

A Northwest Vision for 2040 Water Infrastructure

Innovative Pathways, Smarter Spending, Better Outcomes

BioFest 2017

16 October 2017

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the evergreen
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**Center for Sustainable
Infrastructure**

Water Infrastructure: Boring? Maybe, but it's essential!

Our communities rely on water systems to serve vital basic needs.

- ▶ Provide people an uninterrupted flow of clean water
- ▶ Process local wastewater and sewage to protect public health
- ▶ Prevent local flooding in big rainstorms

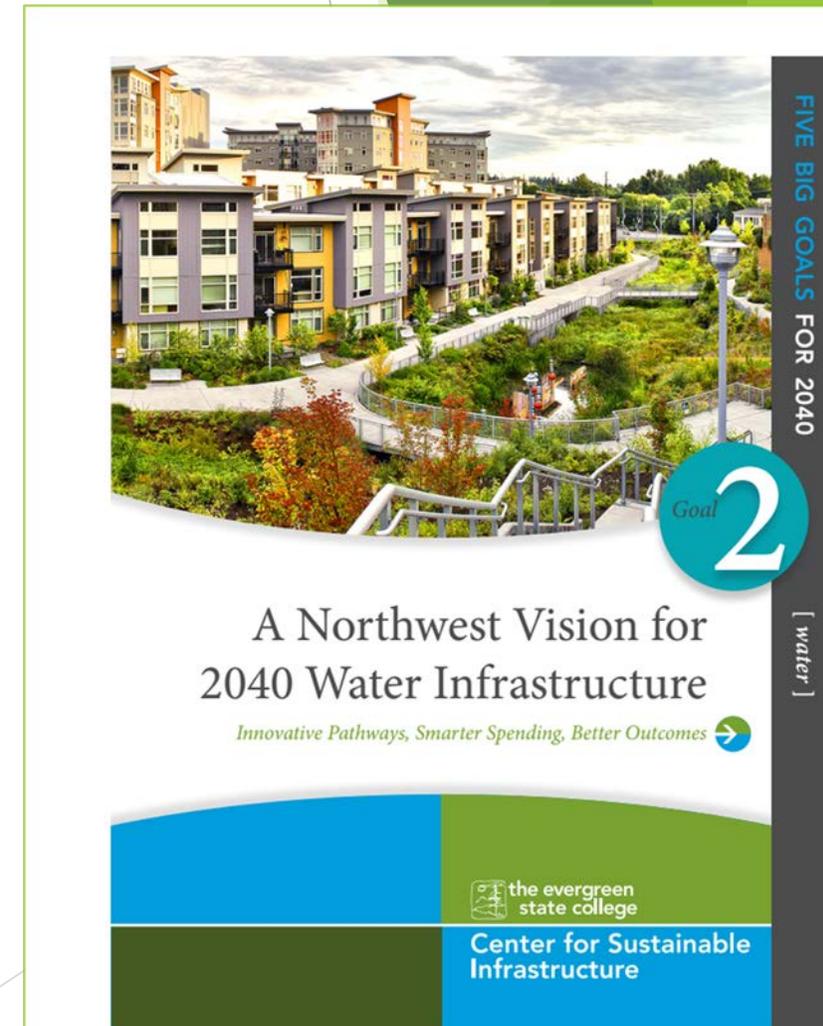




A Northwest Vision for 2040 Water Infrastructure

The Design Question:

How can Oregon and Washington develop **one of the most sustainable, resilient, and affordable water infrastructure systems in the world** - spanning water supply, wastewater, and stormwater-flood infrastructures?



Constructing a 2040 Northwest Vision for Water

- ▶ **Sit-down interviews with 40 West Coast water leaders:**
 - ❖ Utility execs, regulators, design innovators, engineers, non-profit leaders, tribal officials, and equity advocates
- ▶ **Thorough review by 20-member Executive Review Team**



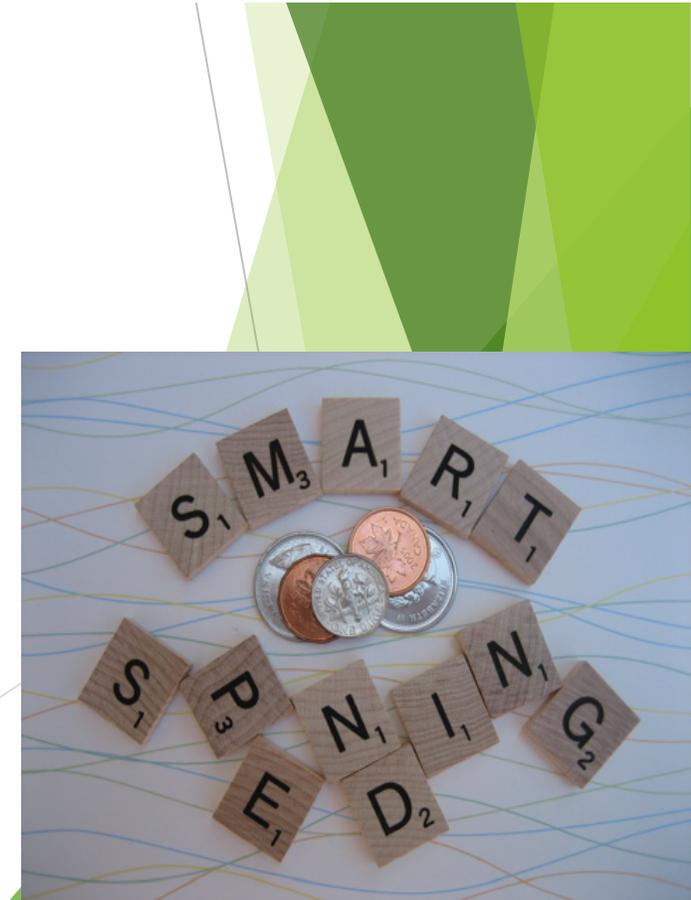
Innovative Pathways, Smarter Spending, Better Outcomes

In OR and WA, water utilities are
spending over **\$3B/year**

The Multi-Billion Dollar Question:

How do we get *smarter* about how we'll invest
this money?

- ▶ **'Smart Spending'** = optimize long-term
community value from these investments
- ▶ **'Better Outcomes'** = Affordable-Sustainable-
Resilient-Integrated



Great Challenges Facing Water Utilities

Important, because we need healthy utilities:

- ▶ Disruptive Efficiency
- ▶ Really Old Infrastructure
- ▶ Capacity Deficit + Retirement Wave
- ▶ New Solutions Require New Playbook
- ▶ Earthquakes and Climate Disruption



Some Keys to Success for Utilities

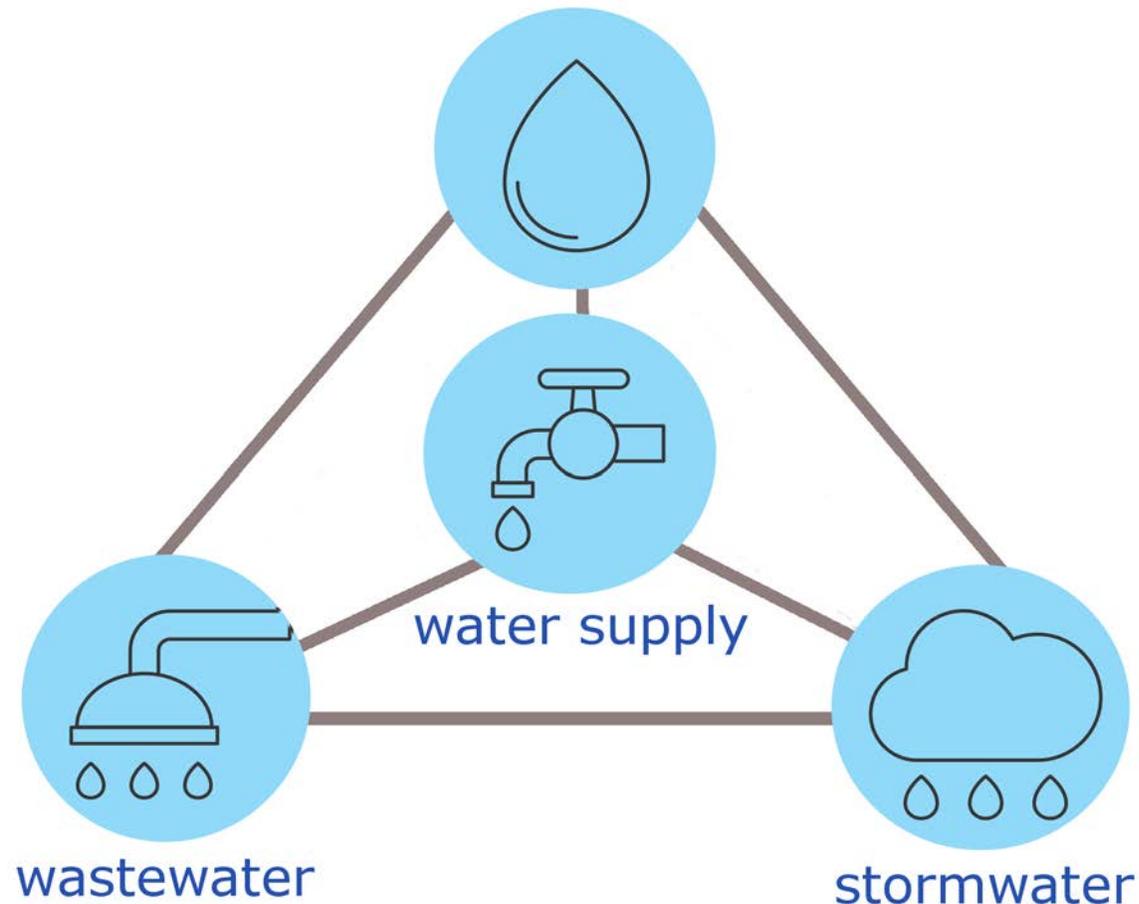
- **Integrate** across supply, treatment, stormwater - One Water
- **Practice** 'the new investment discipline' and expand the Solutions Portfolio
- **Forge** cost-share partnerships for multi-benefit projects

“Modernizing severely aged infrastructure can be a daunting financial prospect for many water agencies. **But they don't have to do it alone...**”



One Water: Integrated, holistic water systems management

Water Infrastructure



Practice the New Investment Discipline

- **Value Planning** -- steps back from BAU capital project lists:
 - ❖ Considers upstream and silo-bridging integrated solutions
 - ❖ Uses TBL metrics to compare costs, benefits, and risks

- **HB 1677**
 - ❖ First legislation to explicitly incentivize Value Planning



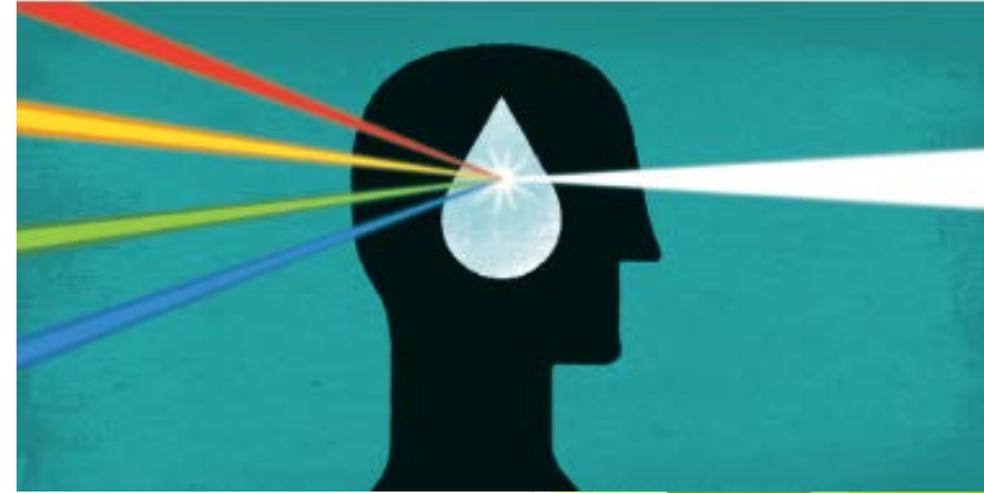
Calculator Calculation Insurance Finance Accounting

Investment	Investment Value at Year end
330 970	373 567
56 969	804 029
812	1 296 731
508	1 859 317
	2 499 808
	3 227 076
	4 050 935
	4 982 372
	5 963 675
	6 985 414
	8 033 850
	9 103 675
	10 193 675

Start at monthly
Can we do this?

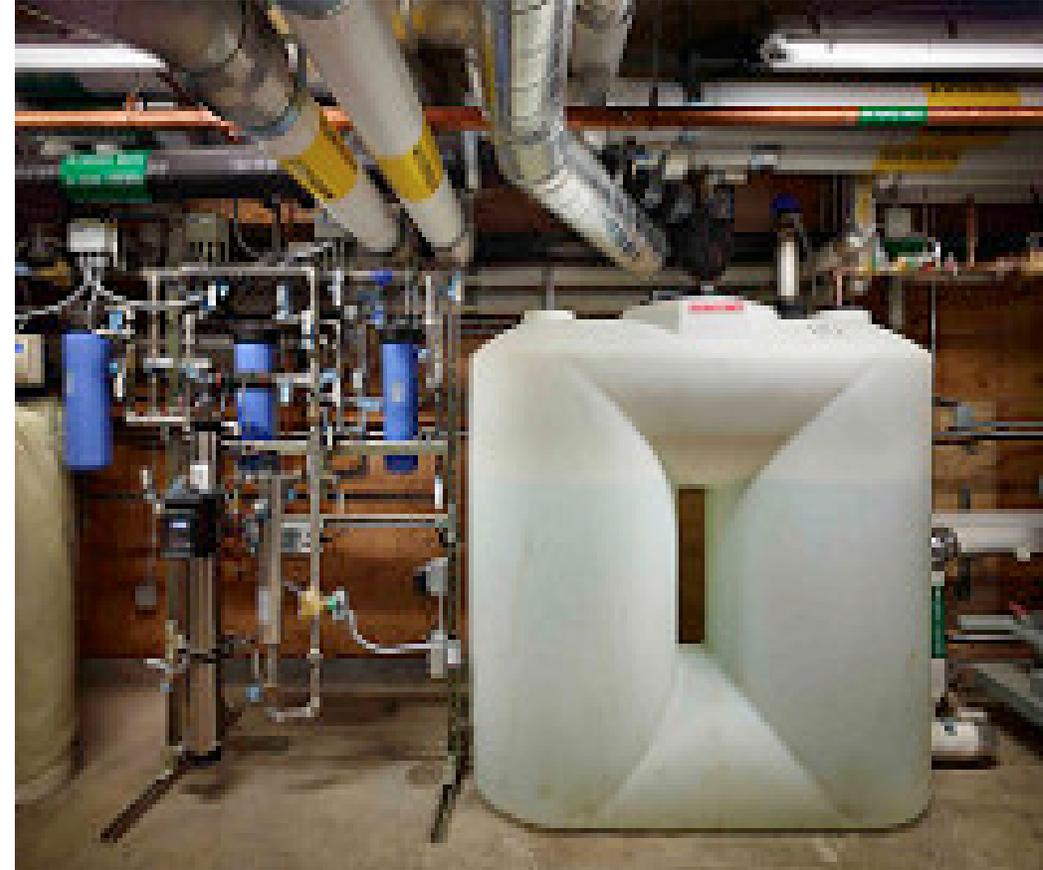
The 21st Century Solutions Portfolio

- ▶ Smart Tech: No Longer Flying Blind
- ▶ Micro-Infrastructure Solutions Emerging
- ▶ Turning Wastewater Into High-Value Resources
- ▶ Green Infrastructure Complements Gray
- ▶ Diversifying Local Water Supplies

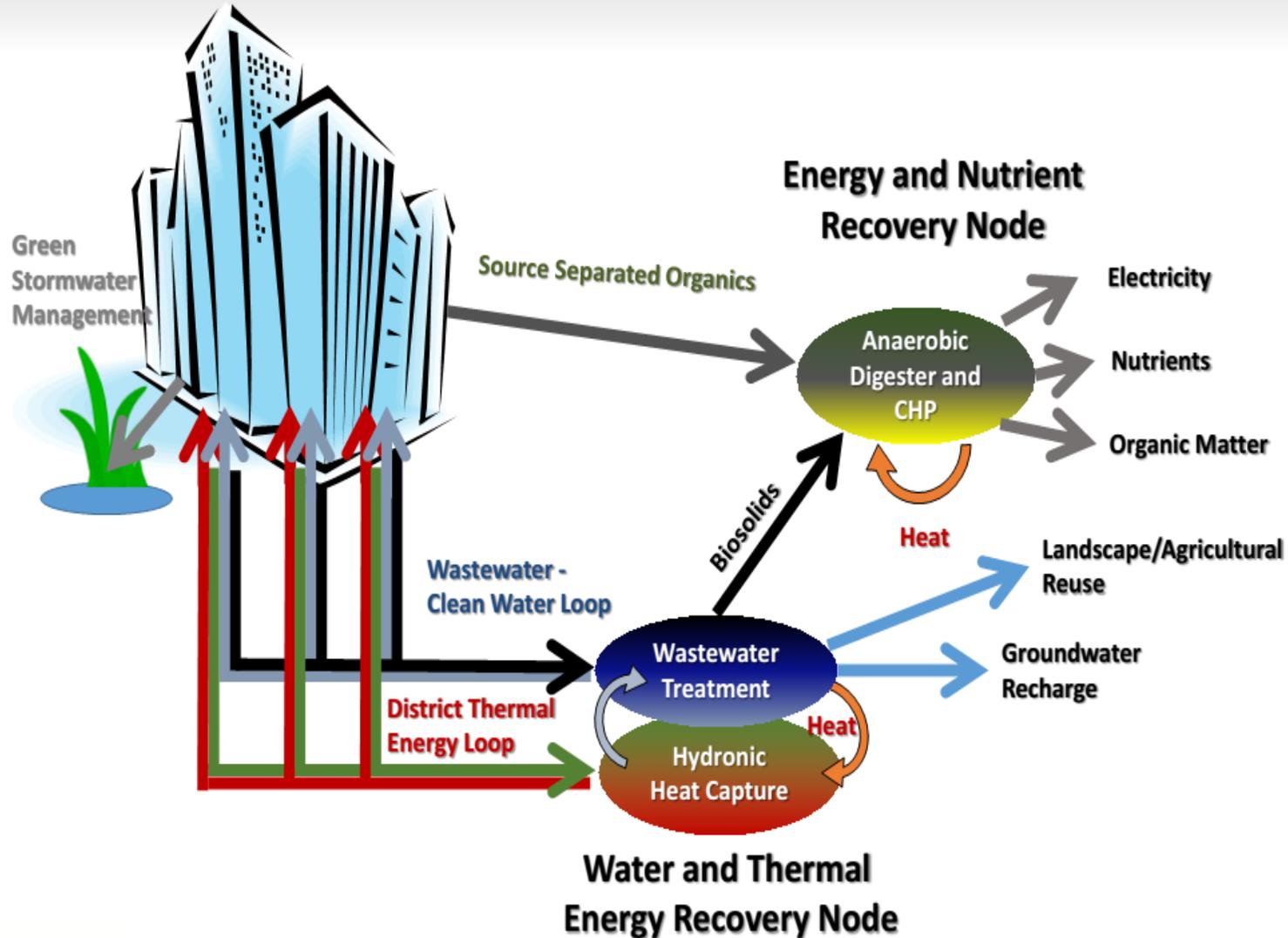


Micro-Infrastructure Nested in Legacy Central Systems

- ▶ Micro-Infrastructure **examples**:
 - ❖ Cisterns capture rainwater for onsite use and buffer stormwater flows
 - ❖ Maximize water reuse and efficiency
 - ❖ Bioswales and green roofs to capture rainwater and keep it from drains
 - ❖ Systems to process and purify wastewater at the building and district scales



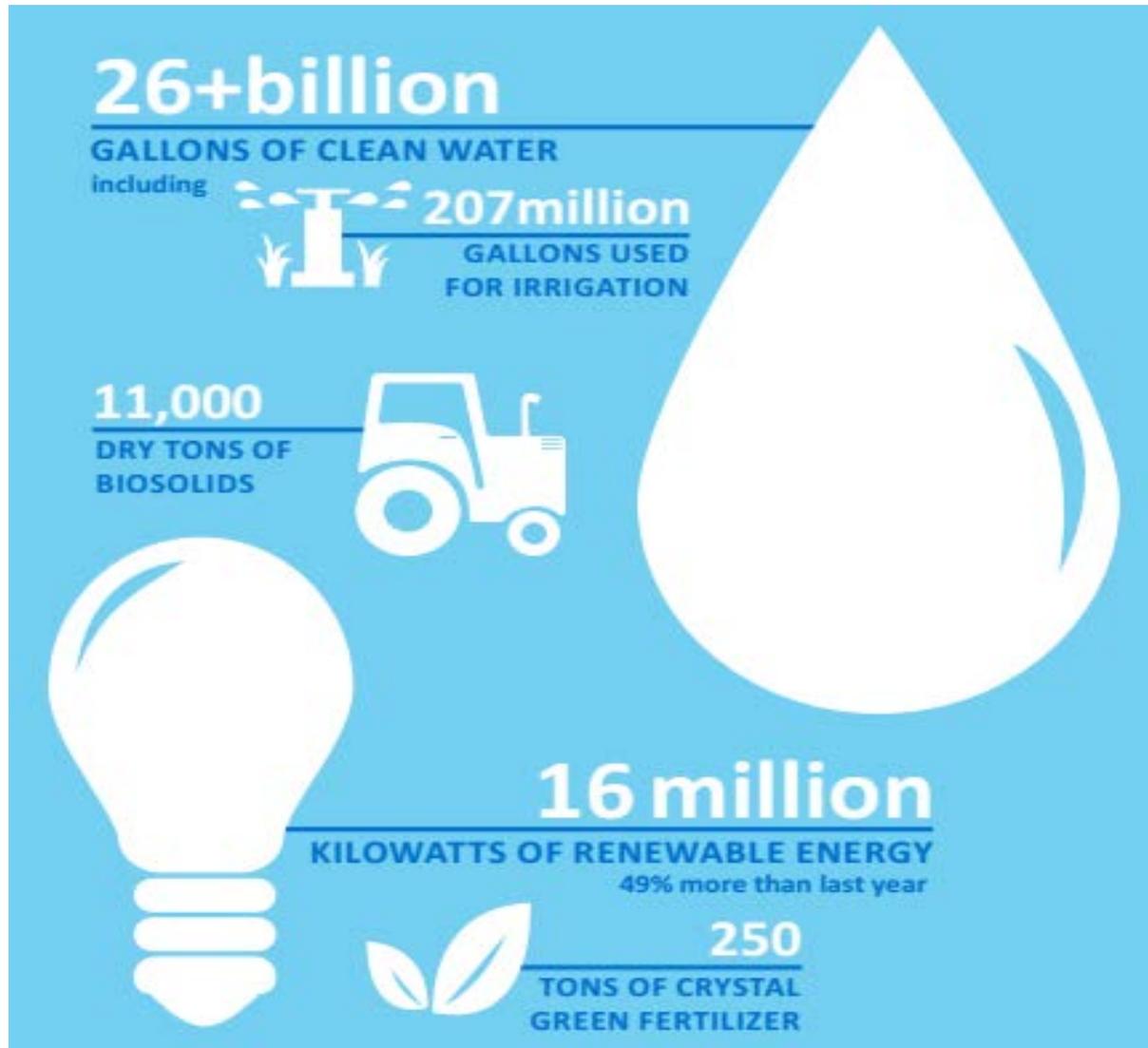
Wastewater Treatment Plant Reimagined



A Factory for:

- ✓ Clean Water
- ✓ Clean Power
- ✓ Clean Heat
- ✓ Rich Soil

Turning Wastewater Into High-Value Resources



Green Infrastructure Complements Gray

- ▶ GI can:
 - Filter **water supply** sources
 - cool **wastewater** discharge
 - slow and filter **stormwater**
- ▶ Often costs less than standard hard facilities alone, yet adds multiple community benefits.
- ▶ GI works from **small- to landscape-scale**. Examples:
 - ❖ Bioswales, rain gardens, green roofs/walls
 - ❖ Urban wetlands and tree cover
 - ❖ Watershed restoration and headwaters protection.



Biosolids = Rich Soil

A Green Infrastructure Opportunity?

Can **Biosolids-enhanced soils** deliver cost-effective value to water infrastructure providers investing in **Green Infrastructure projects**?

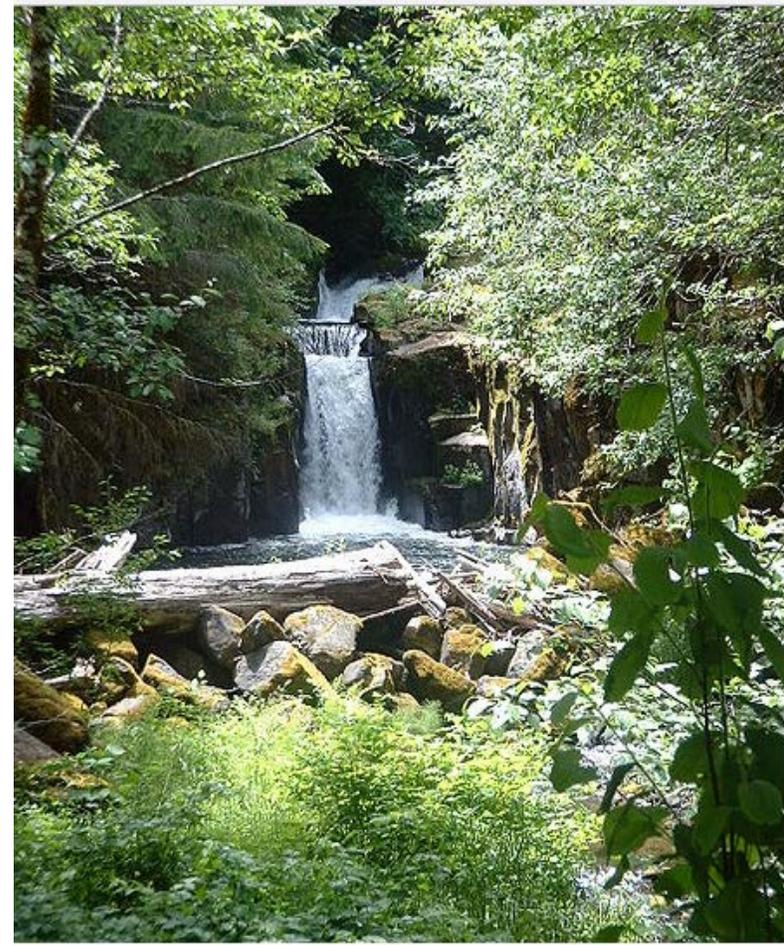
Key Metric?:

- ▶ Better growth and survival rates for new plantings, affordably



Tree for All - Clean Water Services

- ▶ Transformed a regulatory obligation to moderate river temperatures for fish into an powerful community partnership.
- ▶ **Trees for All program:** Original goal...Plant one million native trees in 20 years.
 - ▶ Now planting over 1 million each year, restoring 10 river miles annually.
 - ▶ In total, 120 miles of Tualatin River Basin across 25,000 acres now restored.
 - ▶ Collaborating with 35 partner agencies, many co-funding this work.



Spokane's Integrated Clean Water Plan

Sewer-Stormwater Overflow problem:

- ▶ Gray, old-school 'solution' = \$450M
- ▶ Integrated Clean Water Plan = \$310M
 - ▶ "Deliver a clean river faster"
- ▶ Integrates planning-spending across transpo, parks, and water depts
 - ...for street rehabilitation, park improvements, bike and ped upgrades, pipe upgrades and green stormwater infrastructure.



Potential Cost-Share Partners for Green Infrastructure

- ▶ Fish and wildlife managers
- ▶ Parks Departments
- ▶ Streets and transportation agencies
- ▶ Carbon investors
- ▶ Health investors (air + water quality, access to parks and greenspace)
- ▶ Energy utilities

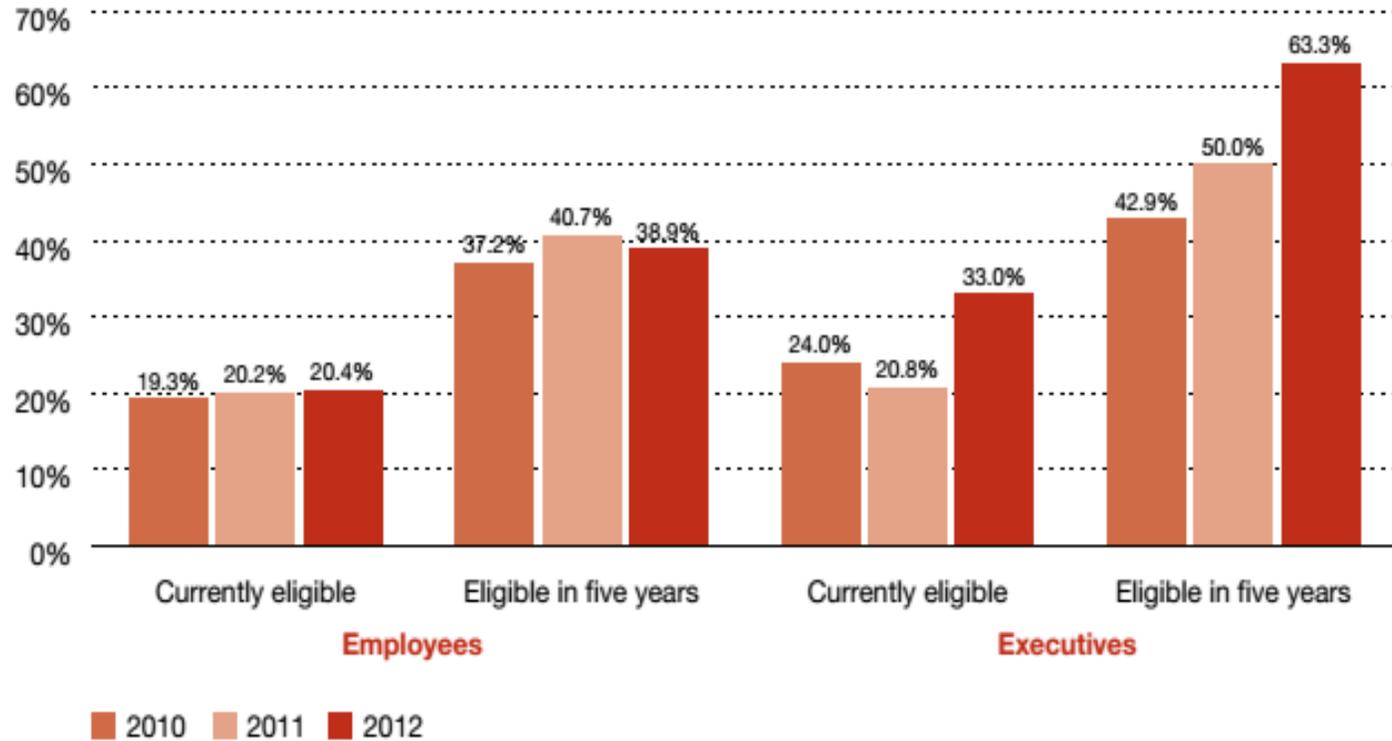
Collaborate with water utilities to co-fund mutually beneficial projects and programs... Get more work done and provide each partner more value for every dollar they invest.



Utility Workforce + Decision-Maker Turnover



U.S. Utilities Face a Great Retirement Wave



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