FINDING FUNDING FOR ENERGY EFFICIENCY IMPROVEMENTS AT WATER UTILITIES

Jonathan Gledhill

Water-Energy Sustainability Symposium 2010

September 29, 2010
Summary

• Water Utilities Offer Enormous Opportunities for Energy Efficiency
• Energy Efficiency Funding is a New Source of Capital for Water Utilities
• Opportunities
  – Federal Funding
  – Electric Utilities and other Private Sector Sources
• Regulatory and Cultural Challenges
• Case Study
• Getting your organization ready
While Federal Support for Water Utilities has Not Grown...

- Water Utilities have over $300 billion Unmet Capital Needs
- Except for Recovery Act funding, real Federal support has declined

**SRF Federal Grant Awards (excluding ARRA)**

*Millions of Dollars, Constant 2000$*
However, Energy Efficiency Funding is Growing...

• 2009 Recovery Act
  – $3.2 billion in Energy Block Grants
  – $2.4 billion in Qualified Energy Conservation Bond (QECB) authority

• Private sector investments
  – GHG regulation
  – Renewal Portfolio Standards (RPS)
Water Utilities Offer Cost-Effective Gains in Energy Efficiency

Cost per Annual MWh Saved

- Full Energy Audit: $360
- Variable Speed Drives: $560
- Micro Hydropower: $1,500
- Solar: $7,400

Challenges

• Opportunities at Water Utilities Not Well Understood in Energy Policy Area
  – No direct funding source or limited eligibility in Recovery Act programs
  – Not as visible as building retrofit programs

• Opportunities Not Well Understood in Water Utility Sector
  – Energy field outside of traditional operating vision
Solution

• Help water utilities meet their needs for capital by describing improvements as energy efficiency gains.

$/Gal → $/kWh
Funding Opportunities

• Energy Generation
  – Small-impact hydro

• Energy Efficiency
  – Direct funding
  – Creating assets
Energy Generation

• Tax incentives/Low-Cost Loans
  – QECB
  – Clean Energy Bonds

• RES Credits
  – States, regions, and potentially, national RES standard
Federal Energy Generation Funding Opportunities

- Mostly geared to “traditional” renewable energy projects
- Some Community building retrofit projects
## RES Credits – Benefit to Utilities

<table>
<thead>
<tr>
<th>Submersible Micro Turbine Project</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Project</td>
<td>$150,000</td>
</tr>
<tr>
<td>Energy Savings</td>
<td>325 MWh/yr</td>
</tr>
<tr>
<td>Energy Savings</td>
<td>325,000 kWh/yr</td>
</tr>
<tr>
<td>Price of Tier I Credit</td>
<td>$0.00365/ kWh</td>
</tr>
<tr>
<td>Credit Value</td>
<td>$1186.25/yr</td>
</tr>
<tr>
<td>Present Value of Credit Value</td>
<td>$9,422</td>
</tr>
<tr>
<td>Energy Savings</td>
<td>29,510/yr</td>
</tr>
<tr>
<td>Credit Value</td>
<td>1,186/yr</td>
</tr>
<tr>
<td>Simple Payback</td>
<td>5.08 yr</td>
</tr>
<tr>
<td>With Credit Value</td>
<td>4.89 yr</td>
</tr>
</tbody>
</table>
Energy Generation

• Main focus of tax/loan incentives not geared to utilities
  – Incentives are not cash -- Tax incentives may not matter to non-profits
  – Conservative borrowing practices
  – Potential projects are too small to attract third-party investors
• However, RES credits can add to the rate of return of a viable project
Energy Efficiency Funding

- Energy Efficiency Block Grants
  - Federally-funded, state administered
  - States can set priorities
  - States received $2.8 billion through Recovery Act

- Private Sector
### State Funding for Energy Efficiency

<table>
<thead>
<tr>
<th>State</th>
<th>Total Funding</th>
<th>Funds Obligated or Awarded</th>
<th>Funds Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>226</td>
<td>195</td>
<td>31</td>
</tr>
<tr>
<td>Hawaii</td>
<td>26</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>New Mexico</td>
<td>32</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>100</td>
<td>82</td>
<td>18</td>
</tr>
<tr>
<td>Virginia</td>
<td>70</td>
<td>54</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>454</strong></td>
<td><strong>371</strong></td>
<td><strong>83</strong></td>
</tr>
</tbody>
</table>

Source: NASEO State Energy Program ARRA Update  
[http://www.naseo.org/programs/sep/recovery/State_Energy_Program_ARRA_Update-2010-03.pdf](http://www.naseo.org/programs/sep/recovery/State_Energy_Program_ARRA_Update-2010-03.pdf)
Energy Efficiency Opportunities – Private Sector

• Two Major Trends are creating new markets for energy efficiency credits
  – Renewal Portfolio Standards
  – Compliance with GHG legislation and regulation
Opportunities – Utilities and Other Businesses

• Future Demand will be much larger than today
• National Regulation of GHG
  – Explicit in cap-and-trade legislation
  – Implicit in EPA’s regulation under the Clean Air Act
• Different paths to the same end result: energy efficiency projects as a valuable asset
GHG Regulation under Clean Air Act

- EPA listed six GHG as regulated pollutants under the CAA

- EPA announced finalized a rule for PSD and Title V permitting process
  - Limited immediate compliance to “super” major sources of GHG
  - Substantial litigation risk and uncertainty

- On January 2, “super” major sources must comply with BACT controls for new facilities and major expansions
  - States can define BACT
  - States can define PSD

- EPA’s guidance is under OMB review right now
GHG Regulation under Clean Air Act – Magnitude of the Impact

• Suppose a utility wants to build a 100 MW power plan
  – About 1% of capacity added in 2007 in the US

• Suppose State says BACT requires a 10 percent reduction in the grid
  – $0.15 kW/h is the value of electricity on the margin
  – 70 percent capacity rating

• Utility must spend at least $8.8 mil on energy efficiency projects
Not all Energy Efficiency Projects Are Created Equal

• For regulatory compliance, utilities and regulators will require projects to look like emission control equipment
  – Monitored
  – Permanent
  – Continuously operating
  – Equipment controls preferred over behavior changes

• Water utilities' projects meet these criteria
How Can Water Utilities Capitalize? The Challenges

• Finding new energy efficiency opportunities
• Positioning capital projects as energy efficiency opportunities
• Educating utilities and government agencies
• Understanding energy efficiency policies, procedures, and markets
• Maximizing opportunities in rapidly evolving policy field
Case Study:
Bucks County Water & Sewer Authority

• We are overcoming these challenges by combining expertise in financing, in energy efficiency, and in water utility operations
  – Alliance to Save Energy
  – Policy Navigation Group
  – Bucks County Water and Sewer Authority

• Create active energy management plans for water utilities
BCW&SA

- Created in 1962
- $65 million in Annual Revenue
- 78,000 Retail Water and Sewer Customers
- 385,000 Wholesale and Retail Population Served in Bucks and Montgomery Counties, PA
- Have Grown by 300% over the last 15 Years through Acquisitions
The Energy Challenge for BCW&SA

• PA Rate Cap removal
  – Estimated increase in electric rates of 15-30% beginning 1-1-2011
• Estimated cost of the Cap removal Approx. $750,000 to $900,000 Annually.
• Ultimately to Reduce Carbon Footprint
Further Information

Jonathan Gledhill
Policy Navigation Group
888-312-4119
jgledhill@policynavigation.com
http://www.policynavigation.com