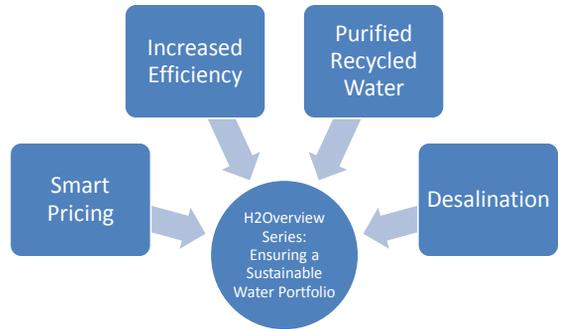


Water Rate Structures and Conservation in San Diego

October 2012



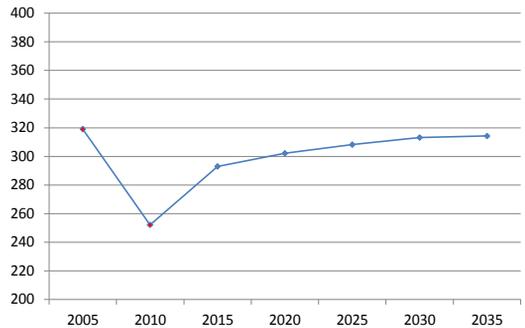
Presented by Ann Tartre and Sean Karafin



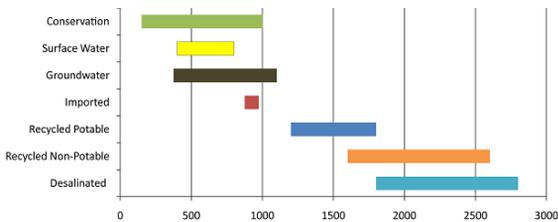
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City of San Diego
Gallons per Household per Day (GPHD)
Demand Actuals and Projections



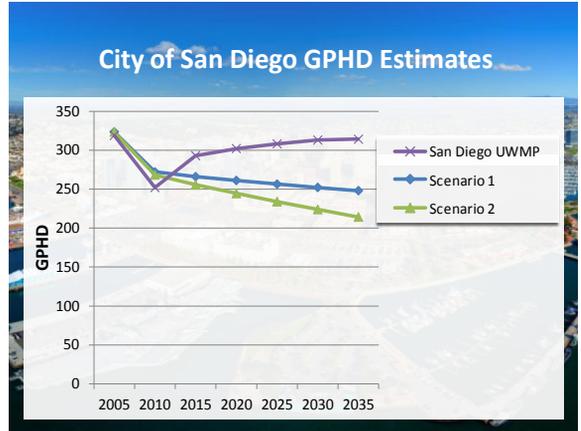
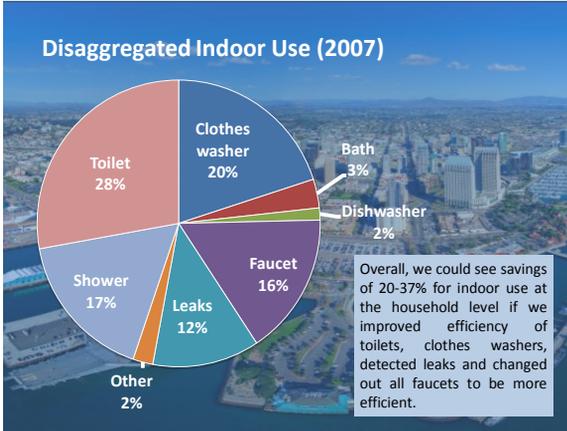
Range of Marginal Cost for Water
(Estimated \$/Acre foot)



POTENTIAL OF OUTDOOR EFFICIENCY

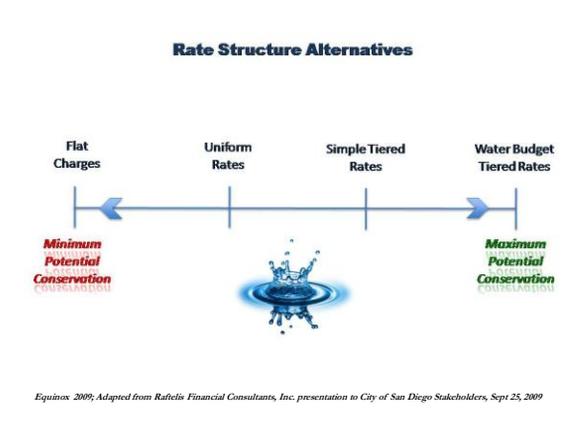


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We estimate 18,000 to 27,000 AF per year can be conserved in single family homes relative to the projected water use within the City of San Diego in the next 20 years.

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Revenue Requirements → **Cost of Service Analysis** → **Rate Design**

Estimate of the amount required to cover basic costs at a water agency:

REVENUE REQUIREMENTS =
 Operations & Maintenance +
 Debt Service +
 Capital Projects Financed by Cash –
 Revenues from Sources Other Than Rates

Source: "City of San Diego Water Cost of Service Rate Study," Raftelis Financial Consultants, Inc. Page 1-3. December 2006.

Revenue Requirements → Cost of Service Analysis → Rate Design

Water agencies collect revenues from three main sources:

REVENUE =
Capacity Charges +
Base Fees +
Commodity Charges

Revenue Requirements → Cost of Service Analysis → Rate Design

Distributes costs across four classes of customers:

- 1) single-family residential
- 2) multi-family residential
- 3) commercial and industrial
- 4) agricultural

Rate Design

Usage Category	Price per Hundred Cubic Feet of Water
1st - 14th Hundred Cubic Feet	\$3.62
15th - 28th Hundred Cubic Feet	\$3.92
Over 28 Hundred Cubic Feet	\$4.40

Inclining block rates (conservation-based rates) incentivize conservation.

Steeply Tiered Rate Structure

Tier	Usage Category	Price per Hundred Cubic Feet of Water
Tier 1	Less Water Usage	~\$1.00
Tier 2	Less Water Usage	~\$1.50
Tier 3	Less Water Usage	~\$2.50
Tier 4	More Water Usage	~\$4.50
Tier 5	More Water Usage	~\$9.00

Not Steeply Tiered Rate Structure

Tier	Usage Category	Price per Hundred Cubic Feet of Water
Tier 1	Less Water Usage	~\$3.00
Tier 2	Less Water Usage	~\$4.00
Tier 3	More Water Usage	~\$4.50

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Water Budget-Based Billing

- The American Water Works Association defines a water budget as "volumetric allotments of water to customers based on customer-specific characteristics and conservative resource standards"
- Localities determine definition of conservative resource standards depending on geography, topography, climate, and other factors

2009 San Diego Pilot Study

Indoor Water Budget

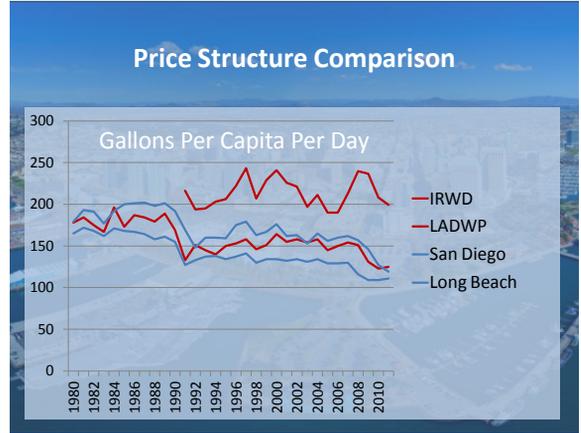
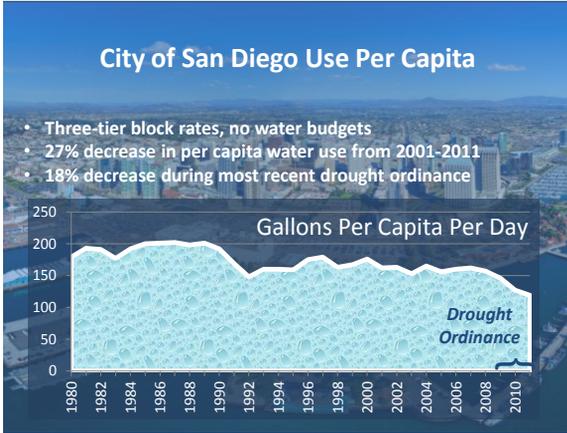
- Indoor water needs of 60 gallons per person per day
- Assumed four people per household

Outdoor Water Budget

- Six landscape area categories ranging from less than 1/8 acre to over one acre
- 80% evapotranspiration standard set by the State

Total Allocation = Indoor Budget + Outdoor Budget

$$\text{Water Budget} = (\text{\# Residents}) (55 \text{ gpd}) + (\text{ET}) (\text{SF Landscape}) (.80) (\text{DF})$$



Budget-Based Billing Takeaways

- Other explanations for demand reduction
 - Reactions to dramatic price increases
 - Public information campaigns
 - Economic difficulties
- Moving forward
 - How effective is water budget-based billing at inducing conservation?
 - If so, Is it effective enough to meet state standards?
 - Is it a way to distribute costs more equitably?

Opportunities in Tiered Pricing	Challenges in Tiered Pricing
<ul style="list-style-type: none"> • Direct link between conservation and the customer's water bill • No need for special restrictions, or draconian enforcement measures • Funding for conservation and efficiency programs comes from excessive water users • Agency revenues can be more stable • Long term resource management tool, not just short term response to drought • Water usage will decrease, along with related problems like urban runoff • Creates a new water ethic where customers understand value of conserving water 	<ul style="list-style-type: none"> • Setting proper break points for pricing requires more customer-level data than traditional rate structures • Public may not understand pricing tiers • Structure could seem punitive to large water customers, even if they are efficient water users • Some customers could see significant increases in their rates

Opportunities in Tiered Pricing Additional Opportunities in Water Budget Based Pricing Structures	Challenges in Tiered Pricing Additional Challenges for Water Budget Based Pricing Structures
<ul style="list-style-type: none"> • Can be a more equitable way to share limited water supplies while preserving customer choice. • Pricing structure can be more fair when based on customer's needs • Water utility develops closer working relationship with customers • Future decisions on rates and response to drought are data driven once a budget-based rate structure is implemented 	<ul style="list-style-type: none"> • Perception of difficulty in designing and implementing water budgets • Potential public disagreements about fairness of water budgets • Could have higher implementation costs to upgrade or update billing system • May require increased customer service to handle questions and problems that may arise

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