

Strategic Energy Plan – Status Report

Presented to Engineering and Planning Subcommittee
October 5, 2017



King County

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

ENERGY is a big deal ⚡

We are smart about the energy we use as we clean your wastewater

We clean all of the region's wastewater. Moving and treating water every day over long distances takes a lot of energy. We work to be more energy-efficient with everything we do.

Cleaning wastewater uses energy

⚡ Where energy is used



Major Elements of the Plan

- WTD's Energy Vision
- King County's Strategic Climate Action Plan (SCAP)
- Decision-making frameworks for near and long-term energy investments
- Recommendations to ensure energy decisions are strategic, holistic, and integrated
- Prioritized list of actions to meet the County's SCAP energy targets and goals



Strategic Planning Process

- **Discuss and Document Lessons Learned**
 - Energy Production/Use at WTD Facilities
 - Waste-to-Energy Projects
 - Energy Audits
- **Consider Future Landscape, Studies, Recommendations**
 - Renewable Energy Study
 - Energy Monitoring Strategy
 - HVAC System Efficiencies Strategy



Strategic Energy Plan Team

- Staff from:

Energy Program	Biosolids Program
Technology Assessment	Finance
Project Management Unit	Operations and Maintenance
Engineering	Reclaimed Water Program
Environmental and Community Services	Director's Office
Comprehensive Planning	(also DNRP Energy Group)



Plan Development Steps

1. Energy use analysis
2. Staff interviews
3. Work sessions
4. SWOC analysis of energy integration in WTD
5. Recommendations



Draft WTD Energy Vision Statement

- **A carbon neutral wastewater system that optimizes renewables generation and energy conservation**
 - Within available resources we will:
 - Reduce our carbon impact
 - Have carbon neutral operations
 - Conserve energy and generate renewables
 - Be as energy efficient as possible
 - Holistically integrate energy awareness across Division



Findings SCAP Targets and Goals

- 40 WTD-energy related SCAP targets and goals identified
- 26 are being implemented or already incorporated
- Staff will assess others to determine feasibility

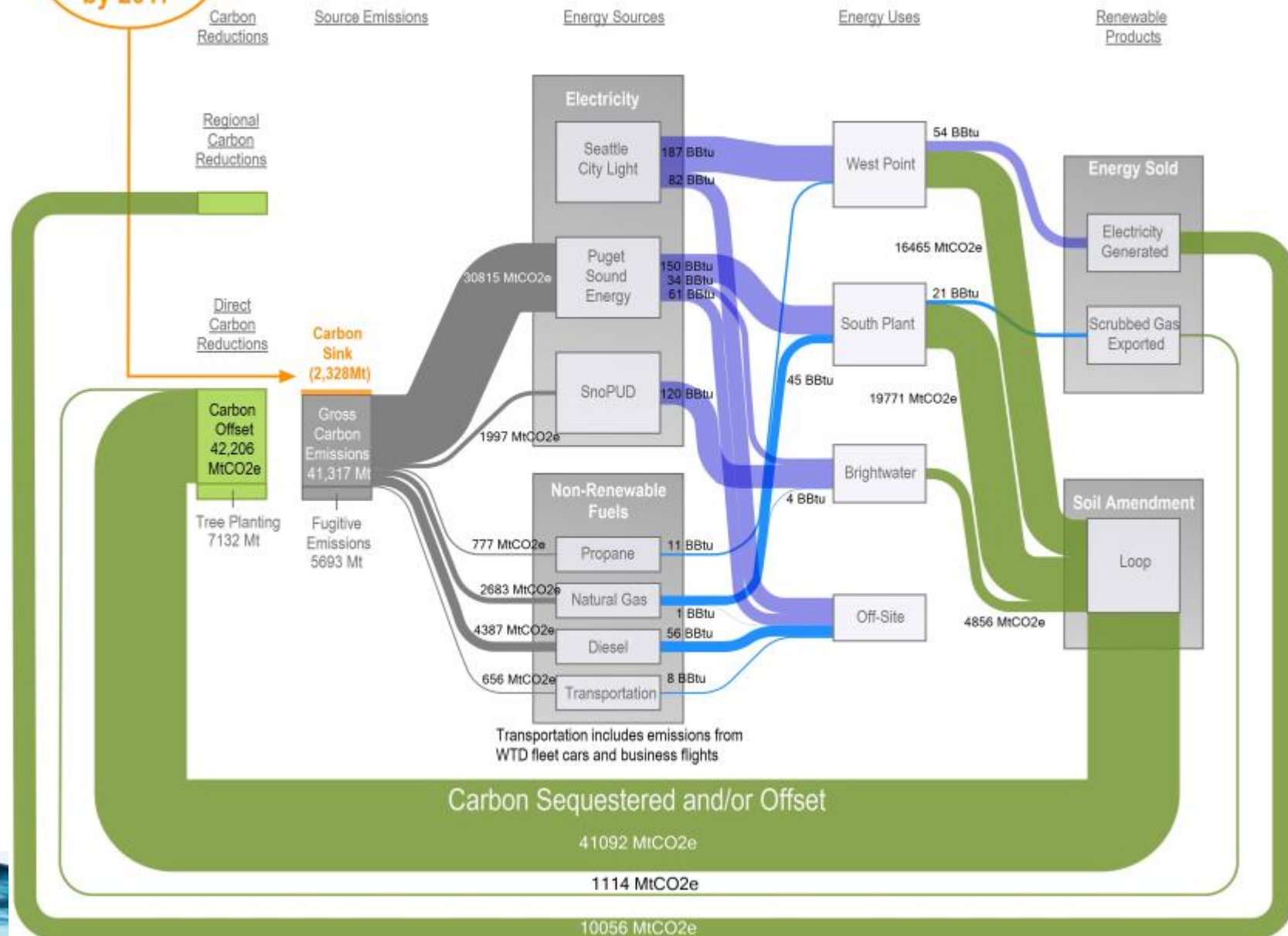


Three Major County SCAP Objectives

- King County will **reduce normalized energy use** in County owned facilities by at least 7.5% by 2020 and 10% by 2025, as compared to a baseline year of 2014.
- Carbon Neutrality Target
 - King County's DNRP, including WTD, SWD, Parks, and WLRD, shall **achieve net carbon neutrality** for its operations by 2017.
 - WTD and SWD shall each independently **achieve carbon neutrality** by 2025.
- King County government shall **consume renewable energy** equal to 70% of government operation facility energy consumption by 2020 and 85% by 2025.



**Goal:
Carbon Neutral
by 2017**



BBtu = billion British thermal units

MtCO₂e = metric tons of CO₂ equivalents

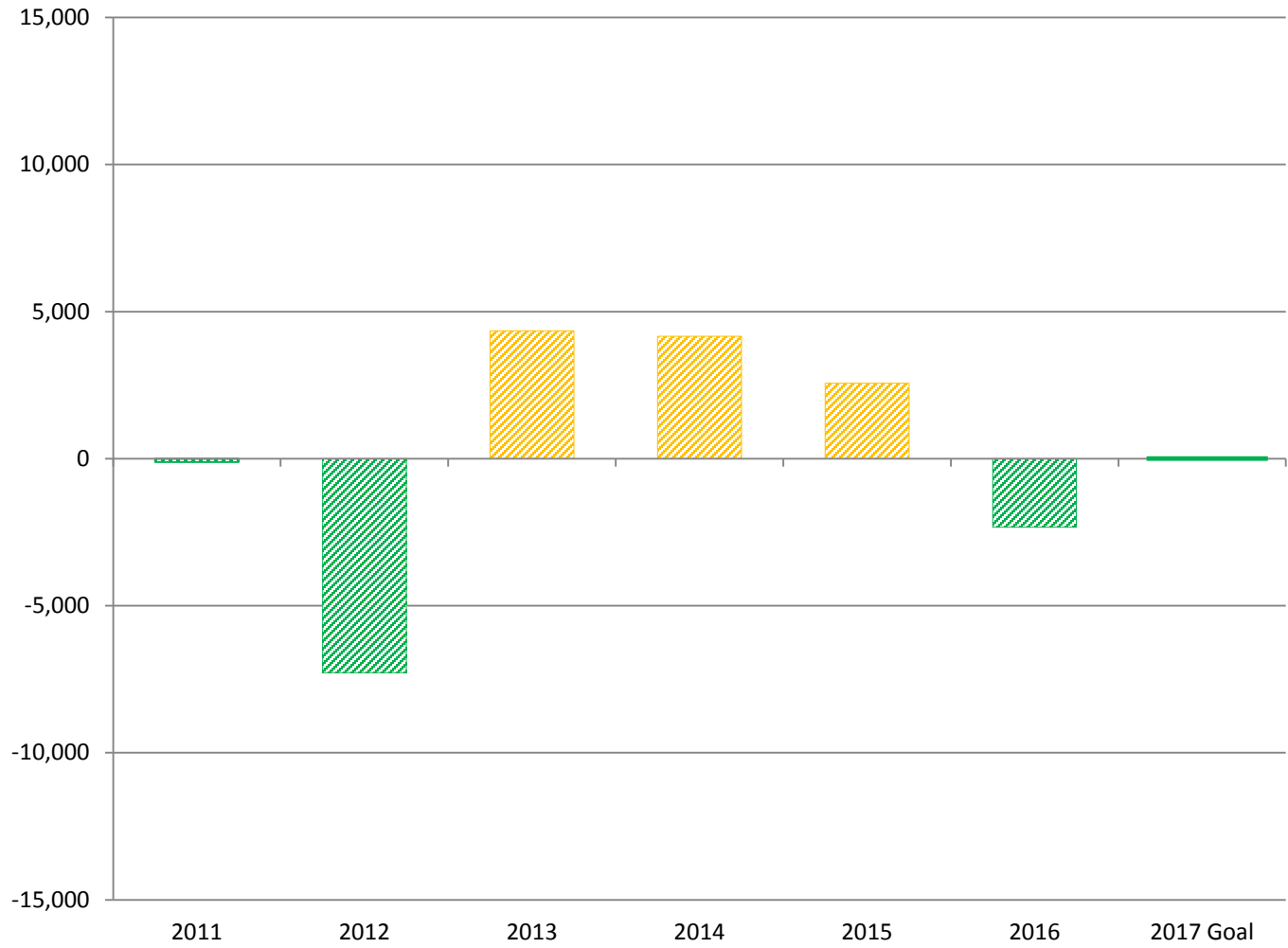
* Diagram is based on 2015 utility electricity mix data. 2016 data is expected to be available December 2017.

WTD Carbon Footprint/Sink from Operations*

Carbon Footprint

Metric tons of CO₂-eq per year

Carbon Sink



Decision-Making Frameworks

- Gain better understanding of frameworks used for energy-related investment decisions
- Categorize what frameworks WTD currently uses
- Examine possible frameworks to apply to energy-related investments



Two Main Plan Recommendation Areas

1. Organizational: Integration/Awareness/Training and Staffing
 - a. Develop internal energy-related communications plan
 - b. Develop plan to resource, configure and maintain power monitoring software to track individual system energy use
 - c. Standardize energy analysis for capital projects
2. Audits, Studies, and Energy Efficiency Actions
 - a. Update energy-related technical and procurement standards/guidelines
 - b. Re-evaluate co-digestion at South Treatment Plant to maximize digester gas production
 - c. Investigate Loop fleet and grit-hauling truck efficiencies



What's Next?

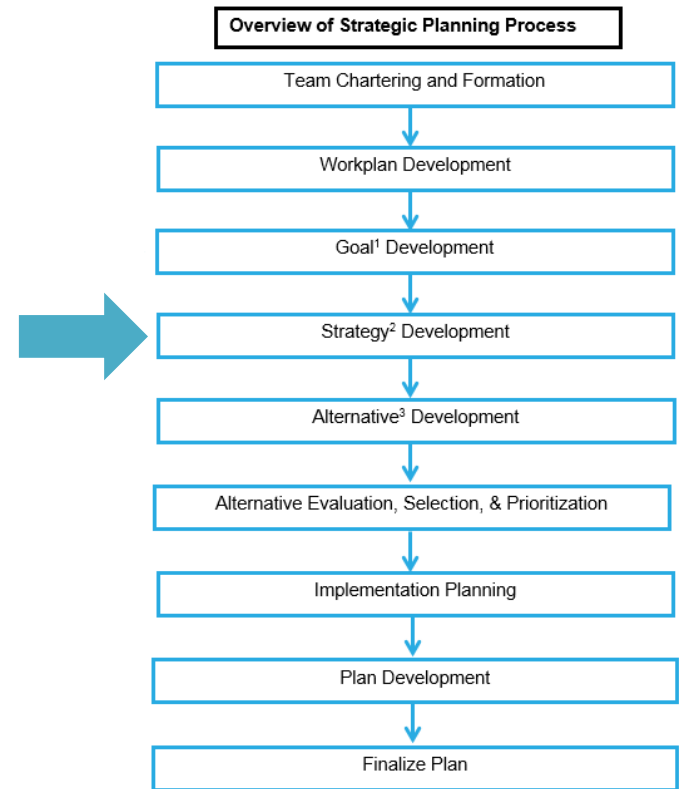
- Feedback/input from MWPAAC
- Finalize Draft Plan
- WTD Management Approval of Plan
- Develop Implementation Process
- Implement Plan



What's next for the other plans?

(Biosolids, Technology Assessment, Recycled Water)

- Teams are making progress - facilitated team meetings in late October and November
- Technical analysis being completed by consultants in October and November
- Strategies and alternatives will be refined by December





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