



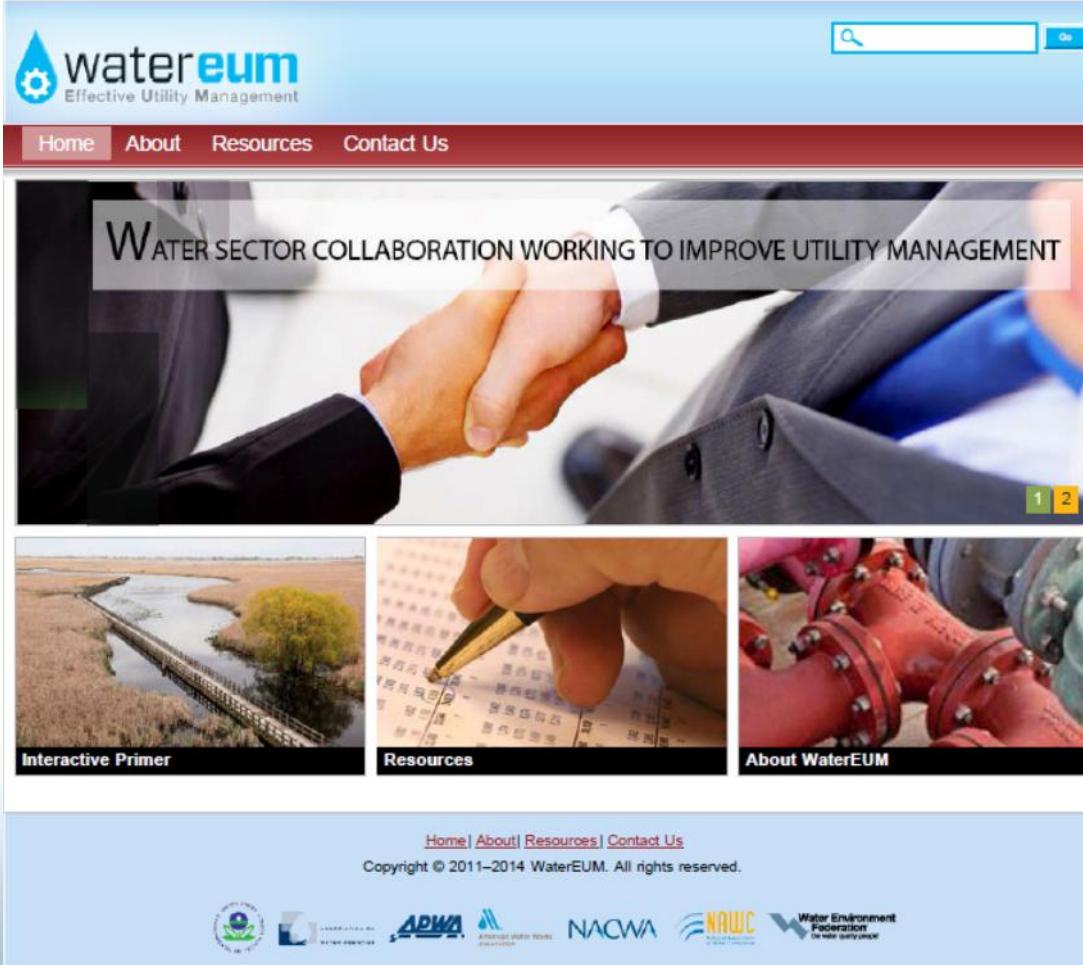
Water Utilities of the Future

Roundtable on Science & Technology
For Sustainability
May 20, 2014

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Clean Water Services
Hillsboro, Oregon

Stewardship HARMONY Future
Sustainable

Effective Utility Management (EUM) Water Sector



The screenshot shows the WaterEUM website homepage. The header features a blue logo with a water droplet icon and the text "watereum" in lowercase, with "Effective Utility Management" in a smaller font below it. A search bar with a magnifying glass icon is on the right. A red navigation bar below the header contains links for "Home", "About", "Resources", and "Contact Us". The main content area has a large banner image of two people in business attire shaking hands over a large industrial pipe. Overlaid on the banner is the text "WATER SECTOR COLLABORATION WORKING TO IMPROVE UTILITY MANAGEMENT". Below the banner are three smaller images: a landscape with a wooden boardwalk, a hand writing on a clipboard, and a close-up of red industrial pipes. Each image has a caption: "Interactive Primer", "Resources", and "About WaterEUM". At the bottom of the page is a footer with links to "Home", "About", "Resources", and "Contact Us", followed by a copyright notice: "Copyright © 2011–2014 WaterEUM. All rights reserved." The footer also includes logos for various organizations: APWA, NACWA, NAWC, and Water Environment Federation.

<http://www.watereum.org/>



Moving Toward Sustainability

Practices to:

- Optimize planning and service delivery
- Ensure a reliable source of water consistent with customer needs
- Use energy and water efficient practices and technologies that foster water reuse, resource recovery, and green infrastructure
- Create systems that are resilient to short-term disasters and longer-term climate related challenges
- Build greater citizen and stakeholder understanding and support.



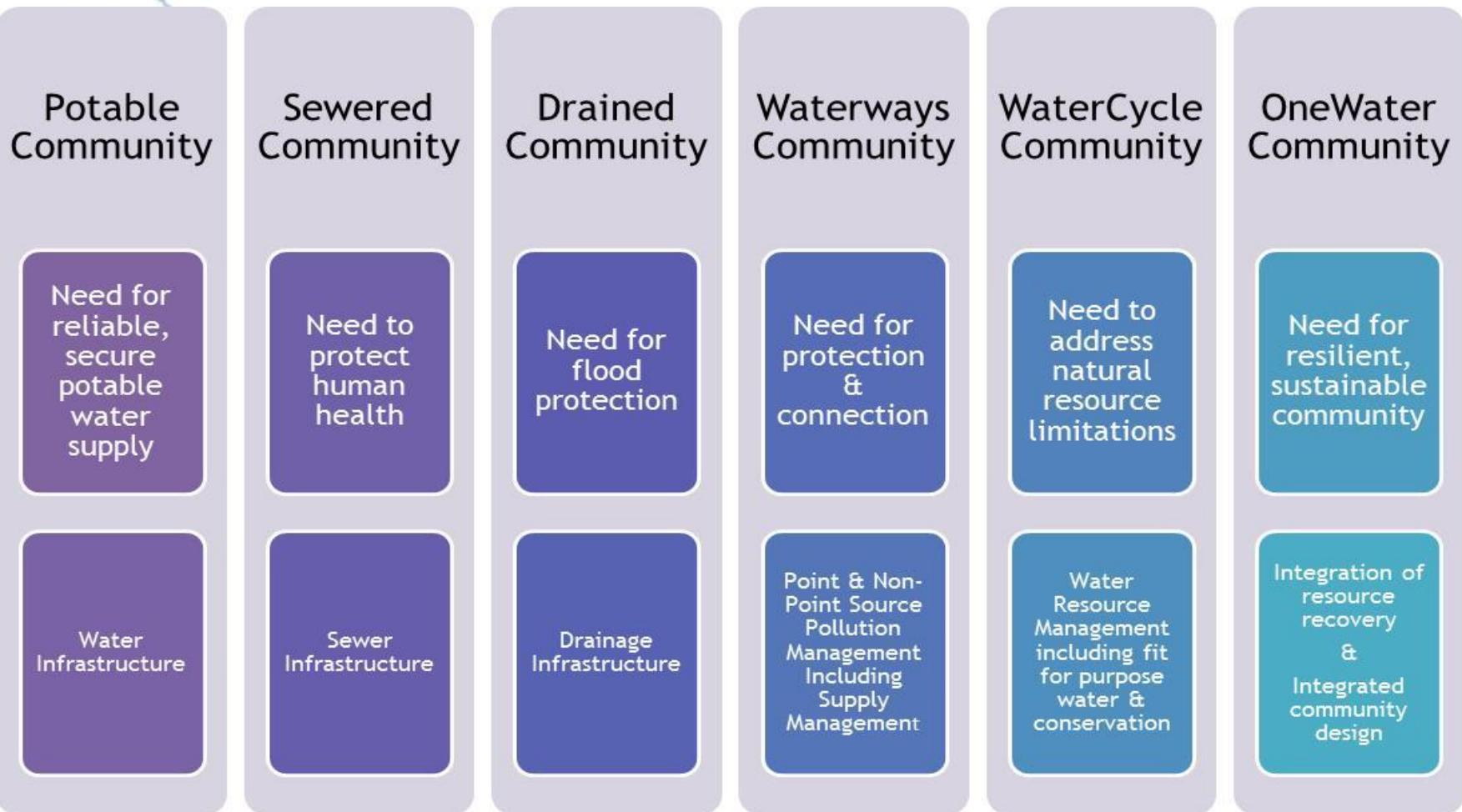


EUM Core Management Areas





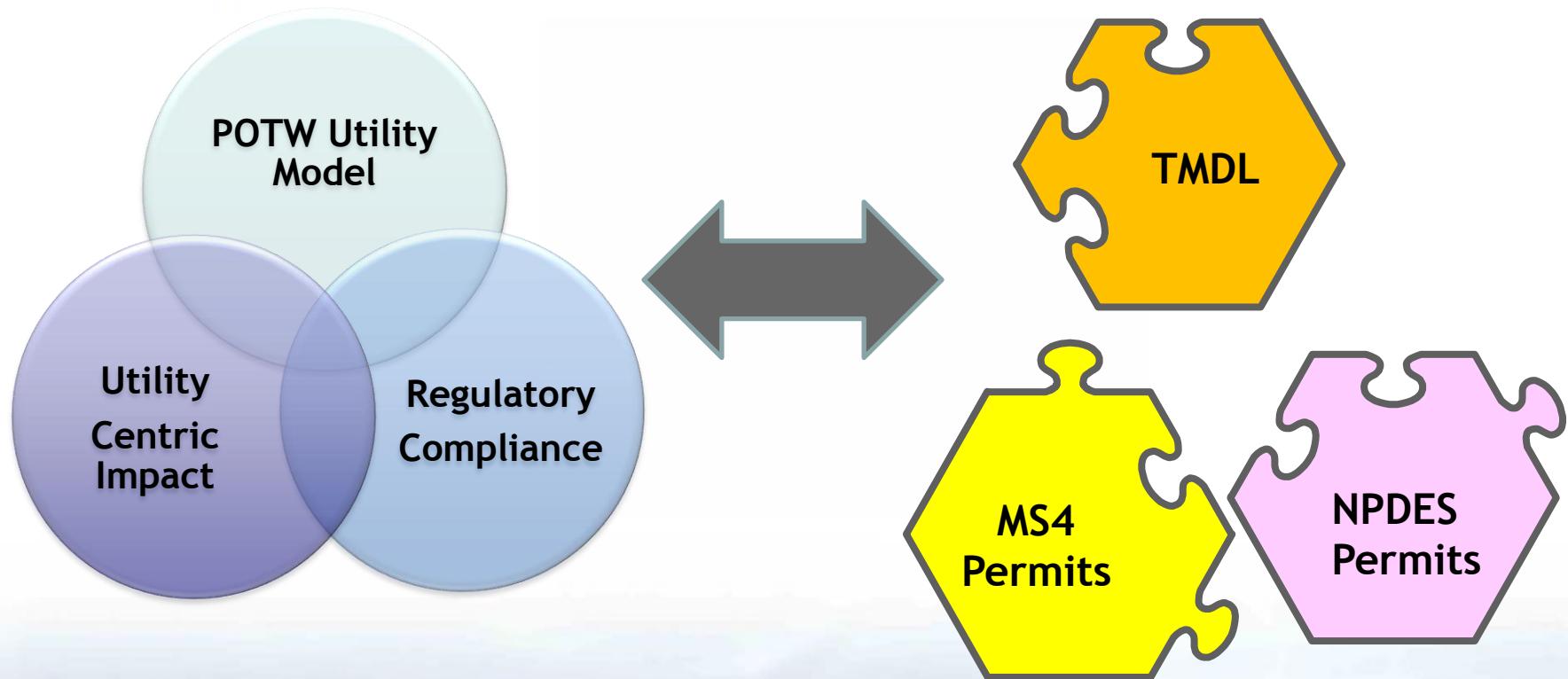
Water Development Stages



Adapted from: *Institutional Barriers to One Water Study (Currently Underway)*



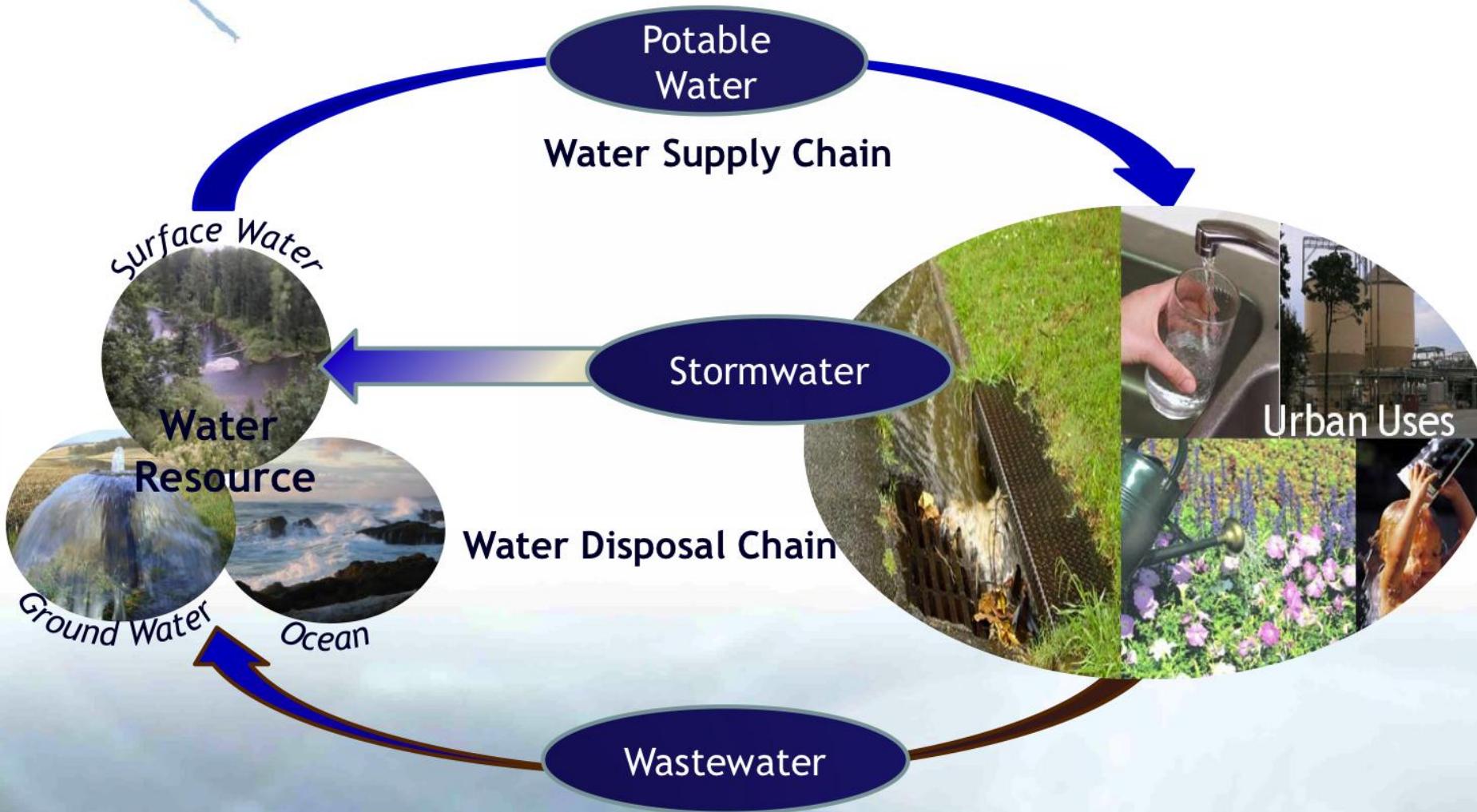
Traditional Utility Model



Drives Investment in Centralized Infrastructure



Traditional Utility Model



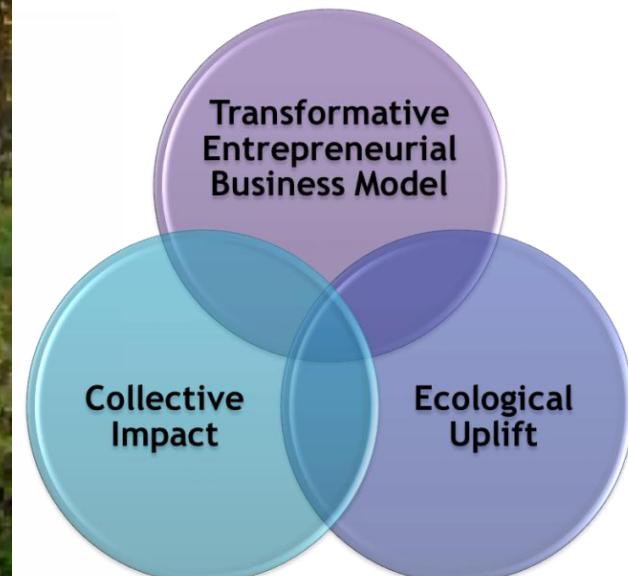
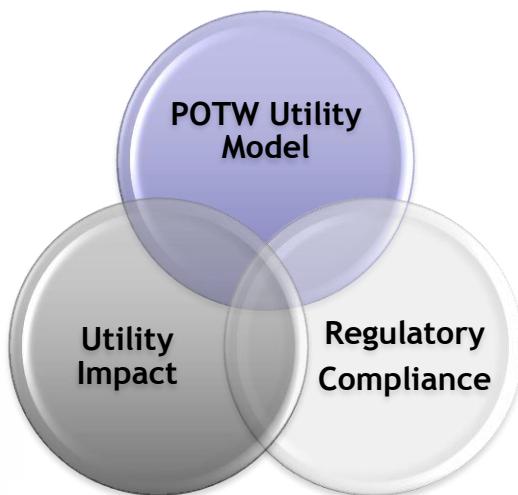


Emergent Utility Model





Utility of the Future Path



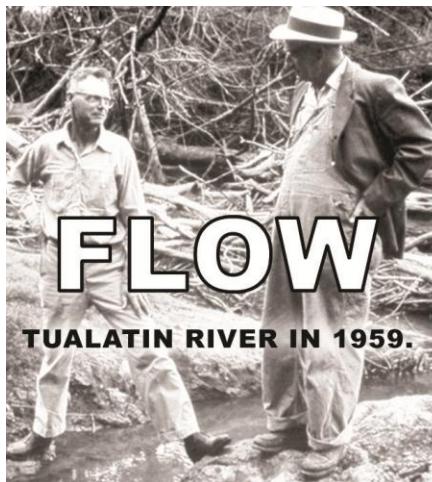


Case Study: Clean Water Services

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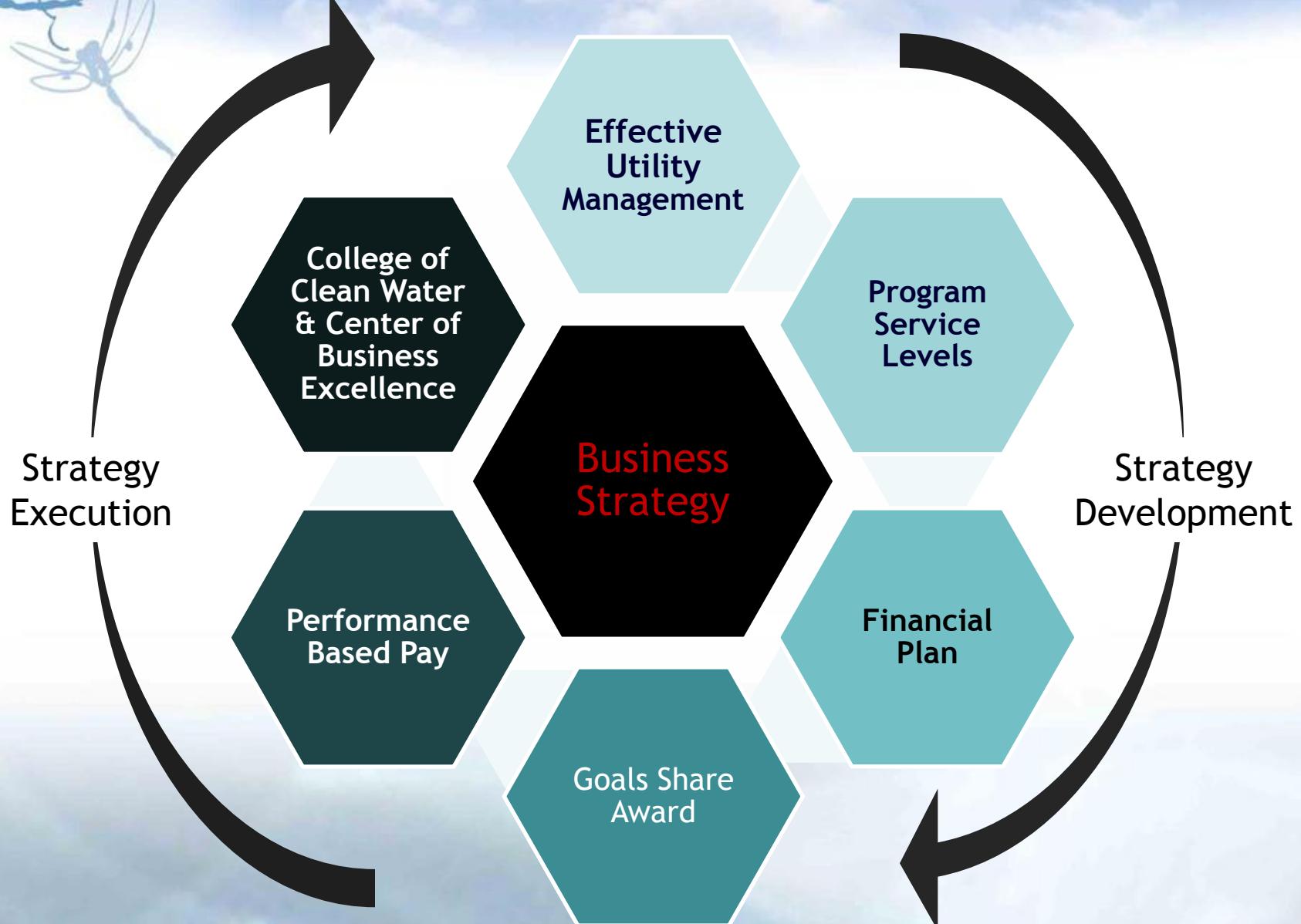


Clean Water Services At-a-Glance

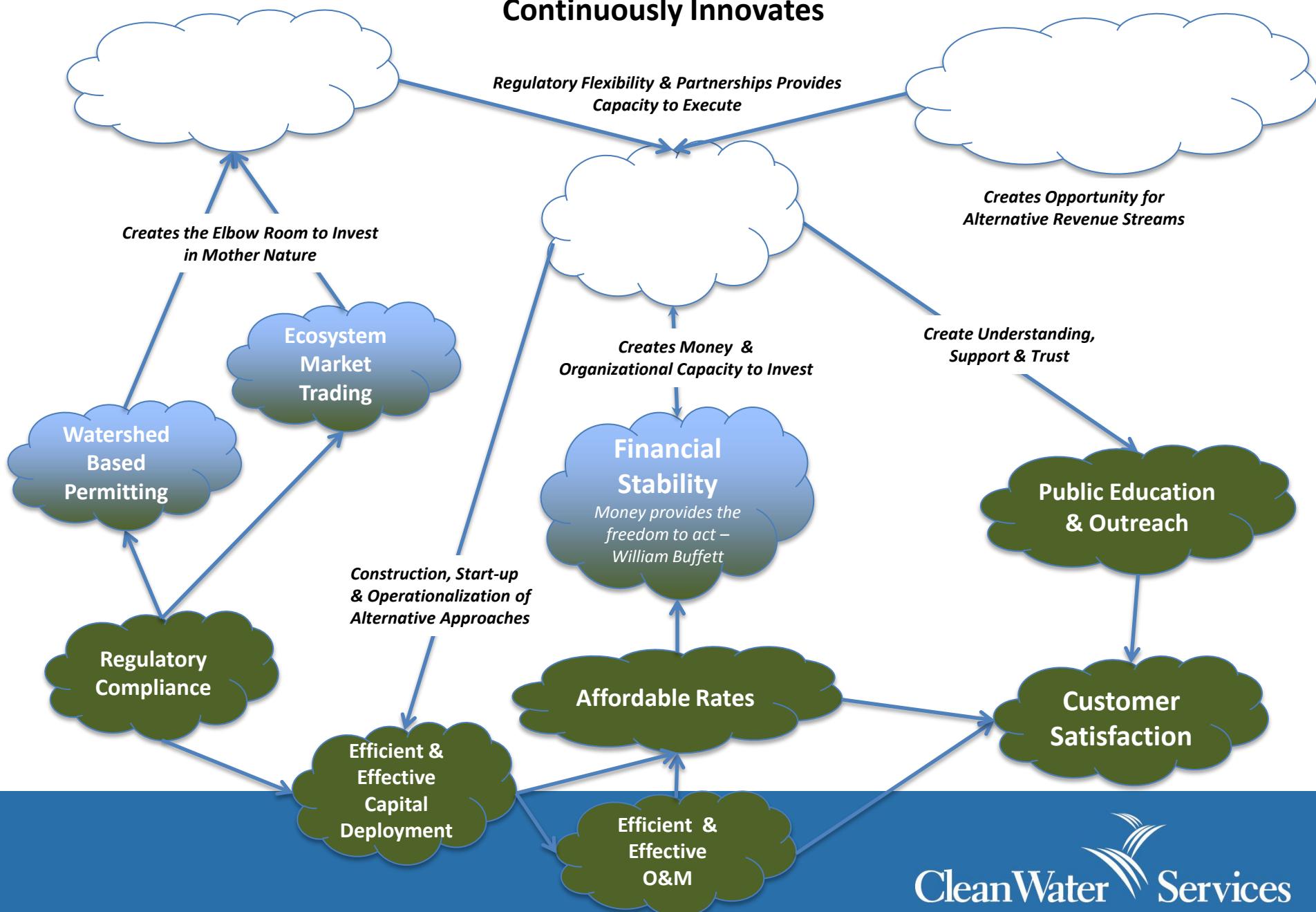




Transformative Business Model

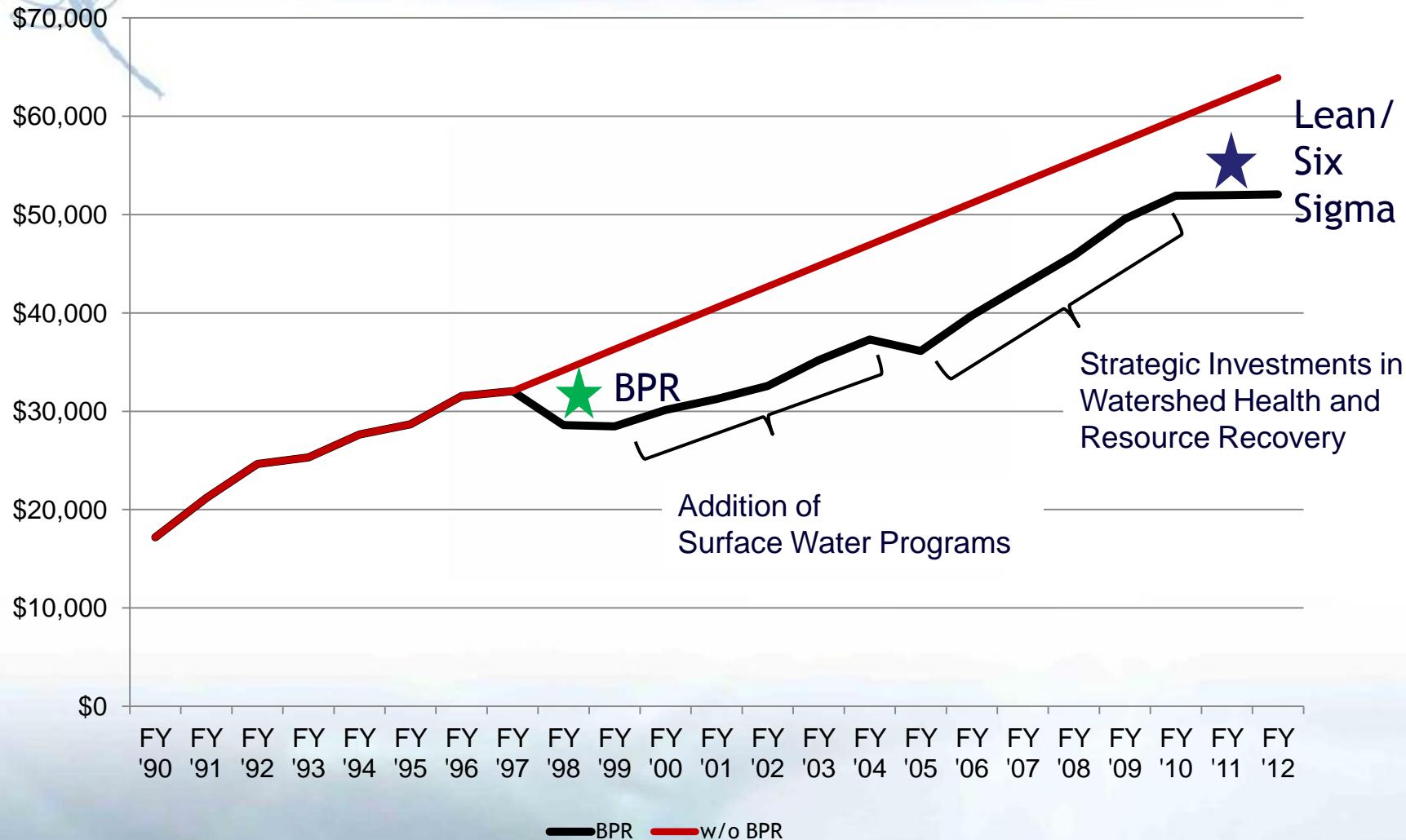


How CWS Differentiates Itself and Continuously Innovates

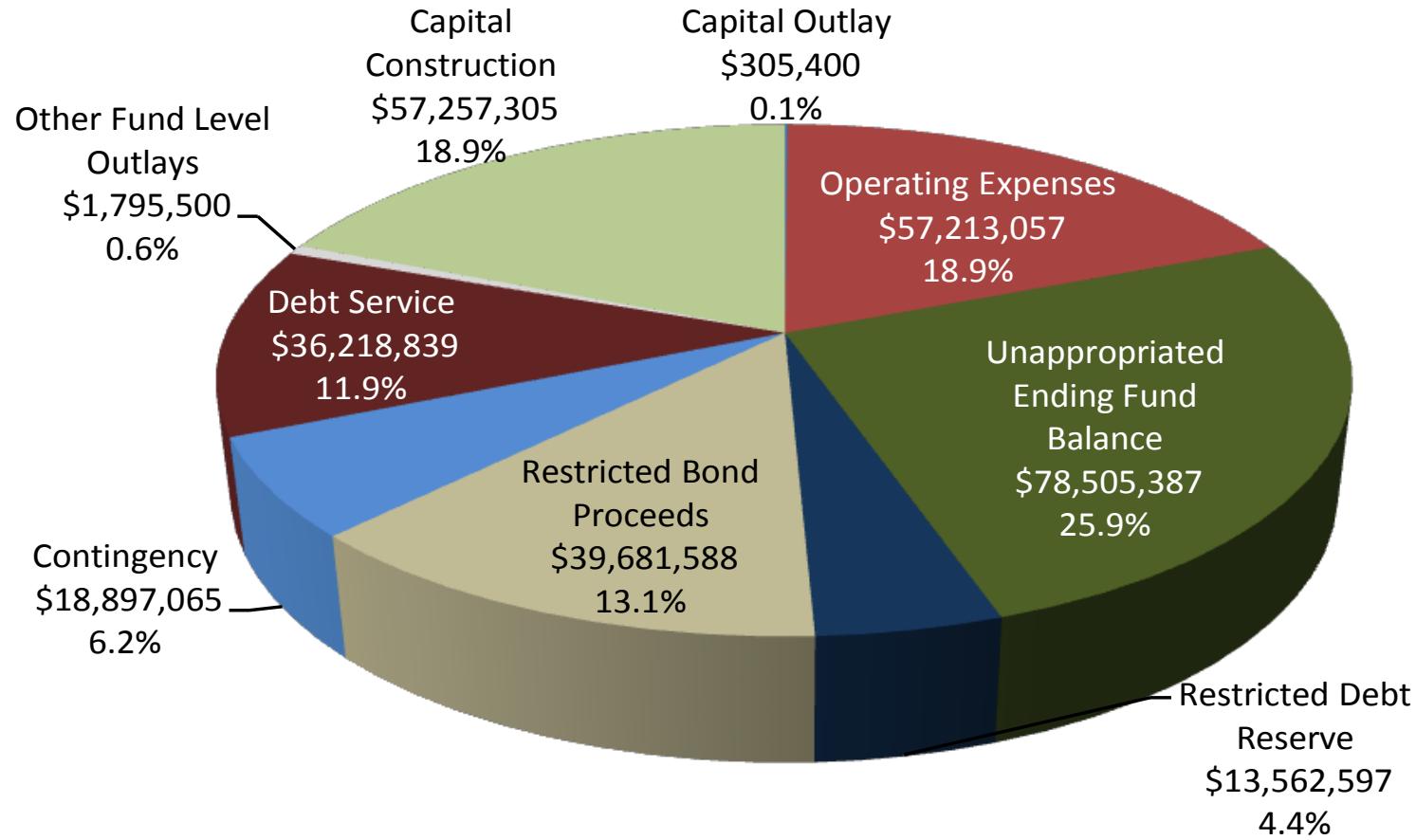


Financial Stability

Actual Expenditures (in 1,000's Dollars)



Utility Financials



Organizational Mindset Shift

- **Expanded Mission and Vision**
 - From Plants and Pipes to the Watershed
 - Rebranding to Clean Water Services
 - Rebranding Facilities to Clean Water Works
- **Culture Shift**
 - From Quality to Value
 - BPR to Continuous improvement Orientation
 - Goal Orientation
 - Entrepreneurial and Watershed Focused
 - Controlling our Destiny



Enhanced Business Model

Plants, Pumps, Pipes and Public Health



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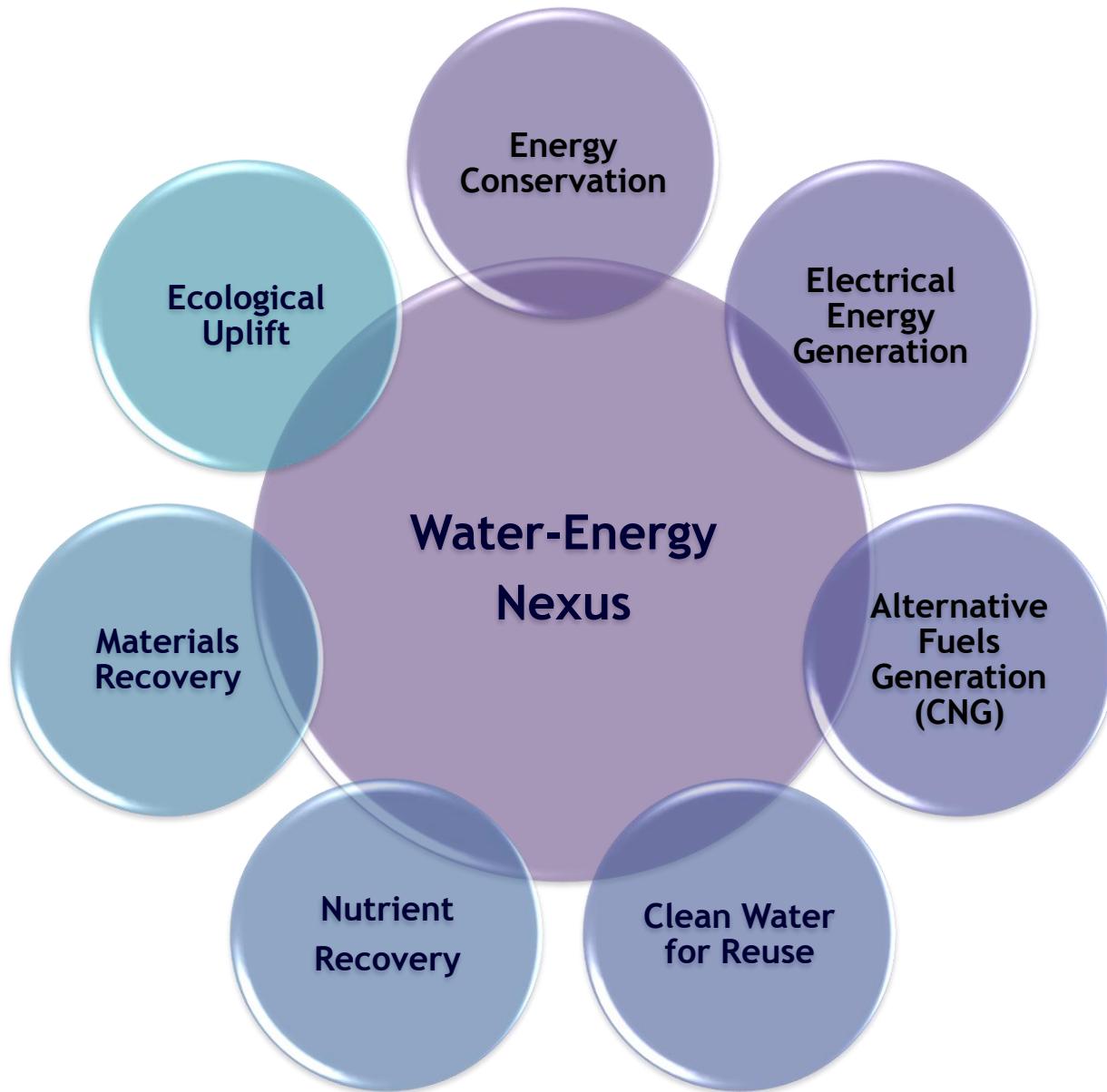
Watershed Health

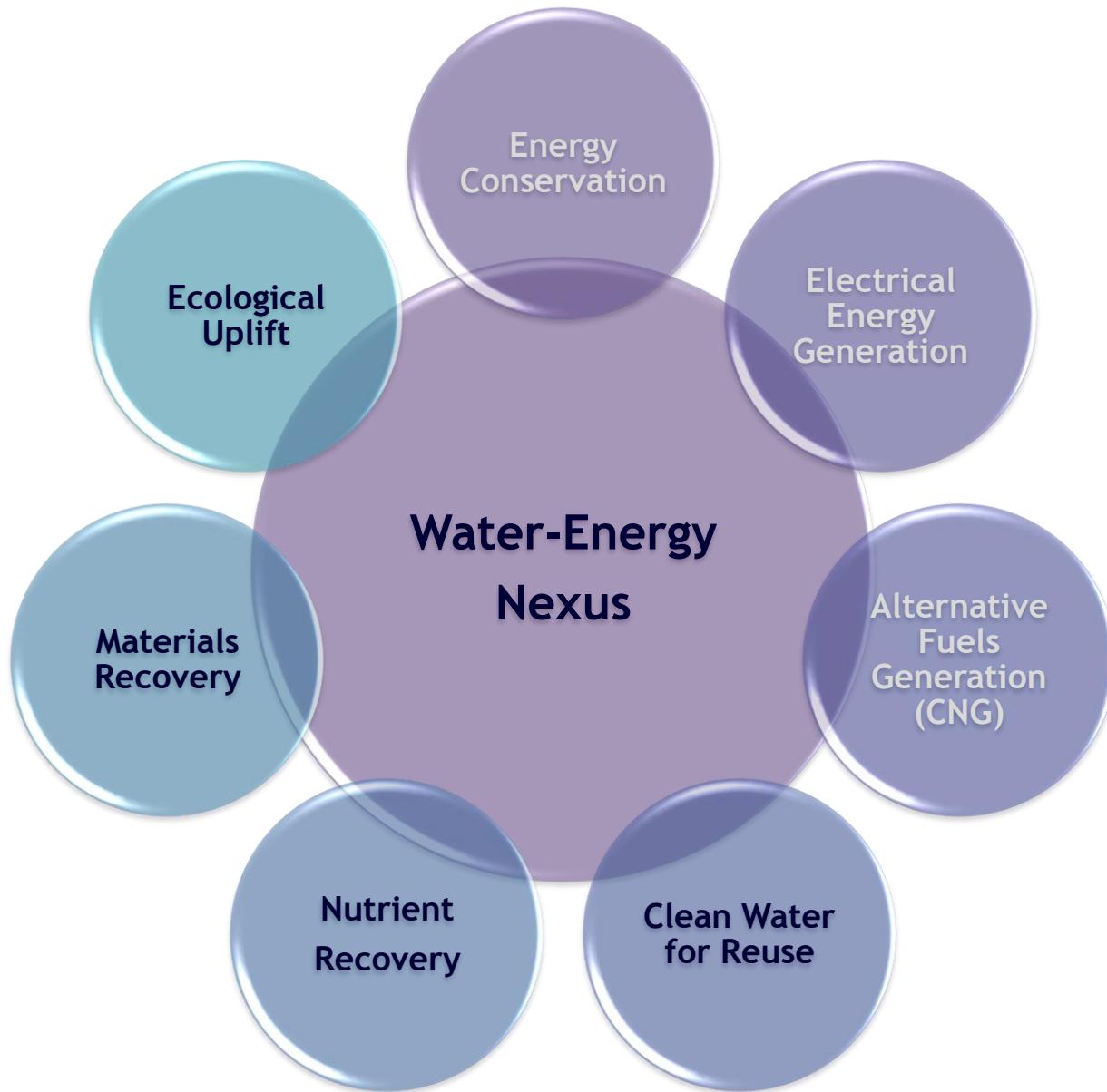


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Resource Recovery

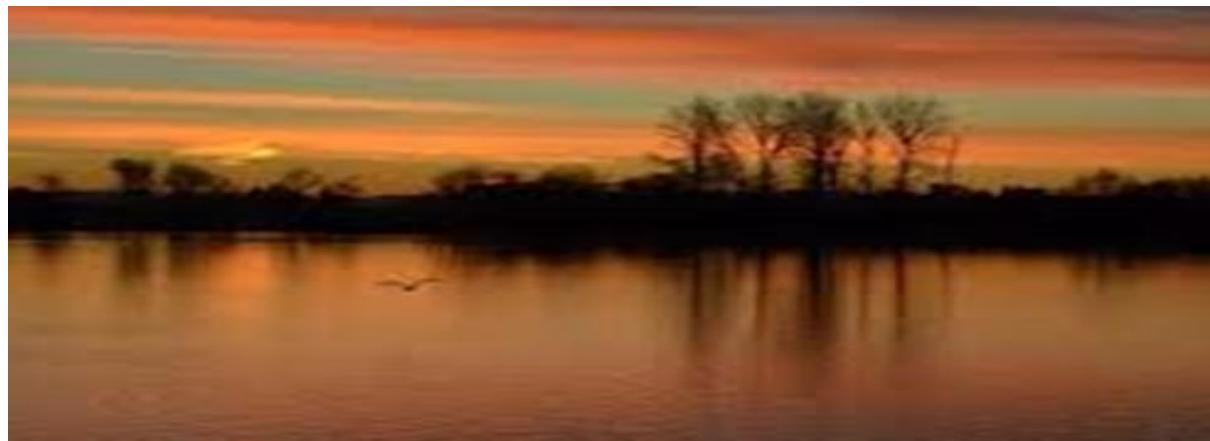
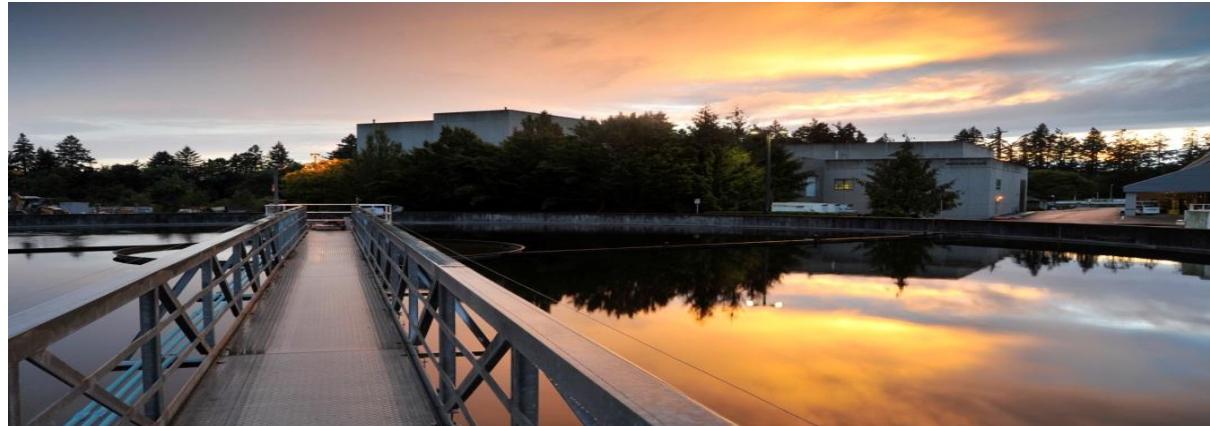




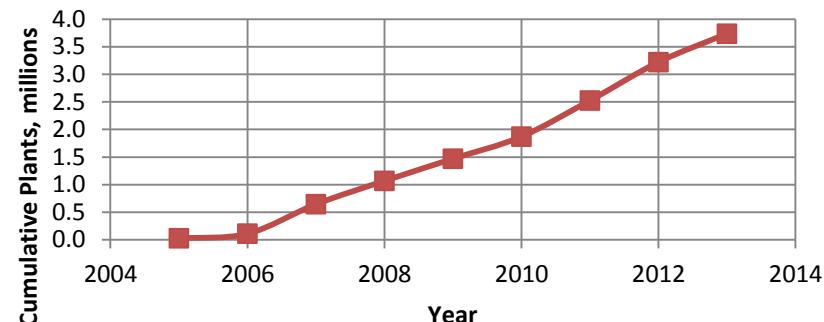
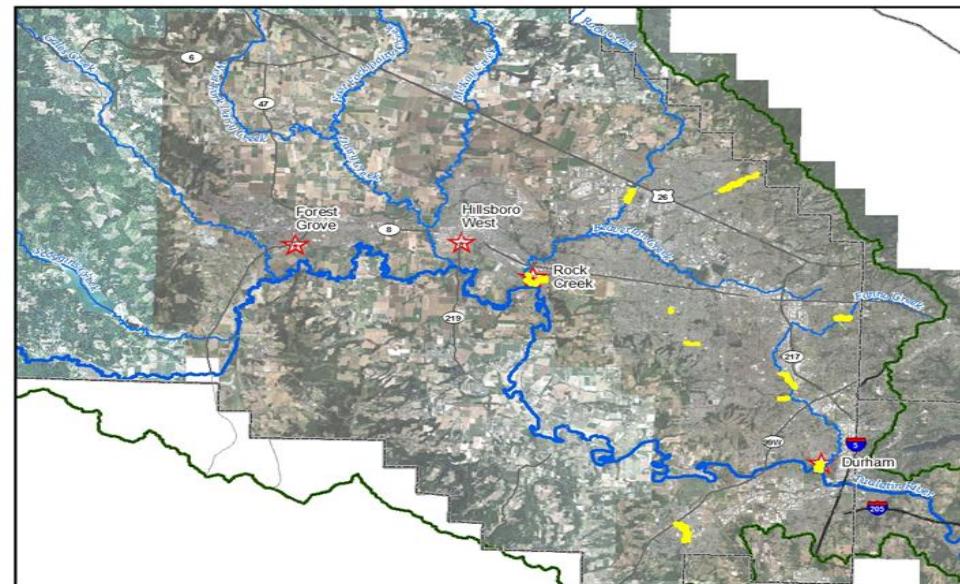


Clean Water Works

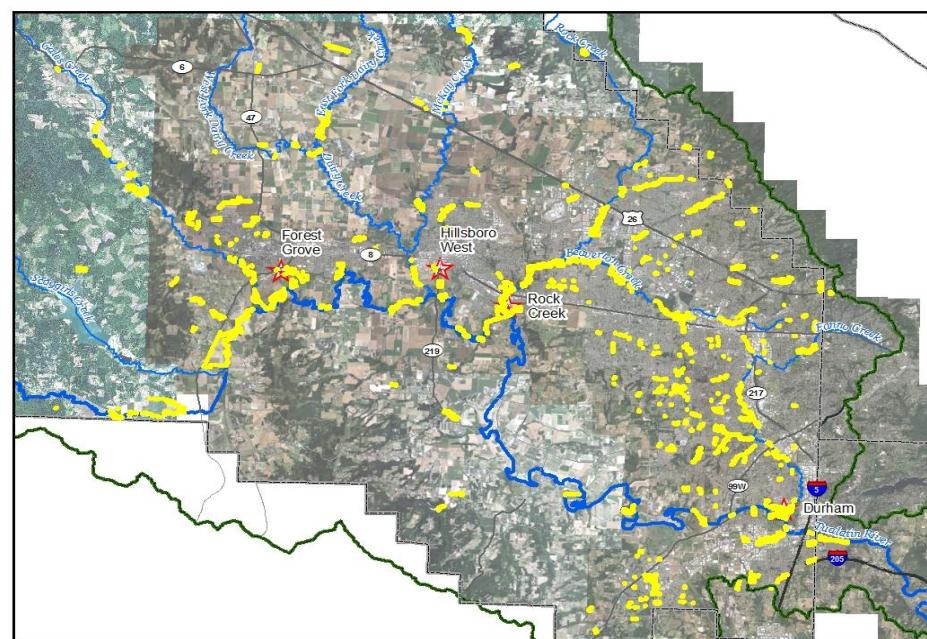
Resource Recovery Facilities



Ecological Uplift & Collective Impact On A Watershed Scale



Partners



Agricultural Ecological Uplift



Multiple Benefits & Collective Impact



Urban Ecological Uplift & Community Connection



Conveyance & Field Operations

Natural System Restoration Into Infrastructure CIP

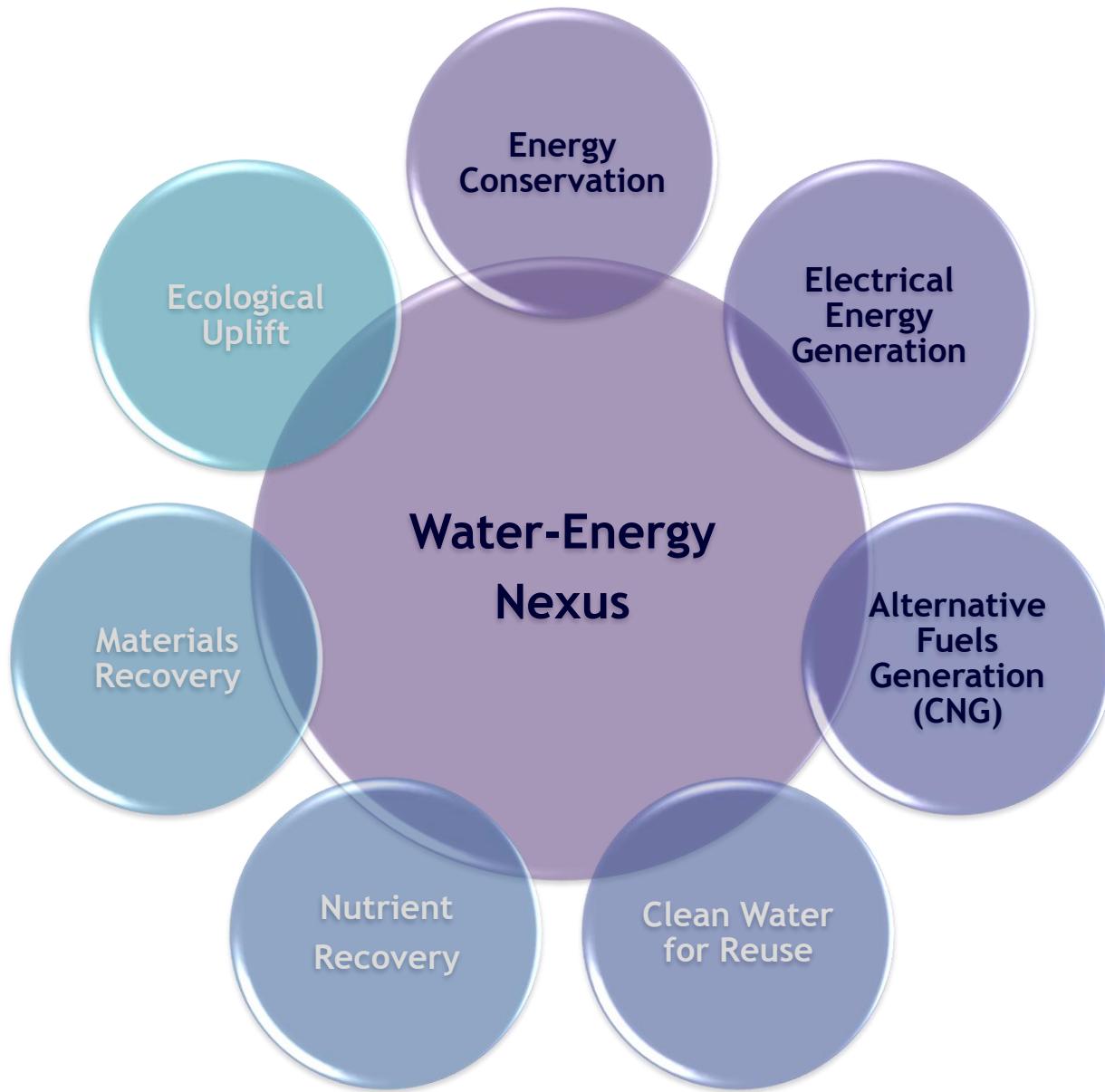
Resource Recovery



Entrepreneurship & Innovation

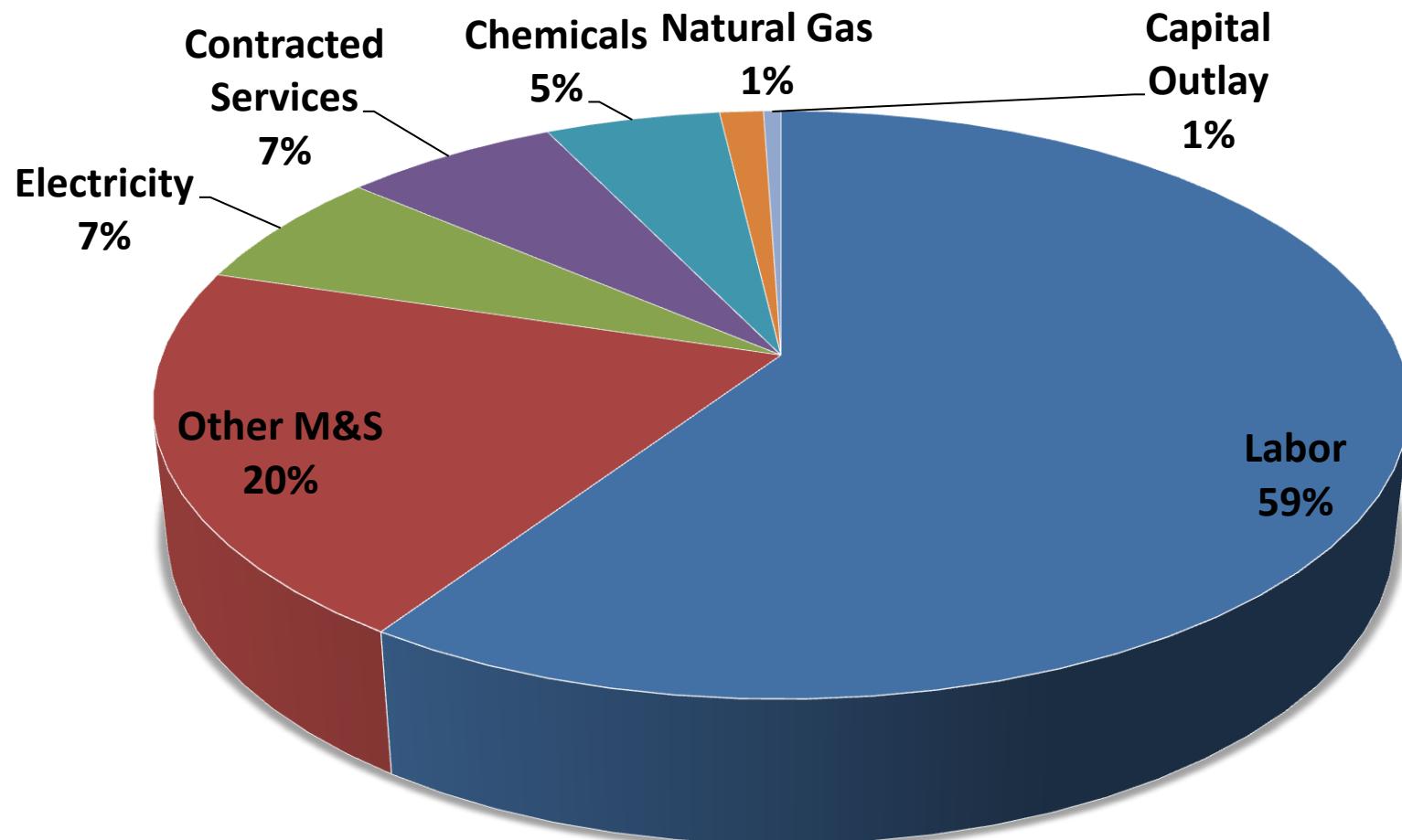
- **Clean Water Institute**
 - Not-for-Profit entity to commercialize District intellectual property and provides technical assistance for watershed approaches
 - WASSTRIP is licensed through Clean Water Institute to a private company and is generating revenue for the District
 - Creation of Clean Water Grow Product
 - Other Innovations currently in research
- **Willamette Partnership**
 - Incubated and successful spin-off of a Not-for-Profit focused on Ecosystem based approaches to Trading.



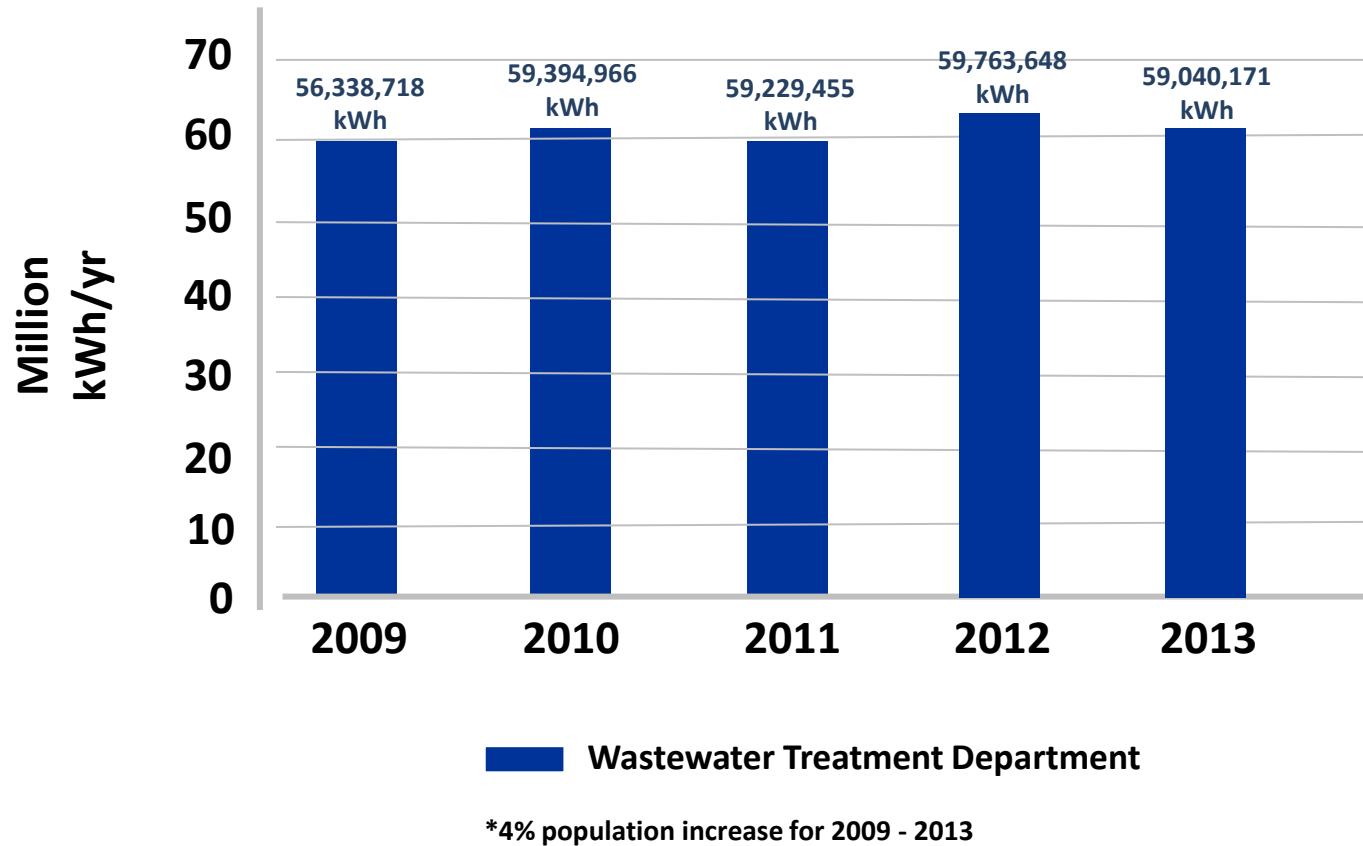


Energy's Financial Impact

Operating Budget = \$57M

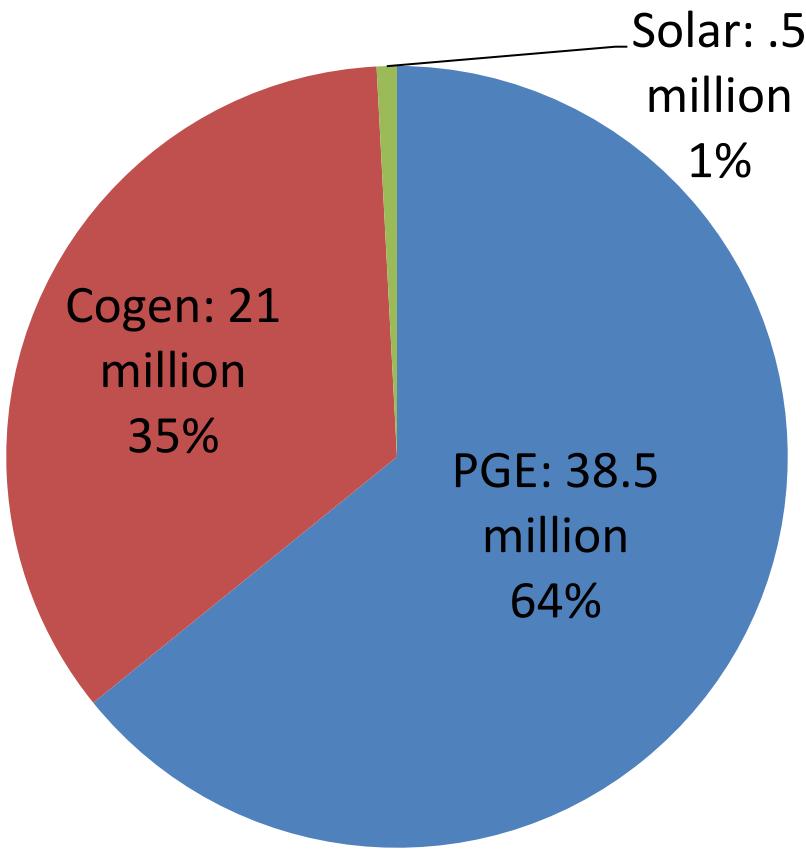


Annual Power Usage



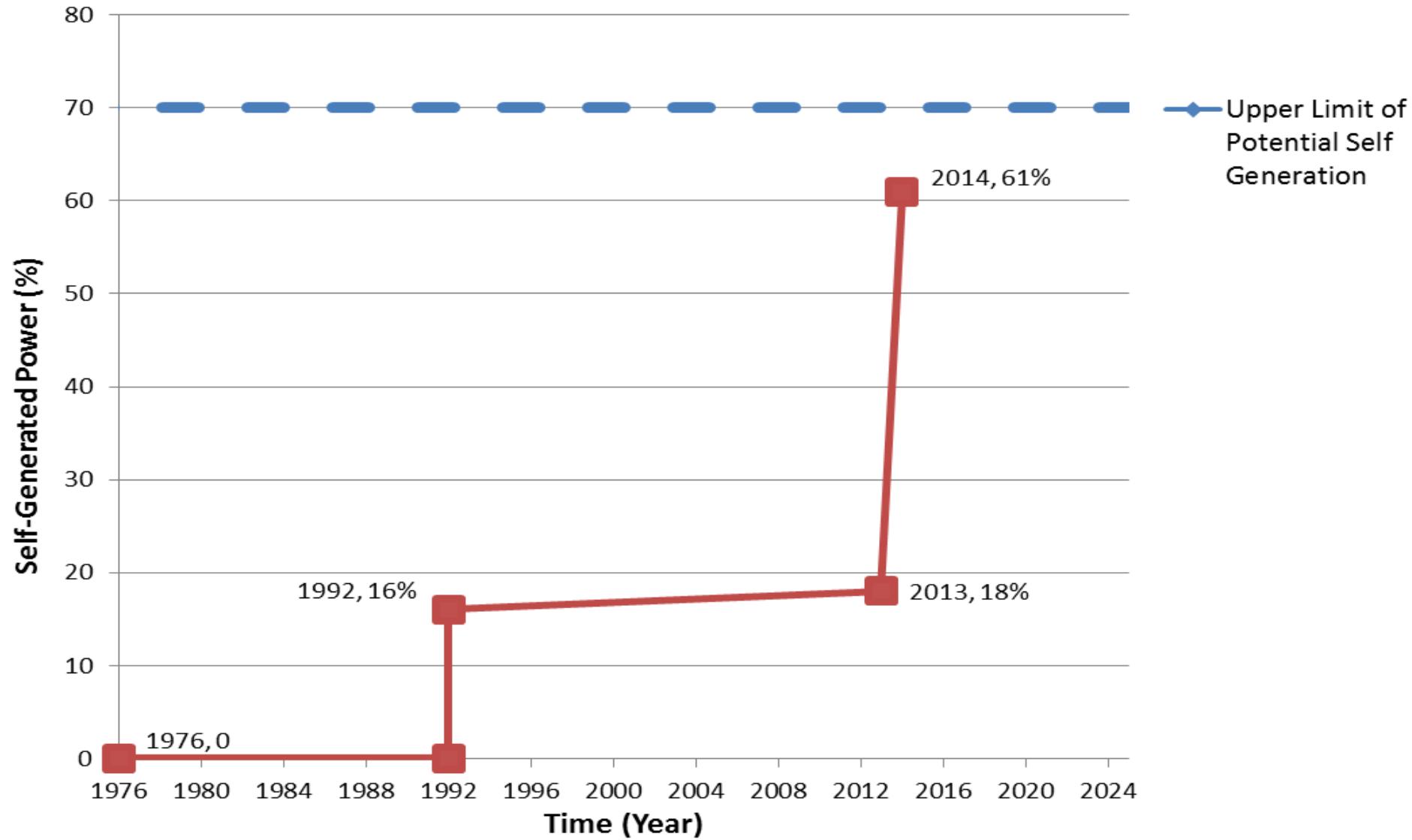
Annual Power Usage

kW-hr

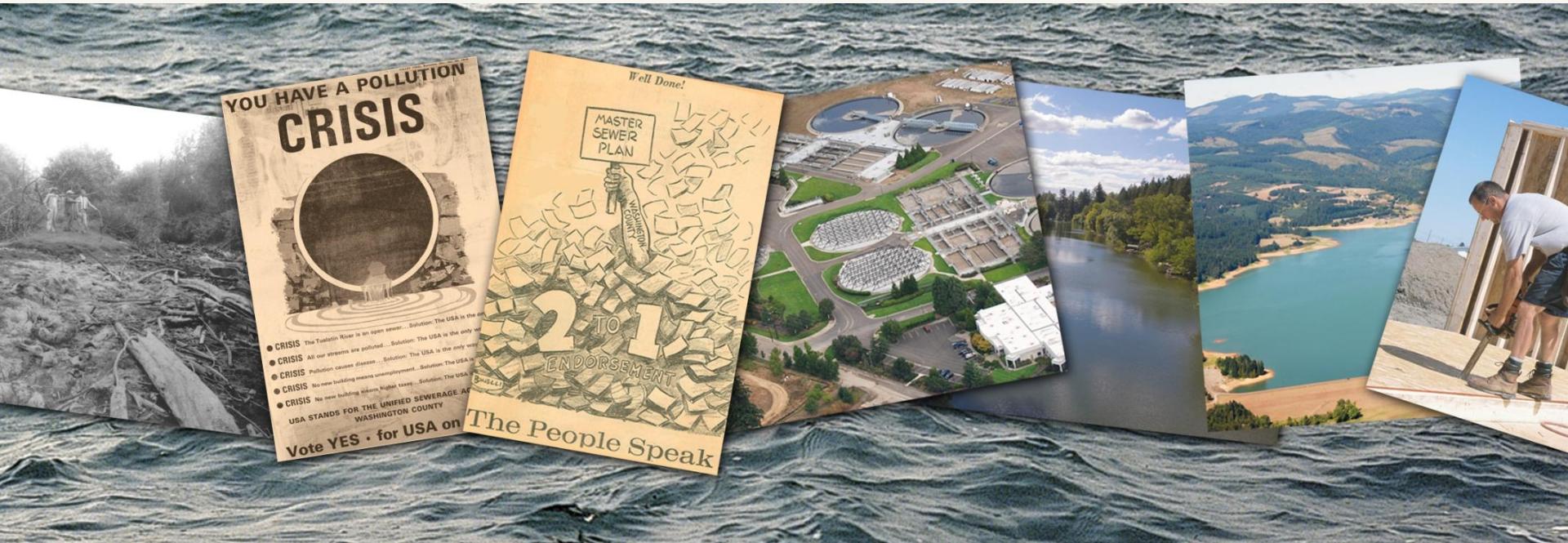


Project	Total Cost	Grant/Incentive	District Investment	Annual Energy Savings	Payback	Date Completed
RC Digester Tubes	\$681,305	\$549,097	\$132,208	1,000,000 kWh	2 years	2013
Durham Solar	\$524,238	\$302,445	\$221,793	450,000 kWh	8 years	2013
RC Hydronic Heat	\$144,626	\$72,313	\$72,313	261,582 kWh	5 years	2013
Hillsboro UV Upgrade	\$490,000	\$200,273	\$289,727	625,853 kWh	11 years	2013
RC East Blower VFD Upgrade	\$284,402	\$121,528	\$162,874	316,477 kWh	6 years	2012
Durham MLR Pump VFD Upgrade	\$124,179	\$42,942	\$81,237	193,094 kWh	7 years	2013
RC Aeration Mixer VFD Upgrade	\$43,569	\$21,785	\$21,784	327,976	1 year	2012
Durham Turbo Blower	\$461,000	\$177,054	\$283,946	553,294	9 years	2013

Self-Generated Power at Durham WWTP



Honoring our Past...Charting the Future



Celebrating 40 Years of Clean Water





Questions?

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