



Water Shortage Contingency Plan During the California Drought and the Use of Allocation Based Tiered Rates

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Presentation Outline

- EMWD Overview
- Allocation Based Tiered Rate Structure
- California Drought
- EMWD Water Shortage Contingency Plan
- Drought Response and Performance

EMWD Overview

- Established in 1950
- Provide water, wastewater and recycled water services
- 555 square miles
 - Seven cities and unincorporated areas
- Population: 804,000
- 40 percent built-out
- One of 26 member agencies of The Metropolitan Water District of Southern California (MWD)
- Full service agency providing water, wastewater and recycled water service:
 - 145,000 water connections
 - 237,000 sewer connections



Allocation Based Tier Rate Structures

- Creates a **“Allocation”** or **“Water Budget”** for each customer account based upon reasonable indoor and outdoor needs and efficient use
- Uses **Economic Incentives**: Water is priced to customer **lower for use within budget** and much **higher for use over budget**
 - Rewards efficiency
 - Communicates cost of water over-use
- **Identifies Over-use customers**: water bill functions as “report card” – focus staff resources
- Helps **Insulate EMWD** from loss of revenues associated with conservation efforts
- Tied to the EMWD’s **Water Shortage Contingency Plan**



How it Works – Individualized “Water Budgets”

- **Indoor Water Needs**

- 60 GPCD per persons
- Based upon occupancy at service initiation
- Adjust with customer feedback

**Indoor Water Needs +
Outdoor Water Needs
(seasonal) +
Variances = Water Budget**

- **Outdoor Water Needs**

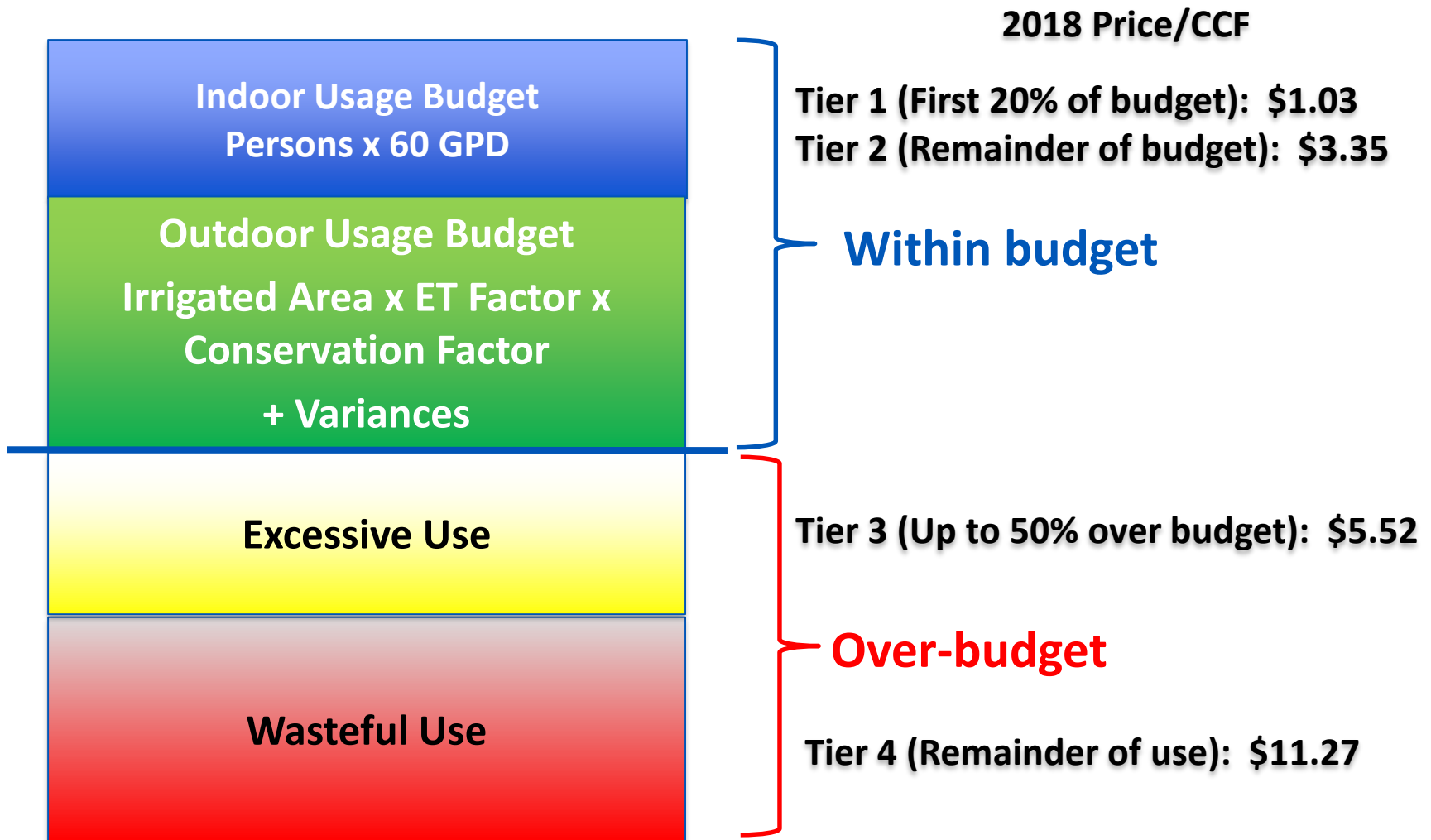
- Landscaped Area x Evapotranspiration x Conservation Factor
- Evapotranspiration (ET) is the sum of evaporation and plant transpiration
- Conservation factor varies with landscaping requirements

- **Variances**

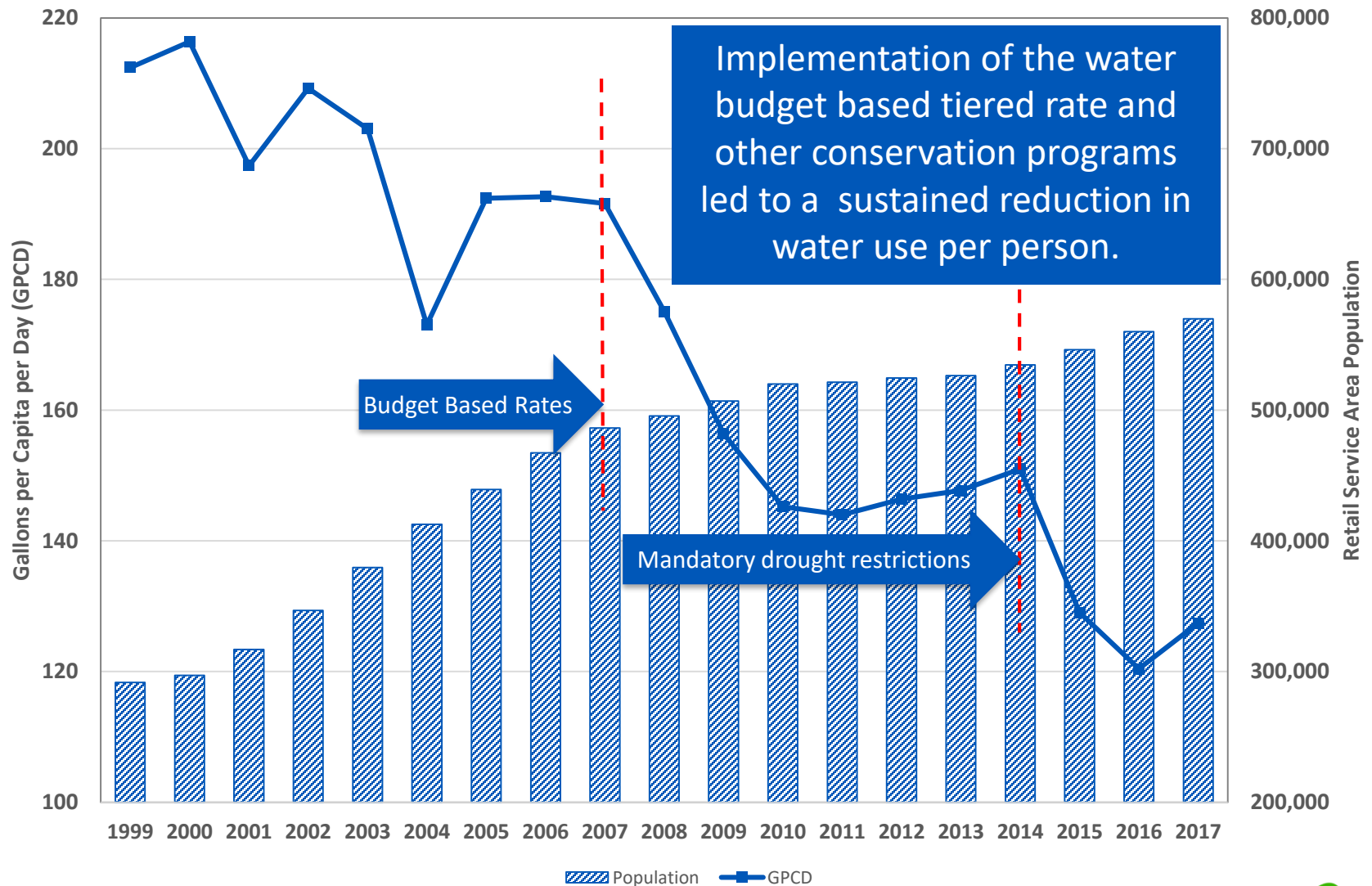
- Allows for unique conditions like:
 - Licensed Care Facility
 - Medical Needs
 - Landscape establishment
 - Pool filling
 - Large animals (100 pound+)



A Clear Pricing Signal

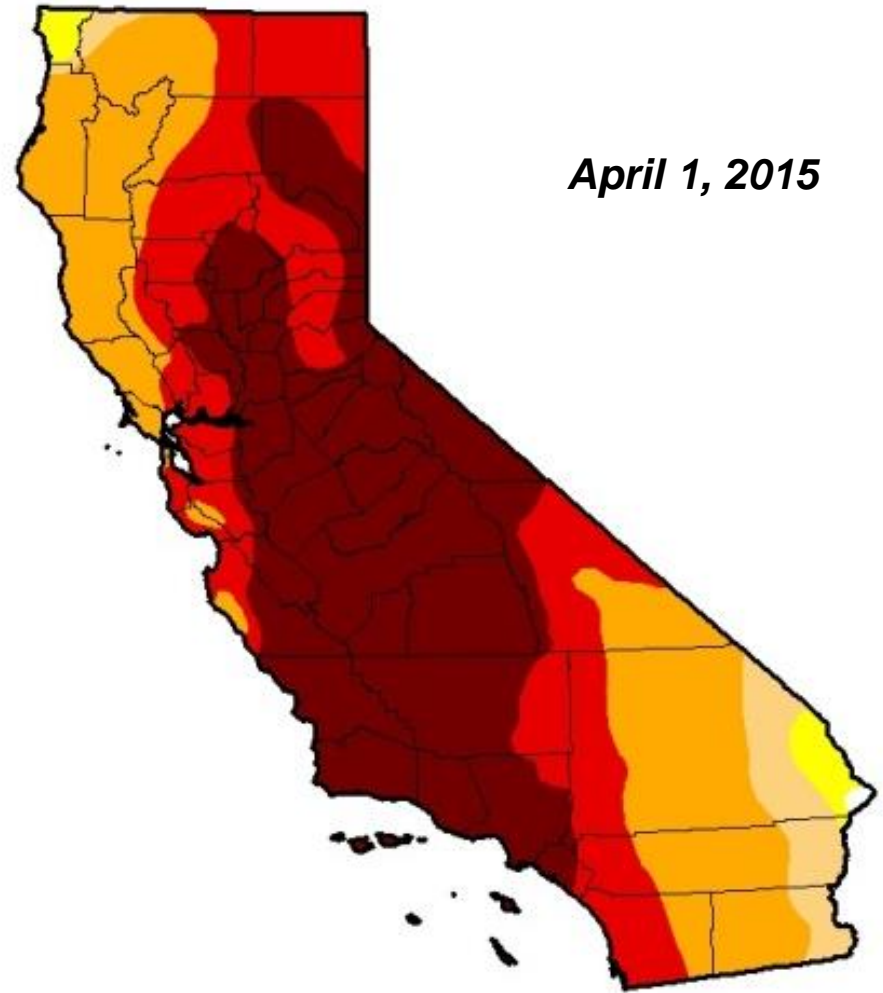


Long Term Results



California Drought - Conditions

- **2014** and **2015** were two of the hottest and driest years on record
- More than 80% of the State reached extreme or exceptional drought
- Major reservoirs throughout California were at or below normal
- California Department of Water Resources (DWR) restricted water diversions
- Colorado River watershed snowpack average in 2014, 63% of average in 2015



Intensity:



Governor and State Water Resources Control Board Emergency Drought Regulations

- **April 2015: Governor issues an Executive Order** to cut water use statewide by 25%
- **May 2015: SWRCB adopts Emergency Regulation with mandatory reduction targets (4% to 36%)** relative to a 2013 base year
- Initial regulation did not provide any credit for prior conservation achievements, climate, growth or local drought-sustainable supplies. **EMWD initially required to reduce 28%**
- **February 2016: Framework revised to provide modest credits for climate, growth and local drought-sustainable supplies. EMWD's requirement moved to 20%, based upon maximum credit of 8%.**
- **April 2017: Emergency regulations rescinded**



EMWD's Water Shortage Contingency Plan

- Five stage plan with progressive severity
 - Stages triggered by supply conditions (or Emergency Regulations)
- **Implemented through water allocation-based Rate Structure**
 - Water budgets are progressively reduced for outdoor areas then indoor uses
- Offsets reductions in sales with increases in “penalty” rate revenue



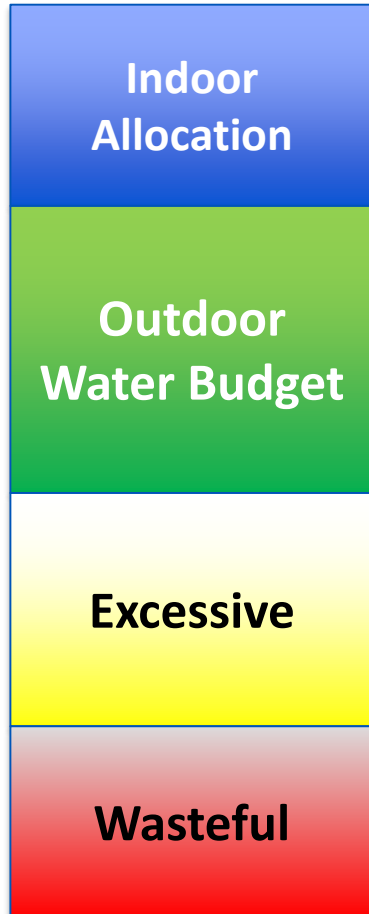
Customers using over their water budget received the **highest** pricing signal



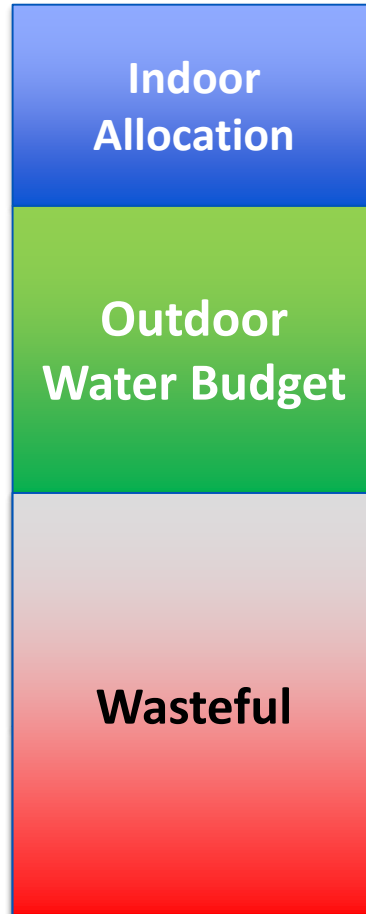
Most efficient or conserving customers actually saw **lower** water bills

Water Shortage Contingency Plan "Stages"

Stage 1 and 2
Voluntary –
No change



Stage 3 -Mandatory
All over-budget
usage Wasteful



Stage 4 -Mandatory
Reduce Outdoor
Allocation



Stage 5 -Mandatory
Reduce Indoor
Allocation

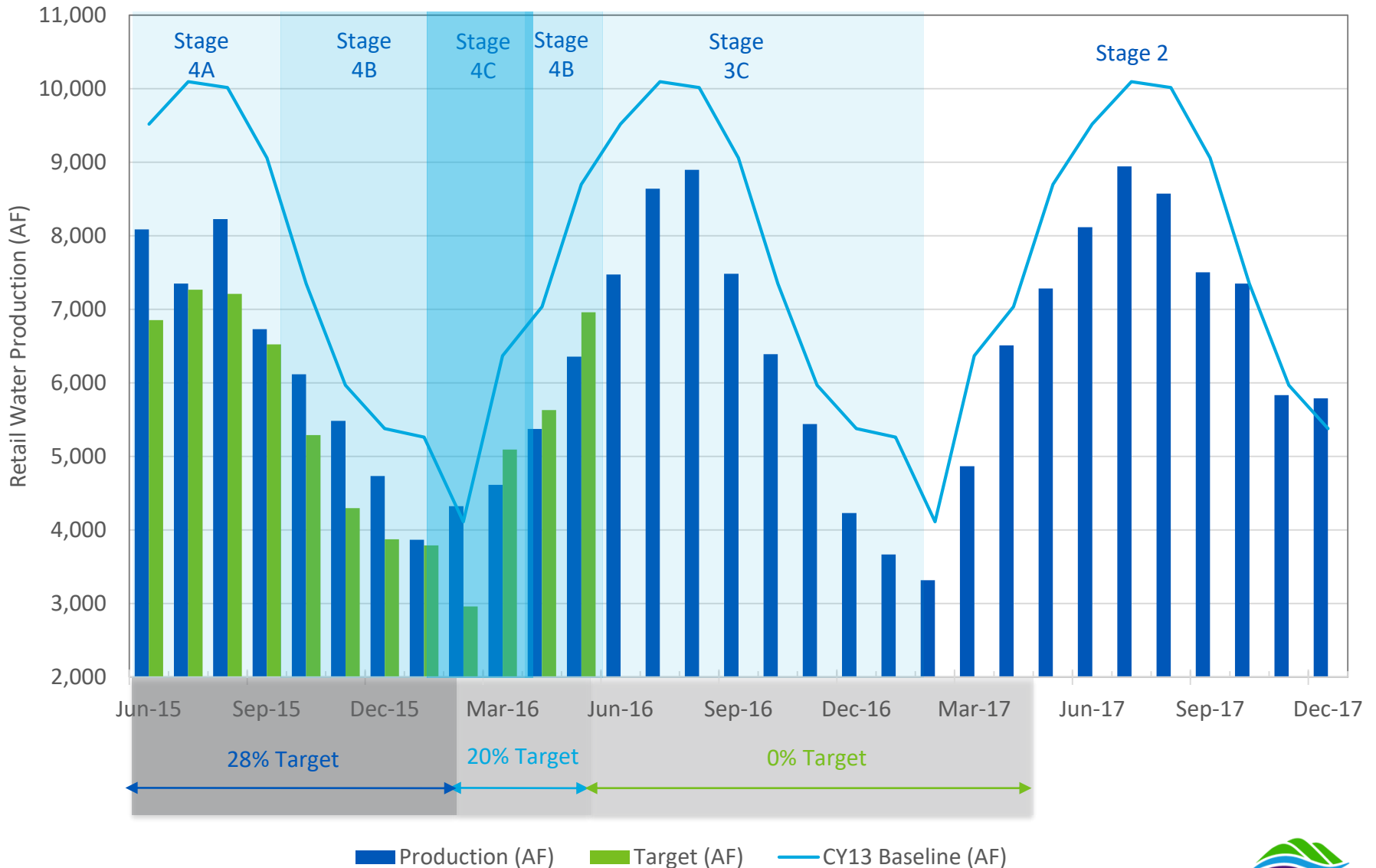


Progressive Actions Taken to Meet Statewide Targets

Stage	Date Approved	Description	Actions
Stage 1	April 2011	Supply Watch	Voluntary reduction up to 10%
Stage 2	April 2014 February 2017	Supply Alert	Voluntary reduction up to 25%
Stage 3	August 2014 (3a) June 2016 (3c)	Mandatory Waste Reduction	3a: No variance adjustments; observation based penalties 3b: Excessive budgets decreased by 50% 3c: Excessive budgets decreased by 100%; All water waste prohibitions remain in place
Stage 4	May 2015 (4a) Sept 2015 (4b) January 2016 (4c) April 2016 (4b)	Mandatory Outdoor Reduction	Watering schedules limited (1-2 days/week) 4a: Outdoor budgets decreased by 10% 4b: Outdoor budgets decreased by up to 50% 4c: Outdoor budgets decreased by up to 100%
Stage 5		Mandatory Indoor Reduction	Catastrophic stage (50% reduction in demand) 5a: Indoor budgets decreased by 10% 5b: Indoor budgets decreased by up to 30% 5c: Indoor budgets decreased by up to 50%

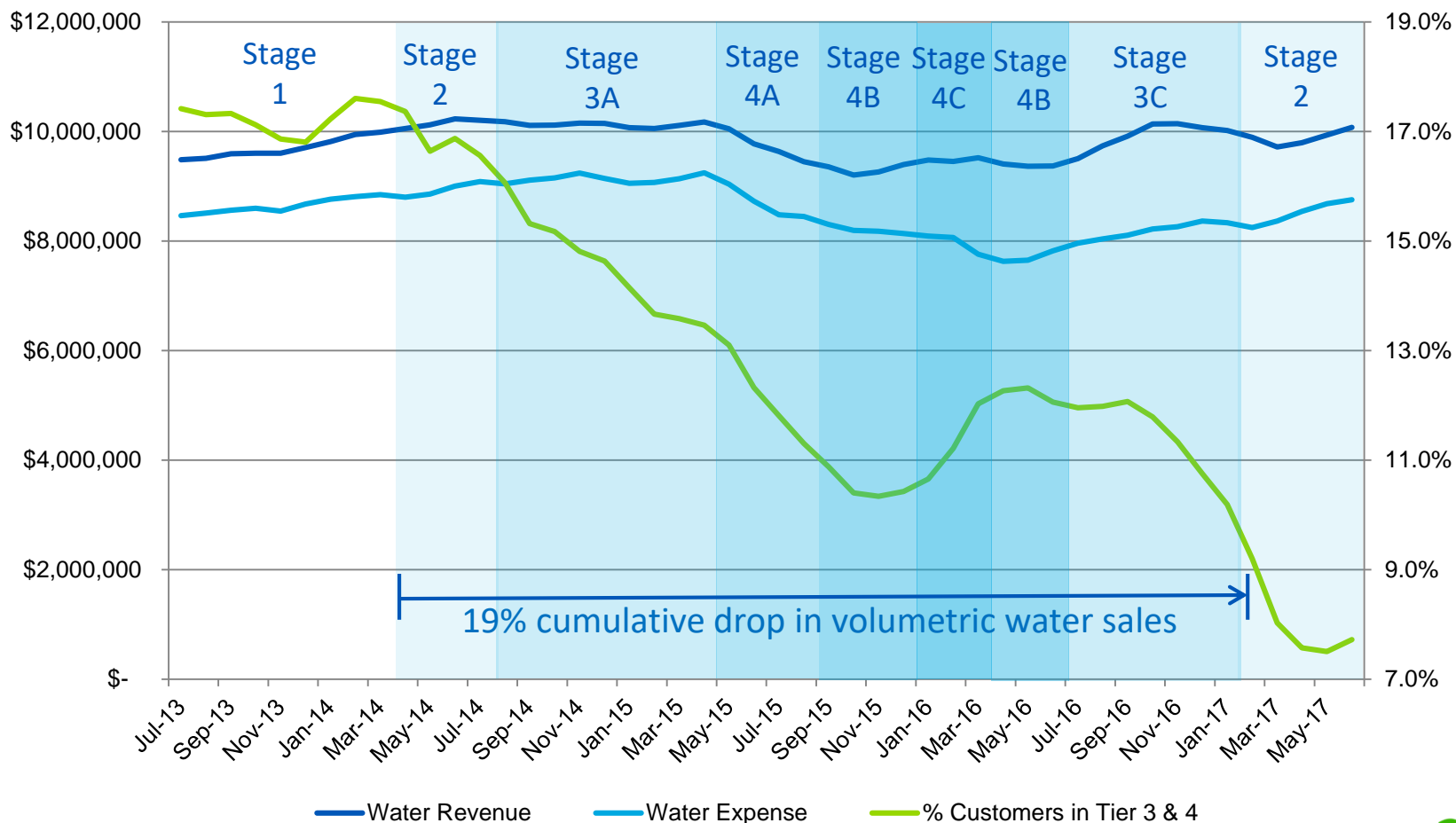
At the highest point of restrictions, EMWD outdoor budgets were reduced **70%**

EMWD Monthly Response During Drought



Financial Results

Monthly Water Revenues, Expenses and Percent of Customers in Highest Tiers
(12-month Rolling Average)



Summary

- Water use efficiency promoted through **allocation based rate structures** result in both long term water savings and rapid drought response
- Budget Based Rate Structure:
 - Encourages efficient use and is fair to customers
 - Communicates the value of water
 - Identifies wasteful use of water (two way communication)
 - Rewards customer water savings during shortages or drought
 - Provides remarkable revenue stability as water is conserved





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