

SWRCB Emergency Regulations-Proposed Equity Adjustments

December 7, 2015

Agenda

- Policy Principles
- Climate Equity Adjustment
- Growth Equity Adjustment
- Recycled Water Equity Adjustment
- Summary of the Equity Adjustments
- Implementation Triggers

Policy Principles

- Existing Conservation Standards Should Incorporate Some Equitable Adjustments
- Adjustments Should be Simple and Straightforward, Using Data that is Available or Easy to Obtain
- No Agencies Should have Targets Adjusted Upwards
- Use or Application Adjustments Would be at the Discretion of the Water Supplier
- Adjustments Would Apply Under the Current Emergency Regulation Structure or an Extension to it

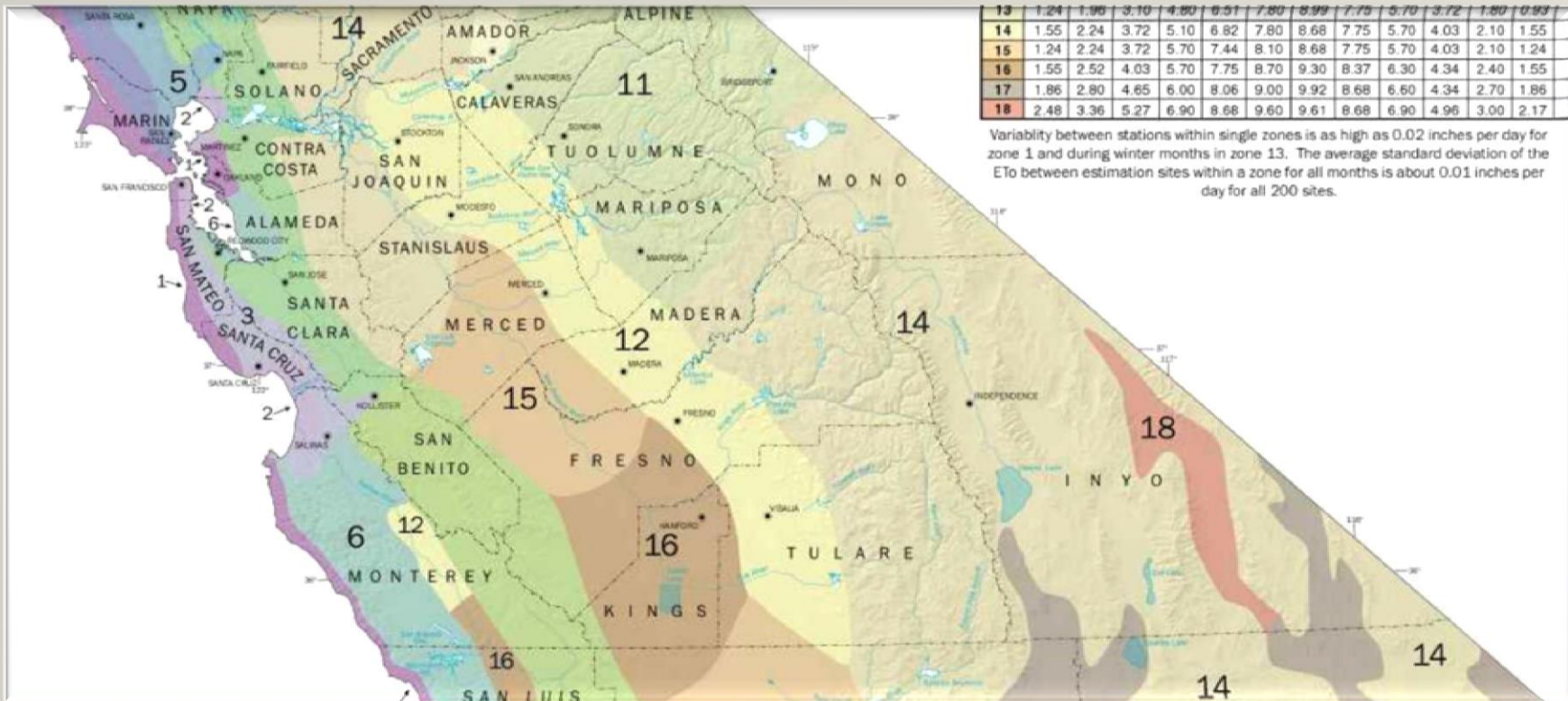
Proposed Methodology Does Not Address Other Potential Adjustments Such as Sustainable Supply Development, Previous Conservation Efforts, Investments in and Other Factors Impacting Supply and Demand.

Proposal for a Climate Equity Adjustment



Reference Evapotranspiration (ETo) Zones

- 1 Coastal Range, Marin, Contra Costa, Alameda, San Francisco
- 2 Marin, Contra Costa, Alameda, San Francisco
- 3 San Mateo, Santa Cruz, Santa Clara, San Jose
- 4 San Francisco, Contra Costa, Alameda, San Francisco
- 5 Marin, Contra Costa, Alameda, San Francisco
- 6 Contra Costa, Alameda, San Francisco
- 7 Contra Costa, Alameda, San Francisco
- 8 Contra Costa, Alameda, San Francisco
- 9 Contra Costa, Alameda, San Francisco
- 10 Contra Costa, Alameda, San Francisco
- 11 Sacramento, Amador, Alpine, Calaveras, Tuolumne, Mono
- 12 Stanislaus, Merced, Madera, Fresno, Kings, Tulare, Inyo
- 13 Sacramento, Amador, Alpine, Calaveras, Tuolumne, Mono
- 14 Stanislaus, Merced, Madera, Fresno, Kings, Tulare, Inyo
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Even the Most Climate-Appropriate Landscapes Will Need More Water Inland



Low water use yards



Impact of Climate Variations

	Supplier A	Supplier B
Climate	Coastal	Inland
Average Evapotranspiration (ET _o), July - September (in inches)	14.86	21.52
July - September Water Need for 1,000 sq. ft. of Efficient Landscaping (in gallons) based on average Evapotranspiration ¹	5,129	7,378
Original Conservation Standard	16%	28%
Reduction Requirement (gallons)	821	2,066
Adjusted Maximum Available Water (per 1,000 sq. ft.)	4,308	5,312
Percent of Local Evapotranspiration	46.2%	39.6%

1. Maximum Allowable Water Application for 1,000 sq. ft. of area and ET Adjustment Factor of 0.55
(Model Water Efficient Landscape Ordinance, 2015)

Proposed Climate Equity Adjustment

- One-time Adjustment to the Conservation Standard (C.S.)
- Based on July – September 2014 Evapotranspiration (ET)
 - Provided by water suppliers electing to use adjustment
 - Could be weighted by supplier based on ET areas within service area
- Calculation
 - $2015 \text{ C.S.} * (1 - \text{Supplier's Deviation from Statewide Average ET})$**
 - Statewide Average ET was derived from a production weighting
- Example “Supplier B”
 - Deviation from Statewide Average ET = 15%
 - $28\% \times (1 - 15\%) = 24\%$



Impact of Climate Equity Adjustment on Customer B

	Supplier A	Supplier B
Climate	Coastal	Inland
Average Evapotranspiration (ETo), July - September (in inches)	14.86	21.52
July - September Water Need for 1,000 sq. ft. of Efficient Landscaping (in gallons) based on average Evapotranspiration ¹	5,129	7,378
Original Conservation Standard	16%	28%
Adjusted Conservation Standard	16%	24% ²
Adjusted Reduction Requirement (gallons)	821	1,771
Adjusted Maximum Available Water (per 1,000 sq. ft.)	4,308	5,607
Percent of Local Evapotranspiration	46.2%	41.8%

1. Maximum Allowable Water Application for 1,000 sq. ft. of area and ET Adjustment Factor of 0.55 (Model Water Efficient Landscape Ordinance, 2015)

2. Based on 15% higher local ETo Deviation from the State.

Importance of Using Local Actual ETo

City/Location (CIMIS Station)	CIMIS Zone	Zone 6 Monthly Average ETo (July - Sept)	Local Monthly Long- term Average ETo (July - Sept)	2014 Average (July - Sept)
San Luis Obispo (Sta. 160)	6	5.84	5.21	5.42
Irvine (75)	6	5.84	5.79	5.99
Riverside (44)	6	5.84	6.66	7.08
Menifee (240)	6	5.84	7.17	7.56

It is no surprise that as you travel inland, both the long-term average ETo and the 2014 average ETo increases.

To preserve equity in a potential climate adjustment, it is important that each supplier use their local ETo for July, August and Sept 2014.

Estimated Impact from Climate Equity Adjustment

Conservation Standard	Percent Reduction	Reduction (in Gallons)	Reduction (in acre-feet)
Unadjusted	24.9%	403,729,367,716	1,239,000
Climate Adjusted	22.6%	366,120,714,215	1,123,583

Climate Equity model only adjusts Conservation Standards if deviation from Statewide Average is higher.

Climate Equity Model uses CIMIS zone data, not local data for most suppliers.

Climate Equity model assumes that all suppliers with higher ETo apply for climate equity adjustment.

Growth Equity Adjustment

- Since 2013, Water Suppliers have Added New Connections
- These New Connections Result in Additional Reasonable Demand for Water
- This Results in a Required Demand Reduction Higher than the Conservation Standard
- This May Result in a Hardship on Growing Communities and Could Impact Economic Recovery
- New Demands include a Mix of Residential, Commercial, and Industrial



Impact of Growth Since 2013

	Agency A	Agency B
Growth Since 2013	None	6% Growth
2013 Baseline Active Service Connections	85,000	85,000
2015 Reporting Year Service Connections	85,000	90,000
Increase in Number of Active Service Connections	0	5,000
AF per Active Service Connection	0.071	0.071
2013 Monthly Baseline Production, AF	6,000	6,000
Increase in Demand Due to Growth	0	353
Conservation Standard	28%	28%
Production Target, AF	4,320	4,320
Water Savings to Meet Required Reduction Target, AF	1,680	2,033
Actual Percent Reduction to Meet Target	28%	34%

} Baseline is Not Adjusted for Growth

} Effective Conservation Standard is 34%

Proposed Growth Equity Adjustment

- Monthly Adjustment of 2013 Water Production
- Calculated in Two Steps:
 - Estimate Monthly Demand from New Development
 - $\text{Monthly Demand 2013} / \text{Number of Active Connections} = \text{Demand per Connection}$
 - $\text{Number of New Connections} \times \text{Demand per Connection} = \text{Demand from New Development}$
 - Adjust 2013 Monthly Baseline Production
 - $2013 \text{ Monthly Production} + \text{Demand from New Development} = \text{Adjusted Baseline}$
- Agency B Example
 - Monthly Demand per Connection:
 $6,000 \text{ AF} / 85,000 \text{ Connections} = 0.071 \text{ AF/Connection}$
 - Monthly Demand from New Development:
 $5,000 \text{ New Connections} \times 0.071 \text{ AF/Connection} = 353 \text{ AF}$
 - Adjusted Monthly Baseline = 6,353 AF

Impact of Growth Equity Adjustment on Agency B

	Agency A	Agency B
Growth Since 2013	None	6% Growth
2013 Baseline Active Service Connections	85,000	85,000
2015 Reporting Year Service Connections	85,000	90,000
Increase in Number of Active service connections	0	5,000
AF Per Active Service Connection	0.071	0.071
2013 Monthly Baseline Production, AF	6,000	6,000
Increase in Demand due to Growth, AF	0	353
Conservation Standard	28%	28%
Revised Baseline	6,000	6,353
Production Target	4,320	4,574
Water Savings to Meet Required Reduction Target, AF	1,680	1,778
Actual Percent Reduction to Meet Target	28%	28%

Baseline is Adjusted For Growth

Provides Equitable Conservation Standard

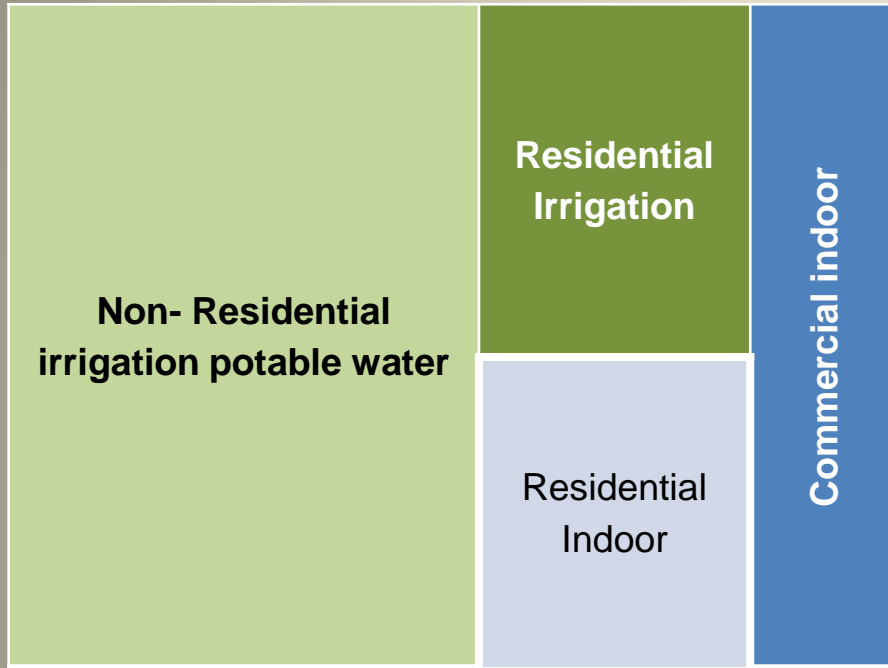
Recycled Water Equity Adjustment

- The Greatest Potential for Saving Water is in Irrigation of Landscape
- The Use of Recycled Water for Irrigation Limits the Ability for an Agency to Reduce Potable Landscape Irrigation

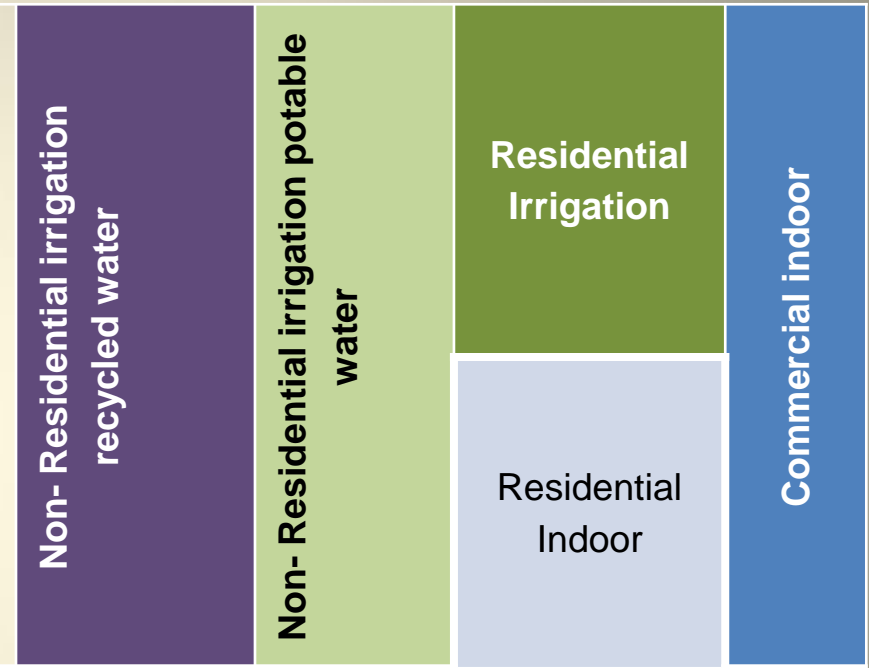


Impact on Potable Water Customers

Agency without Recycled Water



Agency with Recycled Water



Agency with no recycled water for outdoor irrigation can obtain significant savings reductions from broad customer base to achieve conservation target.

Agency with recycled water has limited ability to gain significant savings reductions from broad customer base. Residential customers are disproportionately impacted to achieve the required reduction.

Recycled Water Impact

	Agency A	Agency B
Total Water Use	125,000	125,000
Indoor Water Use – Potable	45,000	45,000
Outdoor Water Use –Potable	80,000	45,000
Outdoor Water Use –Recycled Water Use	0	35,000
Conservation Standard -28%	35,000	25,200
Indoor Reduction	2,250	2,250
Outdoor Reduction	32,750	22,950
Percent Outdoor Reduction from Potable Water Customers Required Before a Adjustment is Applied	41%	51%

All Outdoor Demand Reduction must Come from a Smaller Customer Base

Higher % Reduction Required

Proposed Recycled Water Equity Adjustment

- Add Adjustment to Provide Equity for Recycled Water Use
- On a Monthly Basis Adjustment is Subtracted from Production
- Calculation
 - Total Monthly Recycled Water Use x Ratio of Monthly Recycled to Potable Use x Agency's Conservation Standard
- Agency B Adjustments
 - $35,000 \text{ AF} \times 35,000 \text{ AF} / 90,000 \text{ AF} \times 28\% = \mathbf{3,811 \text{ AF}}$

Recycled Water Equity Adjustment Impact Agency B

	Agency A	Agency B
Outdoor Irrigation Demand Reduction Required Before Adjustment, AF	32,750	22,950
Recycled Water Adjustment, AF		3,811
Outdoor Irrigation Demand Reduction Required After Adjustment, AF		19,139
Potable Irrigation Demand, AF	80,000	45,000
Recycled Irrigation Demand, AF		35,000
% Reduction of Outdoor Potable Required	41%	43%

} Still Requires Relatively Greater Reduction

Summary of Equity Adjustments

- Climate, growth and recycled water adjustments help ensure water agencies are not penalized by virtue of location, economic growth or development of recycled water.
- Simple to implement. Easy to obtain data.
 - One-time local ET data, service connections and recycled water production.
- Calculations can be automated.
- Equity adjustments should not be offset by increases to other agencies.
- Applies only to an extension to the current emergency regulation.

Implementation and Potential Triggers

- Significant uncertainty until April 2016
- Nexus between mandated reduction levels and water supply conditions
- Recommend monthly evaluations following adoption of an extension to the regulation. Factors to consider include:
 - State Water Project Table A Allocation
 - 8-Station precipitation index
 - Snowpack
 - Major reservoir storage
 - Regional and local water supply conditions
- Any adjustment to the regulation should be part of an open process with input from stakeholders

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