

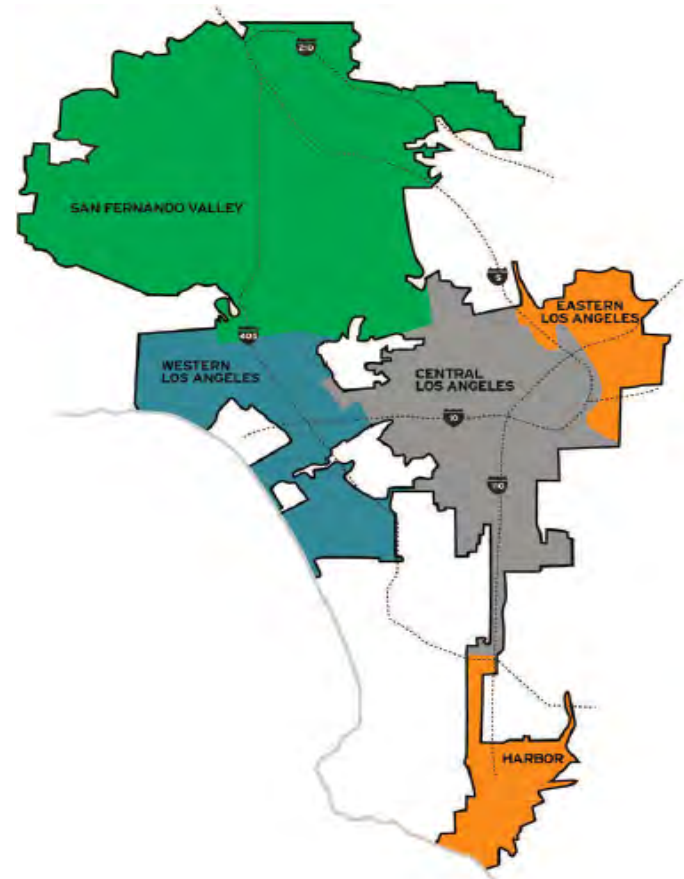


L.A.'s Recycled Water Transformation Operation NEXT Water Supply Program

Rafael Villegas, P.E., MSCE
Los Angeles Department of Water and Power
August 11, 2020
WaterReuse Los Angeles Chapter Meeting

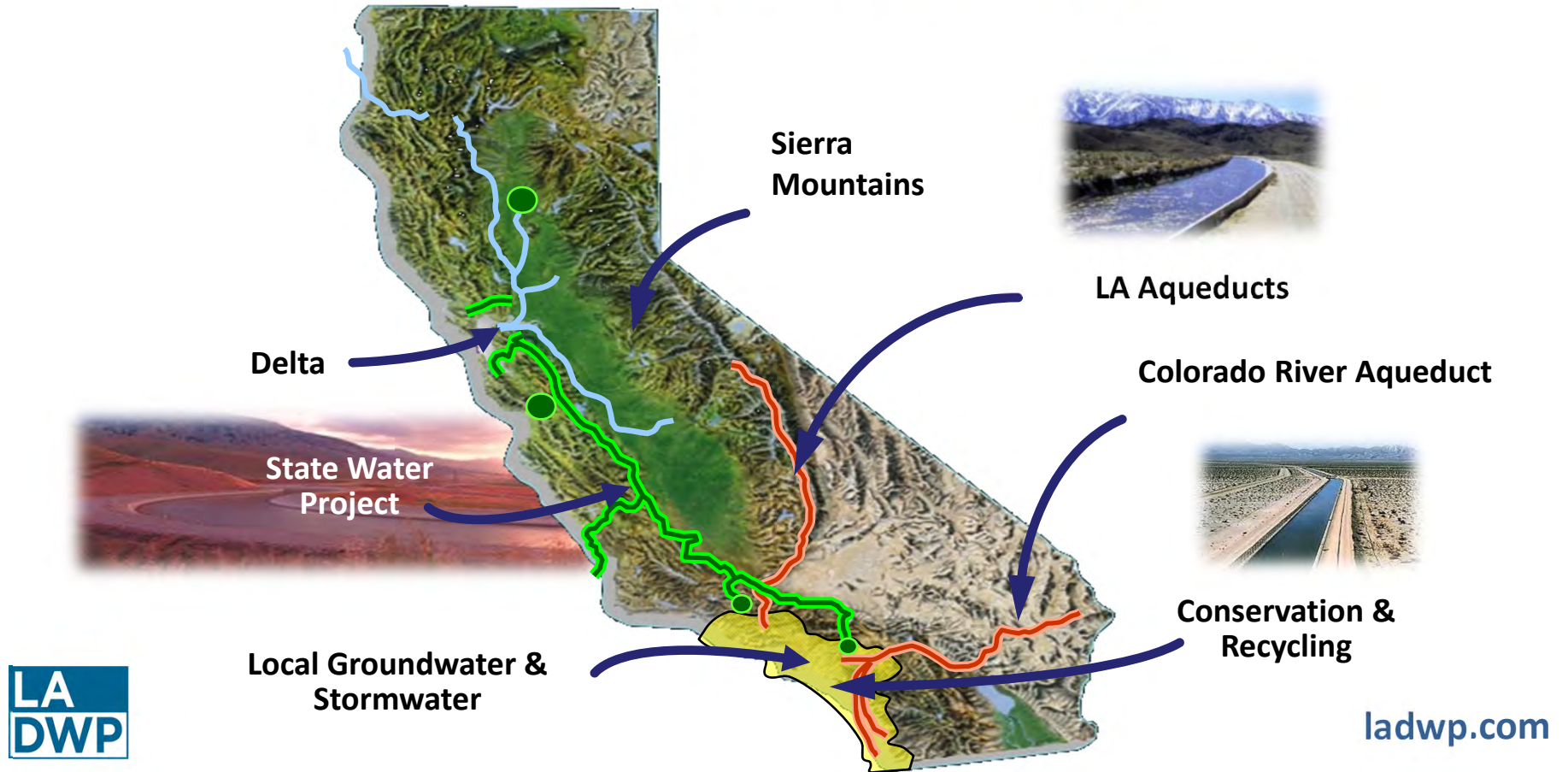
LADWP Overview

- Largest municipal utility in US
- 472 mi²
- 4 million City residents
- 731,000 service connections
- 7,330+ miles of pipeline
- 500,000+ AFY Demand

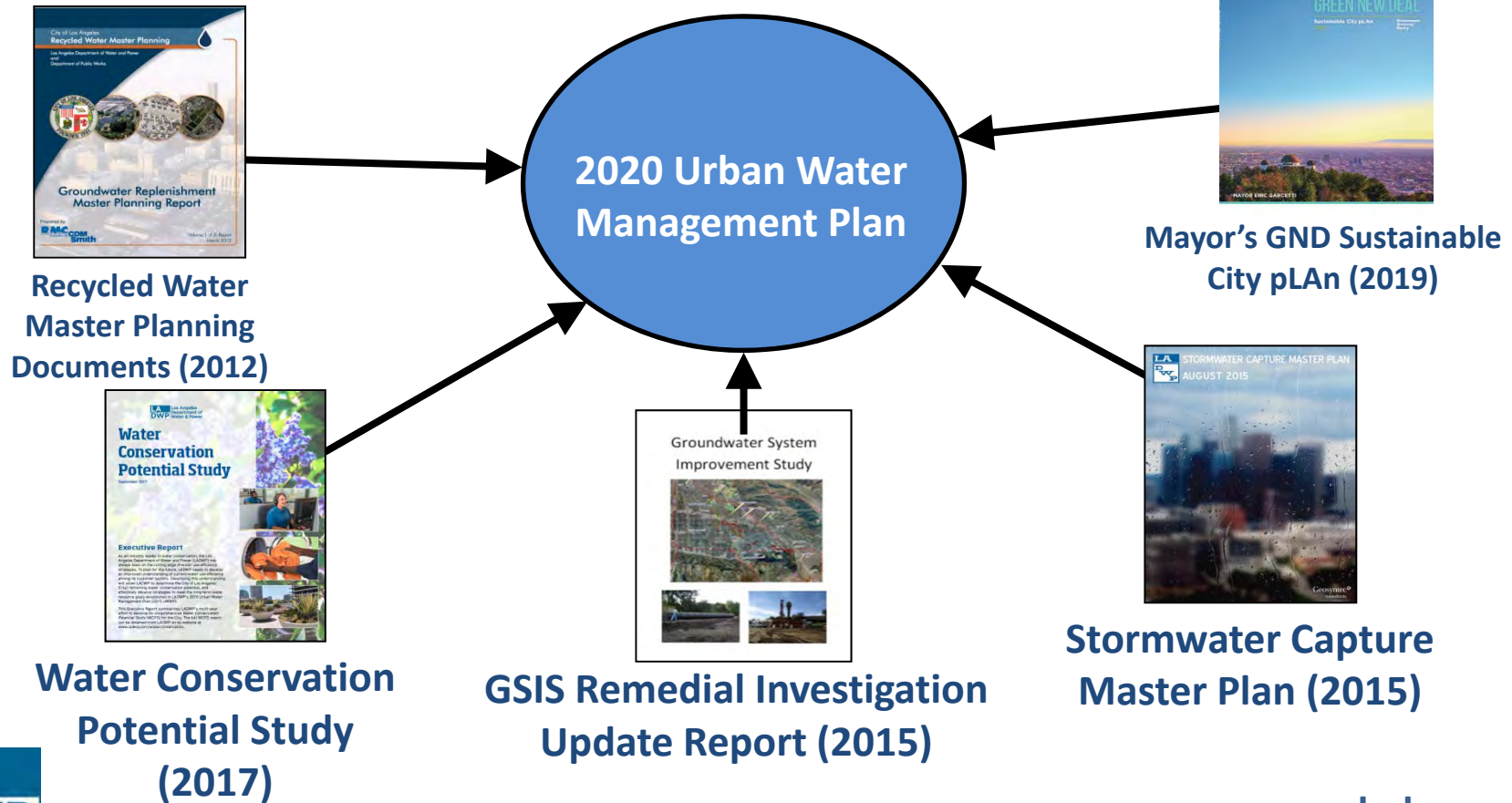


ladwp.com

LA Water Sources



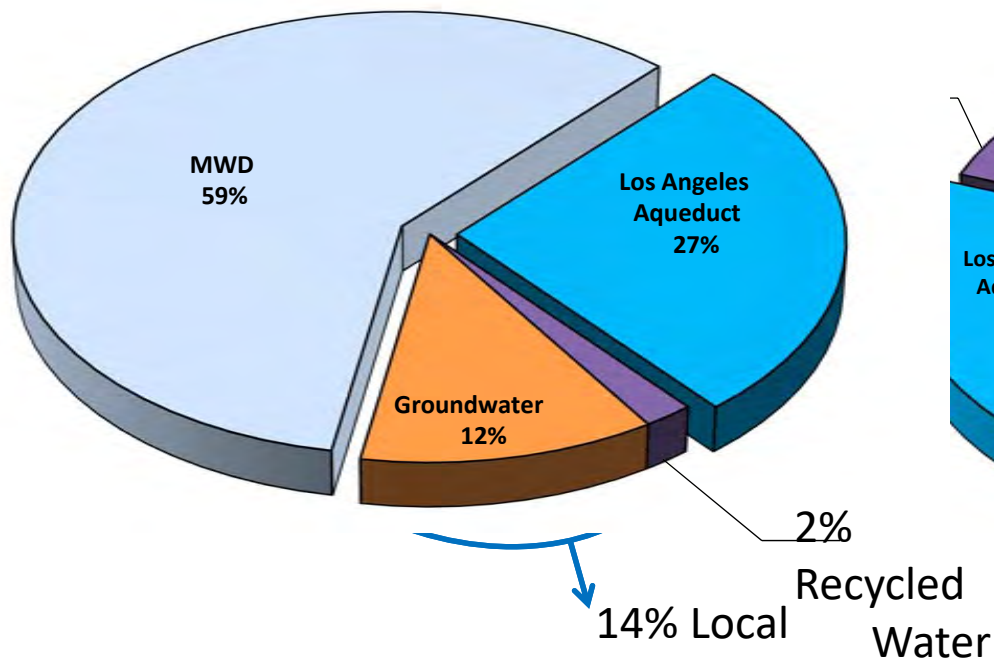
Water Supply Planning Efforts



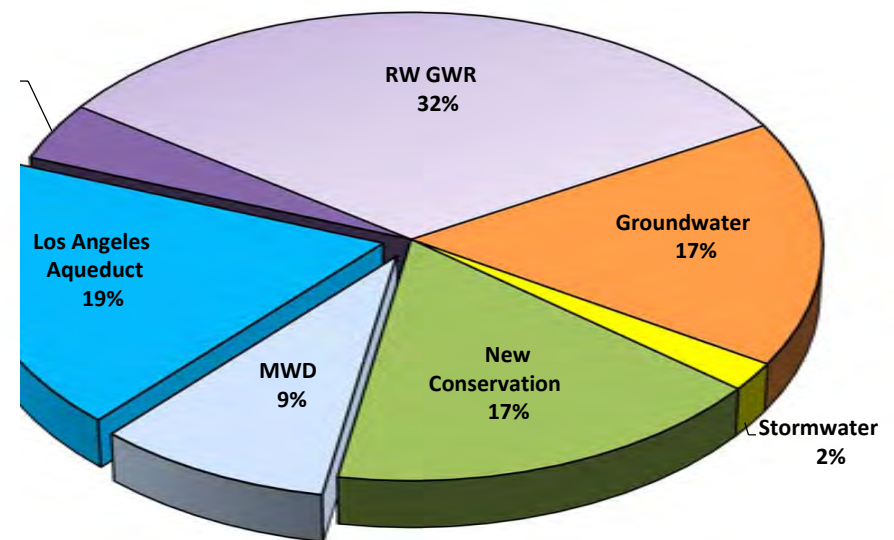
ladwp.com

Water Supply Future

Fiscal Year End 2014-18 Average
Total Supply: 523,100 AFY



L.A.'s Green New Deal
Fiscal Year 2034-35 Average Hydrology
Total Supply: 661,800 AFY



Operation NEXT Water Supply Program

Program Objective:
Recycle 100% of
supply from the
Hyperion Water
Reclamation Plant
by 2035.



Hyperion Water Reclamation Plant



ladwp.com

Hyperion Advanced Treatment



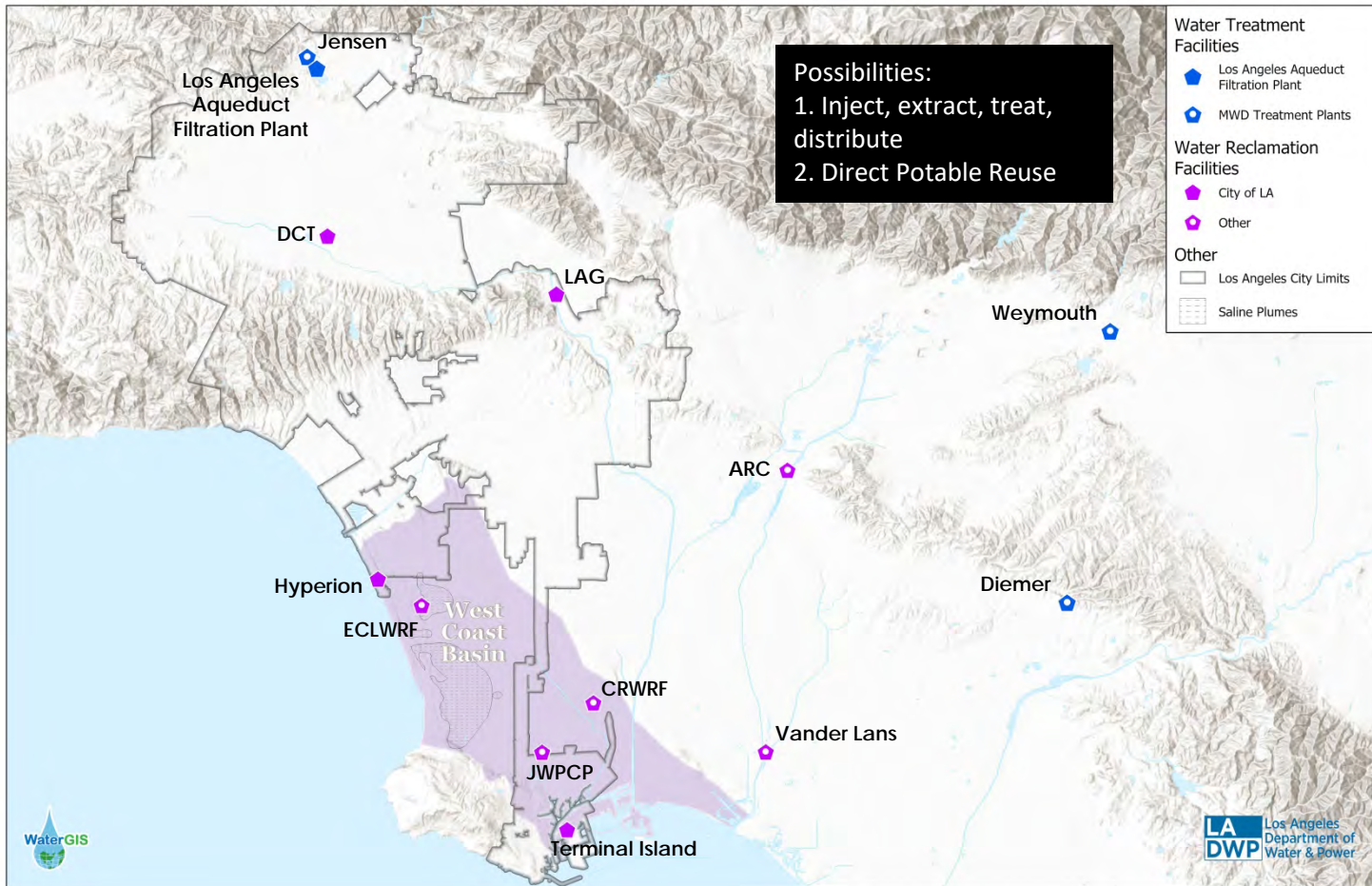
1. Membrane bioreactors

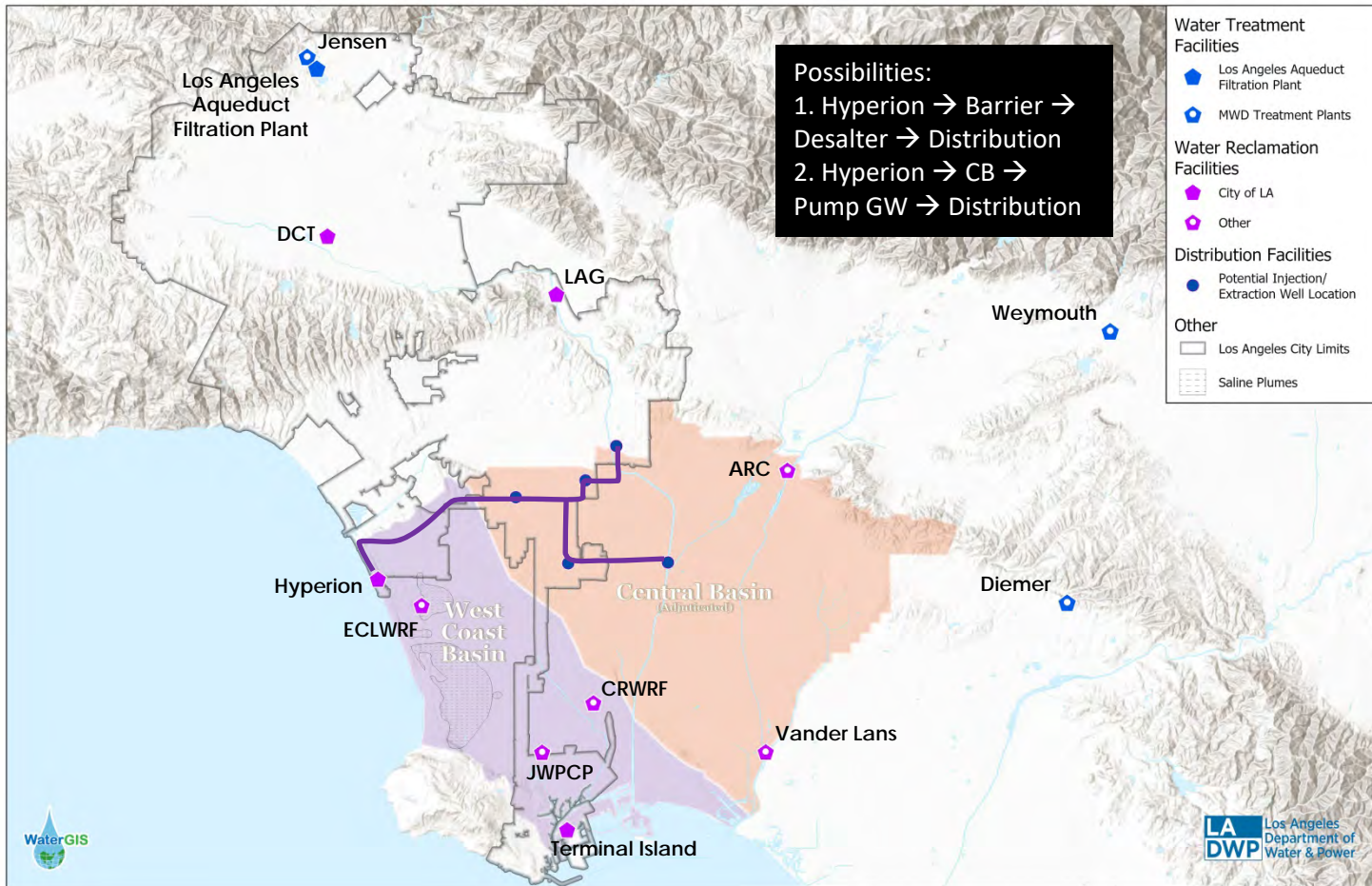


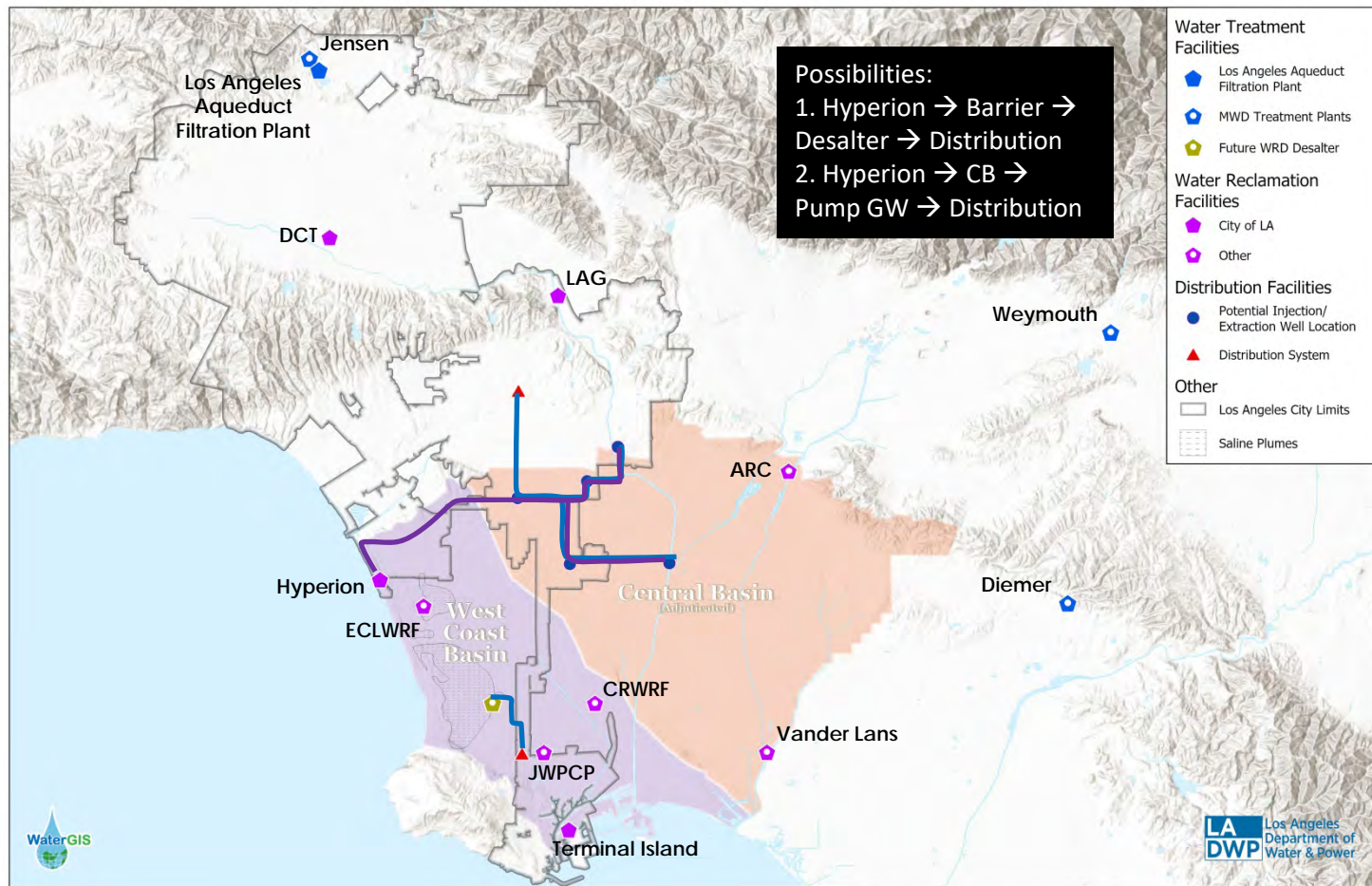
2. Reverse osmosis

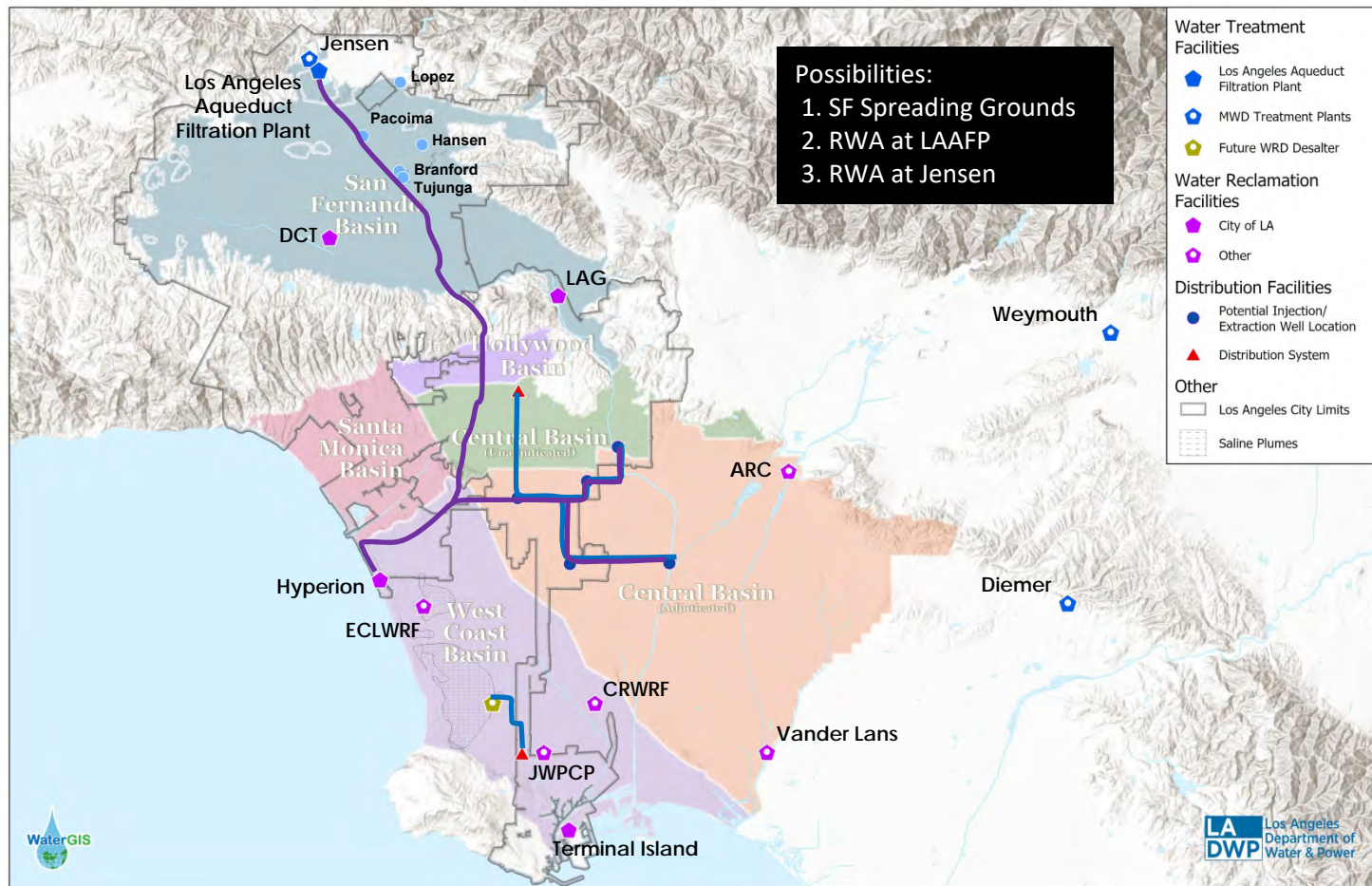


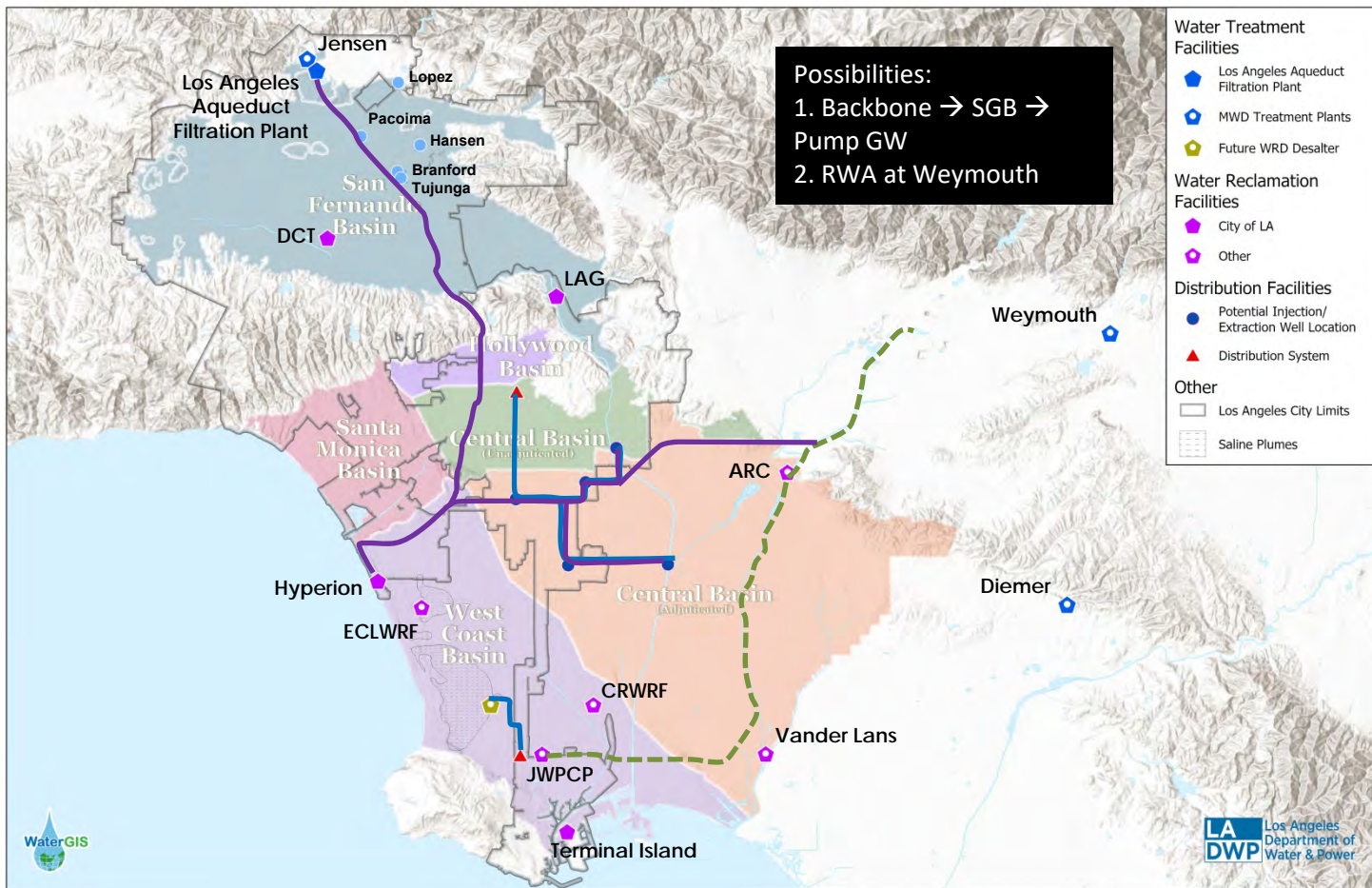
3. Advanced oxidation











Impact on Water System

- Largest project since LA Aqueduct
- Fundamentally changes system operations
- Unconventional water source
- Third of City's demand
- Complex Groundwater governance
- Inter-jurisdictional planning
- Focus from groundwater recharge to DPR
(water recycling criteria for Direct Potable Reuse through
Raw Water Augmentation by December 31, 2023)



Program Partners



How do you collaborate, align goals, and benefit the entire region?

Implementation Strategy / Program Management

- Provide cohesive oversight / vision of goals
- Build teams by resource needs
 - Planning, Treatment Technology
 - Infrastructure (treatment and conveyance)
 - Institutional Agreements
 - Environmental and Regulatory Approval
 - Public Outreach



Ongoing Efforts

- Coordination with partnering agencies (LASAN, WRD, MWD)
- Engaging Potential partners – Local Cities, Contract Agencies
- DPR Regulations
- Financial Plan
- Resource Planning
- Internal and Pilot Studies
- Community Engagement and Outreach Plan
- Programmatic EIR



Rafael Villegas, P.E., M.S.C.E.
Rafael.Villegas@ladwp.com
213-367-1289



What it Takes to Drink it Again

The Energy Impacts of Direct Potable Reuse Recycling in Los Angeles

Nicholas Chow
WateReuse Los Angeles Chapter
August 11th 2020



Luskin Center for Innovation



Southern California Recycled Water

CA's Water Infrastructure is Vulnerable

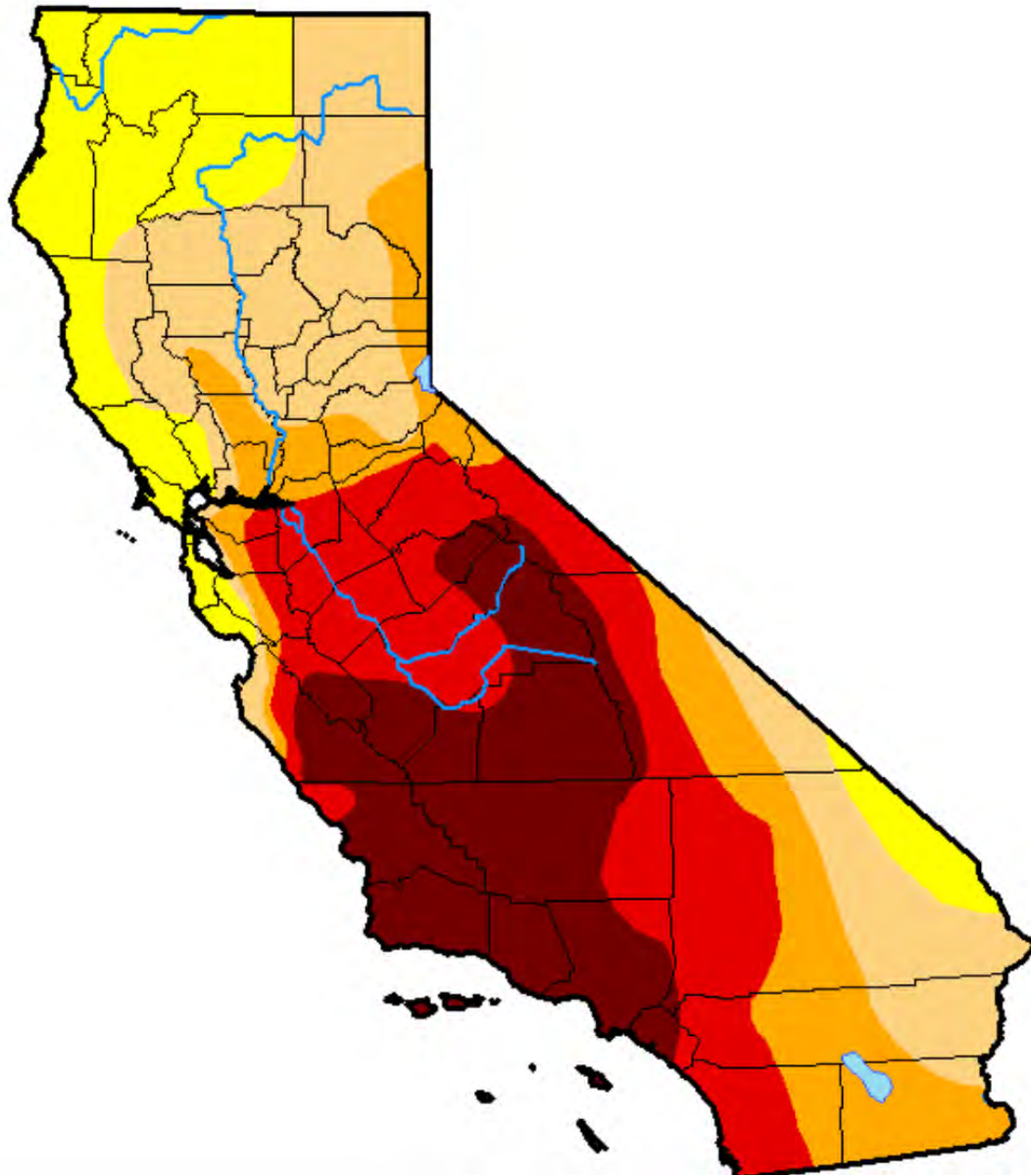


Image Sc

US Drought Monitor (2019)

The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration. Map courtesy of NDMC.

Los Angeles Times, California Department of Water Resources (2014)<https://www.latimes.com/nation/la-me-g-quake-water-map-20141212-htlstory.html>

Southern California Recycled Water

Types of Recycling

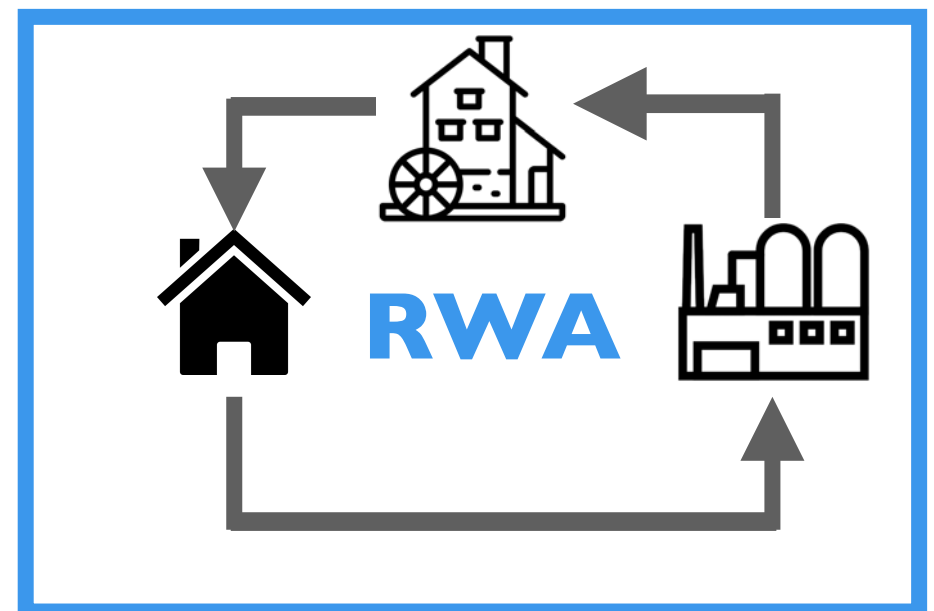
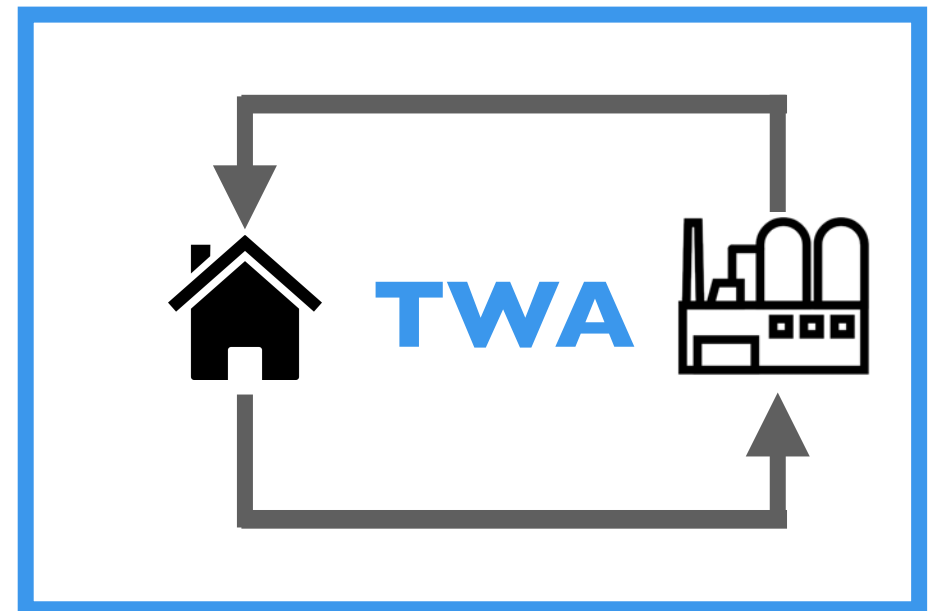
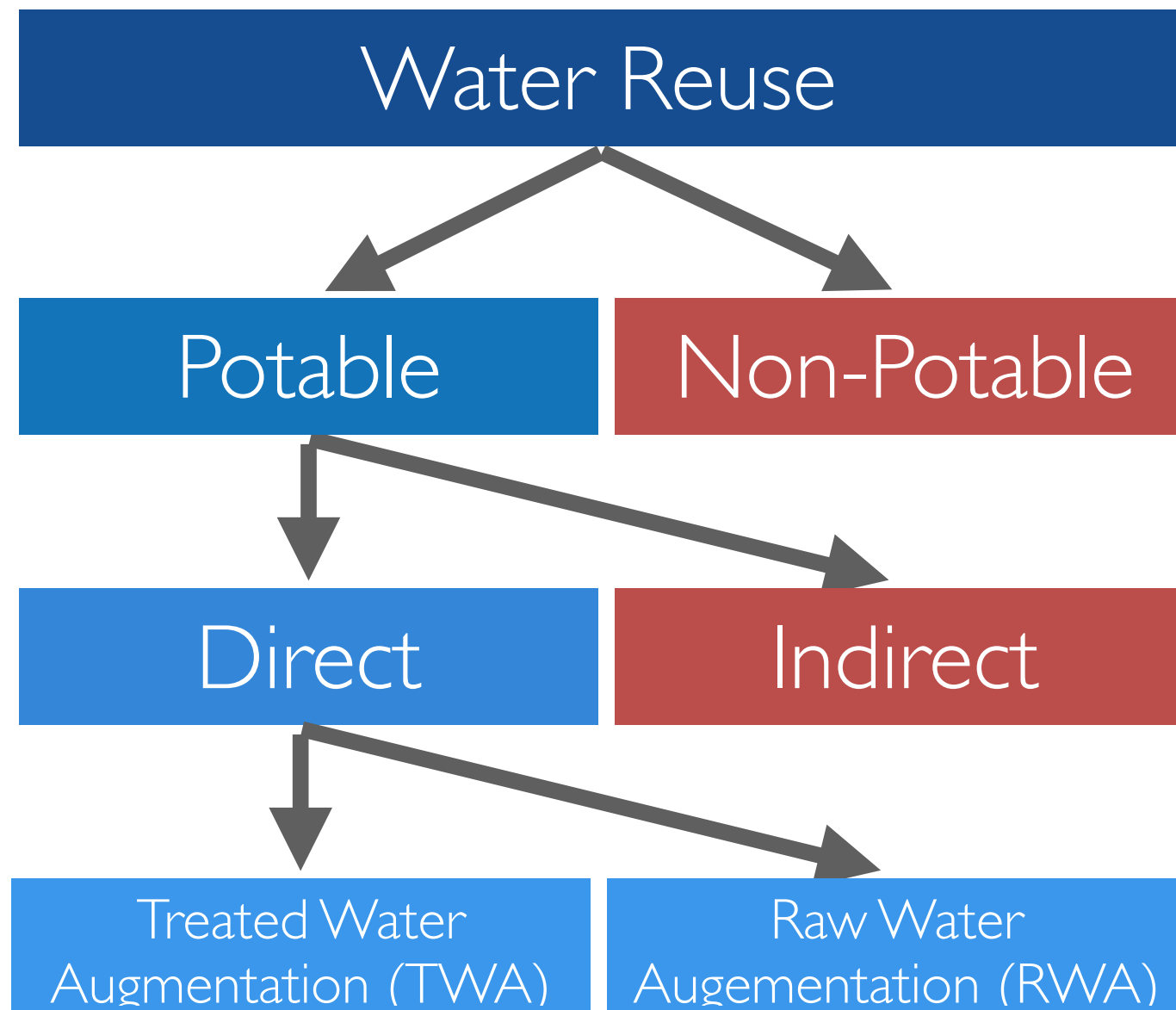


Image Source: The Noun Project

Teuku, Syaryzal- <https://thenounproject.com/teuku2/collection/factory-and-industry/?i=1721060>

Alex Muravev, RU- <https://thenounproject.com/search/?q=house&i=983462>

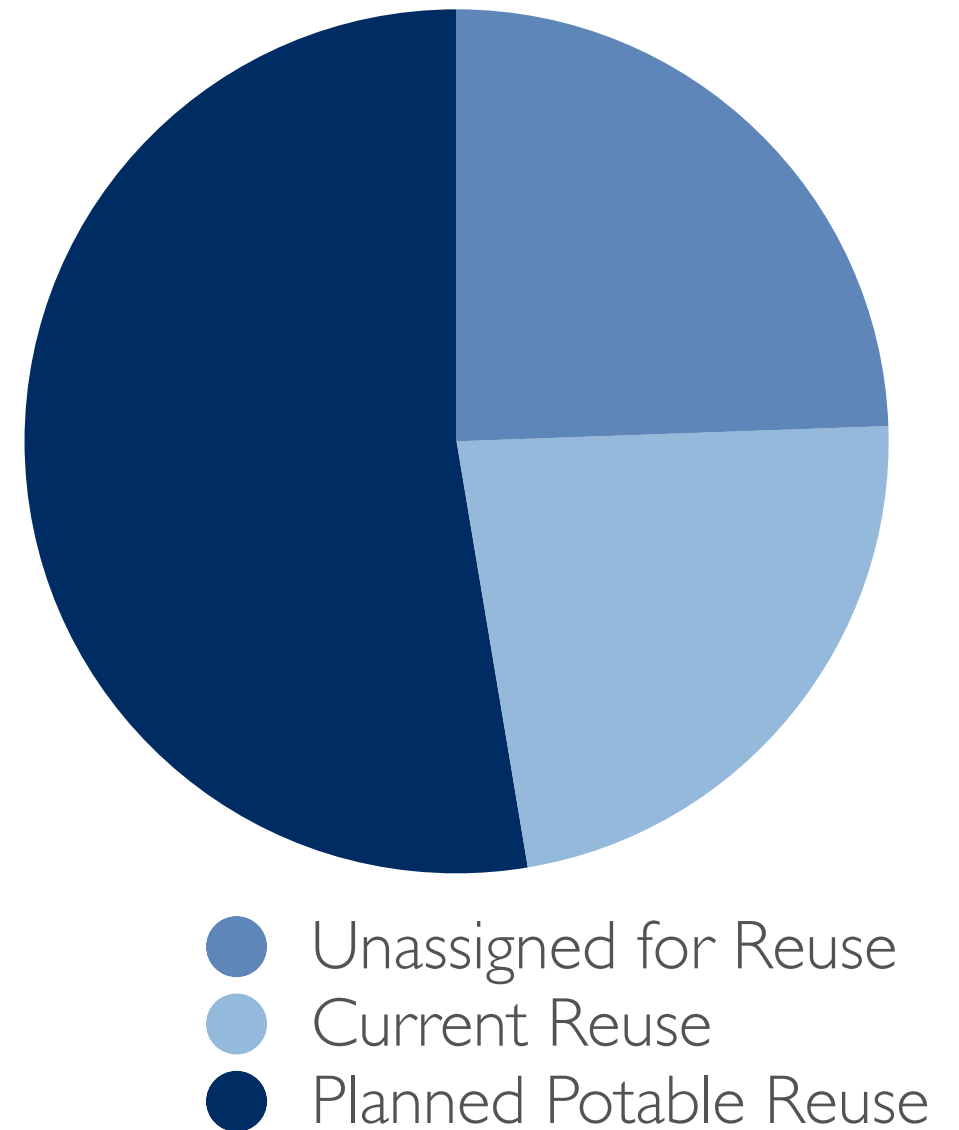
ProSymbols, US- <https://thenounproject.com/search/?q=groundwater&i=2035895>

Ben Davi, RO- <https://thenounproject.com/search/?q=water%20industry&i=1848698>

Southern California Recycled Water

Effects of Policy on Recycling

- California's Assembly Bill 574 requires the state to develop regulations for direct potable reuse (DPR) by 2023.
- Need to be cognizant of impacts to the grid to understand how we can build mutual support in energy system



Project Context

Presentation Overview

EXISTING WASTEWATER MANAGEMENT SYSTEMS



ADVANCED WATER TREATMENT



WATER SUPPLY BENEFITS



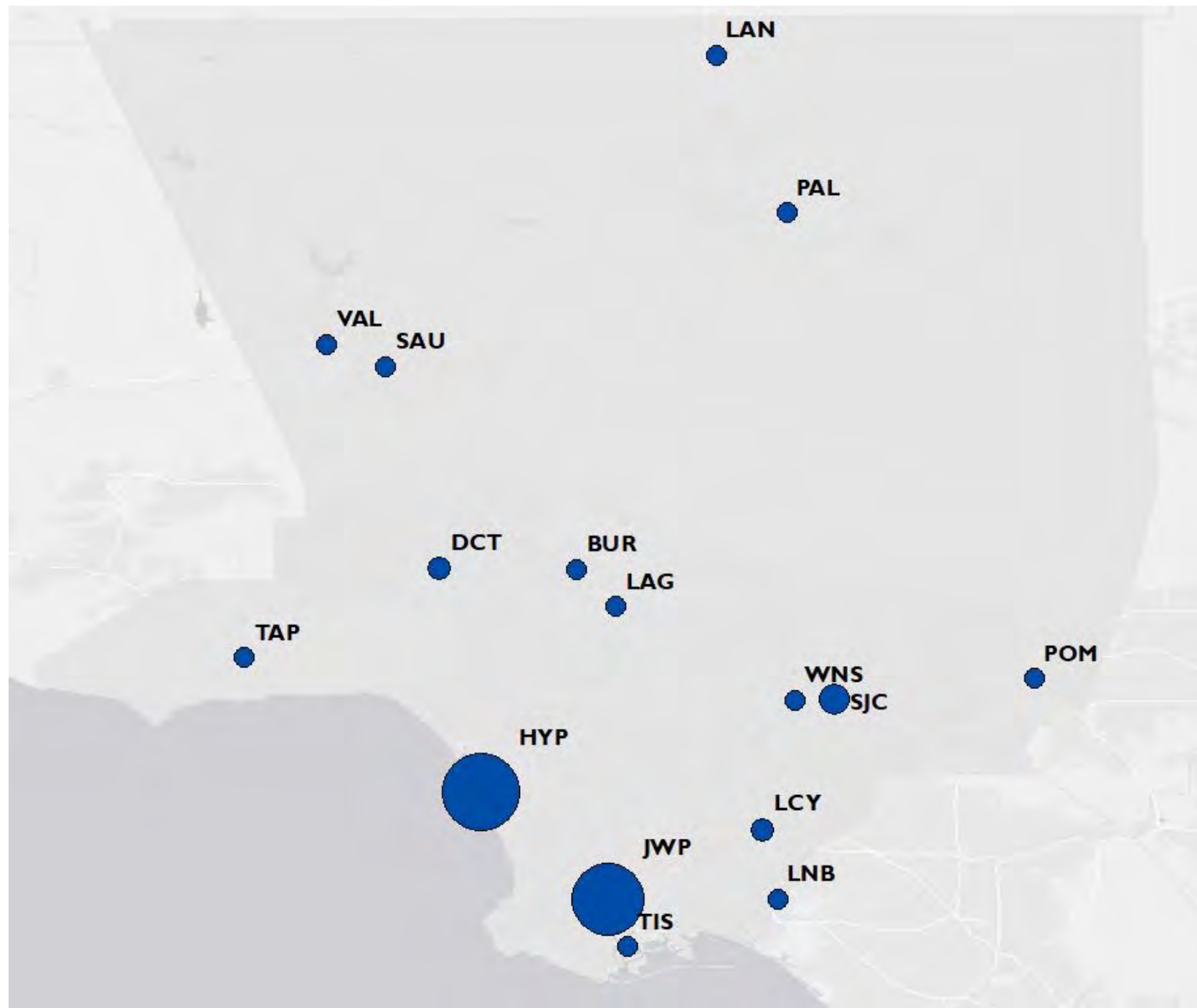
COST AND EMISSIONS CONSIDERATIONS



CONCLUSIONS

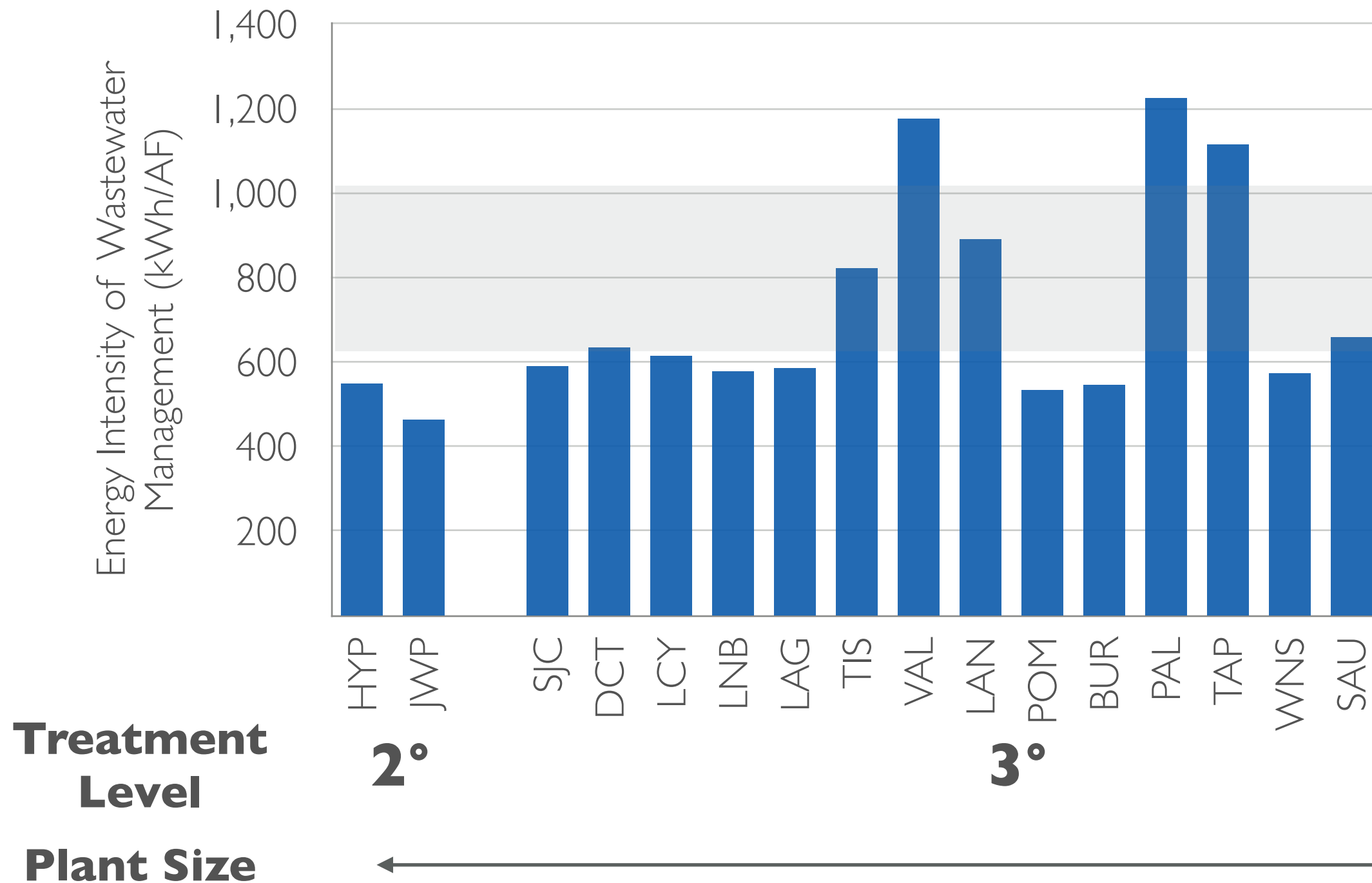
Research Methods

Site Selection and Data Collection



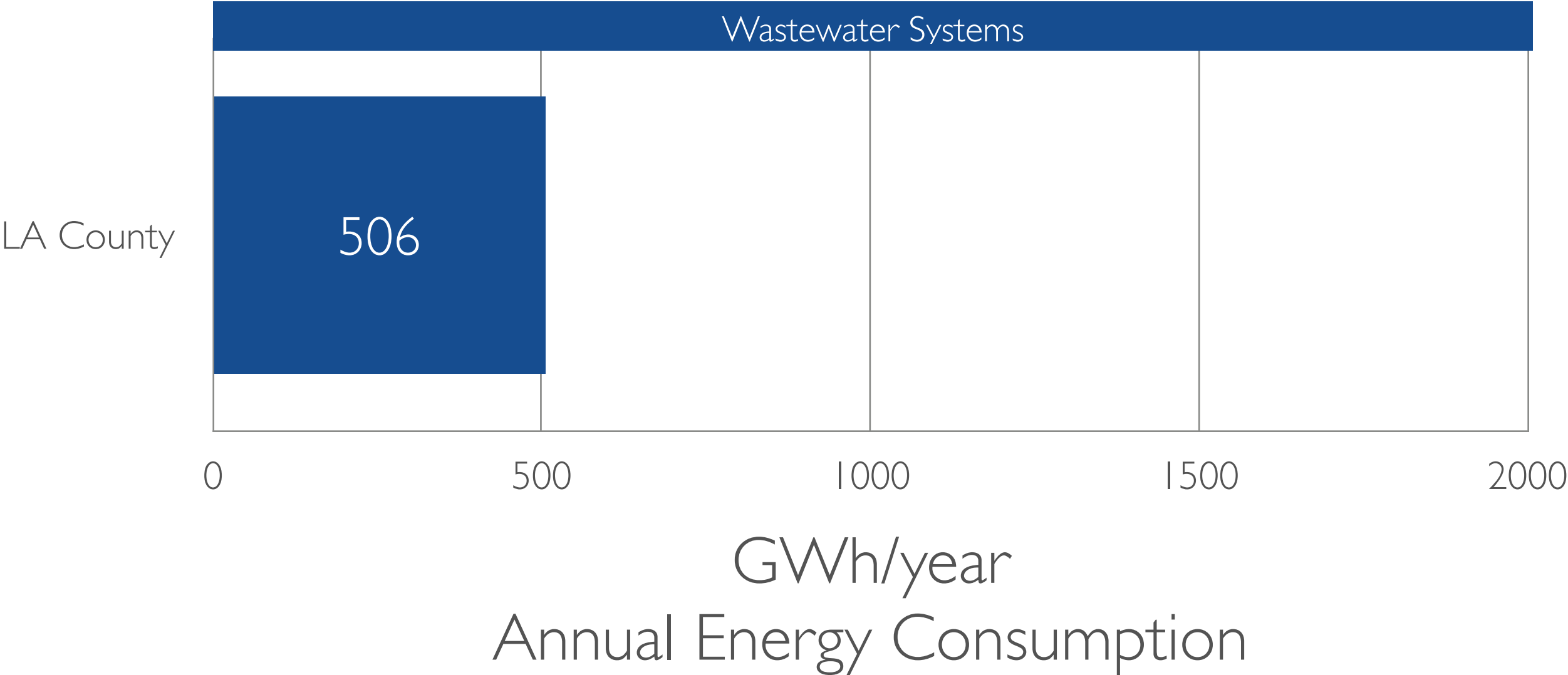
Research Methods

LA County WWT Energy Intensity



Establishing a Baseline

LA County WWT Energy Use



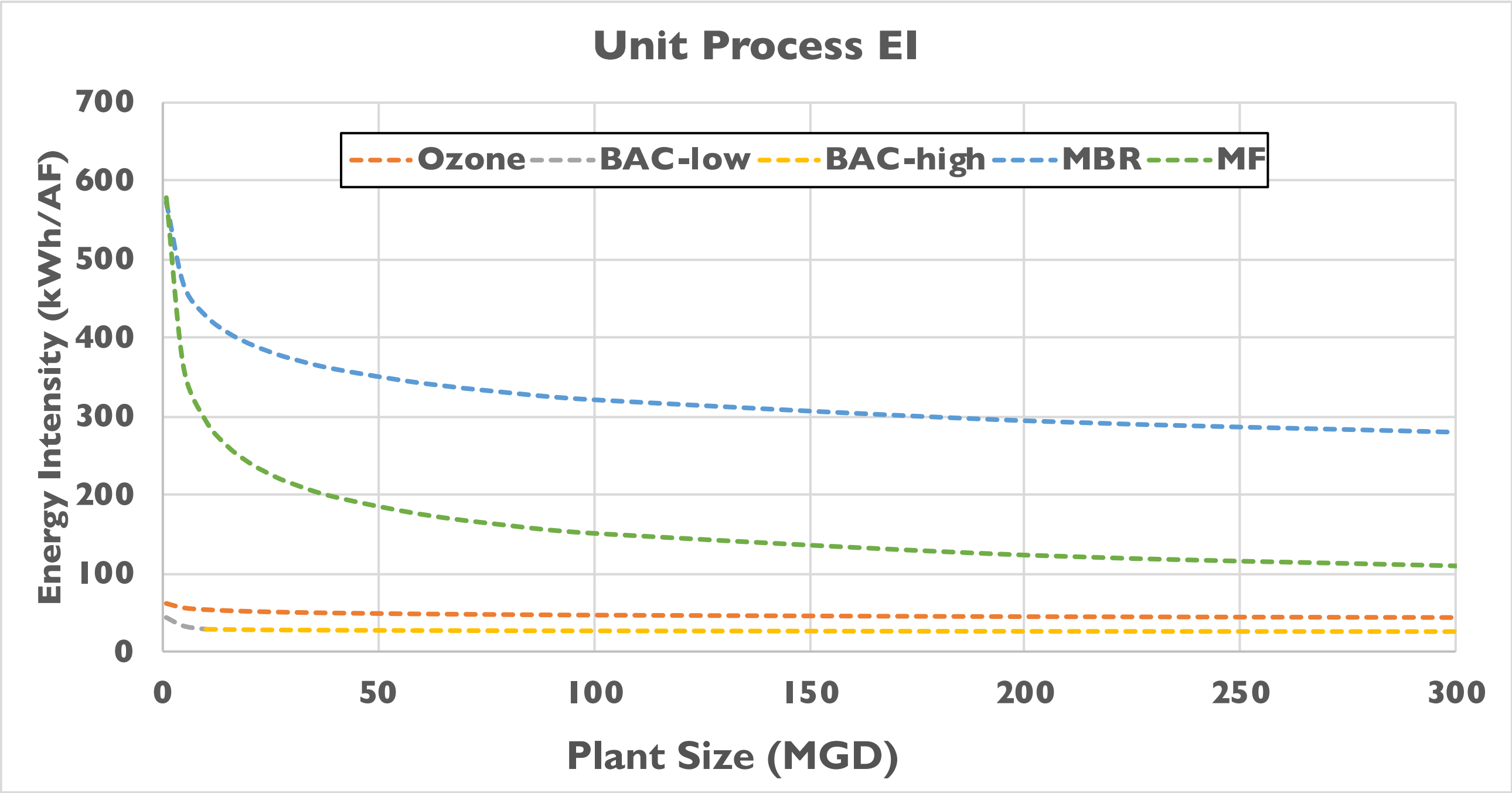
Quantifying Advanced Water Recycling

Describing AWT Treatment Trains



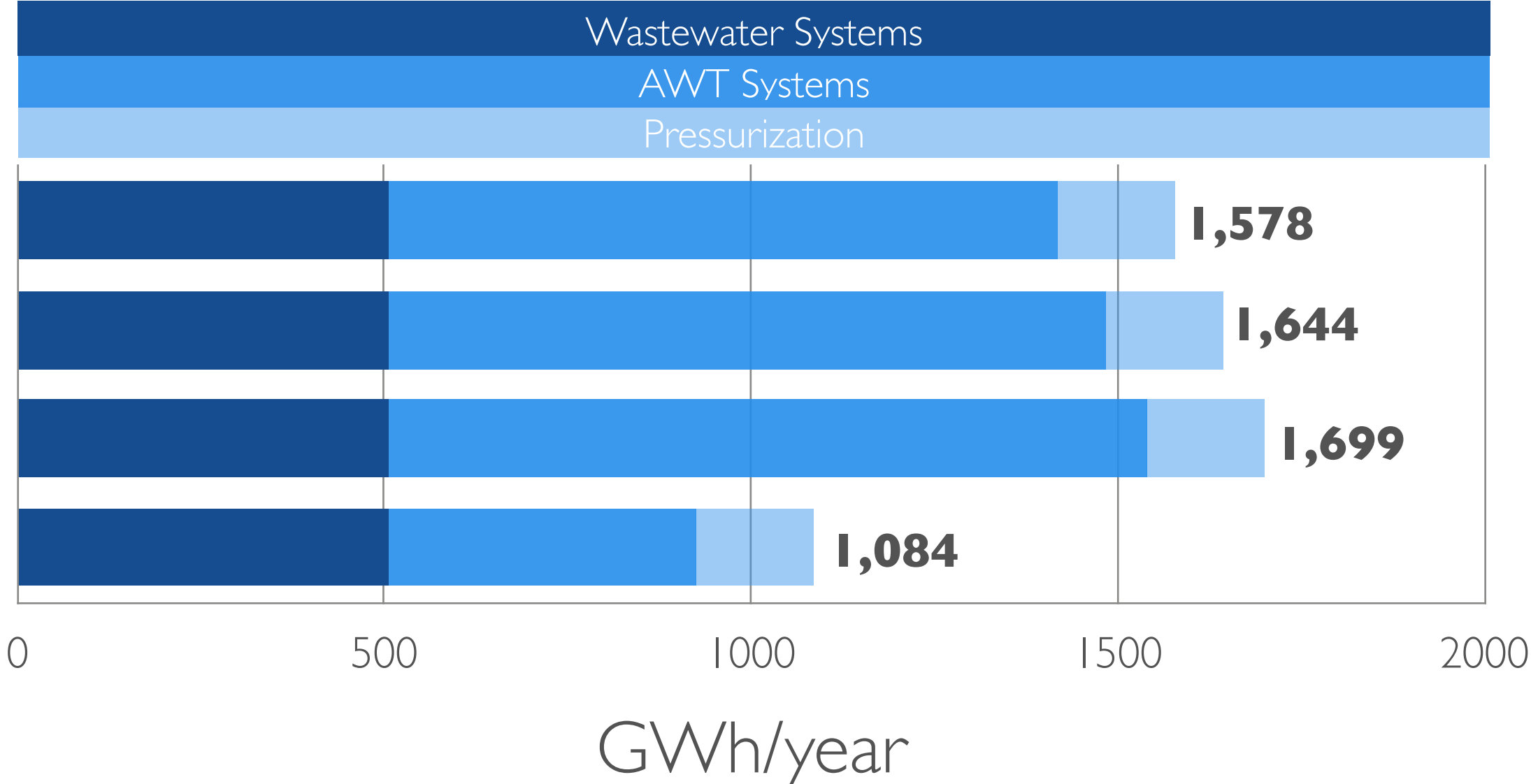
Research Methods

Modeling Energy Intensity



Quantifying Advanced Water Recycling

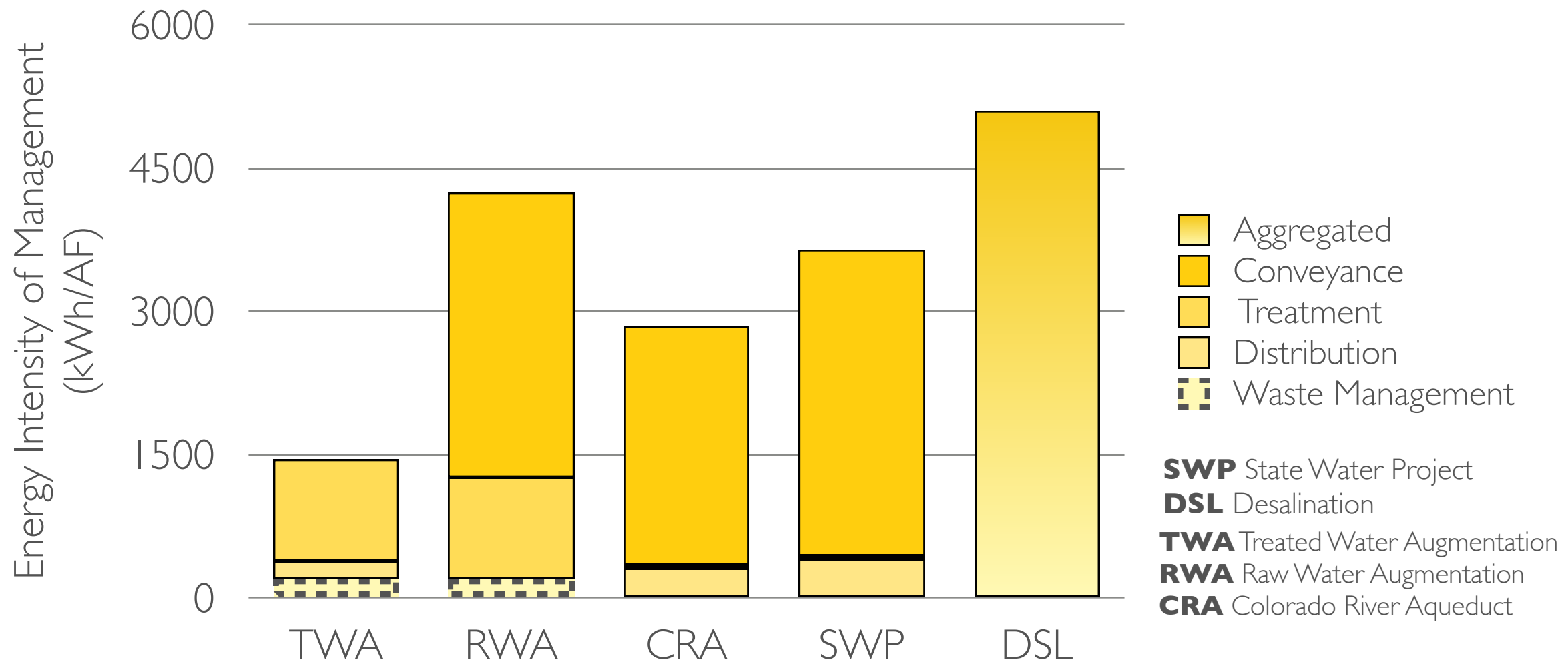
LA County AWT Energy Use



Annual Energy Consumption by Tr. Alternative

Research Results

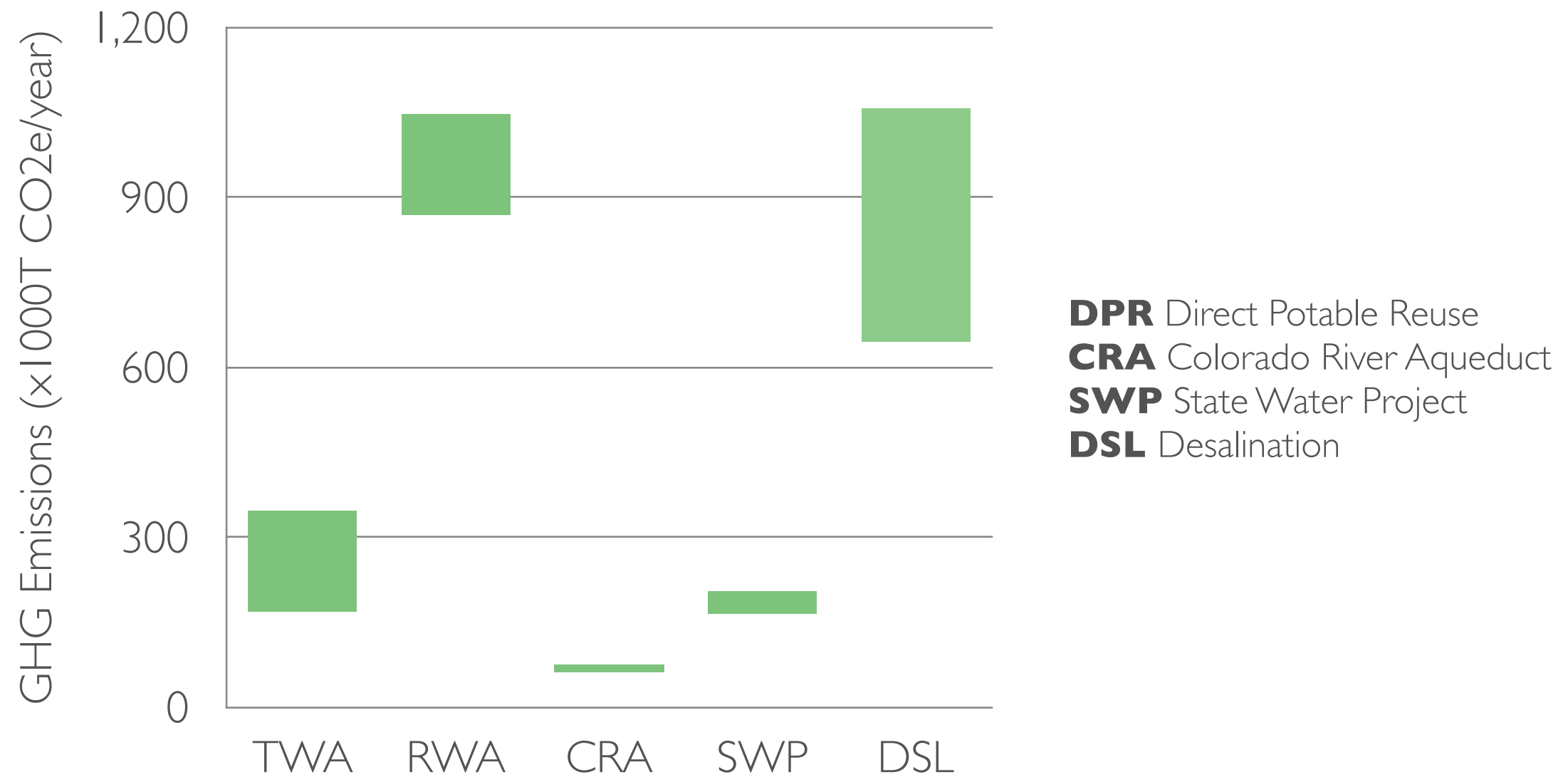
Energy Intensity of Supply Alternatives



Source: Raucher and Tchobanoglous (2014), Tchobanoglous et al. (2015), California Energy Commission, (2013), Mike et al. (2017)

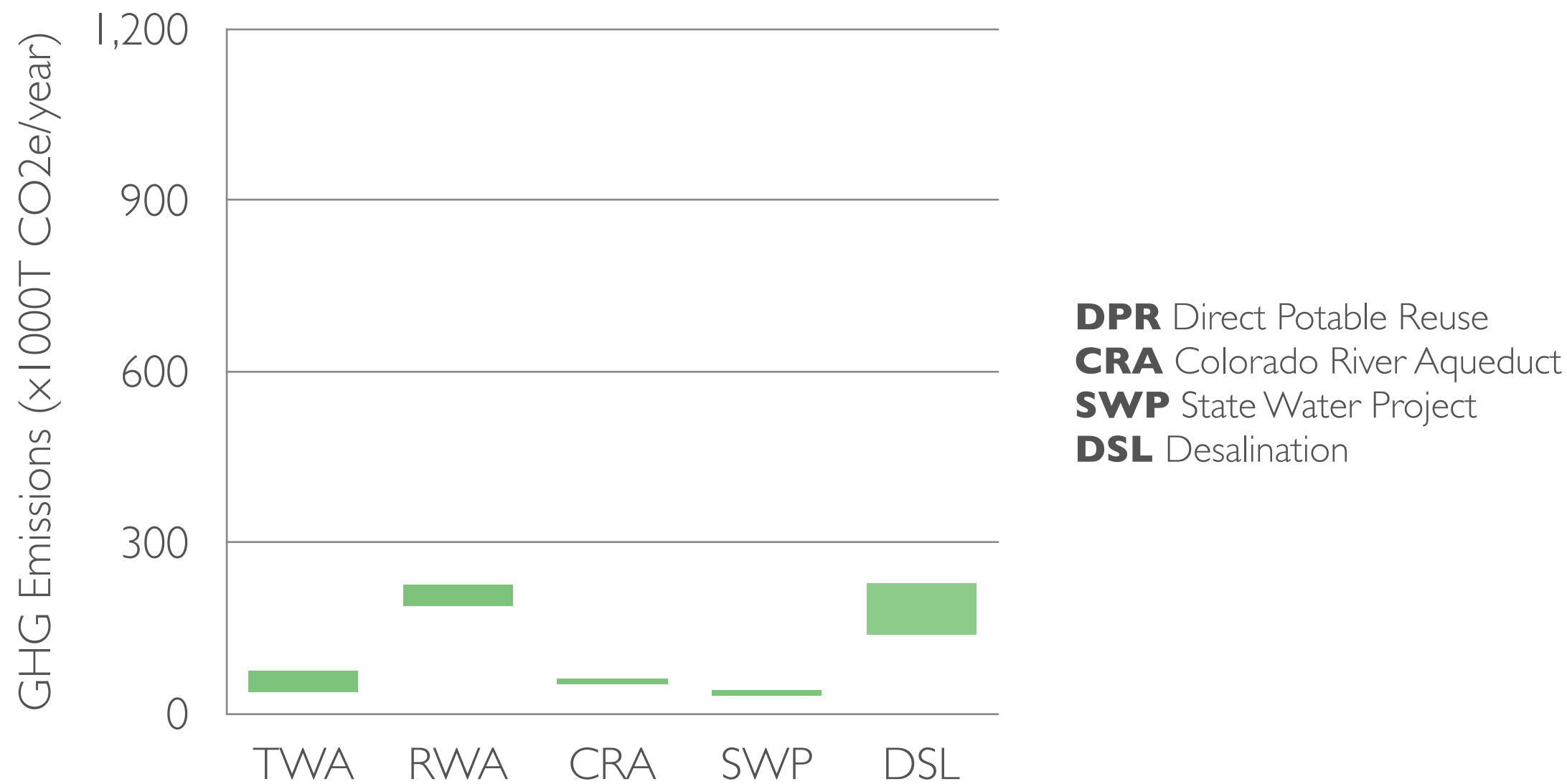
Research Results

GHG Emissions for Supply Alternatives-2014



Source: Mika et al. (2018)

GHG Emissions for Supply Alternatives-2035



Source: Mika et al. (2018)

With the adoption of DPR, LA's water and energy portfolio could shift significantly



- Local energy use for treating wastewater could increase by up to a factor of 3



- Using DPR to offset more energy intensive water supplies will result in a large net savings, while also providing local water.



- When considering the volume of water reused, LA County could easily provide 30-45% of its demand locally.

Acknowledgements



U.S./China Clean Energy Research Center for
Water-Energy Technologies



Conclusions

Thanks for Coming!



Nicholas Chow,
Water Engineering Project Manager
UCLA Luskin Center for Innovation

E: nchow@luskin.ucla.edu

WaterReuse California Los Angeles Chapter Meeting



August 11, 2020

Legislation & Regulation Update

Raymond Jay
Metropolitan Water District of Southern California
(213) 217-5777 or rjay@mwdh2o.com



2020 California Legislative Dates

- Jan. 1 Statutes take effect
- Jan. 6 Legislature reconvenes
- Feb. 21 Last day for bills to be introduced
- May 29 Last day for bills to pass house of origin
- June 15 Last day to pass budget
- Aug. 14 Last day policy committees to report bills
- Aug. 21 Last day fiscal committees to report bills
- Aug. 31 Last day for any bill to be passed
- Sept. 30 Last day for Governor to sign or veto bills
- See: <http://assembly.ca.gov/legislativedeadlines>

California Legislation & Overview

- Legislature focused on COVID-19
 - Delay other issues including recycled water
 - Climate resiliency bonds delayed for 2020
 - Economic stimulus bill being considered
-
- California Budget impacted from COVID-19:
 - Estimated \$56B deficit
 - SWRCB BCPs → only 1PY for non-potable reuse

California Regulation Update

- Governor's Adopted Resilience Plan includes some funding for SWRCB non-potable reuse
- WRCA pushing to ensure Expert Panel is funded & available for completing DPR regulations
- California CWSRF & DWSRF IUPs adopted
- Wastewater Change Petition - Section 1211
- Recycled Water volumetric reporting
- Non-Potable Recycled Water Handbook
- Plumbing Code – use of change over device

Wastewater Change Petition - Section 1211

- Required for any change in the point of discharge, place of use, or purpose of use of treated wastewater
- Evaluates potential impacts to beneficial uses in receiving waters
- Draft Section 1211 checklist – under review
- Likely for new/updated recycled water projects
- Likely for SWRCB grants/loans
- https://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/waterrightsrequirements.shtml

Recycled Water Volumetric Reporting

- Required by updated Recycled Water Policy
- Data due April 30th every year
- 2019 Data is 1st year of reporting
- 2019 submittal delayed to 6/30/2020 due to COVID-19
- Intended to help track RW uses and meet RW goals
- Approximately 820 wastewater and recycled water facilities required to report
- Report influent, effluent, RW use, treatment, & discharge type
- Use SWRCB's GeoTracker GIS reporting system
- https://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/volumetric_annual_reporting.html

CWSRF update

- SWRCB adopted FY20-21 CWSRF & DWSRF IUPs
- Comment letters submitted on June 10, 2020
- WRCA comments included:
 - Increase CA leveraging ratio
 - Increase future funding estimate
 - Reduce program backlog through consultants
 - Support funding scenario B – fund 23 projects
- Fundable list long-term capacity reduced
- Look for additional programmatic review
- Review DAC 40% forgiveness rate impact

Non-Potable Recycled Water

- Title 24, 22, & 17 Handbook
 - 1 workshop held in February
 - Draft Handbook release delayed
 - WRCA evaluating assistance options
- Plumbing Code update
 - WRCA submitted letter & testified to BSC
 - Change over device & clarify auxiliary water supply
 - SWRCB support delayed
 - Wait to next year to update plumbing code



Federal Update

- House & Senate negotiating COVID -19 relief bill
- FY 2020 Appropriations
 - CWSRF = \$1.638B
 - DWSRF = \$1.126B
 - Title XVI = \$63M
 - WINN = \$20M
 - WIFIA = \$60M
 - Aquifer Storage = \$10M
 - Innovative Water = \$1M
 - Stormwater reuse = \$25M
 - Research Program = \$6M
 - Desalination = \$20M
- FY 2021 DRAFT Appropriations levels significantly reduced
- FY 2021 WIFIA \$ reduced
 - Use unobligated \$ (unsigned agreements) for FY 2021
 - ~50 Draft agreements would have to reapply
- National Water Reuse Action Plan
 - EPA & stakeholders working on multiple implementation tasks

Water Resource Development Act

- Senate passes 2 bills out of EPW committee
 1. S.3590: Drinking Water Infrastructure Act of (Barrasso)
 2. S.3591: American's Water Infrastructure Act (Barrasso)
- No schedule for full Senate vote
- HR 2: Moving Forward Act (DeFazio)
 - Passed House and sent to Senate
 - Focus on infrastructure and USACE

Other Federal Legislation

- HR 2: Moving Forward Act (DeFazio)
- HR 1162: Water Recycling Investment and Improvement Act (Napolitano)
- S. 1932: Drought Resiliency and Water Supply Infrastructure Act (Gardner)
- S. 4188: Water for Tomorrow Act of 2020 (Harris)
- S. 4189: Water for Conservation and Farming Act (Wyden)
- HR 5302: Western Water Recycling and Drought Relief Act (McNerny)
- HR 3723: Desalination Development Act (Levin)

Questions?

If you have any questions, please contact:

Raymond Jay, Past President



c/o Metropolitan Water District of Southern California
700 N Alameda Street
Los Angeles, CA 90054
(213) 217-5777
rjay@mwd.h2o.com



Regulatory Agency Updates

- Los Angeles Regional Water Quality Control Board
- *Steven Webb*
- Los Angeles County Department of Public Health
- *Glenn Van Eekhout*
- State Water Board Division of Drinking Water Programs
- *Saeed Hafeznezami*

County of Los Angeles Department of Public Health

WateReuse LA Chapter Meeting 8-11-20

Glenn van Eekhout, R.E.H.S.

Chief Environmental Health Specialist

County of Los Angeles Department of Public Health

Cross Connection & Water Pollution Control Program

gvaneekhout@ph.lacounty.gov



SoFi Stadium update:

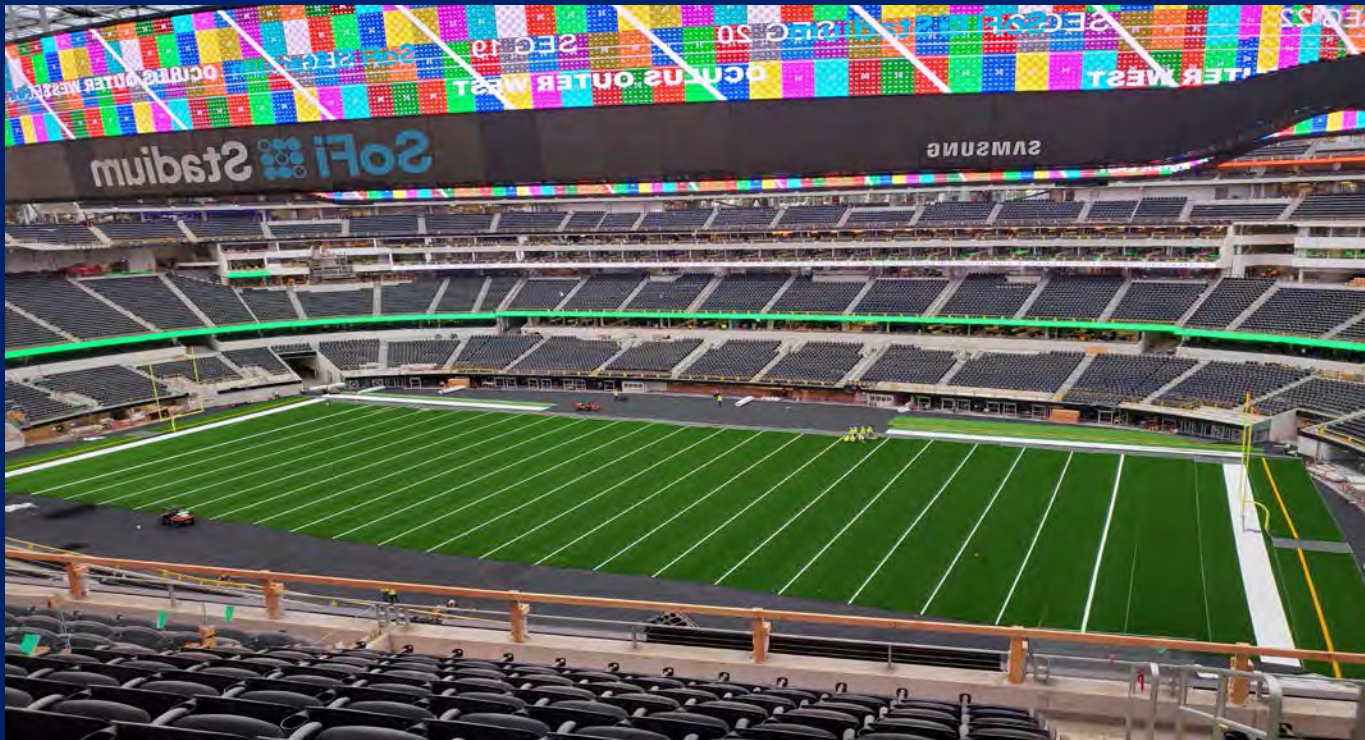
Potable water baseline: conducted July 16, 2020

Alternate water irrigation baseline: conducted July 30, 2020

Phase 1 cross connection shutdown completed on July 31, 2020

Phase 2 scheduled for January 2021

Lake cross connection test: soon











LAX – PEOPLE MOVER TRAM PROJECT





SoFi Stadium Lake Project



Mylar Balloon Incident: August 2, 2020 Santa Monica



Thank you!





Chapter Trustee Updates

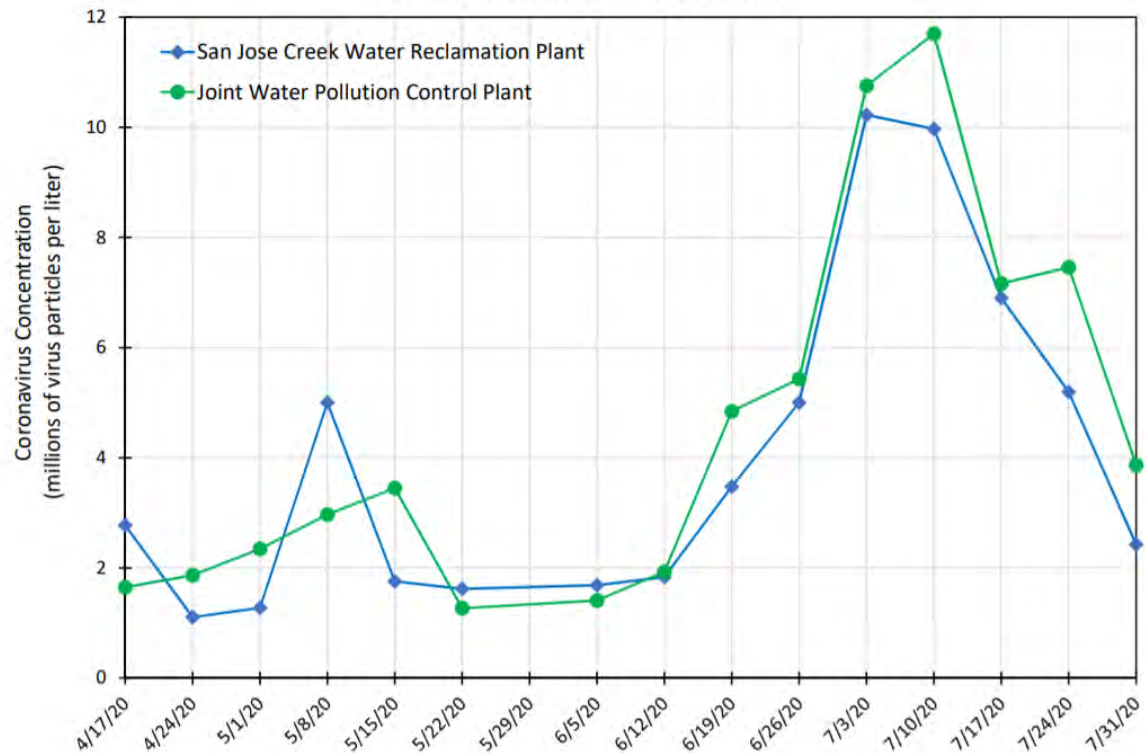
WaterReuse LA Chapter – August 11, 2020



Last WaterReuse CA Board of Trustees Meeting: August 7, 2020

Los Angeles County Sanitation Districts SARS COV-2 Testing

Coronavirus in Sewage at Inlet to Two Wastewater Treatment Plants
(Weekly Averages thru 7/31/2020)



LOS ANGELES COUNTY
SANITATION DISTRICTS

Testing Goals

- Ensure no virus is being discharged from facilities (Confirmed)
- Partnerships to confirm once virus is excreted, not infectious (Univ. of Arizona)
- Sewer Surveillance



Chapter Trustee Updates

WaterReuse LA Chapter – August 11, 2020



Nominating Committee - Two Vacancies on WRCA Board

- Norma Camacho - Valley Water, retired. Term would have expired 2021
- Alex Coate - EBMUD, retired. Term would have expired 2023

Joint Economic Stimulus Plan

- No Climate Bond will be on November ballot, filing deadline not met
- WaterReuse submitted water reuse recommendations to Governor in the process

Budget: AB 574 Expert Panel Funding

- Funding not included in Governor's budget
- Panel is needed to review DPR research projects for regulation formation
- MWD, LADWP, Valley Water previously committed to funding panel



Chapter Trustee Updates

WaterReuse LA Chapter – August 11, 2020



CWSRF Financial Capacity Report and Programmatic Review

- WRCA Action Plan –Streamline CWSRF application process
- Support development of scope and estimate for funding programmatic review

PFAS-PFOA Update

- POTWs began receiving orders to conduct sampling and analysis of PFAS
- Order focuses on 31 PFAS analytes
- Sampling to begin no earlier than 4th Quarter 2020 (Oct.-Dec. 2020)





Chapter Trustee Updates

WaterReuse LA Chapter – August 11, 2020



CUWA: Enabling Widespread Water Reuse

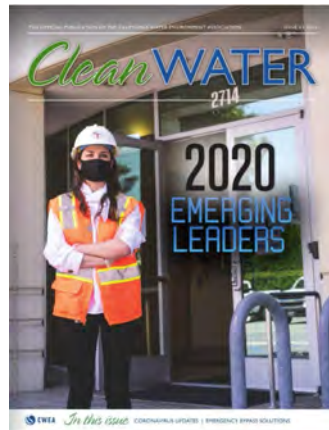


- CUWA preparing brief on *Enabling Widespread Water Reuse in California*
- Approved contribution of \$5K toward completion of white paper

CWEA Clean Water Magazine: November 2020 Issue



- November 2020 publication to be a DPR Edition Magazine
- WRCA will serve as a “Guest Co-Editor” and will have access to articles





Chapter Trustee Updates

WateReuse LA Chapter – August 11, 2020



Congratulations

to our 2020 Excellence in
Water Leadership Award Recipient

ROBB WHITAKER

Water Replenishment District





Chapter Trustee Updates

WaterReuse LA Chapter – August 11, 2020



WaterReuse Mourns the Loss of Bahman Shiekh

An honorary WaterReuse lifetime member, Bahman regularly spoke at conferences, served on the Board of Directors, and at one time or another chaired almost every committee. In recognition, WaterReuse honored Bahman twice with its Outstanding Service Award, as well as the President's Award of Appreciation.





Chapter Trustee Updates

WaterReuse LA Chapter – August 11, 2020



Save the Date for the WaterReuse Virtual Symposium!

 **WATERREUSE** VIRTUAL SYMPOSIUM
SEPTEMBER 14-16, 2020

REACHING NEW HEIGHTS IN WATER REUSE



Register Five People, Get One Registration Free!

For every five people you register at the Full Conference rate, you will get one free registration.

Register Now!

<https://watereuse.org/news-events/conferences/35th-annual-watereuse-symposium/registration/>

Chapter Updates

➤ June Meeting Summary
- *Judi Miller*

➤ Member Montage
- *Sam Landsman*

Denise Chow



Evelyn Cortez-Davis



Everett Ferguson



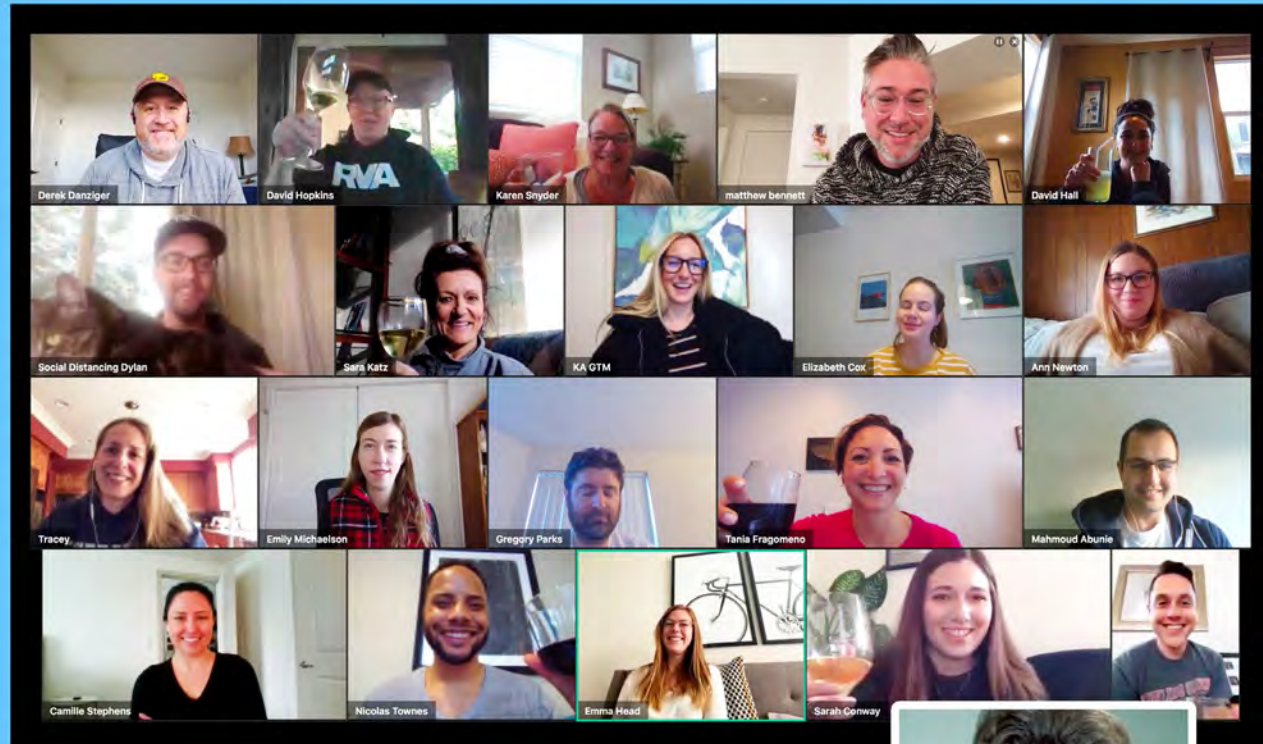
Hannah Ford



Fred Gerringe



Katz and Associates



**The
Katz
Bunch**



Sam Landsman



Scott Lynch



Judi Miller



Scott Miller



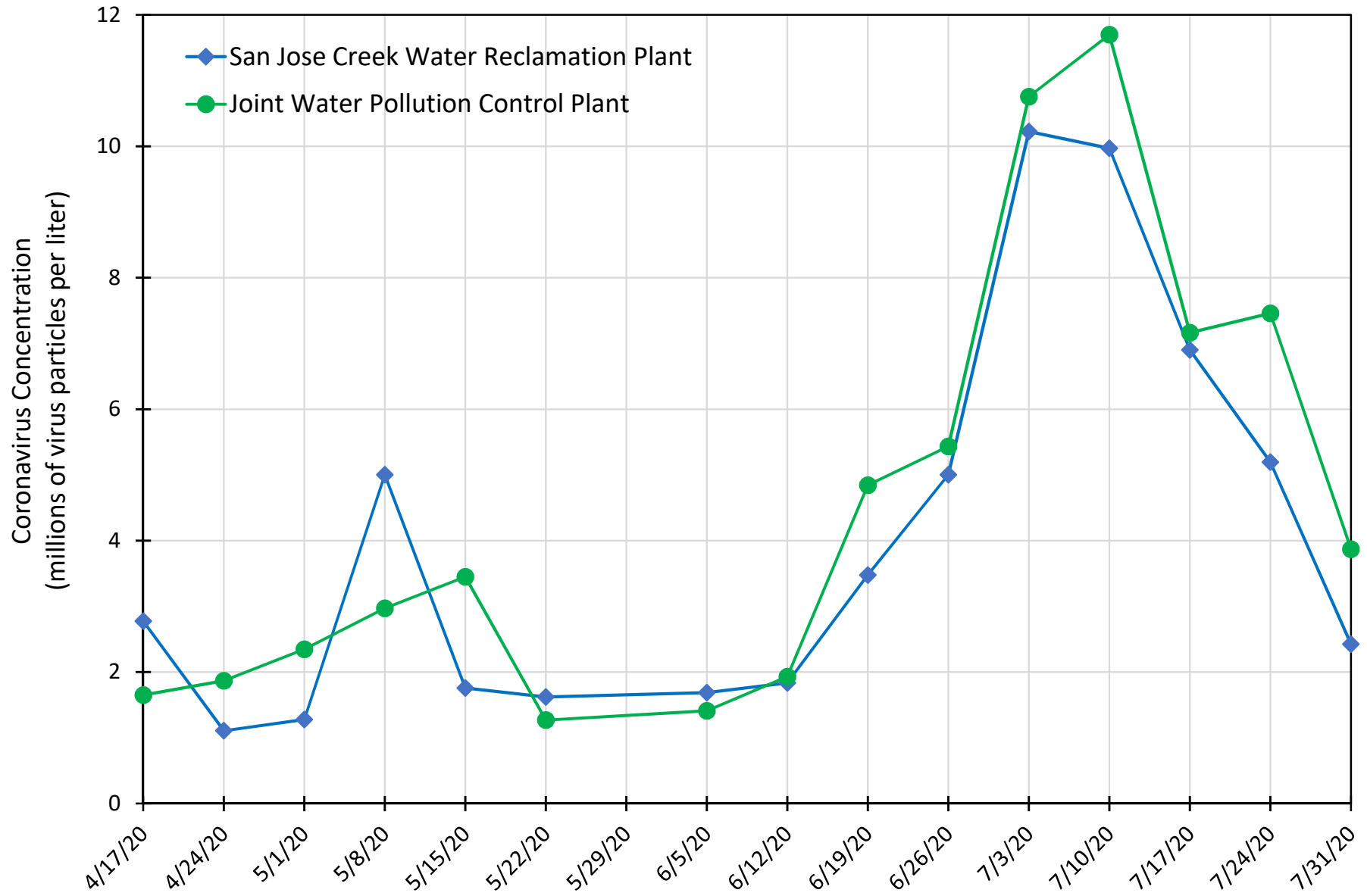
Monica Morales



Membership Roundtable *(Jared Lee)*

- Los Angeles County Sanitation Districts
 - *Suzanne Brown*
- City of Santa Monica
 - *Corey Bracken*
- Santa Clarita Valley Water District
 - *Shadi Bader*
- Las Virgenes Municipal Water District
 - *Darrell Johnson*
- Anyone else?

Coronavirus in Sewage at Inlet to Two Wastewater Treatment Plants
(Weekly Averages thru 7/31/2020)



Next Meetings

- Tuesday, October 13, 2020 – Virtual
- Tuesday, December 8, 2020 – TBD

