



Auditing Mother Nature



Ben Thompson

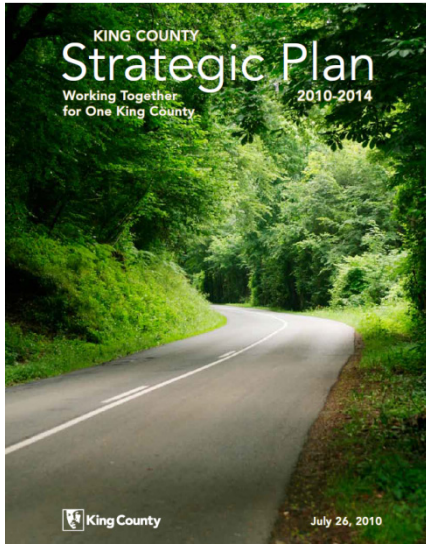
PNIAF March 2014

Why include environmental factors in audits?

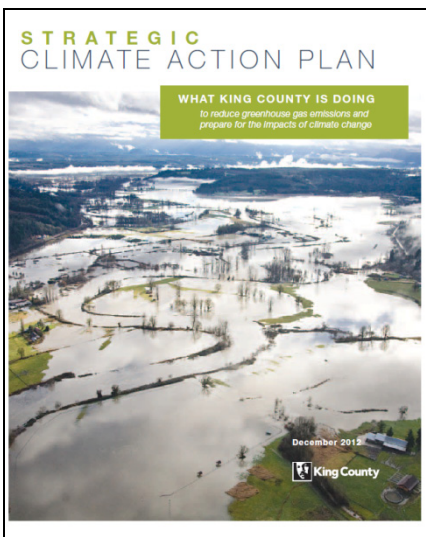
- Issue stakeholders care about
- Because we are being asked to
- *Video of County Executive talking about climate*

Why include environmental factors in audits?

King County has a number of environmental goals



Safeguard and enhance King County's natural resources and environment



County operations target: King County shall reduce total greenhouse-gas emissions from government operations, compared to a 2007 baseline, by at least 15 percent by 2015, 25 percent by 2020, and 50 percent by 2030.

Examples

- Four recent or current audits have significant environmental components
 1. Performance audit of combined sewer overflow program (completed in end of 2012)
 2. Review of energy alternatives for Harborview Hospital (first part complete, second part ongoing)
 3. Review of green building ordinance (ongoing)
 4. Review of strategic climate action plan (planned for 2014)

Audit of Combined Sewer Overflow Program

- Clean Water Act requires municipalities to control overflows from combined sewer systems
- Combined sewer overflows (CSOs) release excess water into water bodies
- King County is allowed one overflow per outfall per year (volume of outfall is not considered)
- King County required to meet this standard by 2030
- Executive proposed \$711 million plan to control overflows in June 2012

Audit of Combined Sewer Overflow Program

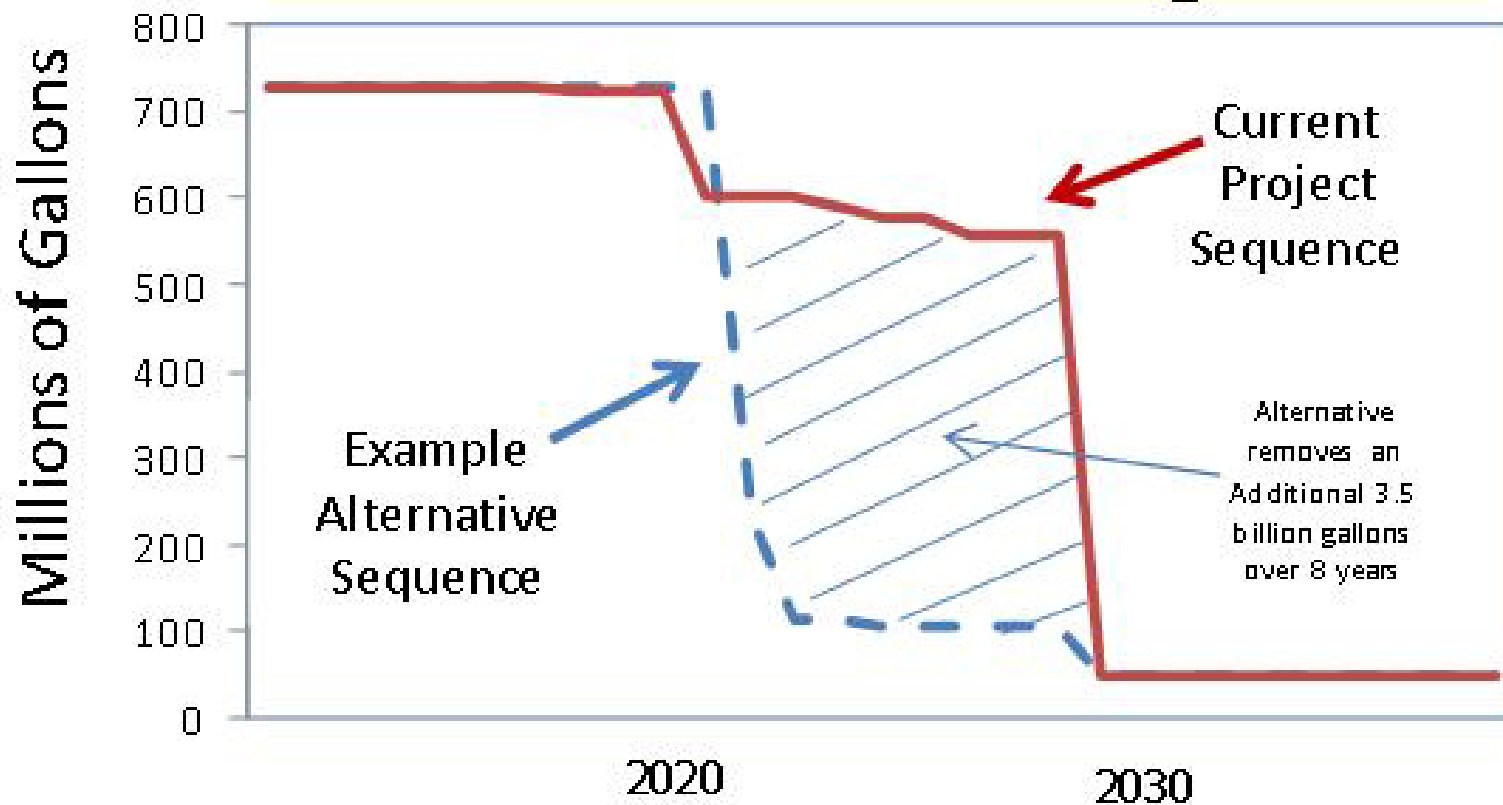
- Audit looked at this program from a number of angles
- Two related to environment are:
 - Green stormwater infrastructure projects
 - Considering time value of pollution when sequencing projects

Audit of Combined Sewer Overflow Program

- Green stormwater infrastructure projects
 - We found that the Wastewater Treatment Division had not fully considered the potential of these projects to minimize costs
- Time value of pollution
 - We found that the current project sequence did not consider the value of reducing pollution sooner

Time Value of Pollution

Gallons of CSO Discharge



Energy Alternatives for Harborview

- Two part audit
- First part looked retrospectively at impact of energy conversion
- Tasked to examine costs and greenhouse gas emissions
- Second part looking at current proposals for Harborview Medical Center

Evaluation of Energy Conversion

- 2009 King County converted two buildings from steam district energy system to on-site boilers
- Estimated to reduce costs and GHG emissions
- Questions about extent to which these estimates were realized

Evaluation of Energy Conversion

- Could not rely on a before vs. after comparison
- Compared actual emissions from on-site natural gas boilers after conversion to estimated emissions had the County remained on Seattle Steam

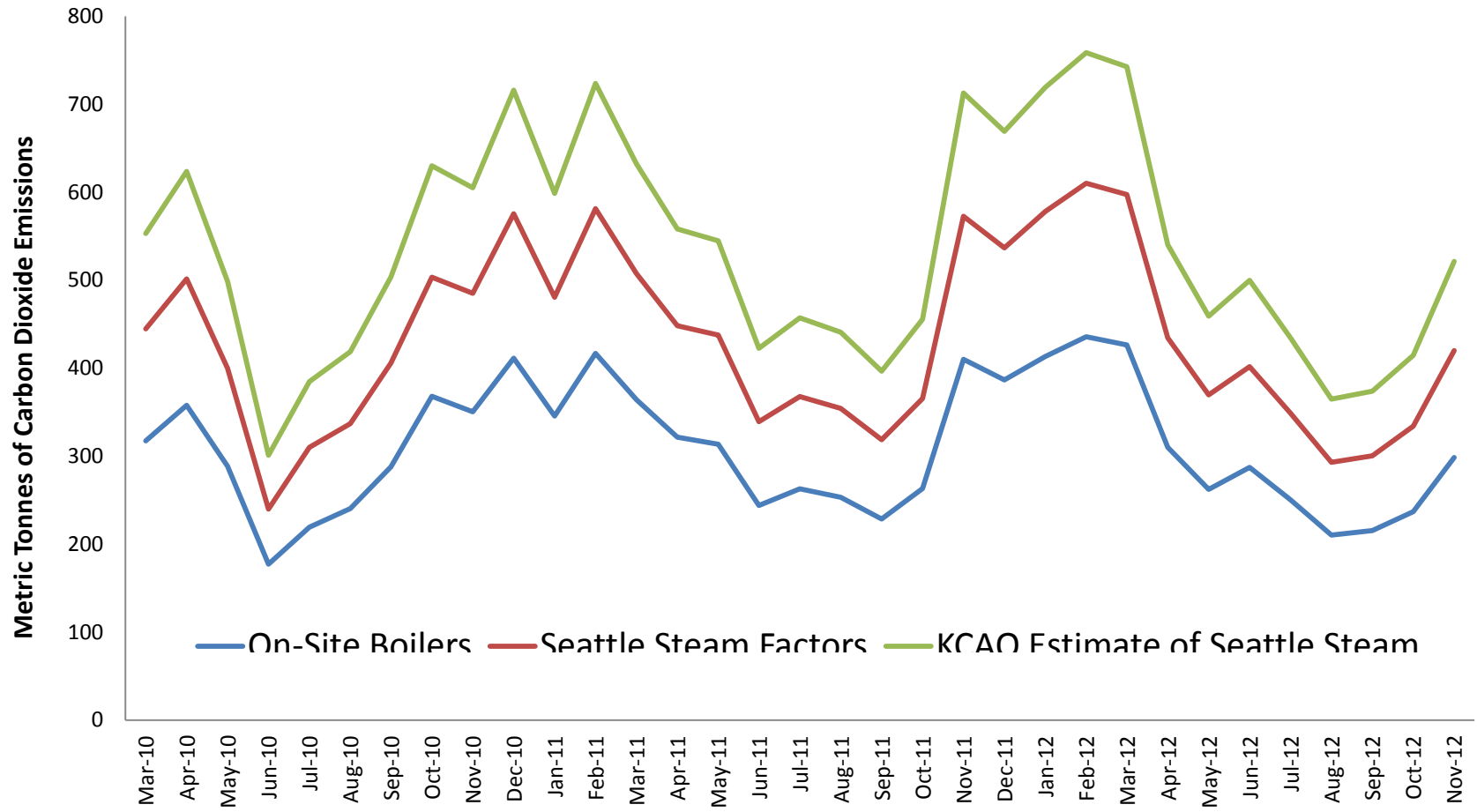
Evaluation of Energy Conversion

- Used the Climate Registry Protocol to calculate estimated emissions had the County remained on Seattle Steam

Equation 12a		Calculating Fossil Fuel CO ₂ Emissions (Fuel use in MMBTU)		
CO ₂ Emissions (metric tons)	=	Fuel Consumed x (MMBTu)	Emission Factor x (kg CO ₂ /MMBTu)	.001 (metric ton/kg)

- Calculated estimated emissions based on factors provided by Seattle Steam and on estimates we made of the total system efficiency

Results of Analysis



Greenhouse Gas Impact of Burning Wood

- Seattle Steam currently burns both natural gas and wood to produce steam
- Although burning wood produces greater emissions than burning natural gas, the Environmental Protection Agency currently considers burning wood to be greenhouse gas neutral
- Our analysis did not include emissions from Seattle Steam's wood combustion based on 2012 usage
- Future emissions from Seattle Steam could change based on the quantity of wood burned and whether burning wood continues to be considered greenhouse gas neutral

Green Building Ordinance

- In 2008, King County adopted a green building ordinance
- Requires capital projects to seek LEED gold certification given various factors
 - General fund projects if no additional cost
 - Non-general fund projects if cost less than 2%

Green Building Ordinance

- We found inconsistency in how ordinance was followed
- Inconsistent reporting makes summarizing effect of ordinance difficult

Review of Strategic Climate Action Plan

- Planned for Spring/Summer 2014
- Looking at:
 - Inputs,
 - Reporting,
 - Data reliability, and
 - Possible improvements

Things to Consider

- Difference of opinion among stakeholders about importance of measuring environmental impact
- Can be emotional
- Adds complexity
- Difficult to baseline
- Keep track of units

Questions?



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