Collaborating on Water / Power Efficiency Programs

Presented by
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Energy Components Associated with Water Treatment and Delivery

SRP Reservoirs

CAP System

Canal

Treatment Plant

Booster Station

Groundwater

Home
Energy Components Associated with Water Treatment and Delivery

Additionally…

Home → Pump → Waste Water Treatment Plant
# The Cost to Treat and Deliver Water

**Getting it home:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Energy Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumping</td>
<td>5.41 kWh / 1000 gal</td>
</tr>
<tr>
<td>Water Treatment</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6.47 kWh / 1000 gal</strong></td>
</tr>
</tbody>
</table>

**Taking it away:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Energy Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Water Transport</td>
<td>.4 kWh / 1000 gal</td>
</tr>
<tr>
<td>Waste Water Treatment</td>
<td>4.15 kWh / 1000 gal</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.55 kWh / 1000 gal</strong></td>
</tr>
</tbody>
</table>

11 kWh are required to treat and deliver 1000 gallons of water to your home. This is the same as the energy needed to power a 100 watt light bulb for 4 hours per day for a month.
**Bringing it Home**

By saving water, we save electricity.

**Inside The Home:**

### Everyday Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Savings (gal/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 minute showers</td>
<td>12,000</td>
</tr>
<tr>
<td>Turn off water while brushing teeth</td>
<td>10,400</td>
</tr>
<tr>
<td>Fix a leaky faucet</td>
<td>2,700</td>
</tr>
</tbody>
</table>

### Home Improvements

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Savings (gal/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install high-efficiency shower heads</td>
<td>6,200</td>
</tr>
</tbody>
</table>

47,700 gal/yr or 218 kWh/yr → 110 gallons
Expanding to The Community

The savings compound if the community works together to conserve.

218,000 MWh/yr
(1,000,000 houses saving 218 kWh/yr)

This is enough energy to power 14,000 homes for a year – through water conservation alone!
Increasing the Impact

Expanding Savings to 3 Cities:

If each household in Arizona’s three largest cities saved 218 kWh per year through water conservation efforts…

<table>
<thead>
<tr>
<th></th>
<th>Metro Phoenix</th>
<th>Flagstaff</th>
<th>Tucson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>3,200,000</td>
<td>53,000</td>
<td>683,000</td>
</tr>
<tr>
<td>People/household</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
</tr>
</tbody>
</table>

357,000 MWh/yr saved through water conservation alone is enough to power 23,000 homes for one year – that’s a city the size of Flagstaff!
SRP’s Promotion of Arizona Rinse Smart

• 1,777 low water use, high pressure pre-rinse spray nozzles installed in commercial kitchens Valley-wide

• Unique partnership opportunities
  ✓ SRP and ADWR
  ✓ SRP Water and Power
  ✓ SRP and its electric customers

• Water and energy savings
  ✓ 15,800,000 gallons of water saved annually
  ✓ 1million kWh and 161,000 therms saved annually

• 750 tons of carbon saved annually

• $171-194/avg. annual savings
SRP Water Rebate Programs

lady bug

50% OFF A SMART IRRIGATION CONTROLLER. SAVE MONEY. SAVE TIME. SAVE WATER.
Urban Heat Island

Comparison of Different Environ

Data Source: ASU, National Center of Excellence on SMART Innovations, Urban Climate Research Dept. (A. Brazel)
Current Activities

• Energy for Education program
  – Ice making equipment
  – Dishwashers
  – Pumps & motors – chilled water system

• Low Income Weatherization program
  – Door, window & duct sealing, lo flow faucets, other envelope improvements
Current Activities

• Trees for Change
  – Partnership with the U.S. Forest Service
  – Customer $3/mo matched by SRP up to $80,000
  – 100% goes to planting trees in forests
  – $3/mo + SRP match = 72 trees/year
Current Activities

• SRP Pinal County Customer Center
  – LEED – at least Silver rating eligible
  – 12,000 SF of Roof-mounted solar units
  – Operational Fall 2009
Planned Activities

• Budget approval April 2008
  – Residential
    • Prescriptive
    • Low Income
  – Non-residential
    • Prescriptive
    • Custom
    • Retro-fit
    • New Construction
Future Activities

• Green Acres
  – holistic design & construction methods
    • indoor air quality
    • resource conservation
    • building sites, orientations, systems, and materials
    • reduce construction and operations waste
    • evaluate short and long-term costs
  – SDG&E’s Sustainable Communities Program
Future Activities

• Golf Course Water initiative
  – Pumping/irrigation system audit
    • Variable Frequency Drive Pump
    • Energy usage optimization software
    • Leak detection system
Future Activities

• Plant-a-Tree program
  – “Trees of Tucson” program
  – SRP with local gov’t or community organization
  – Chilean Mesquite, Chinese Elm, Willow Acacia and Coolibah Gum
Superstition Vistas - Planned Area

- 275 Square miles – south of Superstition Mountains in Pinal County
- State Land Department is owner
- Almost entirely SRP Electric Service Territory
Not yet in drought.

In drought.