Standards are set forth by the state government. TN10 is a benchmark set by Fluence, to evaluate the Nitrogen removal performance of their MABR system. T22 does not regulate Nitrogen species for wastewater reuse.

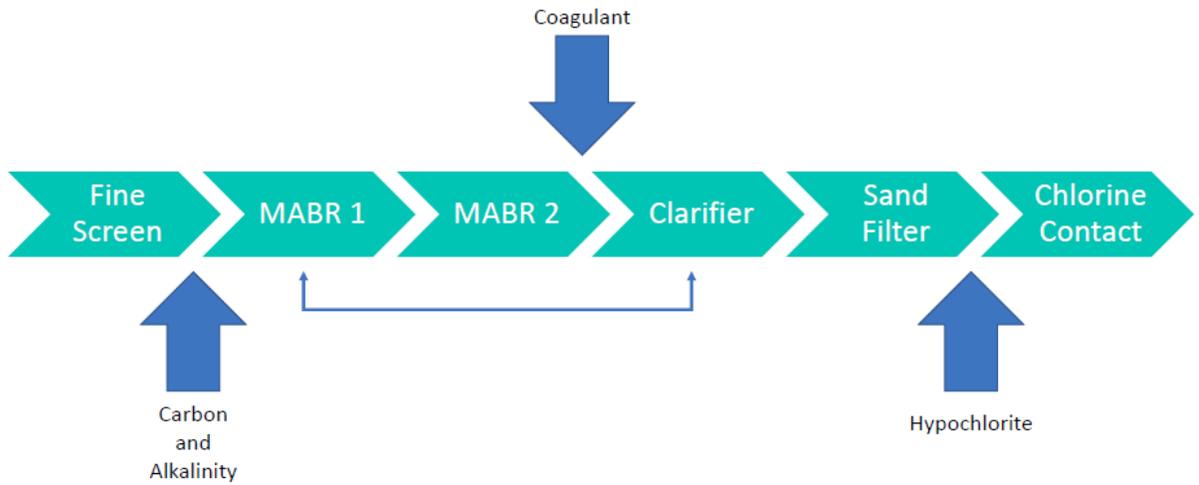
During the two steady state periods of operation, the system achieved the objectives of mean Total Nitrogen concentrations below 10mg/L and met T22 requirements as measured by Turbidity and Total Coliform in the Tertiary Effluent. This was achieved with a maximum flowrate of 1.3 GPM and an overall TN loading rate of 0.97 g TNN/m²/L. Treatment capabilities of this unit may be increased by optimizing clarifier operation, optimizing carbon dosage to the system and improving the mixing system of the unit. The final testing phase will dilute CR2C wastewater to achieve influent characteristics more representative of US medium strength wastewater and explore the system's performance under hydraulic loadings more aligned with the unit's design specifications.



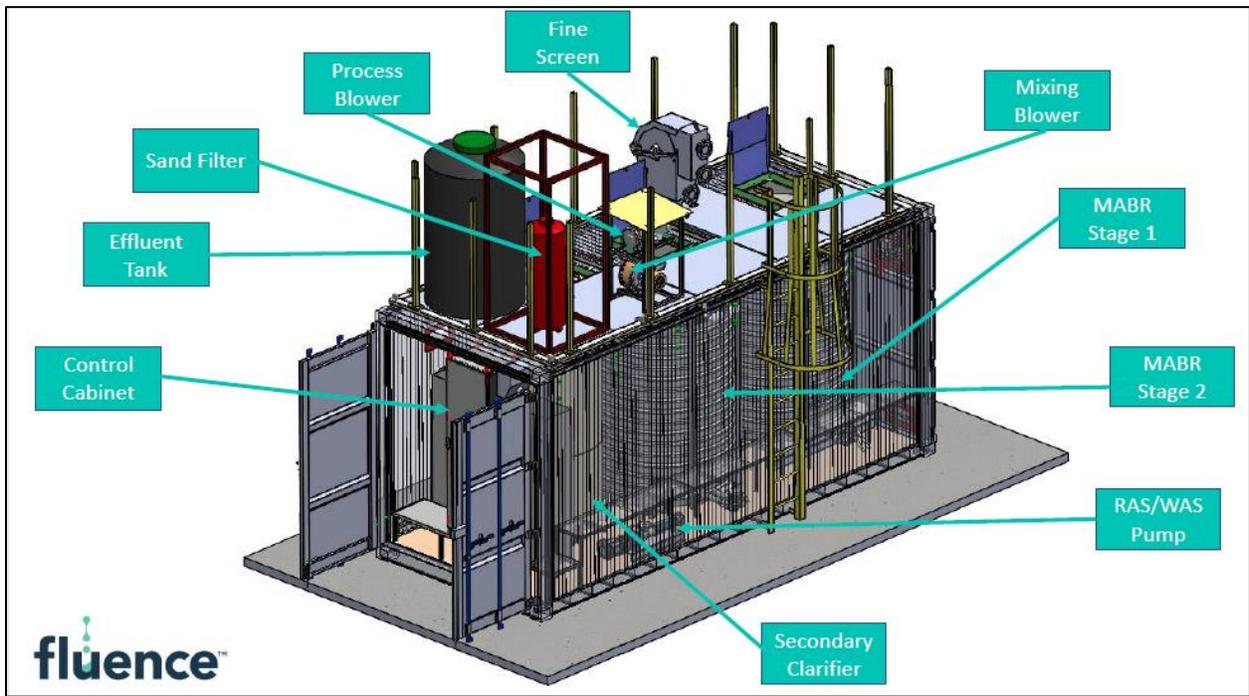
Download the report in its entirety at

https://cr2c.stanford.edu/sites/g/files/sbiybj6816/f/interimreport2018121final_0.pdf

Process Flow of Fluence MABR Plant at Codiga



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