Data-Driven Demand Management

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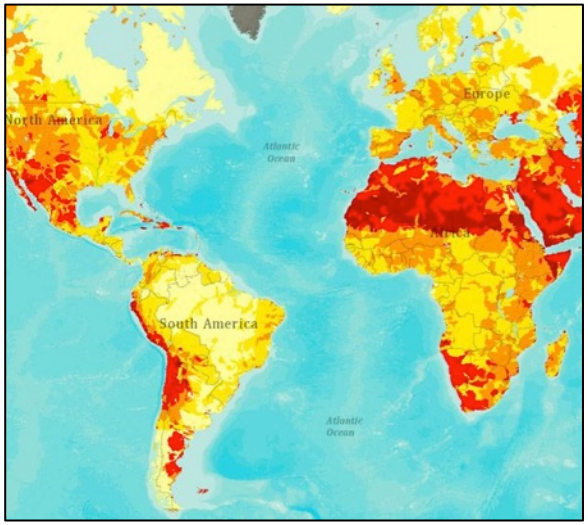
Agenda

- Current challenges
- Demand management
- Data analytics
- Engaging customers
- Financial benefits
- A new framework
- The data-driven utility

Water challenges

Population growth

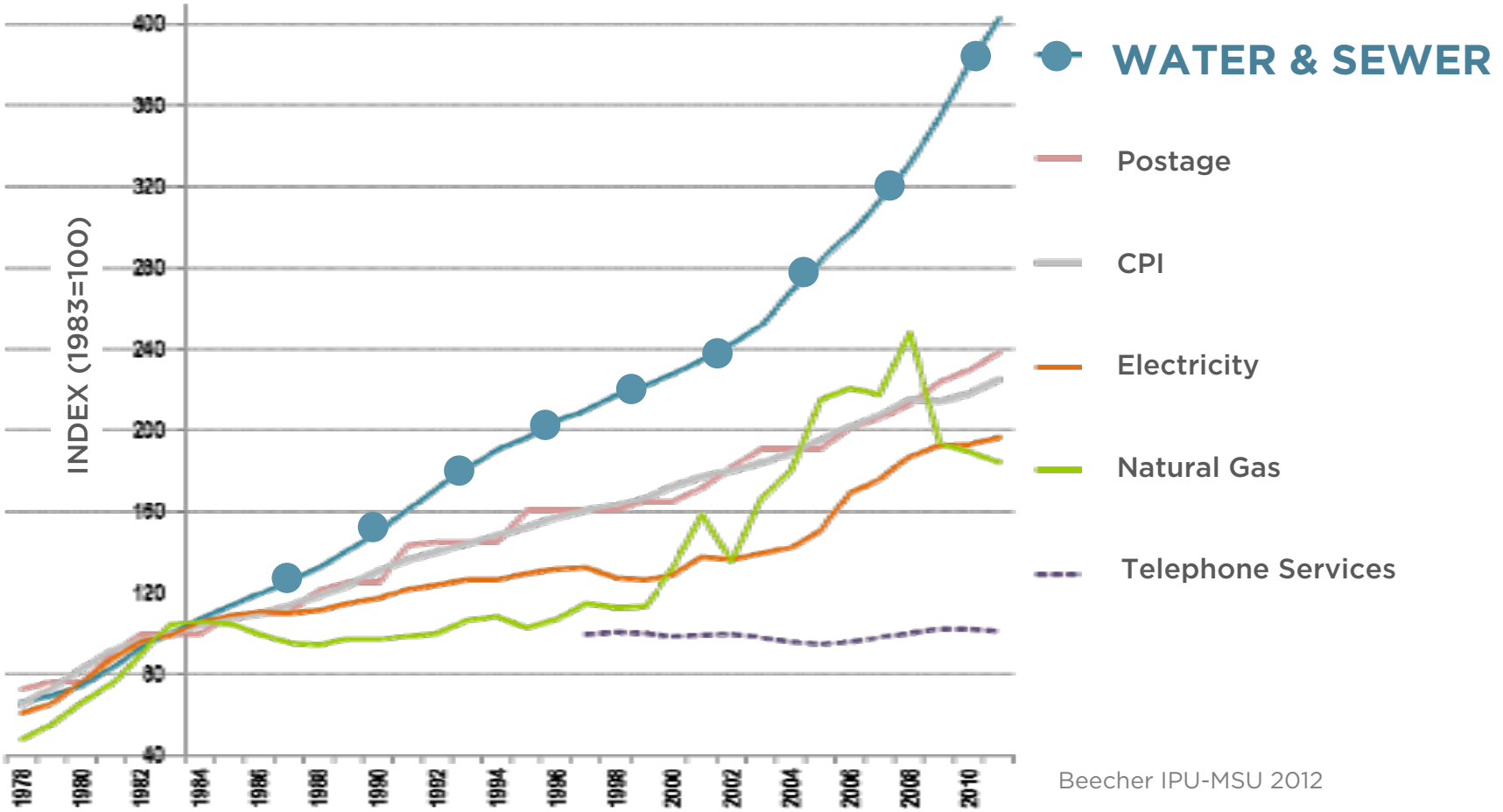
Infrastructure decay



Water stress

Impact: rising costs

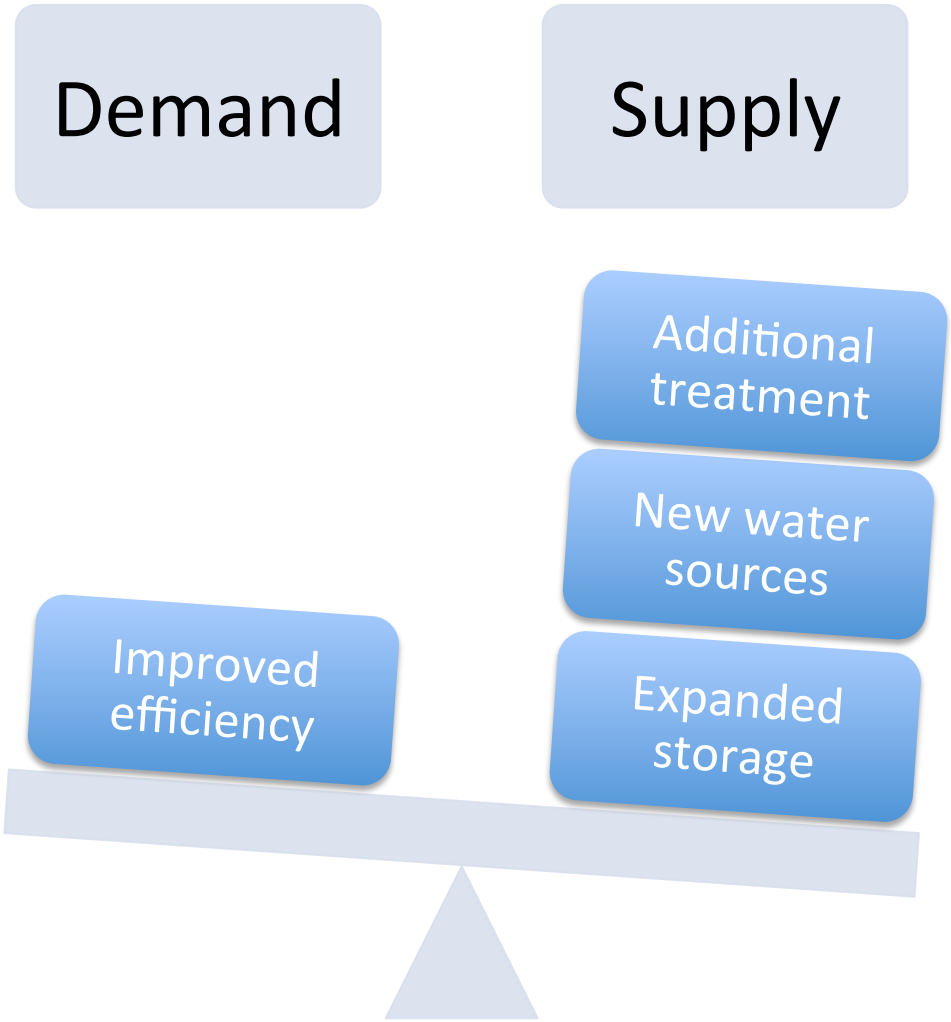
Driven by $4.8T* infrastructure backlog and increasing cost to source and supply



Beecher IPU-MSU 2012

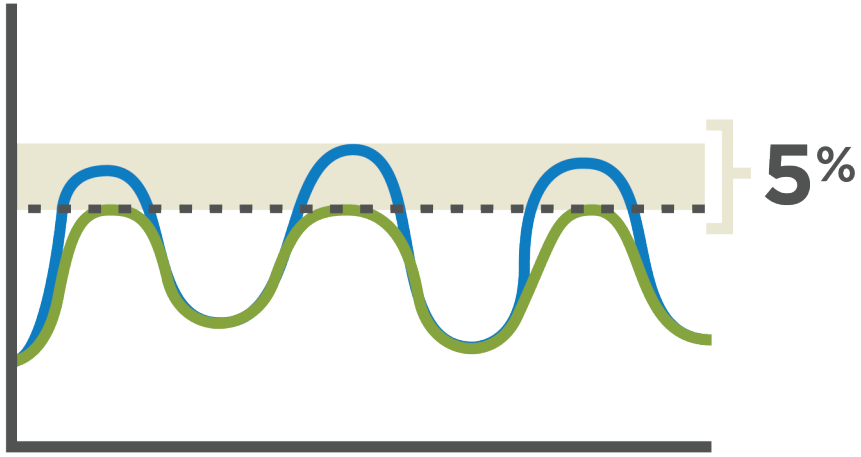
*http://www.usmayors.org/publications/media/2013/04-water-localcosts.pdf

Water balance



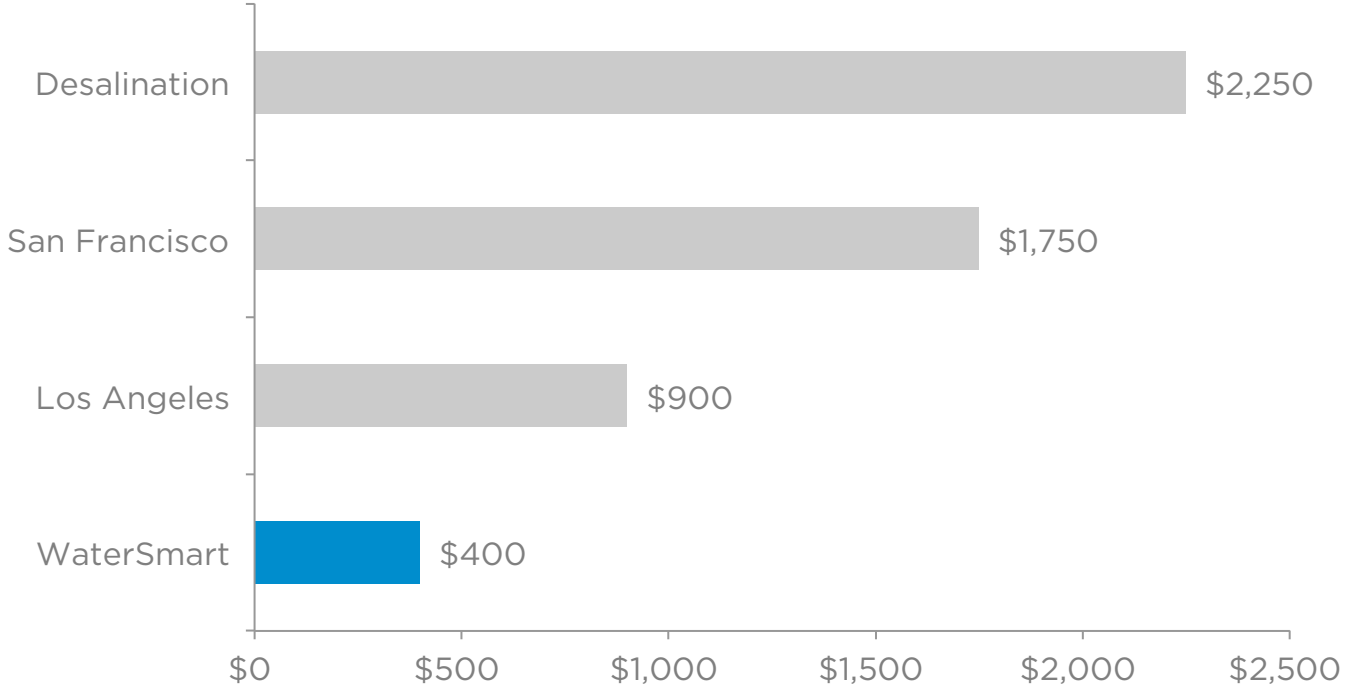
Demand management

- Less demand = increased (new) supply
- Reduce demand variability
- Improve revenue predictability
- Extend asset lifetimes
- Increase O&M efficiency



Cost comparisons

Efficiency is the least expensive source of water supply



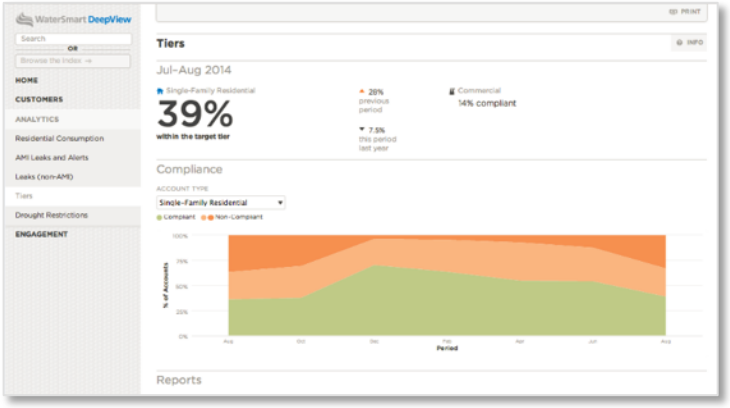
MARGINAL COST OF WATER PER ACRE FOOT

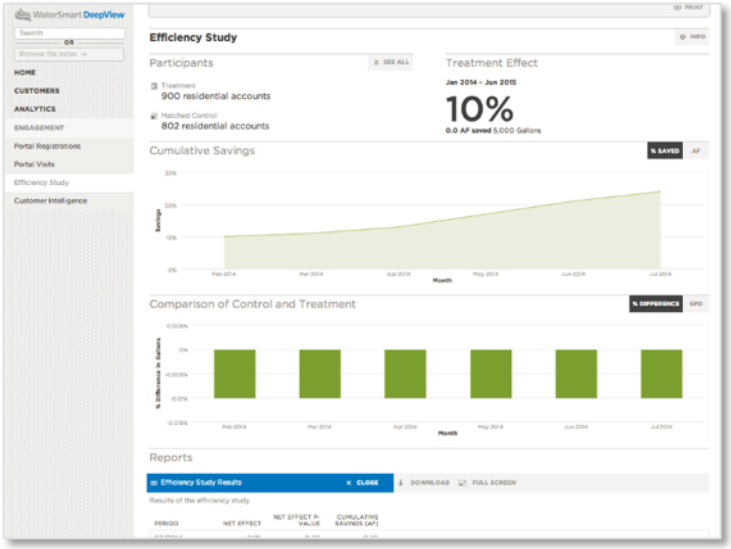
Wholesale cost of treated water per acre-foot. San Francisco water purchased from BAWSCA . Los Angeles water purchased from MWDSC. Desalination cost of Carlsbad plant.

Putting it in action...

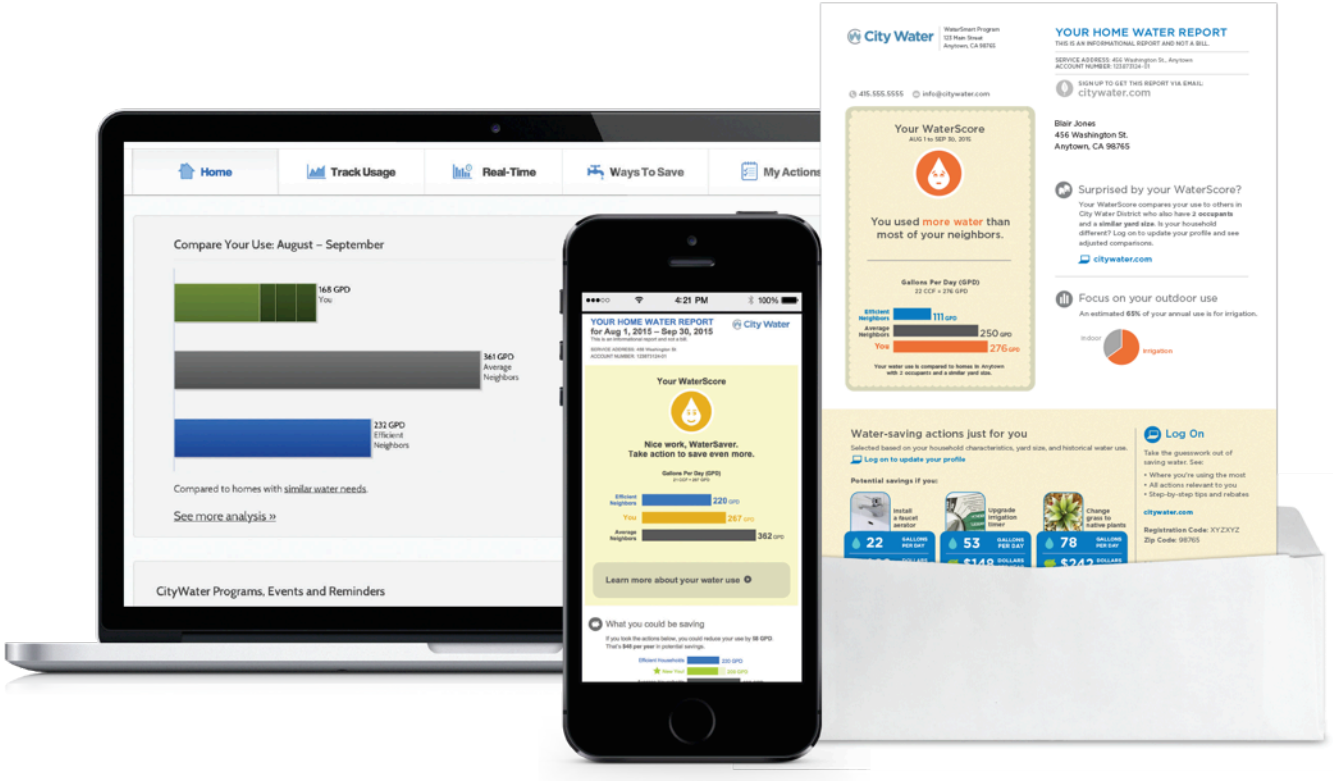
Data analytics

- Segment customer usage
- Identify pressure districts for priority rehabilitation
- Track progress toward efficiency goals
- Compare ROI of various programs
- Improve demand forecasting
- Build consensus through information transparency





Engaging customers

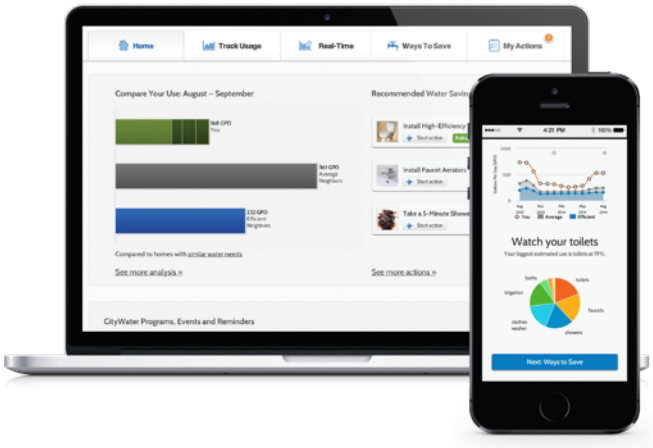


- Proactive communications accelerate demand control
- Consumers become more educated on the value of water
- Customer satisfaction soars

Engaging customers

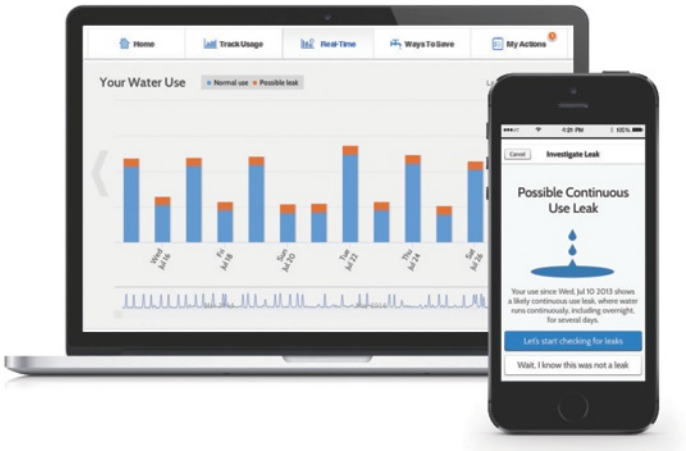
Before Smart Meters

- Disaggregated water-use detail
- Household specific water and money saving recommendations
- Email collection and e-bill enrollment



After Smart Meters

- Real-time leak alerts
- Virtual disconnects
- Irrigation violation identification
- Targeted pressure district use-reduction
- Weather-dependent load shifting notification



"You notified me of a possible leak the weekend of August 31...you were correct. I found it. THANKS. Your system is TERRIFIC."

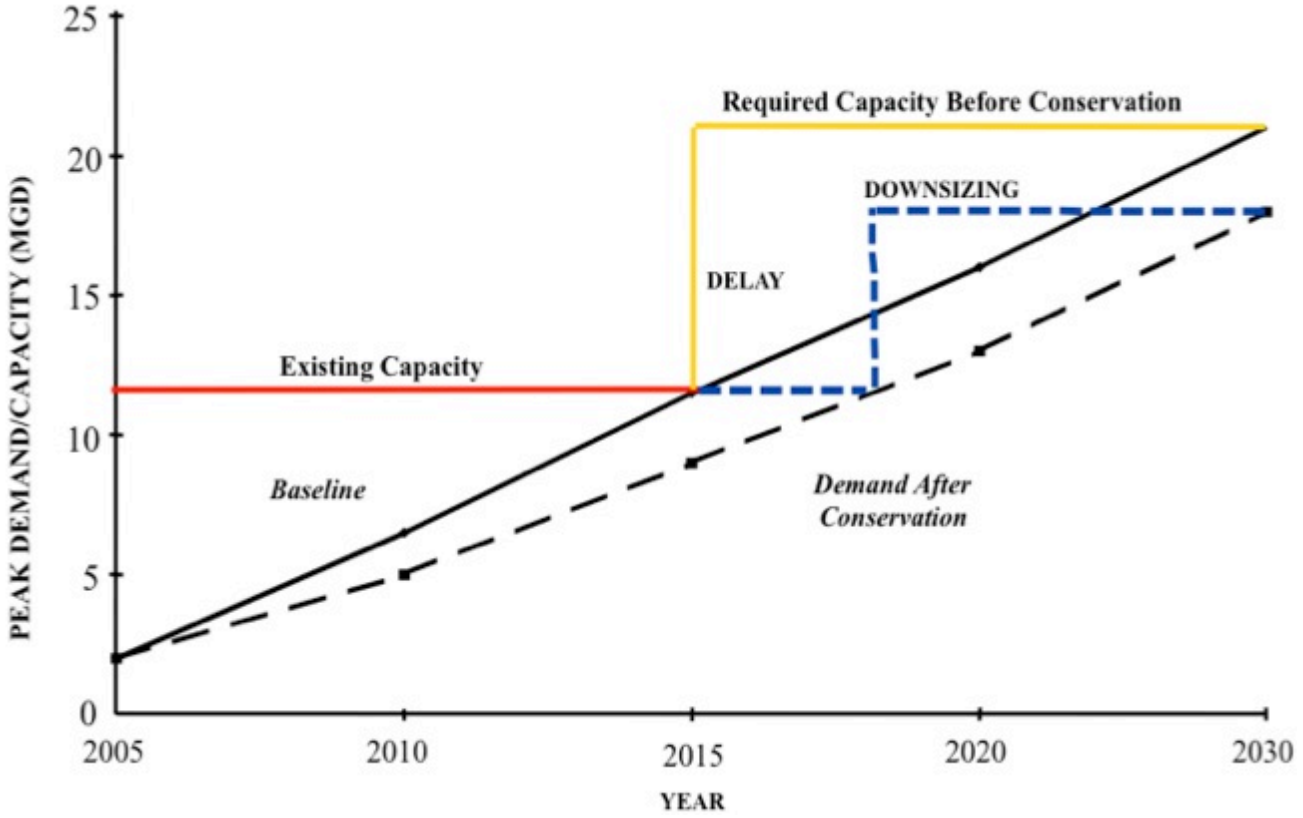
Glendale Water and Power customer

Operational benefits

- Avoided cost of water supply purchases
- Reduced energy charges for conveyance
- Lower cost for treatment chemicals
- Faster customer support call times

Capital benefits

Reduce and Defer Capex



REDUCE OR DELAY CAPACITY BY REDUCING PEAK DEMAND

Wholesale cost of treated water per acre-foot. San Francisco water purchased from BAWSCA . Los Angeles water purchased from MWDSC. Desalination cost of Carlsbad plant.

Chart Source: AWWA Manual M-52

Interest expense benefits

Deferred investment yields substantial savings

System Size	20 Year Capital Need ($M)	Number of Systems	Average Investment ($M)	Annual Interest on a 20 year Bond ($M)
100,000 Connections or More	$145,100	426	$340.61	$12.77
3,301 - 100,000	$161,800	8,787	$18.41	$0.69
Less than 3,300	$64,500	42,322	$1.52	$0.06

Figure 4 Capital Investment Needs Derived From EPA Sources

"At this moment…the share of public infrastructure investment in GDP, adjusting for depreciation, so that's net share, is zero. Zero."

Larry Summers, former Treasury Secretary

A new framework

The Old Framework

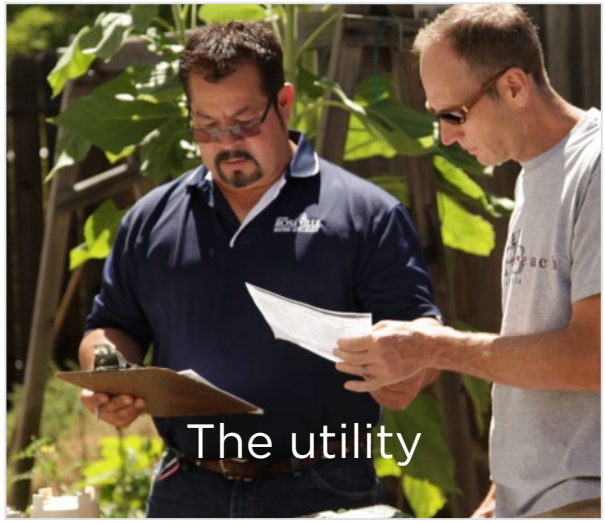
Reducing supply deliveries leads to revenue erosion and subsequent rate increases

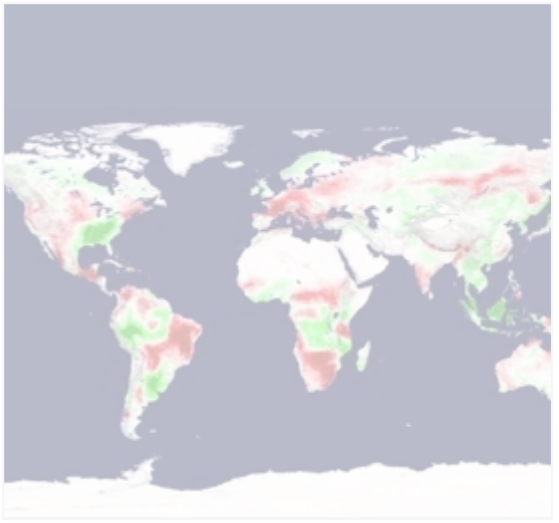
The New Framework

Water demand management improves long-term financial and infrastructure planning and reduces future rate increases

The data-driven utility

Who wins?



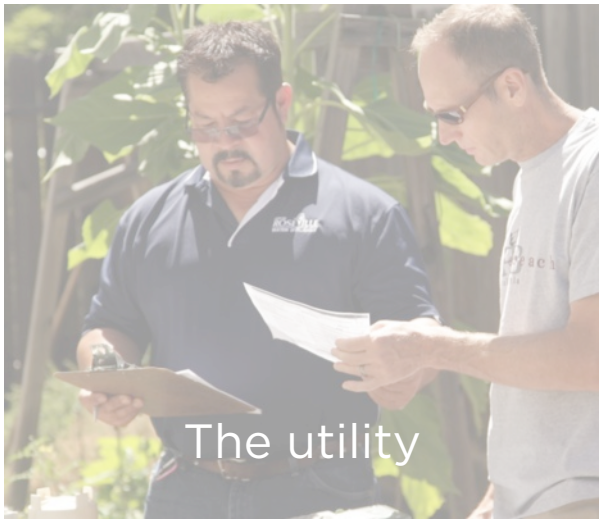


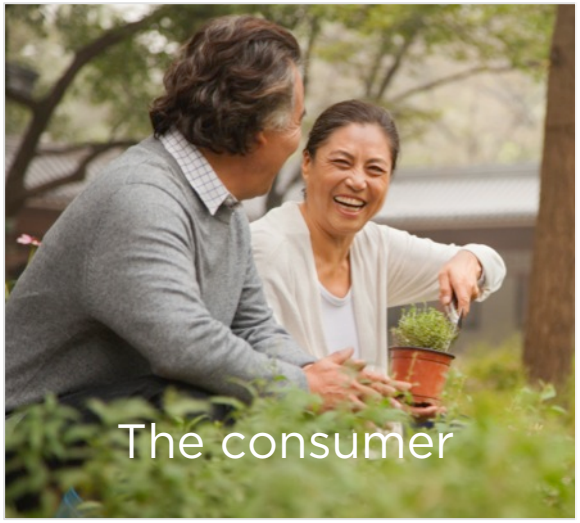
"My day has changed because I can engage customer in conversation about water-use efficiency in a sustainable way."

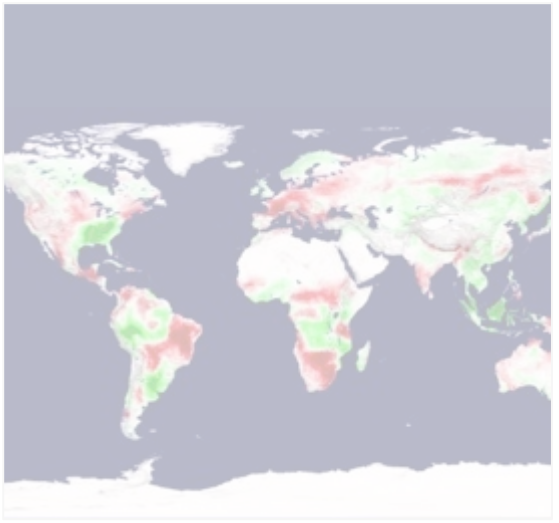
City of Newport Beach

The data-driven utility

Who wins?







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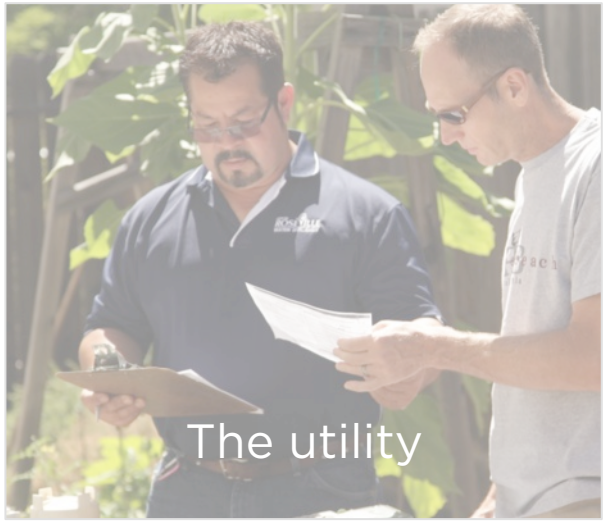

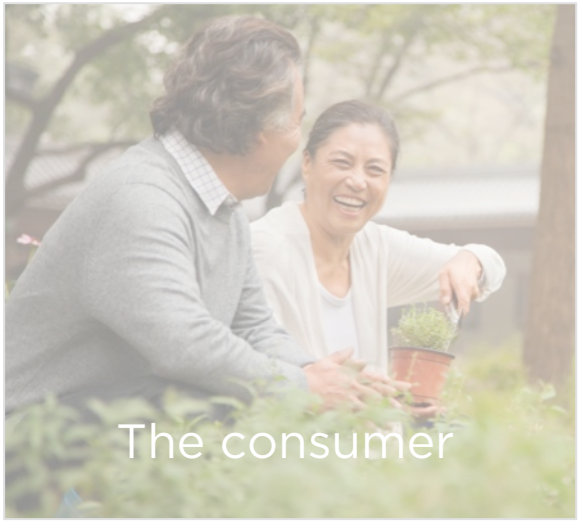

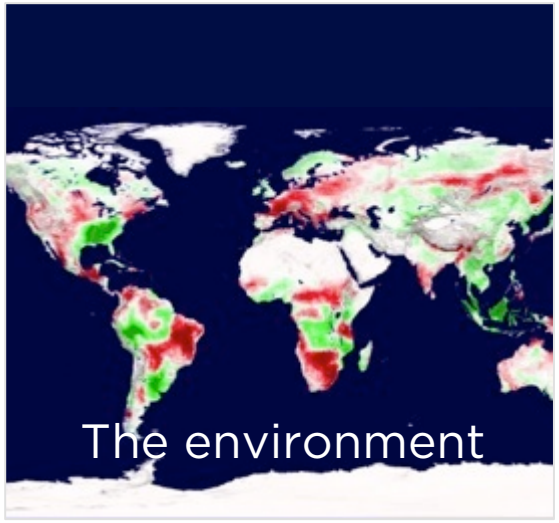

"$30 million…for direct expenditures and grants to state and local agencies to improve water use efficiency, save energy and reduce greenhouse gas emissions from state and local water transportation and management systems."

California 2014 Drought Relief Bill

The data-driven utility

- Engage customers to make case for AMI
- Deploy powerful analytics and presentment tools to derive data insights
- Prioritize demand management for cost control
- Reduce pace of rate increases
- Deliver value to customer, utility, and community

Thank You

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WaterSmart® SOFTWARE

Appendix

About WaterSmart

Helping utilities educate and engage customers to save water and money.

WaterSmart offers a turnkey, cloud-based analytics, engagement and behavioral water efficiency solution.

Headquartered in Silicon Valley and founded in 2009.

OUR PARTNERS INCLUDE

45+ Utilities

2M+ Accounts