SLIDES: The (Largely) Untold Success Story of Urban Water Conservation

Peter Mayer

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The (Largely) Untold Success Story of Urban Water Conservation

PETER MAYER, P.E.

WATER DEMAND MANAGEMENT
Seattle Public Utilities - 1990

Annual Average MGD

Actual Demand
Firm Yield

- **Actual Demand**
- **Current Firm Yield**
- **Forecast Without Conservation**
A brief history of demand forecasting in Seattle
Conservation Saved Seattle $725 million

PV Cost of New Supply  $800 Million
PV Cost of Conservation: $ 75 Million
NPV : $725 Million
Greeley Colorado Historic Demand

City of Greeley Water Production (MGD)
Water Use in the US, 1900 - 2010

Includes fresh and saline water. Source USGS and Pacific Institute 2015.
M&I Water Use in the US, 1900 - 2010

Source USGS and Pacific Institute 2015
Residential Water Use in US, 1950 - 2010

Source USGS and Pacific Institute 2015
Avg. Annual SF Water Use Comparison (kgal)

Brainard Flow Recorder
Indoor Use is Declining (normalized for a family of 3)

Water Use for a Family of Three

<table>
<thead>
<tr>
<th></th>
<th>REUWS</th>
<th>CAL SF</th>
<th>New-Stand</th>
<th>Retrofit</th>
<th>HE Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household</td>
<td>187</td>
<td>162</td>
<td>132</td>
<td>117</td>
<td>107</td>
</tr>
<tr>
<td>Per Capita</td>
<td>62.2</td>
<td>53.9</td>
<td>44.2</td>
<td>39</td>
<td>35.6</td>
</tr>
</tbody>
</table>

*Random Samples*

*Intentionally Efficient*

<table>
<thead>
<tr>
<th>Use</th>
<th>Average Daily Use (gphd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet</td>
<td>45.2</td>
</tr>
<tr>
<td>Clothes washer</td>
<td>39.3</td>
</tr>
<tr>
<td>Shower</td>
<td>30.8</td>
</tr>
<tr>
<td>Faucet</td>
<td>26.7</td>
</tr>
<tr>
<td>Leak</td>
<td>21.9</td>
</tr>
<tr>
<td>Other</td>
<td>7.4</td>
</tr>
<tr>
<td>Bathtub</td>
<td>3.2</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>2.4</td>
</tr>
</tbody>
</table>

### REUWS1
- Toilet: 45.2 gphd
- Clothes washer: 39.3 gphd
- Shower: 30.8 gphd
- Faucet: 26.7 gphd
- Leak: 21.9 gphd
- Other: 7.4 gphd
- Bathtub: 3.2 gphd
- Dishwasher: 2.4 gphd

### REUWS2
- Toilet: 33.1 gphd
- Clothes washer: 22.7 gphd
- Shower: 28.1 gphd
- Faucet: 26.3 gphd
- Leak: 17.0 gphd
- Other: 5.3 gphd
- Bathtub: 3.6 gphd
- Dishwasher: 1.6 gphd
Homes Meeting Efficiency Criteria
Toilet <2 gal., Clothes washer <30 gal.
How much more conservation?

- A lot.
- We’re almost...half way there!
- New technology
- Outdoor efficiency
- Leak detection
- Advanced metering
- Customer engagement through data and information
Future Trends

- Technological change
- Behavioral change
- More intense and frequent drought
- Demand fluctuations
- Water demand management at the retail level
Water Conservation = Serious Business
Thank You

Peter Mayer, P.E.
peter.mayer@waterdm.com

www.waterdm.com