Possible Options and Actions:
Resource Recovery

RWSP Update

MWPAAC General

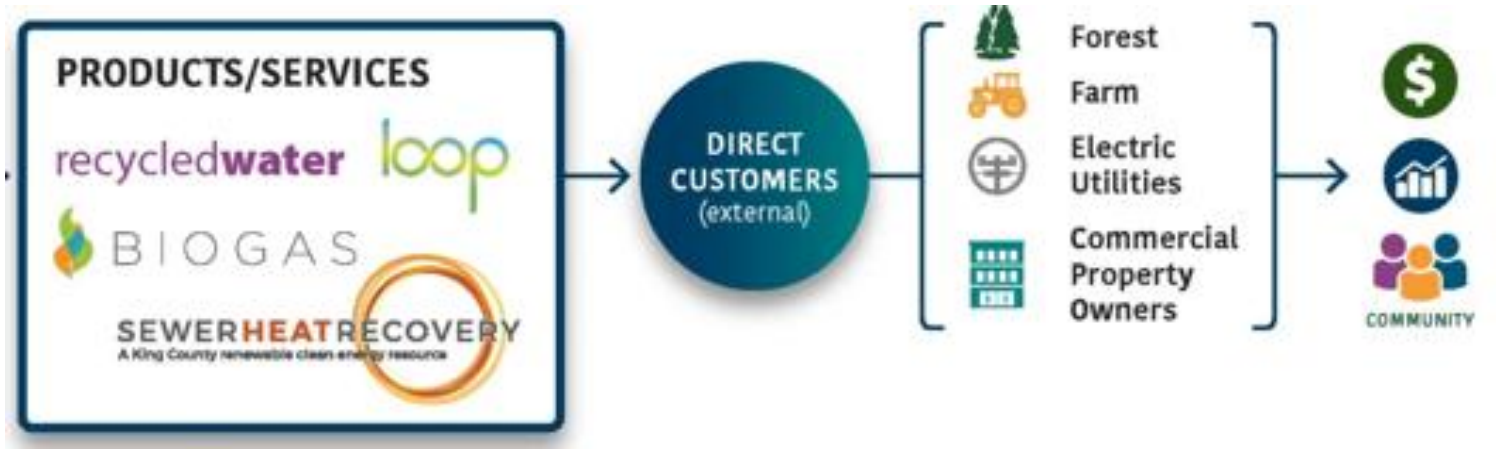
September 23, 2026

Policy Analysis Schedule

11 groups of Policy Analyses with policy options for MWPAAC & RWQC:

March	Group #1: Separated System Conveyance
April	Group #2: Pollution Source Control & Legacy Pollution
May	Group #3: Asset Renewal & Replacement
June	Group #4: Climate Impact Preparedness & Natural Hazard Resiliency
July	Group #5: Affordability Metrics & Rate Relief Approaches
August	Group #6: Combined System Management
September	Group #7: Treatment (Levels & Capacity)
October	**Group #8: Resource Recovery**
November	Group #9: Finance / Alternative Rate Structures
December	Group #10: Equity & Social Justice
June 2027	Group #11: Relationship to Contracts

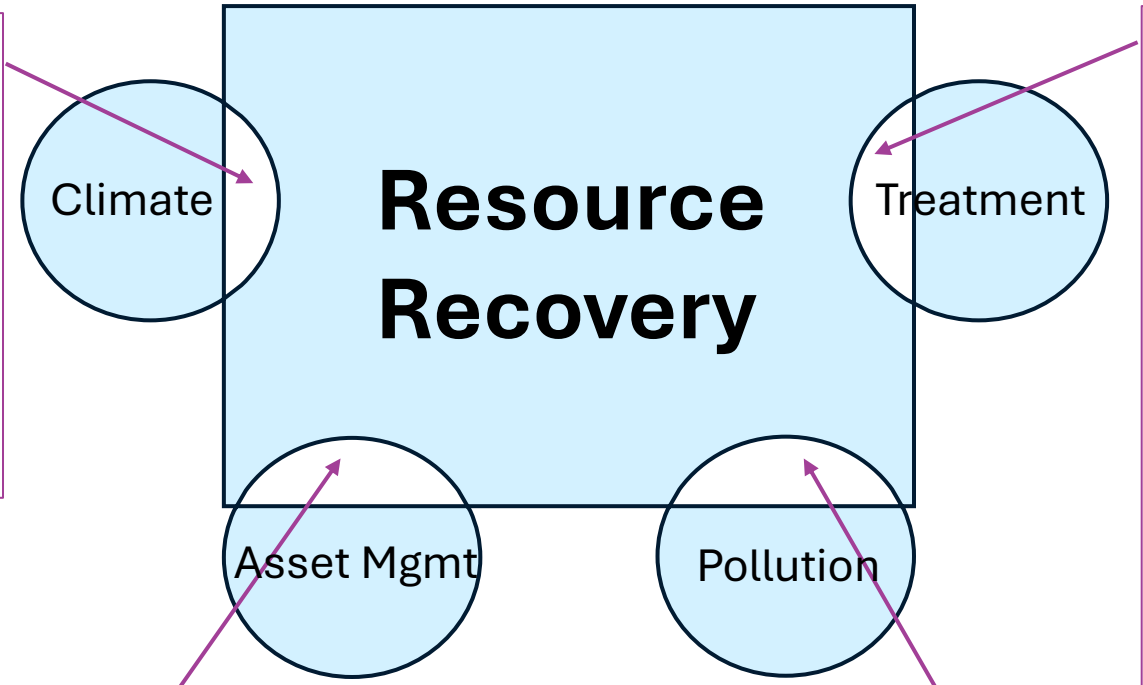
Scope of the Resource Recovery topic



This topic focuses on finding and optimizing uses for **byproducts** of our treatment process while protecting human health and environment.

Overlap with Asset Management, Pollution, Climate, and Treatment Topics

- Production of new renewable energy sources that are not byproducts (ex. Solar)
- Resource recovery can help offset climate impacts through water supply and energy production.



- Implementation of new treatment technologies that would produce different types or quantities of biogas, biosolids, or recycled water products (ex. Class A biosolids)
- Changes in treatment can be driven by regulatory requirements, or pursuit of resource recovery opportunities.
- New treatment opportunities for contaminant removal

Existing assets are essential to treating and delivering recycled water, biosolids, and biogas.

Source control is our first and best strategy for reducing contaminants in recovered products.

Summary of policies related to Resource Recovery

- RWSP policies provide overarching direction to promote reuse while protecting human health and environment.
  - ***BP 1-10; WRP 1-15; TPP 5, 7-8; CP 6-7; Implementation 5-6***

- King County's Strategic Climate Action Plan provides ambitious commitments and targets for reuse and renewable energy production.

- State law provides standards that govern production and use of recycled water, biosolids, and renewable energy.

Resource Recovery – Policy questions from RWSP Scoping Document (2024)

- **Energy production and heat recovery** – Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?
- **Biosolids** – Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolid recovery policies to get to Class A?
- **Recycled Water** – Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?
- **New Recovered Resources** – How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?
- ***Related question from "Pollution" topic****- How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?*

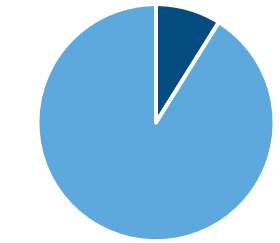
Forecasted Capital Expenditures – Resource Recovery

From the 2027 Sewer Rate Forecast:

- First decade (2026-2036)
  - Resource Recovery projects are about 1.9% of the capital forecast, totaling approximately $272 million
- Both decades (2026-2046)
  - Resource Recovery expenditures forecast is about $623 million (2.5% of total capital forecast, based on historical avg. spending, very uncertain)

Average Annual Operating Budget **Expenditures** 2020-25

Resource Recovery products are 8.9% of WTD's total Operating expenditures



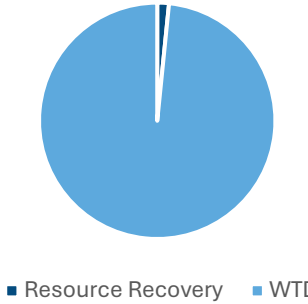
- Biosolids hauling and land application, an operational and regulatory necessity, accounts for most of those expenditures

	Average Annual Program	Average Annual WTD	% of Total WTD Operating Expenditures
Resource Recovery Products Overall	$16,400,000	$184,000,000	8.90%
Biosolids	$13,500,000		7.30%
Biogas	$2,400,000		1.30%
Recycled Water	$550,000		0.30%
Sewer Heat Recovery	$25,000		0.01%

*numbers reflect actuals for past six years; averaged and rounded for simplicity

Average Annual Operating Budget **Revenues** 2020-25

Resource Recovery products contribute 1.6% of WTD's total Operating revenues



- Revenues contribute to WTD's Operating Budget to offset rates overall
- Biogas sales, specifically sale of the renewable energy attributes (RINs) of the biogas, account for most of those revenues
- RINs revenue is highly variable year-to-year depending on the RINs market; projected to decrease
- Sewer Heat Recovery is a new pilot program; first user has not yet started up their system

	Average Annual Program	Average Annual WTD	% of Total WTD Revenues
Resource Recovery Products Overall	$9,500,000	$596,000,000	1.60%
Biogas	$9,000,000		1.50%
Biosolids	$380,000		0.06%
Recycled Water	$111,000		0.02%
Sewer Heat Recovery	$0		0%

*numbers reflect actuals for past six years; averaged and rounded for simplicity

Recycled Water

Resource Recovery – Policy questions from RWSP Scoping Document (2024)

- **Energy production and heat recovery** – Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?
- **Biosolids** – Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolid recovery policies to get to Class A?
- **Recycled Water** – Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?
- **New Recovered Resources** – How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?
- ***Related question from "Pollution" topic**- How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?*

Concerns about Recycled Water

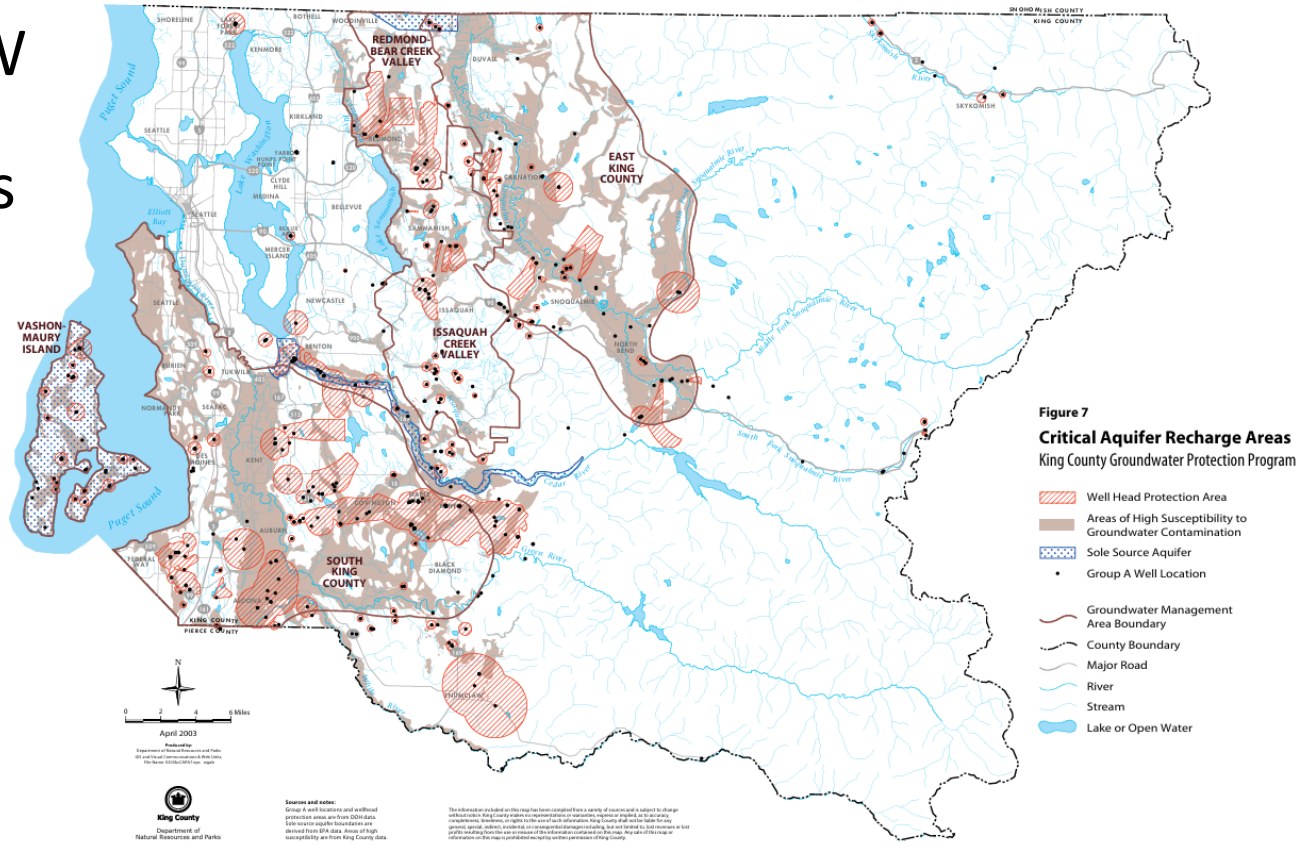
- Concerns about contaminants and potential impact on groundwater
- Concerns about financial impacts to drinking water utilities
- Concerns about cost/benefit; how recycled water benefits the regional system / regional rate payer
- Concerns about who pays

WTD's Recycled Water Safety

We protect groundwater by avoiding RW use in Critical Aquifer Recharge Areas (CARAs) and Well Head Protection Areas

We protect potable water supplies through our Cross-Connection Control program

Image credit: KSBY News



PFAS is a Shared Problem

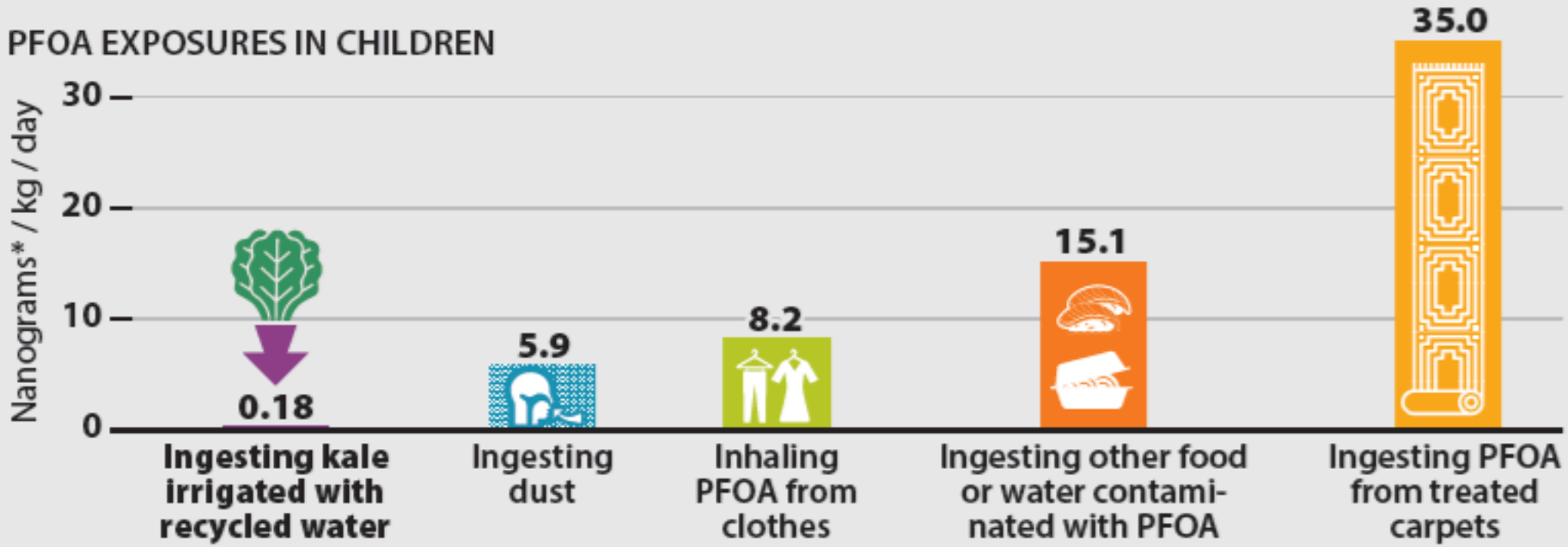
- Reminder: PFAS comes *into the* regional system from Local Sewer Agencies; WTD does not create it.
- PFAS is a shared problem - Source control, in partnership with cities and districts, is the most cost-effective remedy.
- King County does not have PFAS manufacturing facilities nor known heavy industrial PFAS users.
- 2025 PFAS Study: **PFAS levels in King County recycled water and biosolids are low** and fall within the average range for municipal wastewater systems and consistent with everyday household sources.
- WTD has limited options: discharge effluent into Puget Sound, biosolids land application, landfill biosolids (expensive), incinerate biosolids (expensive), safe applications of recycled water in the right way and right locations (e.g. industrial uses, irrigation, etc.).
- Consider relative risks in recycled water and biosolids;
  - The cost/duty to enhance treatment before regulations require it VERSUS a stronger push on source control.
- King County Council Motion 16434 (2023)
  - Current policy direction on CECs to sample; determine significant sources; promote source control through policy, partnership, and education; research treatment technologies.

Lots of chemicals we use every day end up down the drain. We tested for over 200 chemical compounds, including Per- and Polyfluoroalkyl Substances (PFAS). Both river and recycled water had PFAS, but again, only in low amounts.

MORE PFAS ARE IN OUR HOMES THAN IN KALE GROWN WITH RECYCLED WATER.

PFOA IN KALE GROWN IN RECYCLED WATER IS SIGNIFICANTLY LESS THAN EXPOSURE FROM OTHER COMMON SOURCES.

Wastewater treatment plants are not sources of Per- and Polyfluoroalkyl substances (PFAS). However PFAS, because of their frequent use in our homes and communities, are present in wastewater and recycled water. Even the highest amount of PFOA, a common PFAS, found in recycled water was a fraction of the amount of PFOA we interact with every day.



*A single grain of sugar weighs approximately 625,000 nanograms.

Public Health focus on PFAS

Almost all of us have PFAS in our bodies

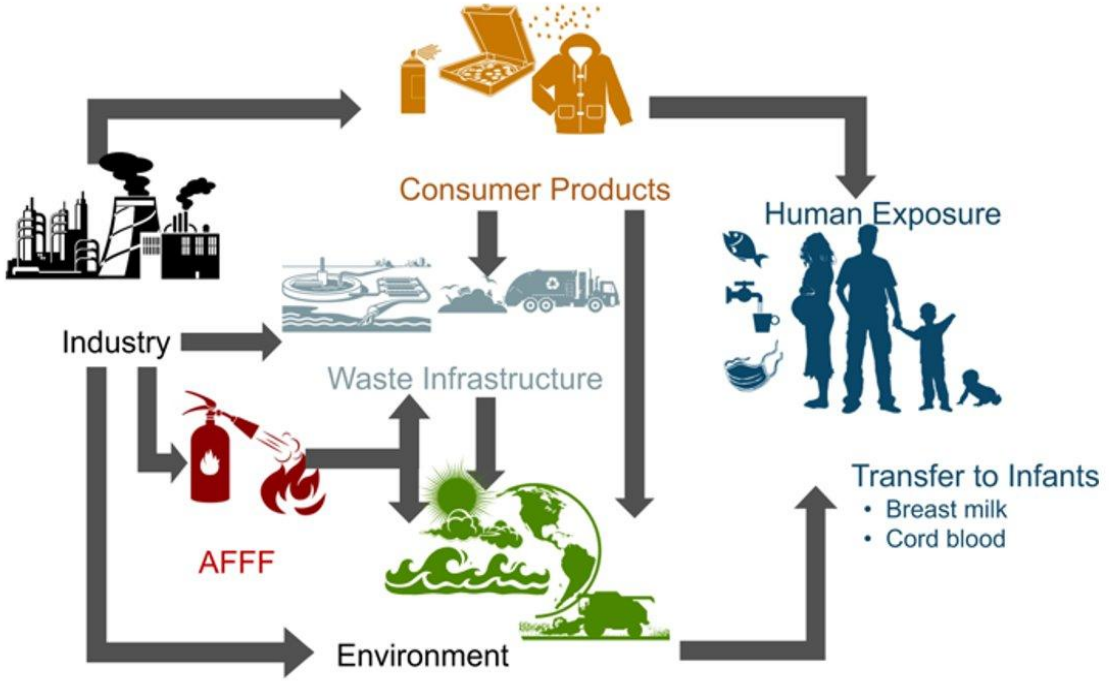
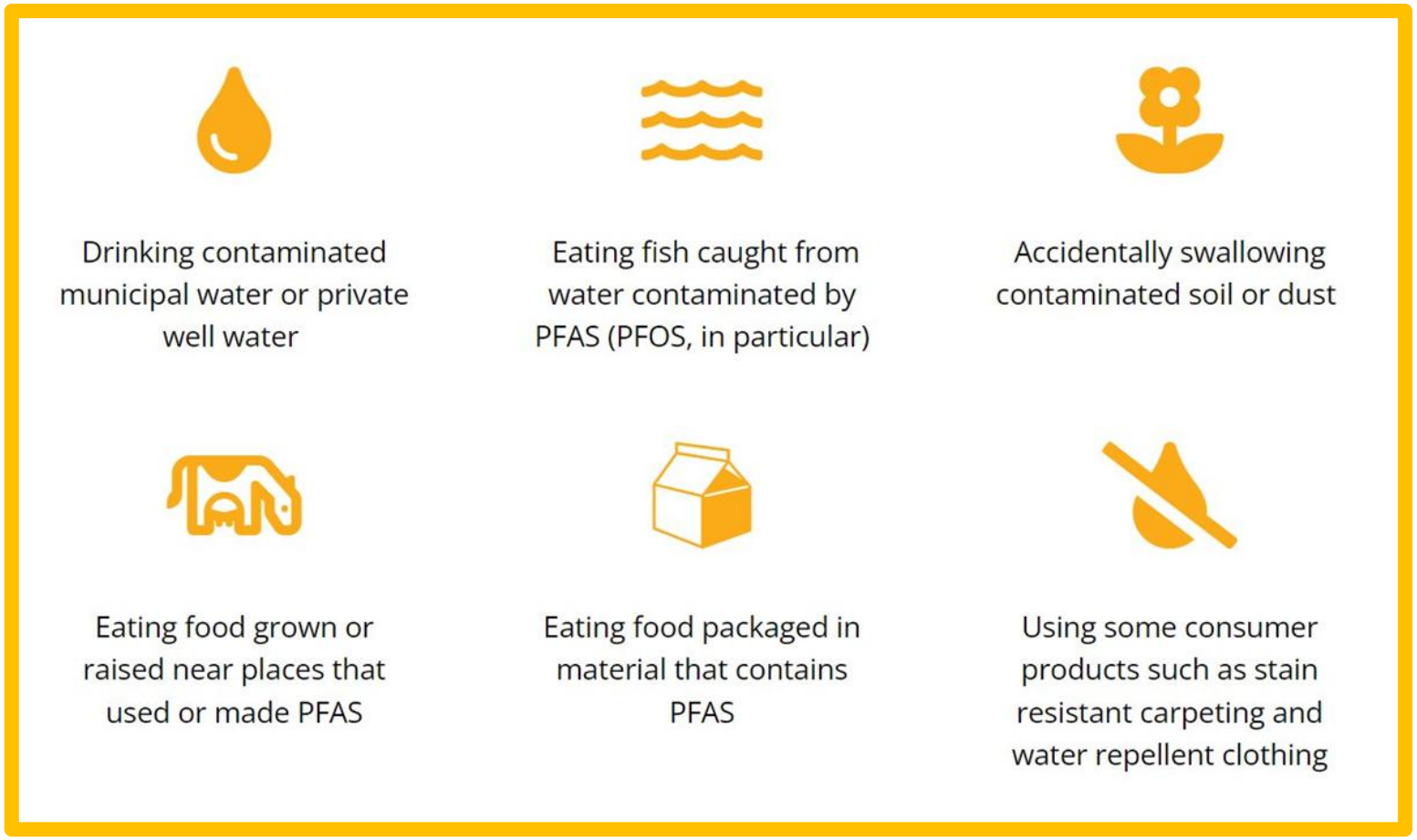


Figure 1 from Sunderland et al. (2019) *Journal of Exposure Science & Environmental Epidemiology 29*(2). doi:10.1038/s41370-018-0094-1

Public Health
Seattle & King County

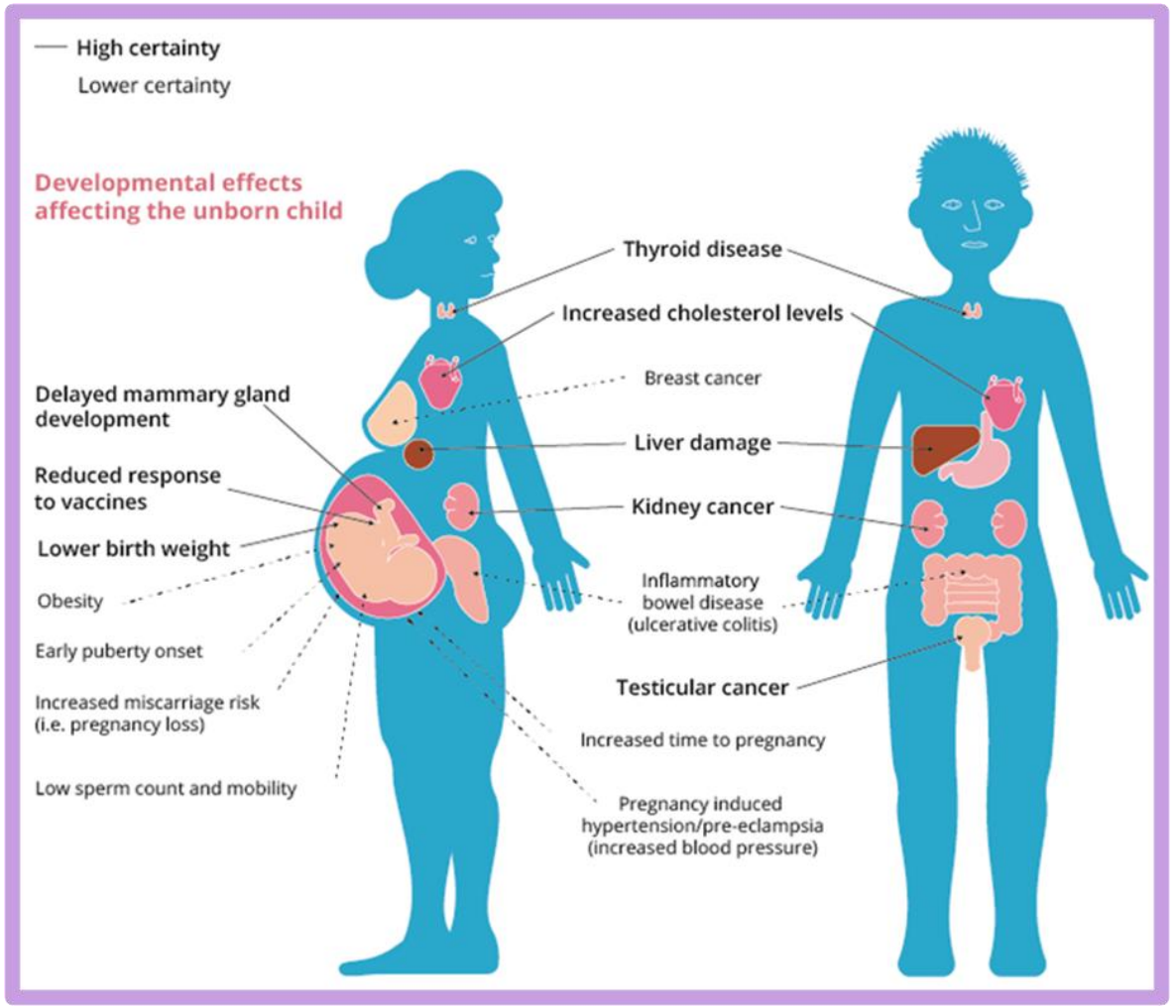
How are we exposed to PFAS?

- **Eating**
- **Drinking**
- **Breathing**
- Skin Contact
- Occupational



Health Impacts

- **Cancers**: increase risk of some cancers (prostate, kidney, testicular)
- **Immune**: reduce ability to fight infections and respond to vaccines
- **Developmental** delays (low birth weight, abnormal puberty, behavioral changes)
- **Reproductive** (reduced fertility, high blood pressure in pregnant people)
- **Metabolic**: high cholesterol/risk of obesity
- **Hormonal**: interference with body's natural hormones



How does Public Health Consider PFAS Risks?

Risk = Hazard x Exposure

We focus on :

- Hazard information (prioritize based on greatest hazards)
- Most likely exposures
  - Largest uses
  - Likelihood human/environmental contact
  - Cumulative exposures
- Consider gaps/uncertainties
- Consider sensitive and vulnerable populations

We work to reduce exposure through:

- Policy
- Exposure reduction actions
- Research
- Guidance
- Weighing risks when necessary

Public Health
Seattle & King County

Reclaimed Water

Public Health Recommendations:

- **Collaborate with Public Health agencies**

- Focus on upstream regulations
  - Chemical assessment and regulation improvements
  - Requirements for manufacturers to utilize the safest chemicals

- Stay up on the latest science and technology
  - Continue research to understand impacts and reduce risks
  - Build on successful practices used by other jurisdictions
  - Consider the most advanced technologies for treatment
  - Keep up on scientific literature

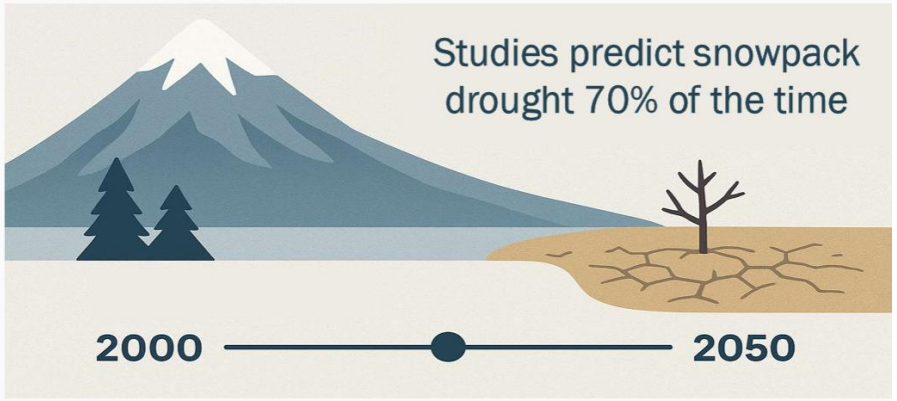
- Prioritize avoiding risks to groundwater/surface water/drinking water, edible crops and other foods

- Stay on top of changes in chemical use and testing that will impact future contamination and regulations

Recycled Water – Problem Statement

- While the Puget Sound region has historically had sufficient fresh water supplies for people, climate change and population growth are stressing our region's fresh water supplies for people, agriculture, and fish.
- Recycled water can benefit the regional wastewater system by reducing reliance on Puget Sound for effluent discharge, instead diverting nutrients for beneficial use and provide a drought-proof water supply.
- Expansion of recycled water production and distribution (currently <1% of WTDs total effluent volume) will require capital investment beyond current levels
- Expansion of recycled water production and distribution will require coordination with drinking water purveyors.

Drought patterns – The future



Source: Department of Ecology, State of Washington

Summertime minimum streamflows in local watersheds are forecasted to decrease due to climate change:

- Cedar River flows 25 percent lower than historical by 2080.
- Snoqualmie River flows 50 - 66 percent lower than historical by 2080.

Source: Mauger et al. 2015 & Yan et al. 2021, via WRIA 8 & 7 Watershed Restoration and Enhancement Plans

Recycled Water Current Policies

Relevant policy question: Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?

Relevant policies and plans	Description
WRP 1-15	Guiding the county in continuing to develop its program to produce reclaimed water; this includes cost/benefit evaluations for recycled water projects.
TPP 5, 7-8	Undertaking studies to discharge reclaimed water to local water bodies, explore constructing satellite treatment plants, and expand use at existing and new treatment facilities
CP 6-7	Integrate water reuse planning with conveyance and treatment facility planning, evaluate demand management alternative to meet conveyance needs
Implementation 6	Continue to produce reclaimed water for non-potable uses and explore production of reclaimed water at new facilities, and coordinate public education with water conservation education programs
2025 SCAP GHG 55	Public-private ventures will make greater use of recycled water for climate-smart agricultural practices
2025 SCAP Prep 18	Expand the use of recycled water to address drought mitigation

Current Interpretation:

- WTD should continue to produce and actively pursue use of recycled water
- WTD should implement pilot and demonstration projects, and evaluate and implement non-potable recycled water projects on a case-by-case basis
- Evaluate benefits, costs, and rate impacts
- Coordinate with drinking water purveyors, and regional and state agency partners
- Protect public health and safety, and the environment

When should reclaimed water expansion occur ?

Relevant policy question: **Under what circumstances should the region expand the use of reclaimed water?**

Increased water supply needs due to population growth, climate change, and/or droughts:

- Salmon Recovery needs (flow replacement, multiple low flow years, drought)
- Agricultural water demand rises or farmers lose access to historic supplies
- Willing partners seek projects (cities, commercial/industrial businesses, farmers, and others)
- Water suppliers decide demand displacement is strategic / Partnership with drinking water utilities
- Recycled water used to mitigate for new water rights

Regulatory drivers:

- Water quality or quantity limitation that increases need for alternative discharge options (i.e. nutrients, temperature, zero discharge)
- Outfall lease conditions mandate expanded recycled water use
- Treatment processes change for general wastewater reasons, allowing recycled water quality to improve allowing other environmental enhancement uses for lower marginal cost

Range of policy options – Recycled Water

Relevant policy question: Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?

	Policy Option #1	Policy Option #2	Policy Option #3
	Maintain current policies by continuing to serve existing recycled water customers, adding new customers along existing infrastructure, examining and expanding distribution on a case-by-case basis.	**Prioritize new strategic investments incrementally** to provide flexibility to adapt to current and future needs and increase environmental enhancement uses.	**Regionally expand** recycled water production and distribution systems to position the County to contribute major support to regional water resource needs.
Goals/ Outcomes:	**Opportunistic and reactive. Small scale**	**Incrementally prepares the Region for current and future needs. Ability to scale for potential mid/late-century water needs. Medium scale.**	**Region is well-positioned for mid-century water needs; may help meet future nutrient regulations.**

Policy option #1 - "Maintain Current Policies"

	Description	Goals/Outcomes	Tradeoffs
#1	Maintain current policies by continuing to serve existing recycled water (RW) customers, adding new customers along existing infrastructure, examining and expanding distribution on a case-by-case basis.	*Opportunistic and reactive* RW infrastructure is maintained, runs reliably, and customers are served, with focus remaining on irrigation, commercial, and industrial uses. RW system is expanded incrementally on a case-by-case basis through partnerships. Additional environmental enhancement projects are pursued at a pilot scale. RW production remains a relatively small fraction of WTD's total effluent volume.	RW will not significantly reduce WTD's effluent discharges to Puget Sound. RW capacity will not grow large enough to contribute significantly to region's future water resource needs, and WTD will struggle to quickly expand RW if more is needed in future. Environmental benefits of more ambitious RW policies will go unrealized. RW system reliability may remain a challenge if investments are not prioritized. Near term costs remain low

Policy option #2 - "Prioritize Key Investments"

	Description	Goals/Outcomes	Tradeoffs
#2	Prioritize new strategic investments incrementally to provide flexibility to adapt to current and future needs and increase environmental enhancement uses.	Ability to scale RW for potential mid/late-century needs. Critical improvements to treatment and the RW systems to allow WTD to serve meaningfully larger volumes of RW, while preserving fresh water supply. Primarily expanded use and distribution systems from Brightwater, Carnation, and South Plant serving more agricultural, commercial/industrial use, and environmental enhancement uses through partnership with businesses and others. Region gains the flexibility to scale RW further in future.	Projects may not be large enough to offer sizable benefits to nutrient discharge requirements beyond operational flexibility. Expansion will only benefit areas near South Plant, Brightwater, and Carnation Increased environmental enhancement projects can benefit local watersheds Increased costs needed to scale RW to meet new demands in select areas as regional needs under climate change become more clear

Policy option #3 - "Regionally Expand"

	Description	Goals/Outcomes	Tradeoffs
#3	Regionally expand recycled water production and distribution systems to position the County to contribute major support to regional water resource needs.	*Proactively and ambitiously prepare recycled water to meet regional water needs.* Region is well-positioned for mid-century needs. New treatment and distribution assets allowing RW to meet significant non-drinking and environmental water needs across the region, beyond the immediate vicinity of treatment plants. RW is used as a regional insurance policy to reduce the impacts of drought emergencies, regulatory mandates, or system capacity constraints to protect public health, environmental outcomes, and system reliability.	RW system will require large and sustained capital and operating investments corresponding to regional scope. Projects will require durable long-term partnerships with drinking water utilities, who accept RW as key to regional supply. RW will be part of the portfolio to meet region's water needs for people and the environment while reducing nutrient loading to Puget Sound

Biosolids

Resource Recovery – Policy questions from RWSP Scoping Document (2024)

- **Energy production and heat recovery** – Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?
- **Biosolids** – Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolid recovery policies to get to Class A?
- **Recycled Water** – Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?
- **New Recovered Resources** – How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?
- ***Related question from "Pollution" topic***- *How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?*

King County WTD Comments to EPA on Draft Guidance to Reduce PFAS Risk in Biosolids

- PFAS risk reduction should focus on sources, not only end-of-pipe utilities
  - EPA should exercise their regulatory authorities to restrict PFAS (not just PFOA and PFOS) in products and processes, requiring safer chemicals be used when available.
- Current and future land use policies should consider all PFAS sources
  - The EPA should avoid placing disproportionate emphasis on municipal biosolids without considering other PFAS pathways, including fertilizers, pesticides, herbicides, soil amendments, irrigation sources, consumer products, and industrial sludge
- Revise and finalize EPA's draft Risk Assessment on PFAS in Biosolids
- EPA should commit to addressing data gaps
- Best management practices should be clear and implementable
- Disposal and incineration alternatives require more complete consideration

Biosolids

Public Health Recommendations:

- **Collaborate with Public Health agencies**

- Focus on upstream regulations
  - Chemical assessment and regulation improvements
  - Requirements for manufacturers to utilize the safest chemicals

- Stay up on the latest science and technology
  - Continue research to understand impacts and reduce risks
  - Build on successful practices used by other jurisdictions
  - Consider the most advanced technologies for treatment
  - Keep up on scientific literature

- Prioritize avoiding risks to groundwater/surface water/drinking water, edible crops and other foods

- Stay on top of changes in chemical use and testing that will impact future contamination and regulations

Biosolids – Problem Statement

- WTD currently produces Class B biosolids, limiting end-use options and constraining the Biosolid program resilience.
- A lack of options by which WTD can beneficially use its biosolids increases operational risks.
- Lack of emergency storage capacity creates additional operational risk and reduces reliability during disruptions (e.g. winter storms closing I-90).
- Expansion of Class A biosolids would diversify options for biosolid end-use, provide greater market flexibility, public acceptance, and potential revenue streams compared to Class B.
- Expanding Class A production will likely require new partnerships and/or capital investments and may be hampered by cost concerns and competing priorities.

Biosolids

Relevant policy question: Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolids recovery policies to get to Class A?

Relevant Policies and Plans	Description
BP 1-10	Guide the county to invest in producing and marketing Class A biosolids while continuing to beneficially use 100% of the biosolids it produces through continued distribution via existing channels. Continue to evaluate alternative technologies to produce highest quality marketable biosolids. Continue to invest in developing new and existing partnerships that diversify beneficial use options and invest in program resilience.
Implementation 5	Continue to produce Class B at South and West Treatment plants and implement same process at Brightwater until new technology can be reliably used. Continue to evaluate alternative technologies with primary objective to identify digester alternatives at West Point.
2025 SCAP GHG 56	Expand use of locally produced compost including biosolids-based.

Current interpretation:

- Maintain and invest in existing Class B program.
- Invest in Class A production and build off success of pilot program instituted under RWSP policies and meet SCAP goal.
- Pursue options that responsibly minimize risk, maximize resilience and reliability, and increase the marketability of biosolids.

Range of policy options - summary

Relevant policy question: Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolids recovery policies to get to Class A?

	Policy Option #1	Policy Option #2	Policy Option #3
	Balance program reliability, risk mitigation, and economic feasibility by maintaining and improving existing Class B program and investing in a modest level of Class A production.	**Optimize program with a focus on reliability and risk minimization** by maintaining and improving existing Class B program and investing in Class A production beyond the minimum required to acquire basic resilience benefits.	**Pursue the most reliable and risk averse beneficial use portfolio and the most marketable biosolids product** by investing in the phased adoption of technologies that allow for 100% Class A production.
Goals/ Outcomes:	**Maintains and strengthens existing biosolids program with a balanced focus**	**Maintains and strengthens existing biosolids program with an increased focus on resilience and flexibility**	**Achieves maximum resilience and reliability for biosolids program**

Policy option #1

	Description	Goals/Outcomes	Tradeoffs
#1	**Maximize program reliability, minimize risk, and balance economic feasibility** by maintaining and improving existing Class B program and investing in a modest level of Class A production.	• Maintains and strengthens existing Class B program. • Builds on the success of WTD's Class A compost pilot • Minimize financial burden while unlocking Class A resilience opportunities • Gain necessary baseline resilience benefits from Class A production	• New storage and investment in Class A improves resilience but requires capital investment. • Class B is limited; Class A composting opens broader markets. • Class B is weather-dependent; Class A is less impacted and reduces transportation costs • Partial Class A production carries some level of reliability and regulatory risk

Policy option #2

	Description	Goals/Outcomes	Tradeoffs
#2	**Optimize program with a focus on reliability and risk minimization** by maintaining and improving existing Class B program and investing in Class A production beyond the minimum required to acquire basic resilience benefits.	• Maintains and strengthens existing biosolids program. • Builds on the success of WTD's Class A compost pilot • Find a strategic middle ground between minimum and total production of Class A biosolids. • Gain enhanced resilience benefits from increased Class A production • Reduced hauling costs for Class B product	• Scaling Class A requires more capital investment but reduces operational risks and constraints. • Class A improves community perception, visibility and climate outcomes but takes years to build. • Partial Class A production carries some level of reliability and regulatory risk

Policy option #3

	Description	Goals/Outcomes	Tradeoffs
#3	**Pursue the most reliable and risk averse beneficial use portfolio and the most marketable biosolids product** by investing in the phased adoption of technologies that allow for 100% Class A production.	• Achieve maximum resilience and reliability and invest in a public-oriented Class A portfolio. • Significantly reduced hauling costs for Class B product	• Scaling Class A requires more capital investment but reduces operational risks and constraints. • Shared facilities reduce cost but require joint governance. • Class A improves community perception, visibility and climate outcomes but takes years to build.

Energy Production and Heat Recovery

Resource Recovery – Policy questions from RWSP Scoping Document (2024)

- **Energy production and heat recovery** – Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?
- **Biosolids** – Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolid recovery policies to get to Class A?
- **Recycled Water** – Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?
- **New Recovered Resources** – How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?
- ***Related question from "Pollution" topic**- How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?*

Problem Statement

- WTD currently recovers renewable energy through **biogas** and supports **sewer heat recovery**, but additional wastewater-derived energy recovery opportunities exist.
- Existing infrastructure and operational constraints limit WTD's ability to consistently maximize beneficial use of available renewable energy resources.
- Energy recovery can support County goals related to climate action, operational resiliency, resource recovery, and long-term cost management.
- Expanding energy recovery could require additional capital investment, changes to planning and design practices, and ongoing organizational commitment.
- **Policy direction is needed regarding the role of energy recovery in future wastewater facilities and capital planning.**

Energy production and heat recovery

Relevant policy question: Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?

Relevant Policies and Plans	Description
BP 3	Consider new and innovative technologies for energy recovery. Seek to advance beneficial use of methane gas through research and demonstration projects.
BP 10	Where cost effective, beneficially reuse methane for energy and other purposes.
2025 SCAP GHG 25	Improve biogas collection to 75% or more in productive use by 2030.
2025 SCAP GHG 39	Support private sector sewer heat recovery projects.
2025 SCAP GHG 73	Evaluate consuming county produced biogas in County facilities as a bridge fuel to decarbonize facility heat until natural gas is eliminated at all County facilities.
2025 SCAP GHG 76	Optimize biogas and reduce fugitive methane.

Current interpretation:

- Track and monitor WTD biogas production and use.
- Ensure biogas-related systems stay operational as much as reasonably possible.
- Pilot sewer heat recovery through partner-driven projects.

Range of policy options - summary

Relevant policy question: Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?

	Policy option #1	Policy option #2	Policy option #3
	Maintain current energy recovery practices and meet existing Strategic Climate Action Plan/RWSP commitments using existing infrastructure.	Expand beneficial use of biogas and systematically integrate energy recovery (heat, hydro) into planning to improve reliability, cost efficiency, and GHG reduction.	Transition facilities into net-zero or net-positive energy hubs by maximizing recovery of all wastewater-derived energy and embedding energy efficiency and recovery into all capital planning and operations.
Goals/ Outcomes:	**Continue current biogas use and sewer heat recovery pilot program**	**Maximize biogas use and expand the sewer heat recovery portfolio**	**Achieve net-zero/positive energy wastewater facilities**

Policy option #1

	Description	Goals/Outcomes	Tradeoffs
#1	Maintain current energy recovery practices and meet existing Strategic Climate Action Plan and RWSP commitments using existing infrastructure	Maintains current practices Continue optimizing existing biogas systems and selectively piloting new technologies where cost-effective, without major expansion of infrastructure or scope Lowest near-term cost and least disruption to existing capital plans and operations	Limited improvement in energy resilience and GHG reduction beyond existing commitments May leave cost-effective energy recovery opportunities unrealized Continues reliance on project-by-project opportunities rather than systematically integrating energy recovery into capital planning

Policy option #2

	Description	Goals/Outcomes	Tradeoffs
#2	Expand beneficial use of biogas and systematically integrate energy recovery (heat, hydro) into planning to improve reliability, cost efficiency, and greenhouse gas reduction.	Strategic expansion and integration of energy recovery into capital planning and design Beneficial use of 100% of biogas produced under typical operating conditions Additional energy recovery revenues and/or avoided energy costs	Requires additional investment and staff capacity for planning, design, and implementation Not all identified opportunities will be technically or economically viable Requires balancing energy recovery with cost-effectiveness, operational needs, and other capital priorities

Policy option #3

	Description	Goals/Outcomes	Tradeoffs
#3	Transition facilities into net-zero or net-positive energy hubs by maximizing recovery of all wastewater-derived energy and embedding energy efficiency and recovery into all capital planning and operations.	Achieve net-zero/positive energy wastewater facilities Maximizes long-term cost stability, emissions reduction, and operational reliability and resilience	Highest capital cost and greatest potential impact to project scope and priorities Requires new standards, operating practices, and sustained organizational commitment Potential conflicts between maximizing energy recovery and WTD's primary wastewater treatment mission would need to be managed

New Recovered Resources

Resource Recovery – Policy Questions from RWSP Scoping Document (2024)

- **Energy production and heat recovery** – Should WTD be expanding its efforts to capture energy and heat? If so, at what level of effort?
- **Biosolids** – Should WTD further expand its efforts to develop Class A biosolids? What changes are needed to biosolid recovery policies to get to Class A?
- **Recycled Water** – Under what circumstances should the region expand the use of reclaimed water? Which uses (e.g., environmental benefits, groundwater recharge, industrial uses, irrigation) are most appropriate?
- **New Recovered Resources** – How should WTD maximize recovery of new resources? How should WTD prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?
- ***Related question from "Pollution" topic****- How can WTD best support environmental benefits while instituting safeguards to protect against environmental risks of contamination? How should cost considerations be weighed?*

New Recovered Resources – Problem Statement

- WTD's existing RWSP policies provide direction on currently recovered resources (biosolids, recycled water, biogas)
- There are many more resources that could be recovered
- There are many possible drivers for recovering new resources
- WTD would benefit from policy direction on the conditions under which recovery of new resources should be pursued

When should WTD consider new recovered resources?

- Regulatory compliance benefits
- Operational benefits
- Market drivers
- Revenue for utility
- Environmental benefits
- Community benefits

New Recovered Resources

Relevant policy question: How should WTD maximize recovery of new resources? How do we prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?

Relevant policies and plans	Description
N/A	N/A

Current interpretation:

This question focuses on future, not current, recovered resources, and does not have current policies or plans that relate to the topic yet.

Range of policy options - summary

Relevant policy question: How should WTD maximize recovery of new resources? How do we prioritize and monetize environmental and other co-benefits when considering cost of recovering new resources?

	Policy option #1	Policy option #2
	Implement recovery of new resources if they are cost neutral or revenue positive, or provide operational or regulatory benefit.	Implement recovery of new resources if triple bottom line analysis shows benefit.
Goals/ Outcomes:	**Driver is limited to benefits to utility**	**Driver is expanded to include benefits to environment or community**

Policy option #1

	Description	Goals/Outcomes	Tradeoffs
#1	Implement the recovery of new resources if they are cost neutral or revenue positive, or provide operational or regulatory benefit	• Recoup and recycle resources that ratepayers flush down the drain for the purpose of fiscal, regulatory, or operational benefit. • Cost could be evaluated as a revenue stream from sale of a product, or as avoided costs for maintenance or upgrades otherwise needed for regulatory compliance, or a combination. • Driver is limited to benefits to the utility.	By limiting policy to opportunities that are cost neutral/revenue positive, or provide operational benefit or regulatory compliance, WTD could miss opportunities to provide additional environmental or community benefit.

Policy option #2

	Description	Goals/Outcomes	Tradeoffs
#2	Implement recovery of new resources if triple bottom line analysis shows benefit	• Recoup and recycle resources that ratepayers flush down the drain for the purpose of fiscal, regulatory, and community benefit; while explicitly valuing the community and environmental benefits. • Driver is expanded to include community and/or environmental benefits.	• May incur cost, in order to achieve environmental or community benefit, though this is true for most WTD activities. • Will take time and effort develop customers/markets for new products.

Q & A

King County | Wastewater Treatment