

Goal Area 2: Energy

INTRODUCTION. Energy use in buildings and at stationary facilities (related to industry) accounts for approximately 50 percent of GHG emissions generated in King County. Between 2008 and 2010, GHG emissions from buildings remained constant, but declined slightly per person. Building emissions stabilized as a result of reduced energy consumption (due in part to energy efficiency efforts and in part to warmer weather).



EXISTING COUNTY ACTIONS AND PROGRAMS.

King County works with employees, residents, businesses, and energy utilities to design and support a number of energy efficiency and renewable energy projects and programs. In considering investments in energy efficiency and renewable energy, the county reviews alternatives for relative energy efficiency, reductions in greenhouse gas emissions, and financial savings to the county.

- **Government energy use.** Direct energy use in government operations—including energy used by buildings, to treat wastewater, and to fuel vehicles—represents one-third of the total GHG emissions related to King County government operations. King County is implementing its *2010 Energy Plan* to reduce its energy use. As an example of the County’s long term commitment to reduce energy usage, between 2007 and 2011 the Facilities Management Division reduced GHG emissions by almost half, saving roughly \$1.7 million annually in energy costs.
- **Renewable energy.** The County has a decades-long history of implementing renewable energy projects. The South Plant wastewater treatment facility has been recovering and producing renewable energy from digester gas since 1987. King County continues to produce, use and procure an increasing amount of renewable energy. King County uses much of the renewable energy it generates – but also sells a significant amount of it to other partners and local utilities. According to the EPA, if the approximately 800,000 MMBTUs (2011) of King County renewable energy generation or use had been generated by an average U.S. power plant this would have resulted in approximately 161,000 MTCO_{2e} of GHG emissions.



BioEnergy Washington’s renewable energy facility, fueled by landfill methane, at the Cedar Hills Regional Landfill

- **Green building.** The King County GreenTools program supports and provides resources to cities, the construction community and the public to help them design sustainable, energy-efficient buildings and infrastructure. In addition, King County is engaging in and helping implement a number of regional energy efficiency and renewable energy initiatives, including the Seattle 2030 high-performance building district, the Community Solar Program, BuiltGreen Retrofit programming, and the Sustainable Cities Roundtable. In 2011, King County's GreenTools program helped county agencies work on 10 Leadership in Energy and Environmental Design (LEED) projects and helped 202 non-LEED eligible projects use the County's Sustainable Infrastructure Scorecard.



zHome zero-energy project in Issaquah

- **District Energy.** District energy systems heat and/or cool multiple buildings through a central energy source. This centralized heating and/or cooling can allow for substantial increases in energy efficiency and expand options for greener fuel sources. District energy systems can offer combined heat-and-power and energy efficiency improvements compared to other available sources of energy, as well as GHG emissions reductions and other environmental benefits. In 2012, the Wastewater Treatment Division issued a Request for Expression of Interest and Information that solicited information about how local developers might harness unused thermal energy in wastewater pipelines to produce district energy. The City of Seattle is developing a District Energy Plan for First Hill where King County manages facilities, including Harborview Hospital and the Alder Youth Services Center, which is slated for redevelopment.

COORDINATION WITH OTHER PLANS. The Energy goals are coordinated with the following plans:

- King County Strategic Plan
- King County Comprehensive Plan
- 2010 King County Energy Plan
- 2008 King County Green Building and Sustainable Development Policy

ACCOUNTABLE AGENCIES. The *Department of Natural Resources and Parks*, *Department of Transportation* and *Facilities Management Division* are the overall leads for this goal area. King County's interdepartmental Energy Task Force plays a coordinating and oversight role in implementing the *2010 King County Energy Plan* and the strategies in this goal area related to renewable energy, energy efficiency and energy-related employee engagement. The Solid Waste Division's *GreenTools Program* plays a coordinating and oversight role for strategies related to green building, sustainable infrastructure, and green operations and maintenance.

COUNTY SERVICES

GOAL S.2: King County will help reduce energy use by county residents and by business and other partners and will support development of increasing amounts of local renewable energy.

- ▶ **Measure 1:** Percentage of energy produced, used, or procured by the County that is renewable energy
 - ★ **Target 1:** Produce, use or procure renewable energy equal to at least 50 percent of total county net energy requirements on an ongoing basis.³
- ▶ **Measure 2:** Percentage of residential housing development in King County that is Built Green or LEED-certified
 - ★ **Target 2:** A target will be developed as part of the 2013 King County Green Building and Sustainable Development Ordinance Update.

OBJECTIVES	STRATEGIES
<p>Objective S.2.1: Increase the production and procurement of renewable energy and the development of waste-to-energy applications</p>	<p>Strategy A: Maximize opportunities at wastewater treatment plants and landfills to reuse waste resources for energy and other purposes, prioritizing opportunities that reduce GHG emissions such as encouraging the use of wastewater for heat extraction and other forms of energy generation in the county’s wastewater conveyance system</p> <p>Strategy B: Research opportunities to apply renewable energy in the County’s new construction, retrofit construction and stand-alone energy projects, and seek to develop or support private developments of renewable energy applications where benefits outweigh costs</p> <p>Strategy C: Transition to purchasing energy derived from renewable sources, including district energy systems fueled by renewable energy</p>
<p>Objective S.2.2: Partner with residents, businesses, and energy utilities to support local energy-efficiency and renewable energy projects and programs choices</p>	<p>Strategy A: Encourage, support and promote the application of sustainable development practices, including energy efficiency and renewable energy, in all private sector development within the county</p> <p>Strategy B: Develop, participate in, and support appropriate regional energy efficiency and renewable energy efforts</p> <p>Strategy C: Provide green building-related technical assistance, hands-on training, and support for builders, residents, and other King County local governments.</p>

³ Developed as part of the SCAP process; builds on and extends the renewable energy target that was originally adopted in King County’s 2010 Energy Plan

COUNTY OPERATIONS

GOAL O.2: King County will reduce the amount of energy used in government operations.

► **Measure 1:** Energy use at county facilities

★ **Target 1:** King County will reduce normalized net energy use from government operations in its buildings and facilities, as compared to a 2007 baseline, by at least 10 percent by 2012, 15 percent by 2015, and 20 percent by 2020.⁴

OBJECTIVES	STRATEGIES
<p>Objective O.2.1: Reduce energy use in County operations through continuous improvements in facility and equipment efficiency, procurement and construction practices, and resource conservation</p>	<p>Strategy A: Conduct and/or update efficiency audits of all major County buildings and develop specific energy management plans for large, energy-intensive and special purpose County facilities</p> <p>Strategy B: Ensure that design, construction, maintenance and operation of any capital project owned or leased by King County is consistent with the latest green building and sustainable development practices</p> <p>Strategy C: Improve on existing green operations and maintenance practices to further reduce energy resource use</p> <p>Strategy D: District energy systems can result in reduced energy consumption, greenhouse gas emissions reductions and financial savings to the county. The County will pursue combined heat and power district energy opportunities in King County facilities, as well as in partnership with other public and private entities.</p>
<p>Objective O.2.2: Encourage King County employees to help the County reduce its energy usage</p>	<p>Strategy A: Conduct a countywide campaign encouraging employees to use alternative transportation, drive efficiently, and minimize resource and energy usage at work</p> <p>Strategy B: Train staff on green operations and maintenance practices to enhance existing division procedures to reduce energy and other resource usage</p>

⁴ Developed as part of the SCAP process; builds on and extends the energy efficiency target that was originally defined in King County's *2010 Energy Plan*. See also the overarching emissions reduction target section of the SCAP

PRIORITY ACTIONS:

- **Implement 2010 King County Energy Plan.**

King County will continue to implement its Energy Plan, which focuses on strategies such as (1) incorporating sustainable development practices into design, construction and operation of County facilities, (2) measuring and managing energy use, (3) investing in alternative fuels and technologies, (4) converting waste to energy, and (5) empowering employees to identify new ways to reduce energy use and save money.



Lighting efficiency retrofit in a painting booth at a Metro Transit bus base

- **Support renewable energy.** King County is a partner on a large biogas-to-energy project at the Cedar Hills Regional landfill, where BioEnergy Washington has begun selling cleaned landfill gas to Puget Sound Energy. This biogas displaces the use of fossil fuel natural gas by King County residents and businesses. As of fall 2012, the BioEnergy Washington plant is in full operation; a near-term focus of King County will be to ensure the success of the Cedar Hills project as well as a new electricity co-generation project at West Point wastewater treatment facility.
- **Explore heat energy from wastewater.** King County's Wastewater Treatment Division (WTD) will continue to explore partnerships that could result in privately-owned district energy systems that would extract and recover energy contained in WTD's conveyance system, as well as potential connection of county facilities to county wastewater district energy infrastructure, provided there is a benefit to the wastewater ratepayer.
- **Pursue district energy systems.** King County will pursue district energy opportunities, including collaborating with the City of Seattle on a District Energy Plan for First Hill where King County manages facilities, including Harborview Hospital and the Alder Youth Services Center, giving consideration to energy efficiency, reductions in GHG emissions, and financial savings to the county.
- **Promote green building.** King County will continue to ensure consistent implementation of its Green Building and Sustainable Development policy, Ordinance 16147. This includes providing internal training and technical assistance and implementing King County's Operations and Maintenance Guidelines. The County will also explore new partnerships to deliver marketing campaigns focused on green retrofits, building on the success of the EcoCool Remodel Tool.



Greenbridge affordable and sustainable housing project in White Center

The County's Green Building and Sustainable Development Ordinance will be revised and updated in 2013, and this opportunity will be used to further strengthen King County's efforts and commitment to reduce the energy, GHG emissions, and environmental footprint of the County's buildings and infrastructure.

- **Explore new budget practices.** The County will evaluate options and develop policy guidance and budgeting practices to enable County agencies to use operating savings that result from actions that reduce energy and resource usage and costs. This guidance will allow agencies to apply the cost savings from reduced resource usage to up-front capital investments in vehicle purchases or efficiency improvements. The County will also explore the establishment of new mechanisms for accounting for lifecycle energy, GHG emissions, and resource costs associated with operations, and for financing capital costs of efficiency investments.