

King County WTD Energy Program

Conservation overview

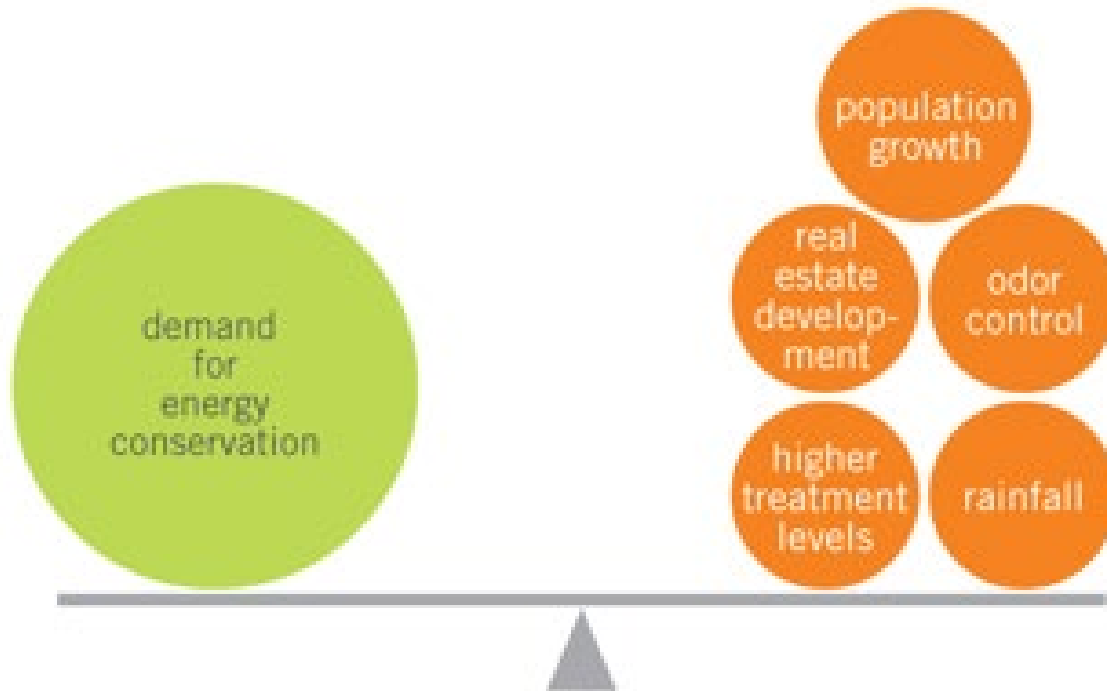
MWPAAC Rates & Finance Subcommittee – May 2, 2019

Wastewater treatment = very energy intensive

Pumping, aeration, odor,
gas handling, etc.



Energy Use & Other Variables: It's a Balance



Where to reduce energy use?

- **Capital projects**
 - Pump station upgrades
 - Flare replacement
 - CSO facilities
- **Operational improvements**
 - Pre-aeration scum educator valve automation
 - Secondary clarifier sprayer timers



How to ID ways to reduce energy use?

- Energy audits
- Energy analyses
- Participate in available local programs
- Get out and talk to people



King County

Department of
Natural Resources and Parks
**Wastewater Treatment
Division**



Reduce Energy Use: Energy Audits

- Help ID future capital projects and operational enhancements
- Site visits, data collection, energy & LCC analysis, and report back with findings
- Provide recommendations on what to do (and what not to do)
- Recent energy audits:
 - 2017 – Brightwater
 - 2018 – South Plant
 - 2019 – West Point



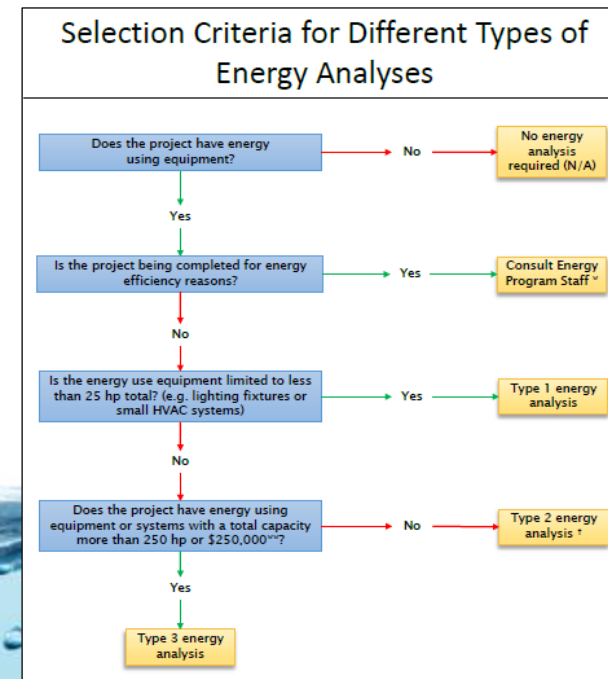
King County

Department of
Natural Resources and Parks
**Wastewater Treatment
Division**



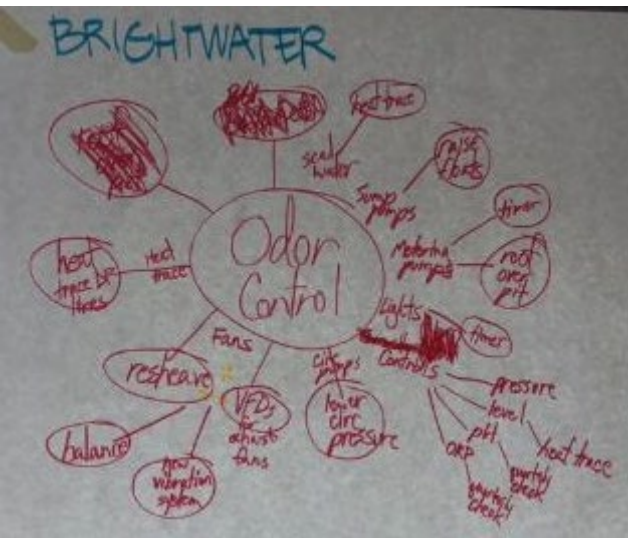
Reduce Energy Use: Energy Analyses

- Required on every WTD capital project
- Standard templates provided to project teams
- Evaluate alternatives based on energy use and associated LCC
- Incorporate all costs
 - energy
 - maintenance
 - labor
 - chemicals



Reduce Energy Use: Local Programs

- Power utilities offer strategic energy management (SEM) programs
- Focus on operational savings, low cost/no cost, addresses cultural shift
- Small tweaks add up
- Includes wastewater (WW) cohort of other WW agencies
- Site visits, group workshops, technical assistance, additional grants
- Immediate energy savings smaller, but can have greater long-term impact



Reduce Energy Use: Talk to Plant Staff

- Essential to be at facilities
- Those working there daily have the most ideas
- Plant energy teams
- Builds relationships, trust between groups



How to help pay for energy ideas...

Easiest to show:

- Energy cost savings
- Utility energy efficiency grants



Requires more effort to demonstrate:

- Maintenance labor and materials cost savings
- Chemical cost savings
- Avoided equipment replacement cost savings



King County

Department of
Natural Resources and Parks
**Wastewater Treatment
Division**



Grants (& Renewables Revenue)

2018 Efficiency Revenue:

- Over \$175,000 in utility grants
- LED lighting upgrades
- Mixed liquor channel diffusers
- SEM coaching program
- Brightwater demand shifting



2018 Renewables Revenue:

- West Point generated and sold 12,500 MWh of renewable electricity for **\$1.2 million**
- South Plant scrubbed and sold 248,000 MMBtus of renewable gas for **\$5.2 million**



King County

Department of
Natural Resources and Parks
Wastewater Treatment
Division



WTD Energy:



use less & make more



King County

Department of
Natural Resources and Parks
**Wastewater Treatment
Division**

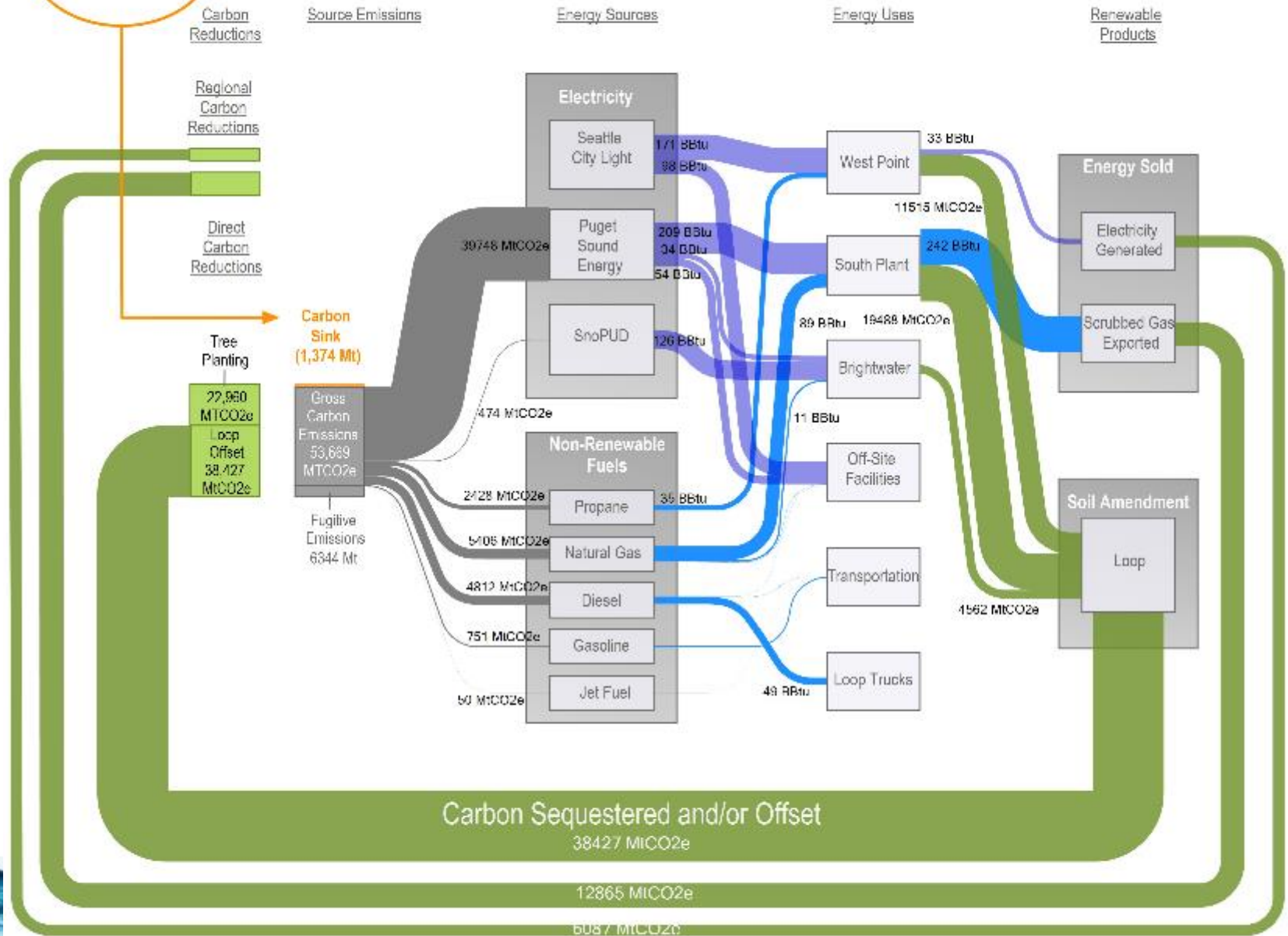


King County WTD Energy Program

Questions?

MWPAAC Rates & Finance Subcommittee – May 2, 2019

Goal: Carbon Neutral



Parks
ent

BBtu = billion British thermal units

MTCO₂e = metric tons of CO₂ equivalents

* Emissions coefficients from the electric utilities won't be available until November 2018