SERIOUS DROUGHT HELP SAVE WATER

Water Energy Nexus

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CPUC Cost Allocation Workshop
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Water Energy Nexus

Three Studies of Embedded Energy

“Embedded” Energy (Upstream & Downstream of End Use) = Direct Energy Use by Water & Wastewater Agencies

1. Focus of Study 1: Wholesale Water Systems
   - Source
   - Supply & Conveyance (15,955 GWh)
   - Discharge
   - Source

2. Focus of Study 2: Retail Water & Wastewater Systems
   - Water Treatment (312 GWh)
   - Water Distribution (1,000 GWh)
   - Recycled Water Treatment
   - Recycled Water Distribution
   - Wastewater Treatment
   - Wastewater Collection
   - (2,012 GWh)

3. Direct End-Use Energy
   - Water End Uses: Agriculture, Residential, commercial, industrial (~30,000 GWh)

Total Embedded Energy in Water = Sum of Energy Upstream and Downstream of End Use
Update: Water-Energy Initiatives

(*Partnering with Water Agencies for more than 10 years*)

**Water/Energy Measures:**
- Low Flow Kitchen & Bathroom Aerator
- Low Flow Shower Head
- Thermostatic Control Valve
- Energy Star Dishwashers
- Energy Star clothes washers
- Natural Gas Boilers
- Custom measures: ozone laundry, condensate return, water treatment, etc.
- Combination Oven
- Steamers
- Pre-rinse spray valve

**Potential measures and program:**
- Custom Calculated Flood Irrigation to drip
- Tub Spout (Low Income)
- Clothes Washer Appliance Recycling

**Programs:**
- Continue current programs
- Incorporate water-energy measures into Home Upgrade
- Increase support for hard-to-reach commercial small business food service providers
- Energy Savings Assistance Program - Direct Install High Efficiency Measures
- Water heating demonstration lab
- MOU with Municipal Water District – Joint Programs
- Sustainable landscape seminars
- Water Loss Control Program
- Continuous Energy Improvement Program

**Programs with MWD**
- Energy Savings Assistance Program - Direct Install High Efficiency Washers (Low Income)

**Other Activities:**
- Sustainable Agriculture Roundtable
- Research with water agencies to quantify natural gas energy savings
How should we allocate W-E program costs and savings credit?

- **Program Cost Allocation Options**
  1. Split based on program energy/water savings
  2. As already determined in Contract/Agreement with the Partner

- **Savings Credit**
  1. Both SoCalGas and Water Agency will track water savings and can report to respective regulating entities

- **Combining results from Water Energy Calculator with E3 Calculator**
  1. Only include gas savings with societal benefits in E3
  2. Include gas and proportional water savings & add to the societal benefits in E3
Multi Family Direct Install Program

- Qualifying owners and managers of multifamily buildings (market rate customers) are provided with no-cost energy audits, products and their installation. No-cost products include low-flow showerheads and kitchen/bathroom aerators for hot water distribution systems.

(Service Counties: Los Angeles, Ventura, Kern, San Luis Obispo, and Santa Barbara Orange, San Bernardino, Riverside, and Imperial Counties)
LADWP/SoCalGas Partnership: Multifamily Direct Install Program

<table>
<thead>
<tr>
<th>Measure</th>
<th>Program Costs</th>
<th>Split</th>
<th>Gas Savings</th>
<th>Water Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faucet Aerator</td>
<td>$8.00</td>
<td>SCG: 50%</td>
<td>4.95 Therms/yr</td>
<td>800 gallons/yr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DWP: 50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Flow Showerhead</td>
<td>$30.00</td>
<td>SCG: 50%</td>
<td>8.60 Therms/yr</td>
<td>1400 gallons/yr</td>
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<tr>
<td></td>
<td></td>
<td>DWP: 50%</td>
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</tbody>
</table>

*Does not represent actual costs, stated costs are for illustrative purposes only

- SoCalGas pays full amount and is reimbursed by LADWP

- Combining results from Water Energy Calculator with E3 Calculator
  1. Only include gas savings with societal benefits in E3
  2. Include gas and proportional water savings & add to the societal benefits in E3
Direct Install Cost-Effectiveness

*Figures depicted are for illustrative purposes and may not necessarily reflect actual results

- E3 Calculator

<table>
<thead>
<tr>
<th>Measure</th>
<th>Gas Savings Benefits</th>
<th>Program Costs</th>
<th>Total TRC</th>
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<tbody>
<tr>
<td>Faucet Aerator</td>
<td>$284,000</td>
<td>$190,000</td>
<td>1.49</td>
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<td>Low Flow Showerhead</td>
<td>$773,000</td>
<td>$805,000</td>
<td>0.96</td>
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- E3 Calculator results are then added to Water Energy Calculator results for avoided gas energy benefits

<table>
<thead>
<tr>
<th>Measure</th>
<th>Gas/Electric Saving Benefits</th>
<th>Gas/Electric TRC</th>
<th>Water Saving Benefits</th>
<th>Gas/Electric + Water TRC</th>
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</thead>
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<td>$440,000</td>
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<td>Low Flow Showerhead</td>
<td>$160,000</td>
<td>1.15</td>
<td>$916,000</td>
<td>2.30</td>
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</table>
Summary and Next Steps

- SoCalGas has a role in the Water Energy Nexus
- Look at End Use Hot Water conservation to aid in the drought efforts
- Partner with Water agencies to create cost effective programs
- IOUs begin to use water energy cost effectiveness tools for program design