



Water Utilities of the Future

Roundtable on Science & Technology
For Sustainability
May 20, 2014

*Diane Taniguchi-Dennis, PE/MBA
Deputy General Manager
Clean Water Services
Hillsboro, Oregon*

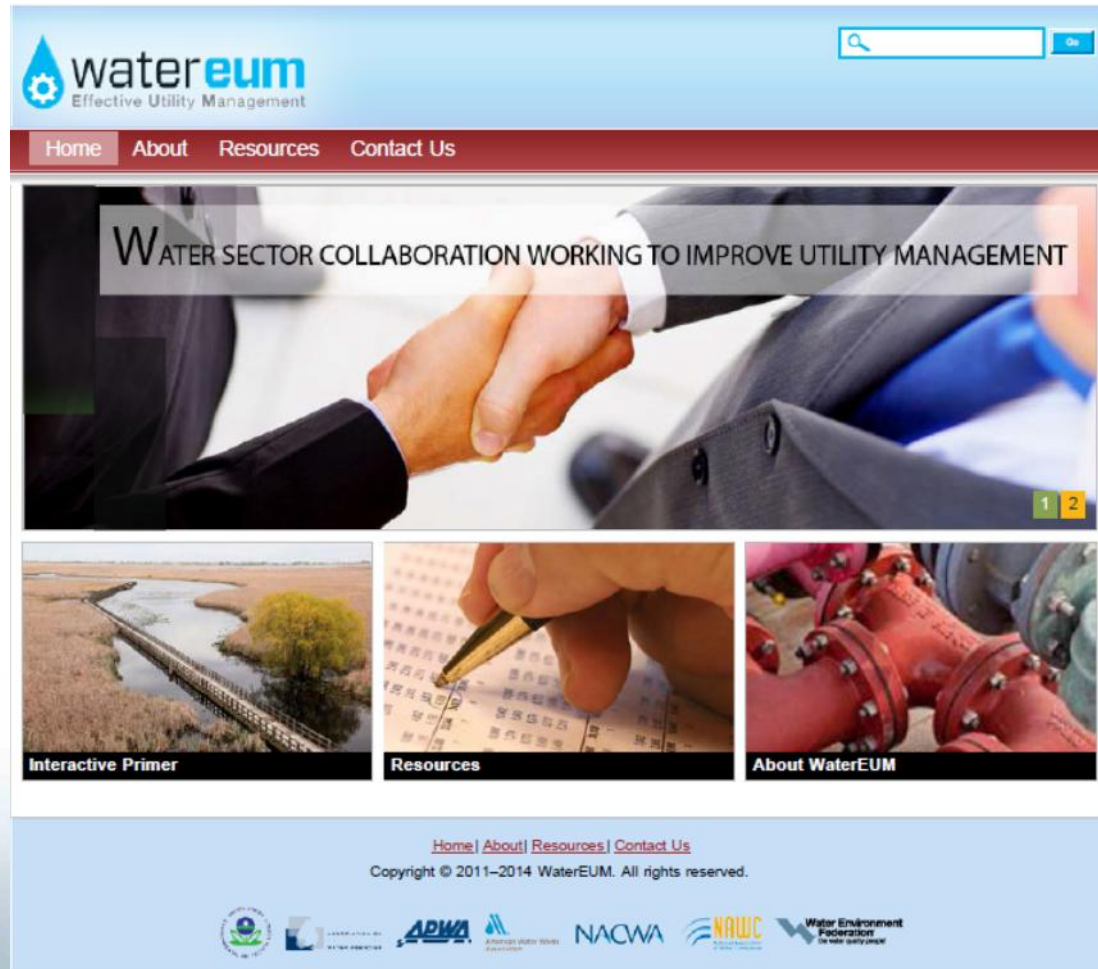
Stewardship

HARMONY

Future

Sustainable

Effective Utility Management (EUM) Water Sector

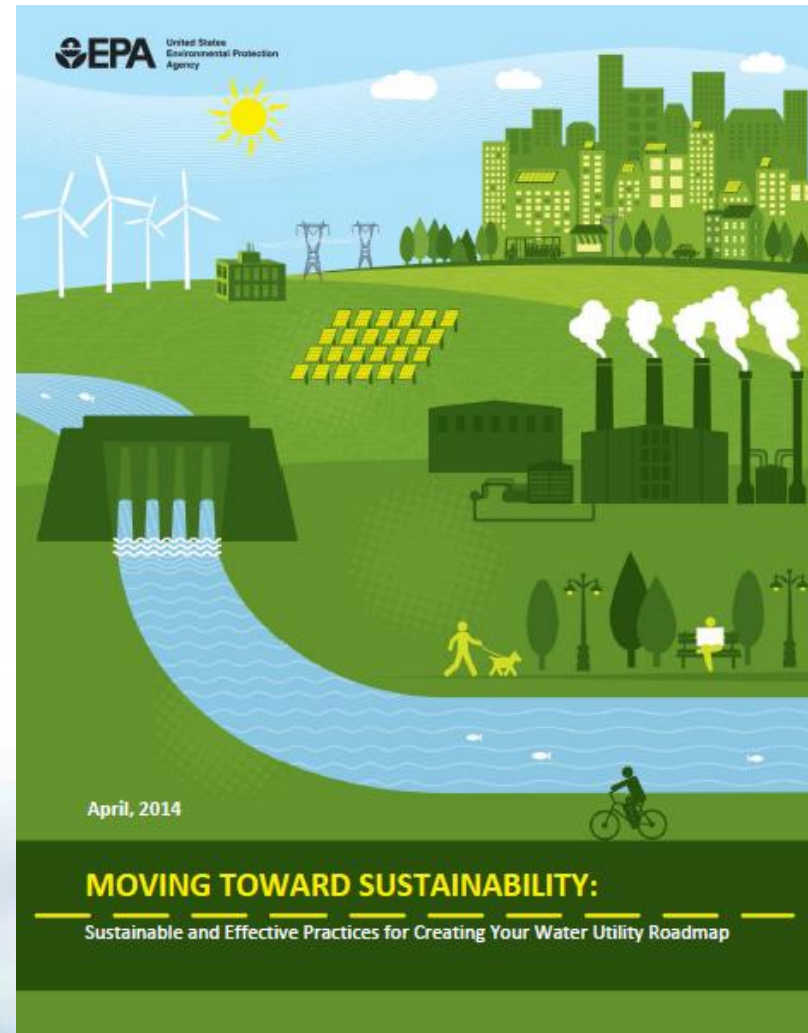


<http://www.watereum.org/>

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

Utility Business Planning

Product Quality and Operational Optimization

Customer Satisfaction and Stakeholder Understanding & Support

Employee Leadership & Development

Financial Viability

Infrastructure Stability

Operational Resiliency

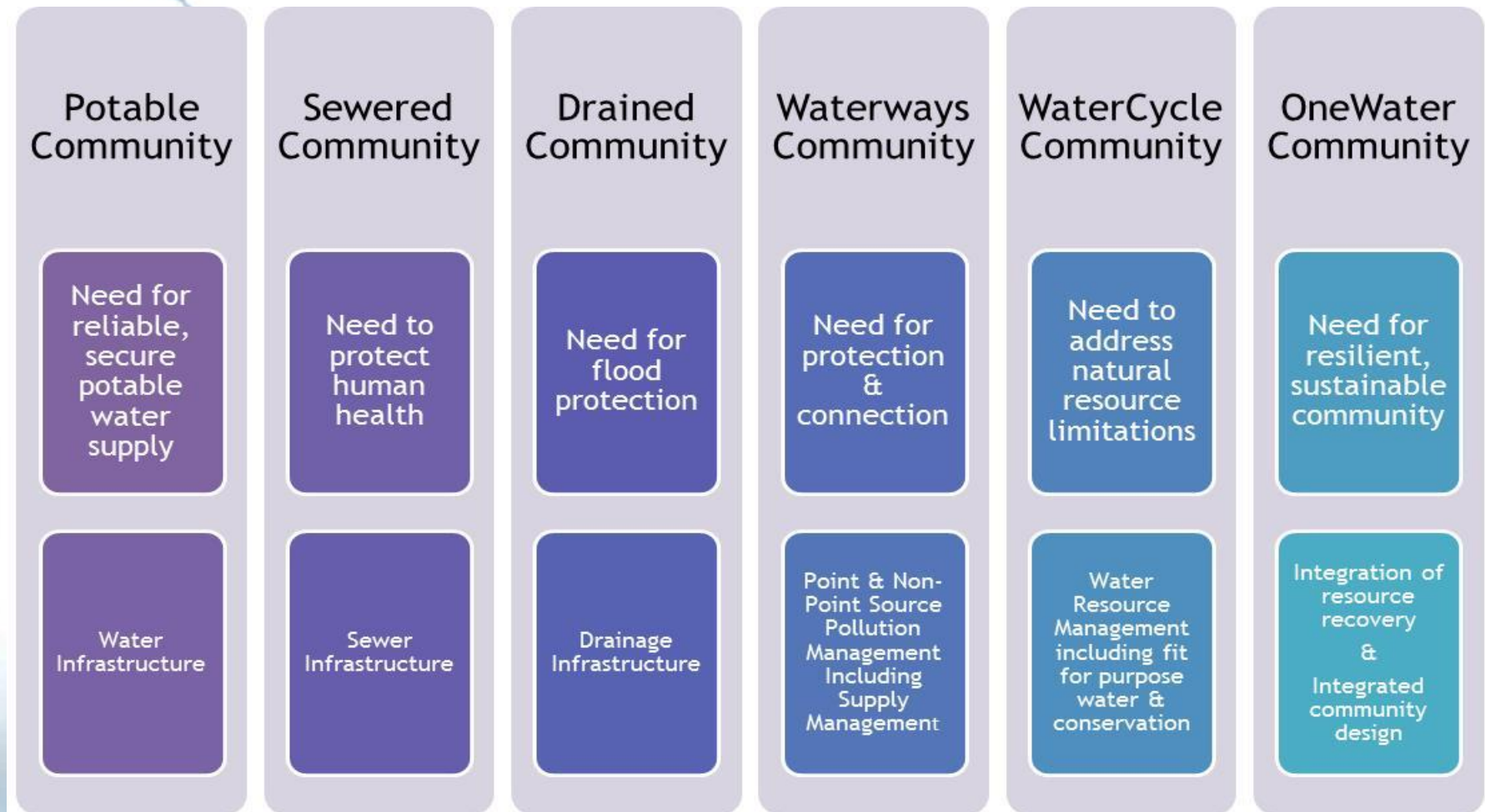
Community Sustainability

Water Resource Adequacy

Performance Measurement and
Continual Improvement



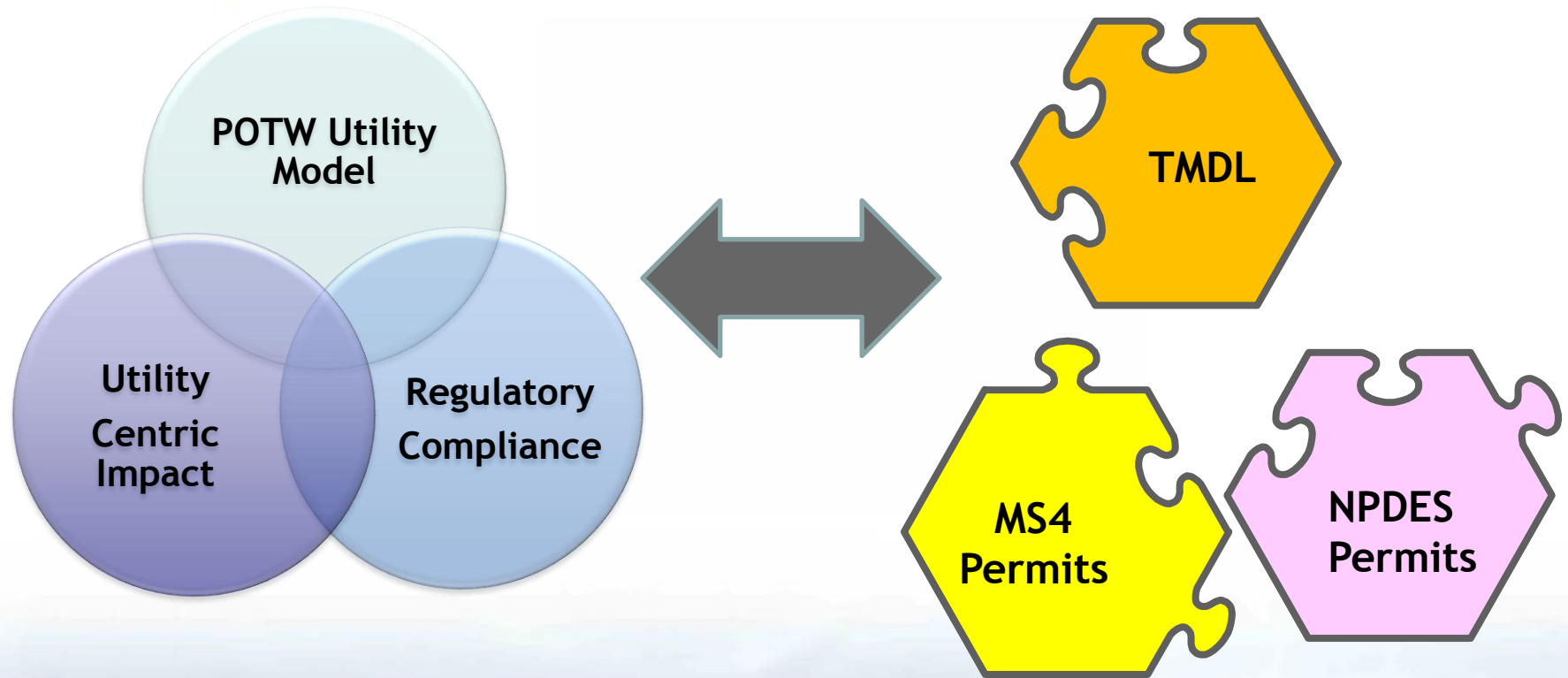
Water Development Stages



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

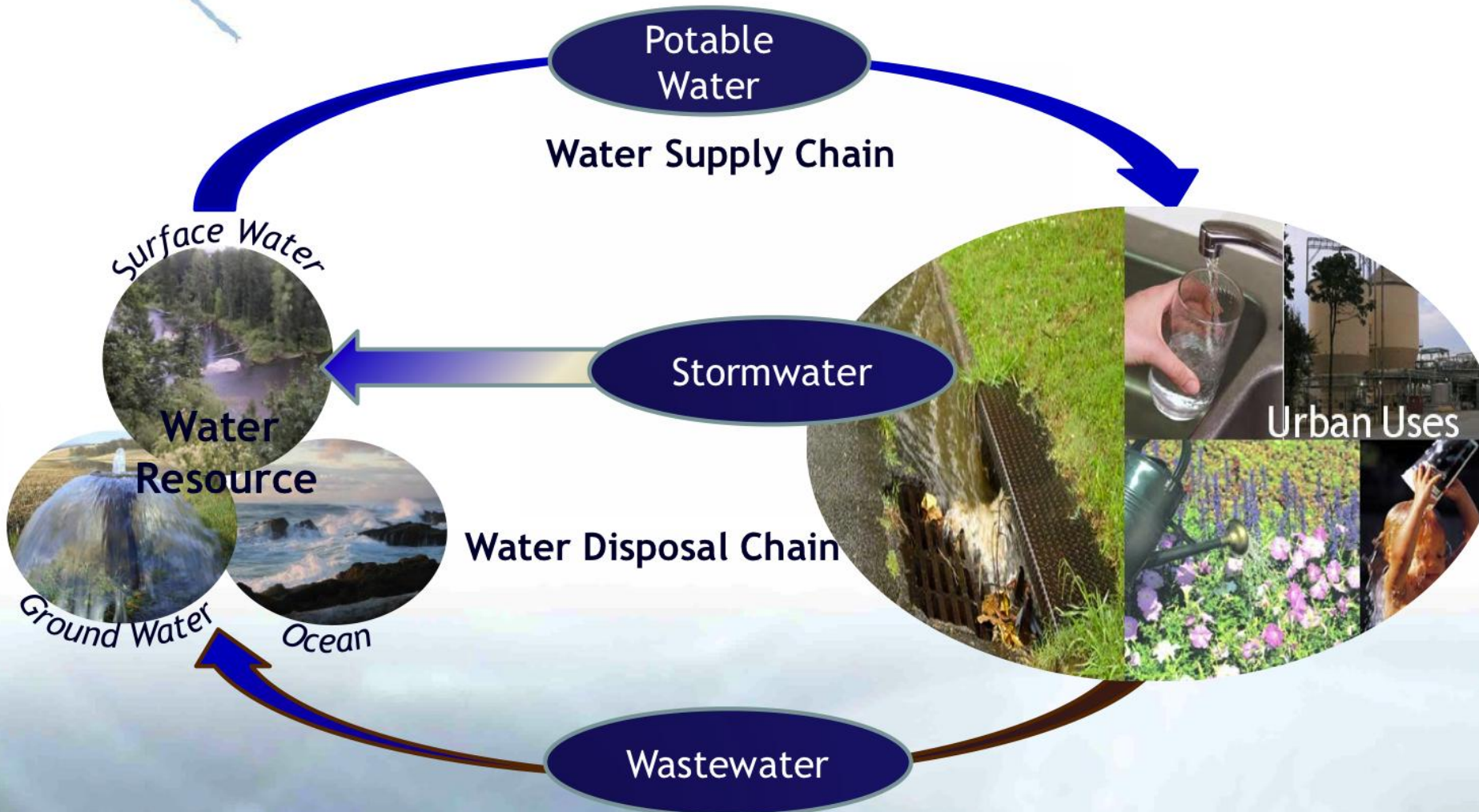


Traditional Utility Model



Drives Investment in Centralized Infrastructure

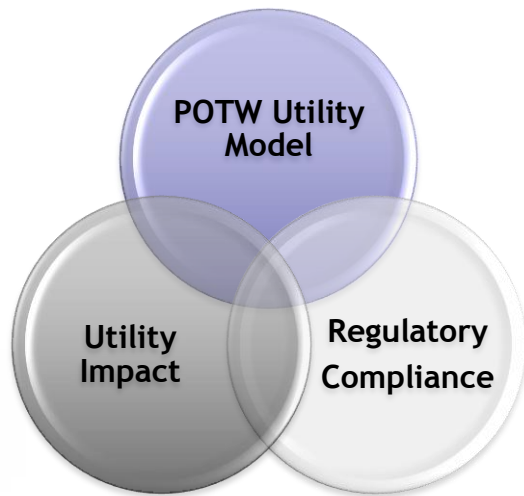
Traditional Utility Model



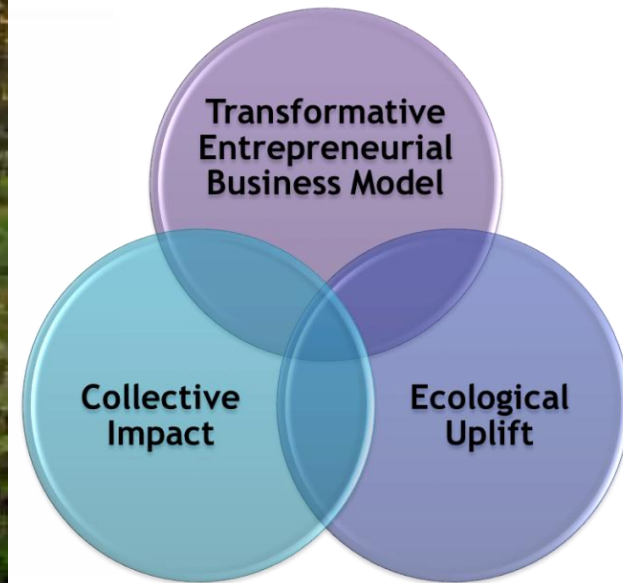
Emergent Utility Model



Utility of the Future Path



Traditional Utility Model



One Water Utility of the Future





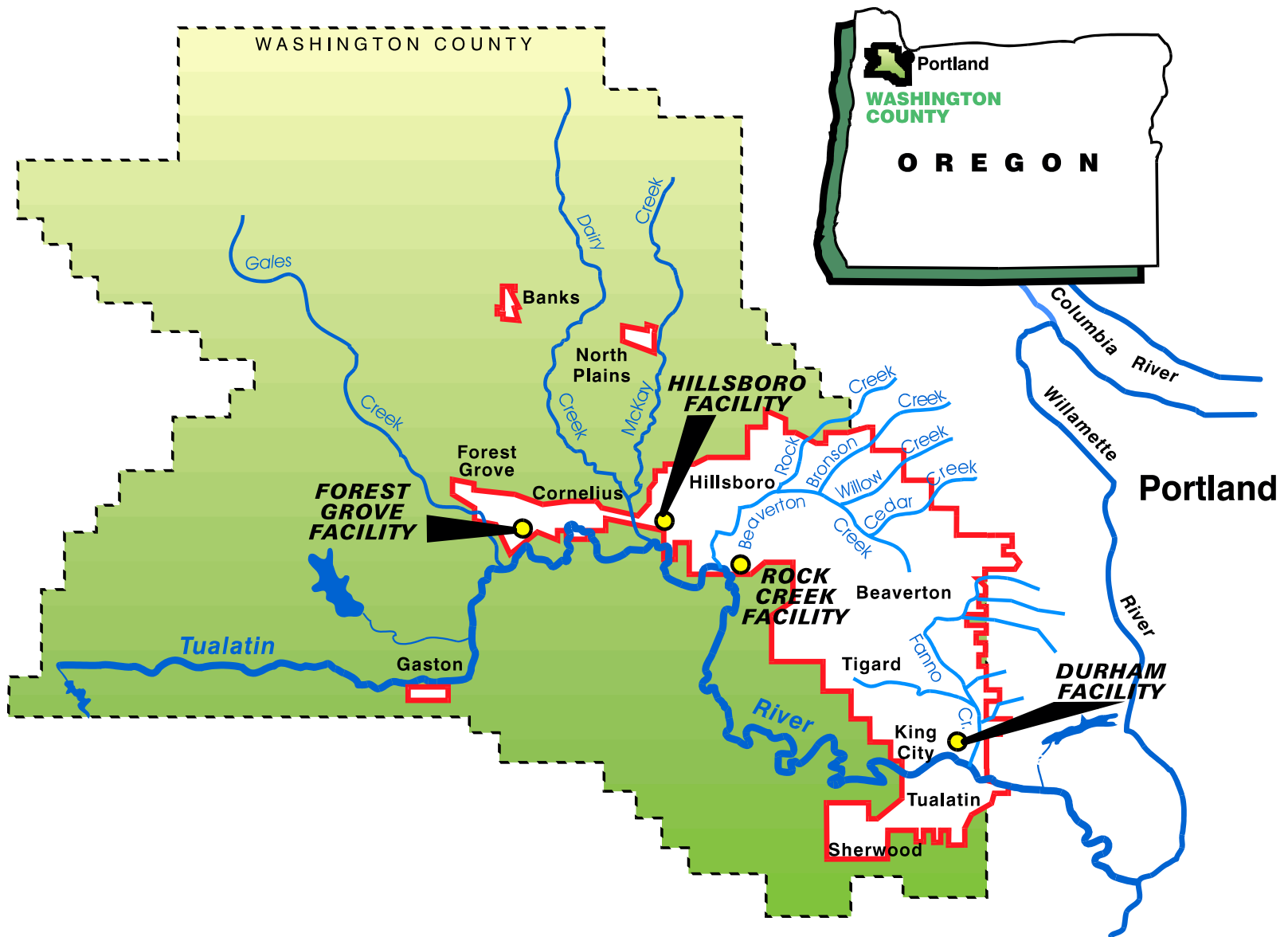
Case Study: Clean Water Services

Stewardship

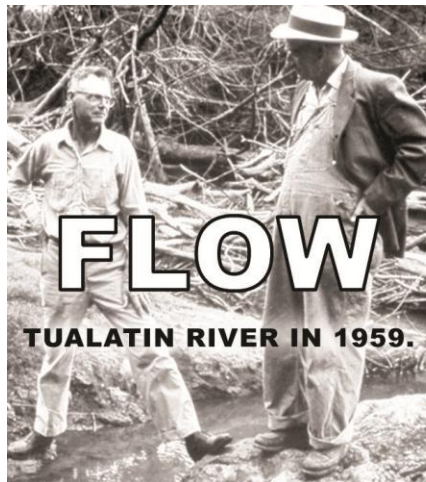
HARMONY

Future

Sustainable



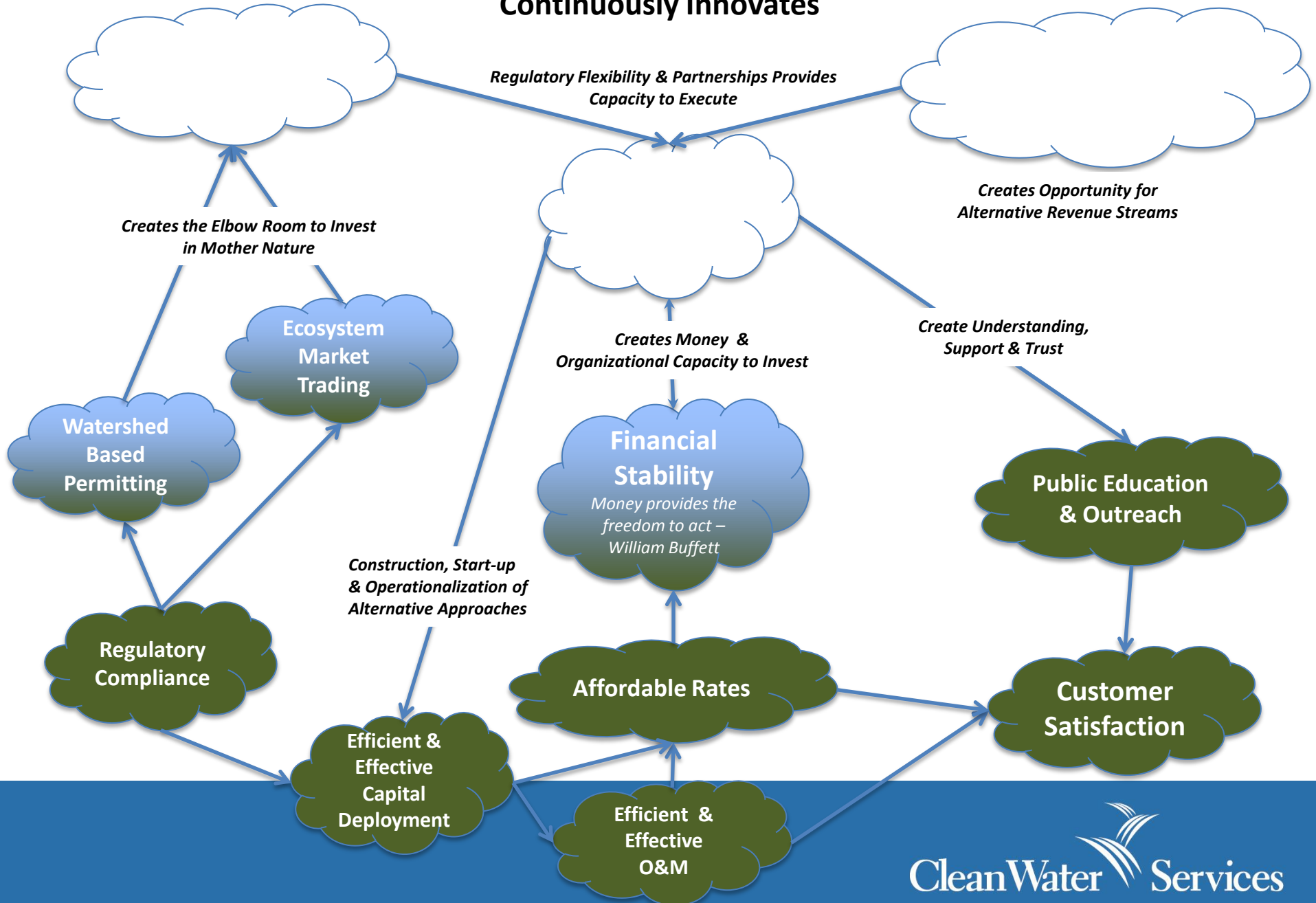
Clean Water Services At-a-Glance



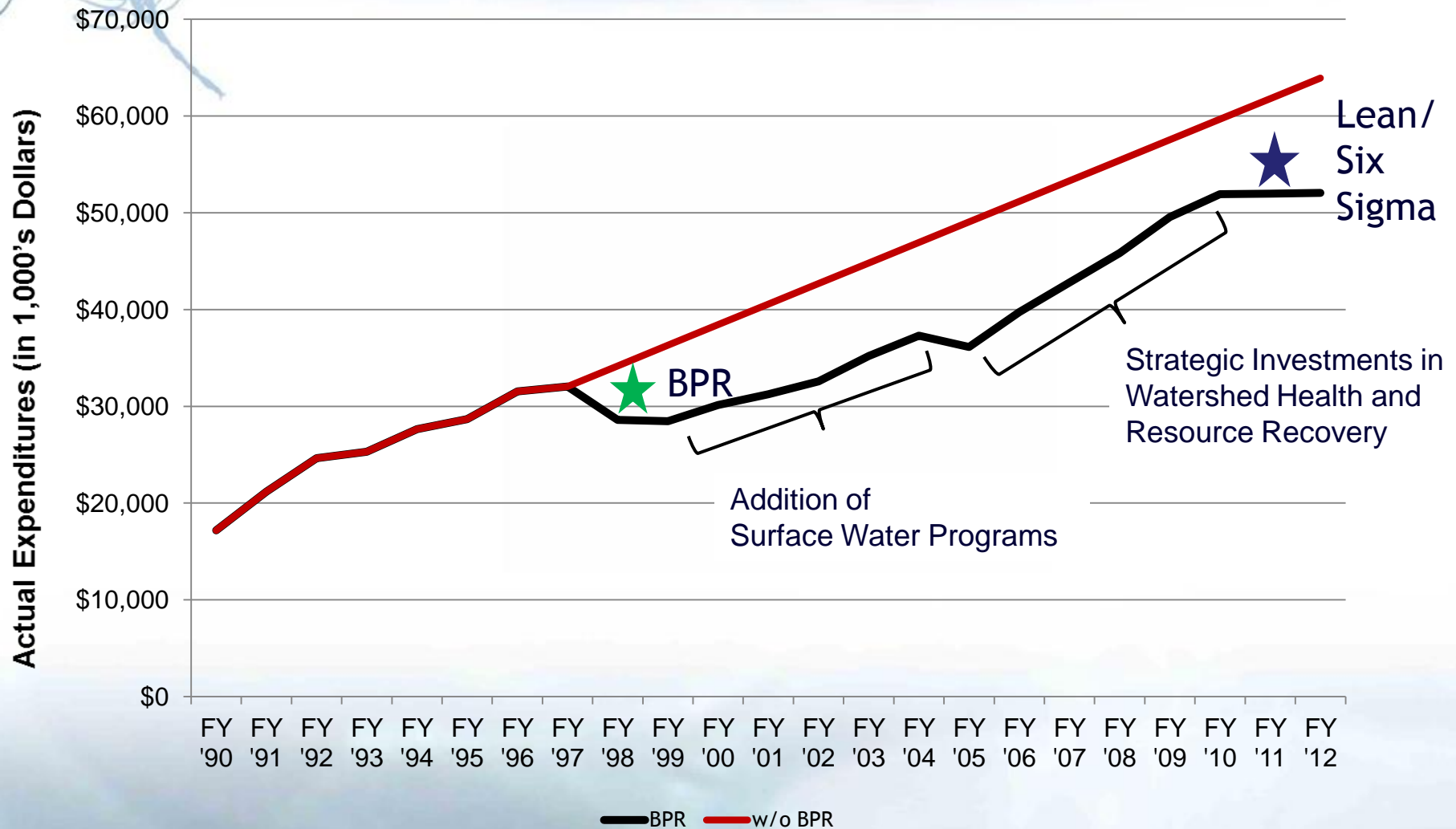
Transformative Business Model



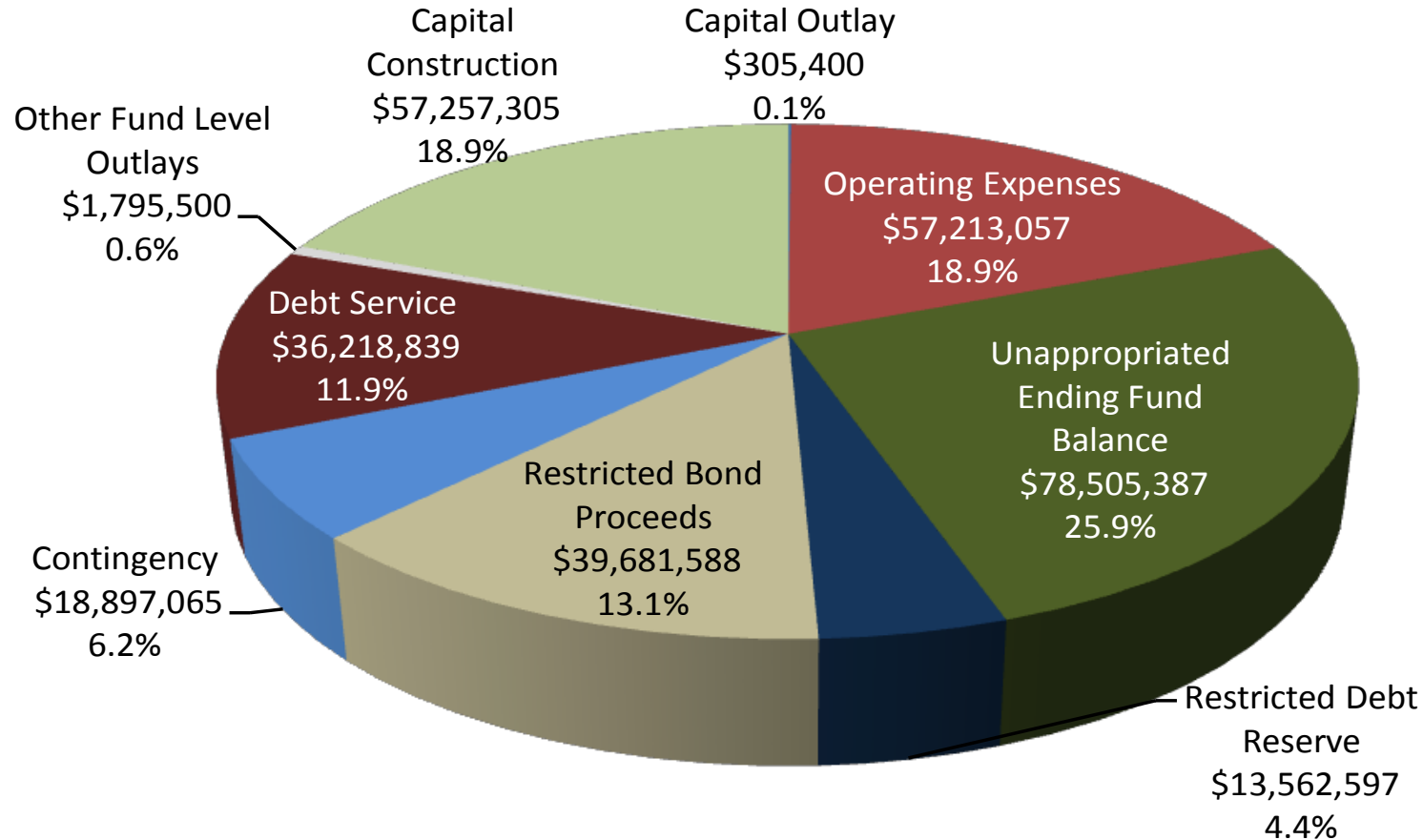
How CWS Differentiates Itself and Continuously Innovates



Financial Stability



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



+

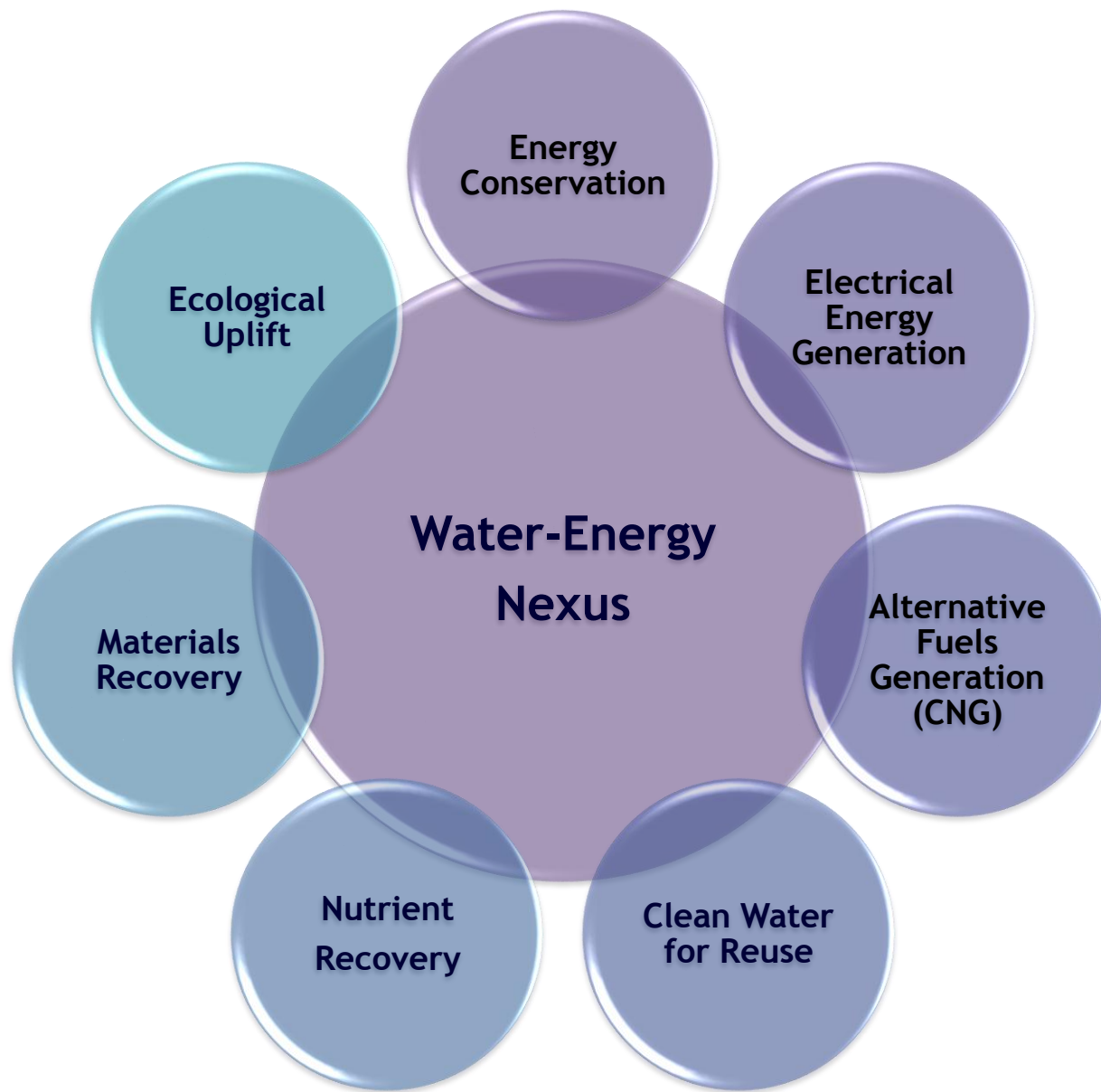
Watershed Health

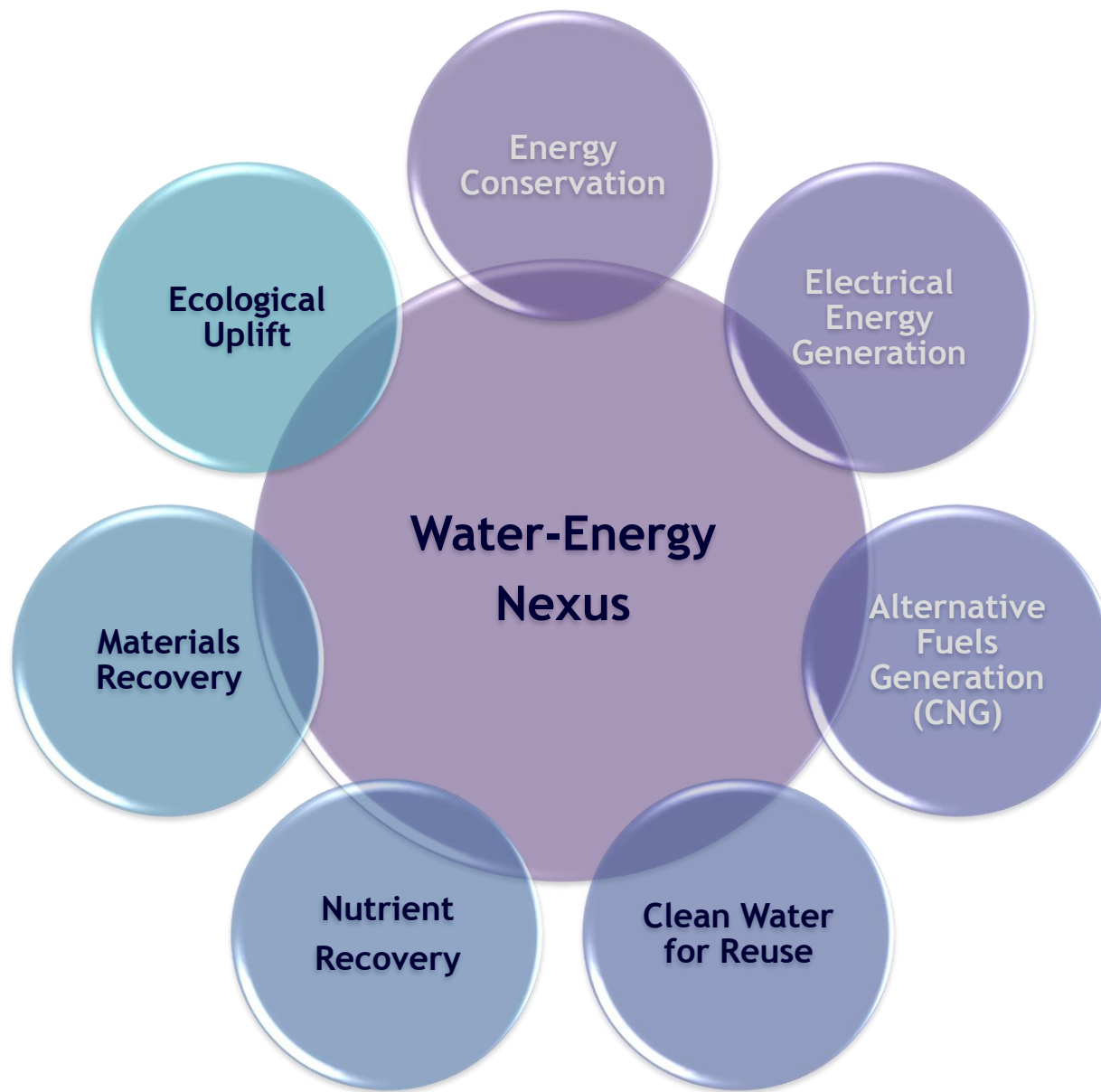


+

Resource Recovery







Clean Water Works Resource Recovery Facilities



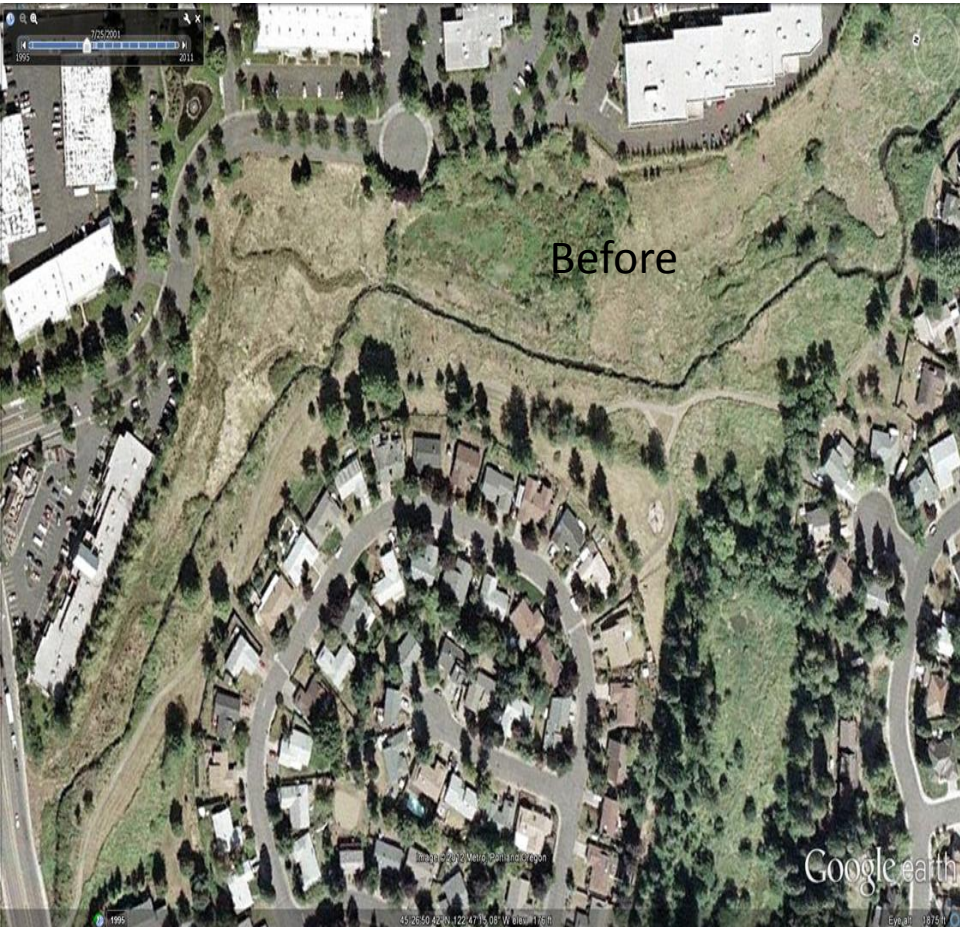
Agricultural Ecological Uplift



Multiple Benefits & Collective Impact



Urban Ecological Uplift & Community Connection



Conveyance & Field Operations

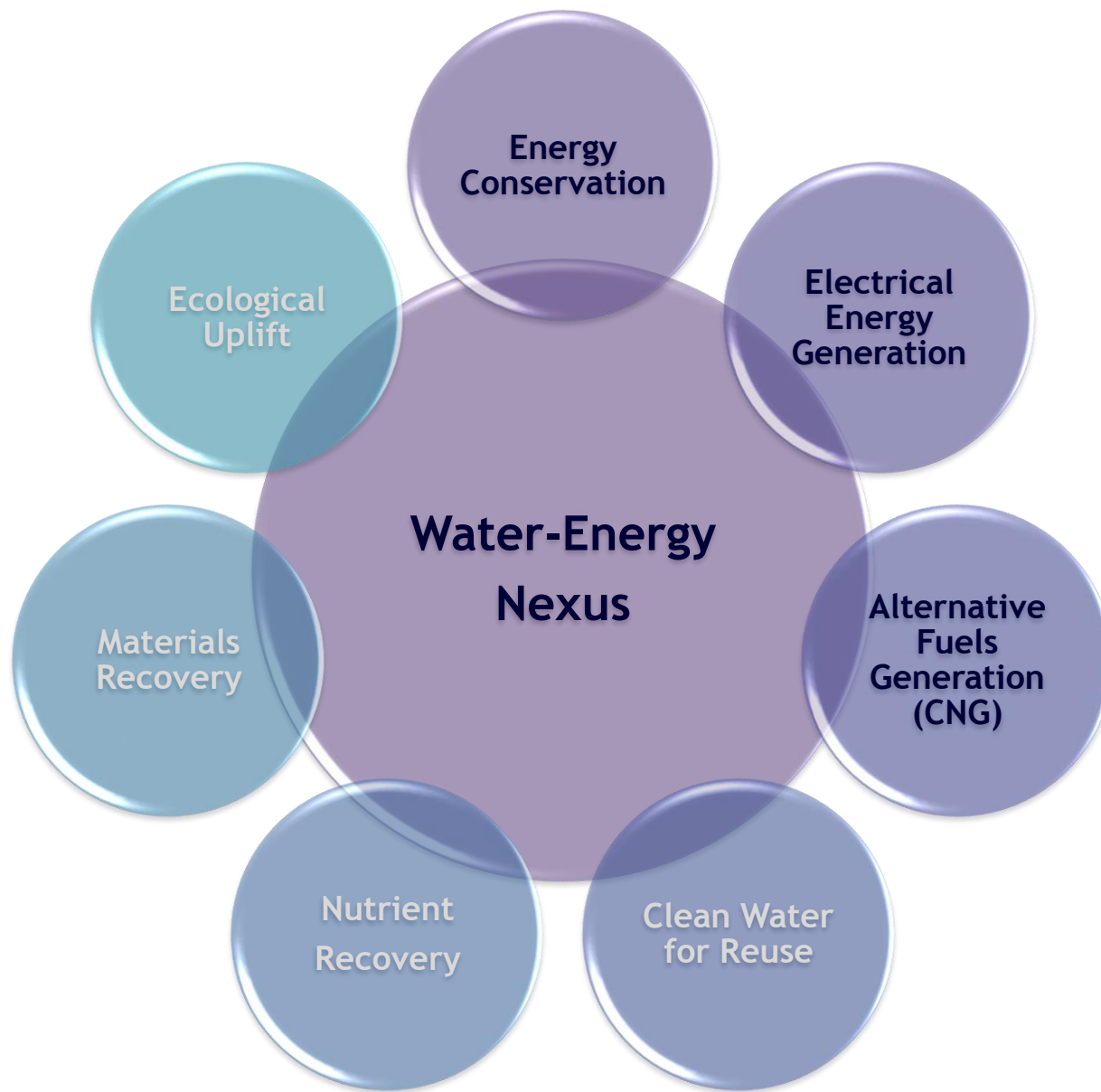
Natural System Restoration Into Infrastructure CIP Resource Recovery



Entrepreneurship & Innovation

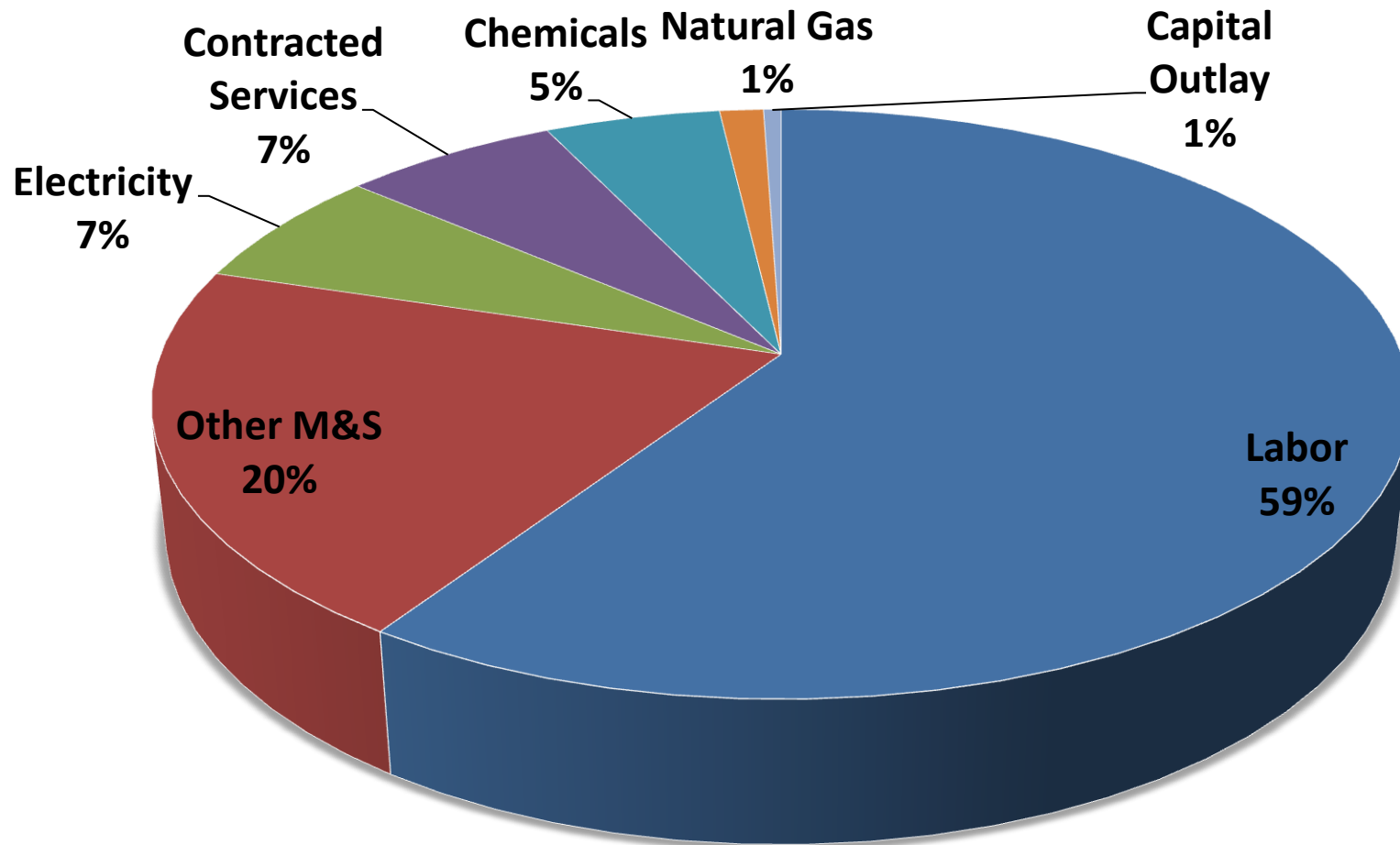
- **Clean Water Institute**
 - Not-for-Profit entity to commercialize District intellectual property and provides technical assistance for watershed approaches
 - WASSTRIP is licensed through Clean Water Institute to a private company and is generating revenue for the District
 - Creation of Clean Water 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.



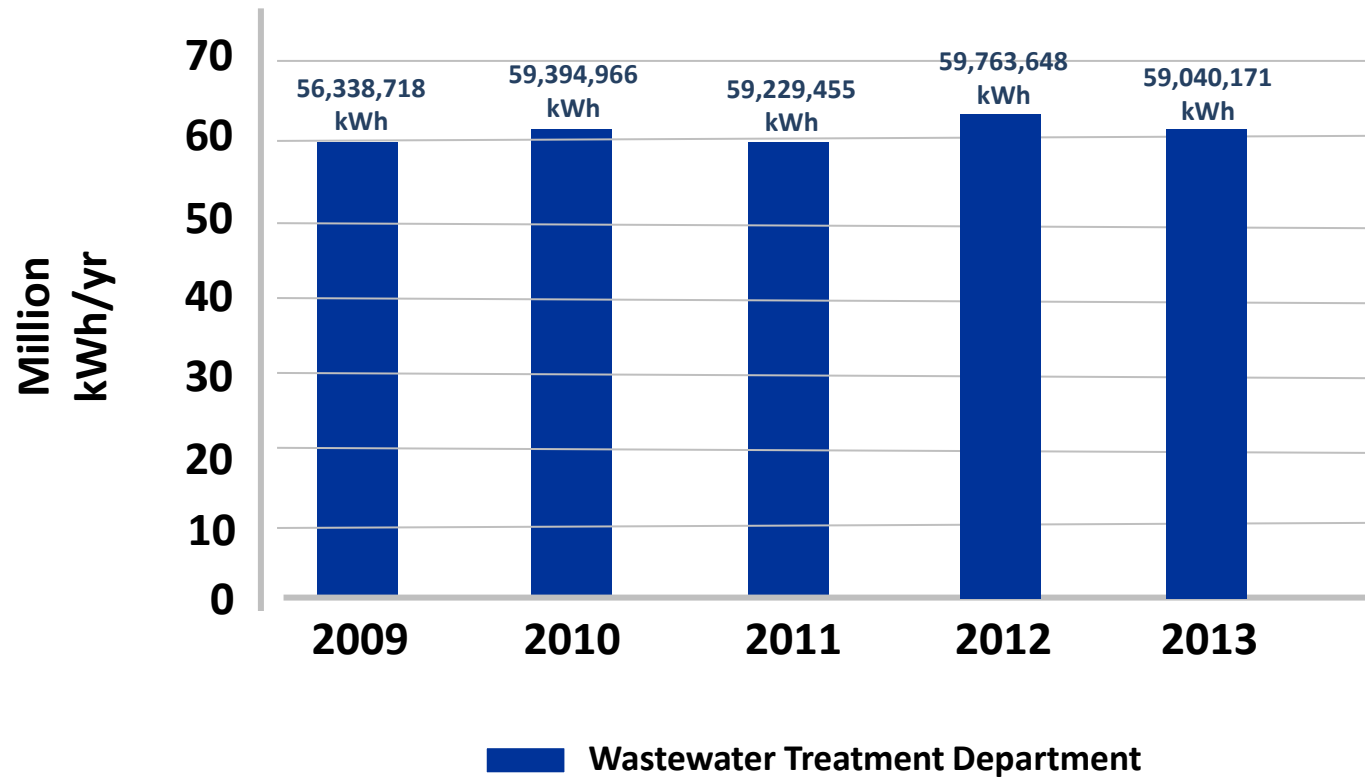


Energy's Financial Impact

Operating Budget = \$57M

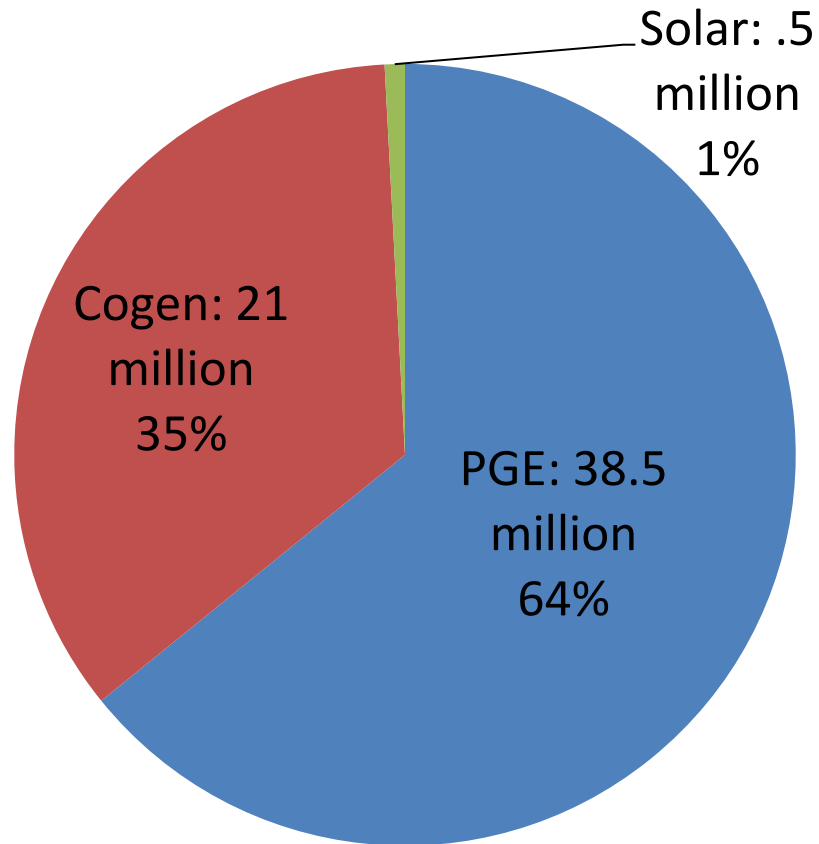


Annual Power Usage



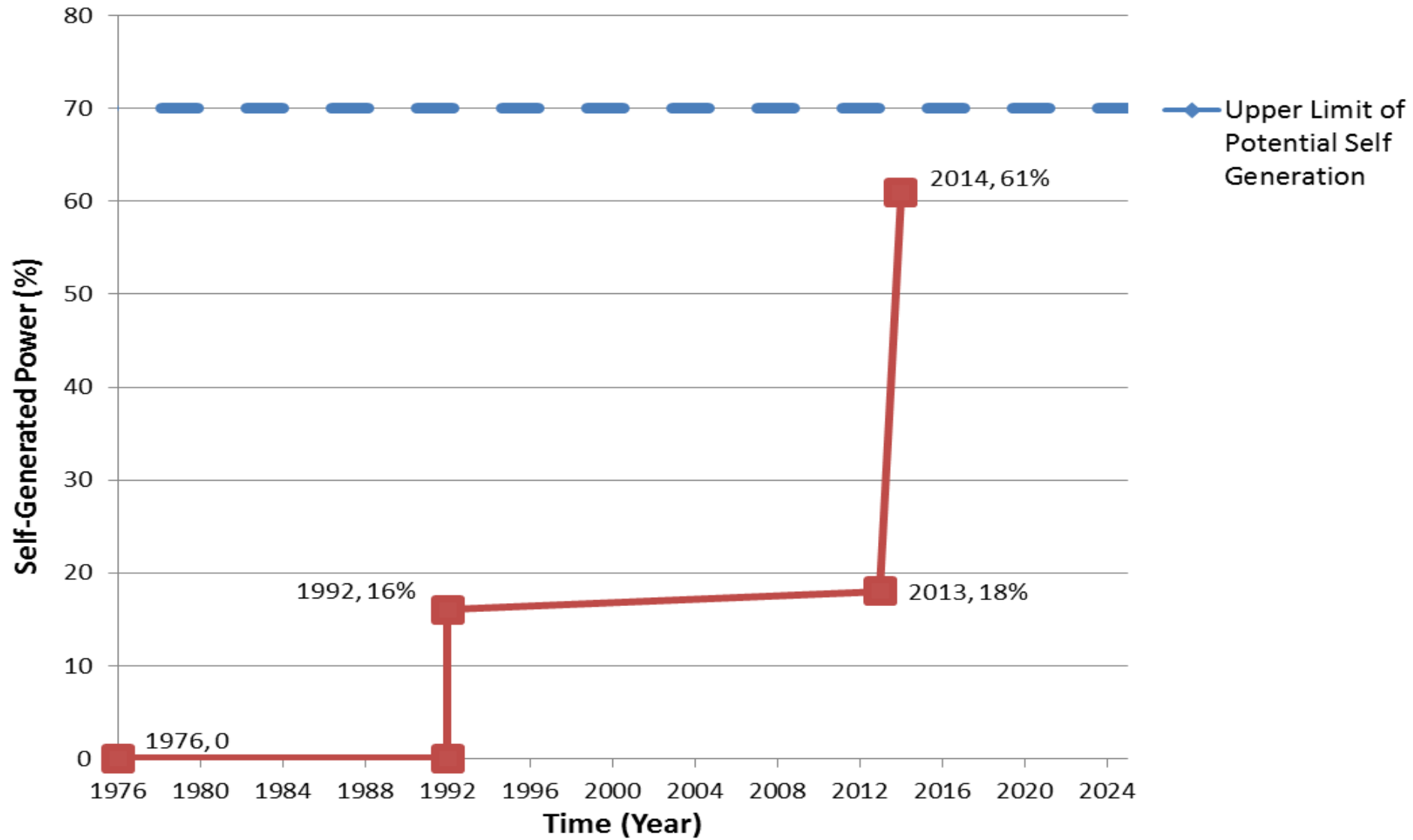
*4% population increase for 2009 - 2013

Annual Power Usage kW-hr

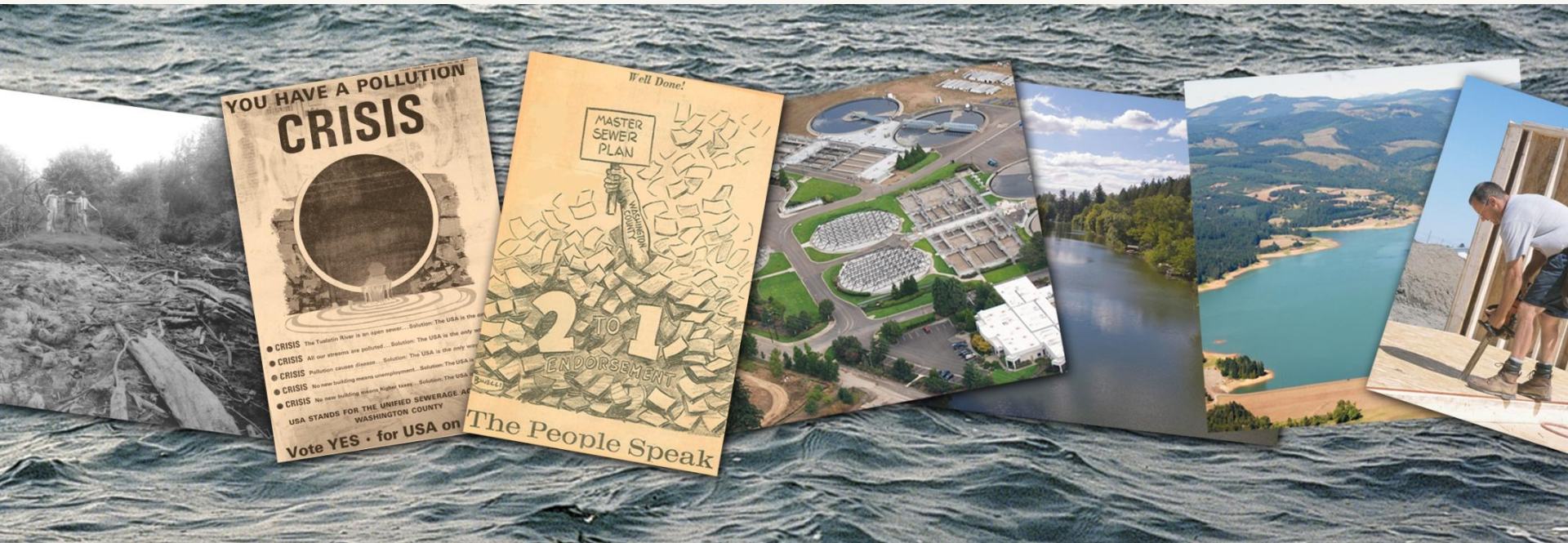


Project	Total Cost	Grant/Incentive	District Investment	Annual Energy Savings	Payback	Date Completed
RC Digester Tubes	\$681,305	\$549,097	\$132,208	1,000,000 kWh	2 years	2013
Durham Solar	\$524,238	\$302,445	\$221,793	450,000 kWh	8 years	2013
RC Hydronic Heat	\$144,626	\$72,313	\$72,313	261,582 kWh	5 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



Stewardship

HARMONY

Future

Sustainable



Questions?

dennisd@cleanwaterservices.org

Stewardship

HARMONY

Future

Sustainable