



Portland Water Bureau Sustainability Action Plan

2011 Update

Introduction to 2011 Update

The Water Bureau updates this Sustainability Action Plan annually. Highlights over the last year include the following:

- Meter Shop remodel was certified as a LEED Gold facility
- Groundwater solar array was completed and began operation. Electricity generation data is available online:
http://live.deckmonitoring.com/?id=city_of_portland
- Green teams were established at both our downtown and Interstate facilities
- A vehicle pool was instituted for managers and supervisors at Interstate, thus reducing the total number of vehicles purchased and maintained.

During 2011, the Bureau will be planning for a new building for our Interstate Avenue Operations and Construction facility. This building, housing approximately half of the bureau's staff, will be designed to achieve LEED Gold certification.

- Kim Dinan
Sustainability Program Coordinator

Water Bureau's Sustainability Vision

The Water Bureau's Management Team adopted a Sustainability Vision in January 2004 and an Energy Charter in 2010. Goals include the following:

- Consider the environmental and social costs of production, use, and disposal of purchased materials
- Reduce operating costs by purchasing materials that are durable and reusable
- Change work processes to make more efficient and cost-effective use of materials, equipment, and natural resources
- Develop an energy awareness culture that seeks continuous efficiency improvements
- Promote the development of renewable energy projects where practical
- Promote and enable more efficient modes of transportation
- Provide efficient and effective means to recycle used materials and equipment
- Support suitable habitat for fish and wildlife, and healthy ecosystems
- Encourage efficient use of water
- Reduce or eliminate use of hazardous and toxic materials
- Reduce employee exposure to fuel exhaust, noise, and other hazards
- Provide training, information and tools for employees to enable them to provide water services in a sustainable manner

The bureau's sustainability programs are guided by these goals and by a variety of citywide sustainability mandates adopted by the City Council. Citywide goals are available online: <http://www.portlandonline.com/bps/index.cfm?&c=44623&a=156800>.

The Water Bureau employs a full-time sustainability coordinator who works closely with staff throughout the bureau.

Carbon Footprint Calculation

The Water Bureau prepared a "carbon footprint" report for the 2009 calendar year. Bureau staff used methodologies of the Greenhouse Gas (GHG) Protocol, a widely recognized international accounting tool. The methodology converts natural gas, electricity, and fuel data into estimates of the resulting carbon emissions. This estimate is not comprehensive because it does not include all emissions attributable to the operation of the water system (e.g., employee commuting, purchased services, purchased materials, or contracted construction operations). To view the 2009 report in full, visit <http://www.portlandonline.com/water/index.cfm?c=49430&a=279197>.

Sustainability Action Plan for Calendar Year 2011

Sustainability actions in each of these categories are described in the plan:

- Energy
- Transportation
- Paper
- Water
- Toxics
- Property Management

Energy

Goals:

- Contribute to achieving City's Climate Action Plan objectives for 2012
- Reduce bureau's overall electrical use by 5% (excluding variation due to weather and groundwater operation) by July 2012, compared to 2005-08 baseline
- Reduce electrical use by 5% at top 10 facilities with the highest electrical use by July 2012, as compared to 2005-2008 baseline
- Install renewable energy facilities with minimum capacity of 400 KW
- Take energy efficiency and renewables generation opportunities into account during LT2 treatment facility planning

Status:

- Baseline data sets were defined using 2005-2008 operating data. Staff continue to evaluate the appropriateness of the baseline data sets and the factors that might influence trend data (e.g., weather). Plan is to collect several years of additional trend data before updating our electrical use reduction goals and/or the baseline data sets.
- Overall electricity use was 24,300,587 kWh for 2009, which was 9% lower than 2005-08 baseline.
- Total electrical use at top 10 facilities with highest electrical use (excluding groundwater) was 15,707,665 kWh. When compared to our total water production of 38,370 million gallons, our "wire-to-water efficiency" was 2443 gal/kWh, which is an 8% improvement from the 2005-08 baseline. Projects to improve efficiency included pump station operation changes, lighting and HVAC improvements, and air compressor repair.
- Installed solar generation (267 kW capacity) at Groundwater Pump Station. The Water Bureau now has a total renewables capacity of 279 kW, which is equivalent to approximately 1.3% of our total electricity use.
- During 2009 and as a byproduct of water supply operations, the hydroelectric facilities at the City's two Bull Run dams generated 91,599,000 kWh of electricity – or more than three times the amount of electricity used by the bureau. The power is sold to PGE.
- The WB project team designing the treatment plant to comply with LT2 regulations for the Bull Run supply took energy into account when choosing the UV bulb technology.

	CY 2011 Actions	Lead Staff
Energy Efficiency	<ul style="list-style-type: none"> • Track bureauwide electrical use and compare to 2005-08 baseline • Track electrical use at top 10 facilities with the highest electrical use • Identify energy efficiency opportunities through ongoing maintenance programs, in asset management plans, and during planning for future CIP projects (focus on pump stations) • Prioritize, select and implement 3-5 energy efficiency improvement projects 	WB Energy Committee
Renewable Energy Generation	<ul style="list-style-type: none"> • Complete microhydro installation at Vernon tank • Identify additional opportunities for installing solar, wind and microhydro facilities • Document power generated at renewables sites as well as the associated power sales revenue 	WB Energy Committee
Renewable Power Purchase	When citywide power purchasing agreement is put in place, purchase 100% of bureau's electrical power from renewable sources	BPS – Dave Tooze
Low Impact Hydropower	Apply for third-party certification of City's hydropower operations at the Bull Run dams as "low impact hydropower."	ResPro/ Stewardship - Janet Senior

Transportation

Goals:

- Contribute to achieving City’s Climate Action Plan objectives for 2012
- Improve WB fleet fuel efficiency by July 2015
 - Light duty vehicle (sedans, minivans, SUVs, ¾ ton pick-up trucks and smaller) - 2 MPG by July 2015
 - Large dump trucks (10 – 12 yard) and heavy duty vehicles (service trucks, small dump trucks under 10 yards) – 1 MPG by July 2015

Status:

- Published third carbon footprint report (2009). Due to uncertainties about the fuel data available for 2007 and 2008, the Bureau plans to track transportations-related emissions for another year or two before defining a carbon reduction target.
- Established a baseline fuel efficiency for each vehicle class used by the bureau. Extended target date for MPG improvements to better recognize the rate at which vehicles are replaced.
- Expanded use of vehicle pools at Interstate; vehicles were previously assigned to individual managers
- Installed coolant heaters on 28 bureau vehicles, primarily dump trucks
- Created and distributed the first annual fuel efficiency report to managers. Will use data from this report to help track fleet efficiency trends
- Began replacing gasoline-powered Ford Ranger trucks driven by Meter Inspectors with hybrid sedans and hybrid SUVs
- Piloting use of an electric bicycle by meter readers on selected routes

	CY 2011 Actions	Lead Staff
Fuel Efficiency	<ul style="list-style-type: none"> • Implement Eco-Driving Training pilot program, including an anti-idling component • Evaluate fuel data and identify opportunities to increase efficiency • Purchase vehicles with improved fuel efficiency as opportunities arise • Evaluate vehicle pool data, especially frequency of use and duration of trips • Prepare and distribute an annual fuel efficiency report for managers • Plan for electric vehicles at the new Interstate Building 	WB Fleet – Tom Dufala ResPro/ Stewardship – Kim Dinan
Biodiesel	<ul style="list-style-type: none"> • Track amount of biodiesel used annually, compared to use of Ultra-low Sulfur Diesel (ULSD) and gasoline 	ResPro/ Stewardship – Kim Dinan
Transportation-related CO2 Emissions	<ul style="list-style-type: none"> • Produce annual carbon footprint report • Purchase carbon offset credits for work-related air travel by employees, if funding allows • Purchase electric and electric-hybrid vehicles, as funding allows and as appropriate to meet vehicle needs • Increase use of alternative modes of transportation for work-related trips and employee commutes (bike, bus, train, carpools, walking) • Track transit pass and vehicle pool use at both Interstate and downtown facilities • Conduct annual employee commute survey as required by DEQ 	ResPro/ Stewardship – Kim Dinan WB Fleet- Tom Dufala

Recycling and Waste Reduction

Goals:

- Recycle 85 percent of all waste generated by 2015
- Prevent future increases in Water Bureau waste stream
- Reduce copy/printer paper consumption 5% from FY 07-08

Status:

- 2010 recycling rate at all tracked facilities is 41% (excludes scrap metal, concrete and horizontal construction materials)
- Participated in city-wide implementation of food waste composting in the Portland Building
- Added yard debris drop box and food composting at Interstate facility which has increased diversion rate by 8%
- Documented current materials recovery practices for all recyclable materials
- Conducted recycling assessments at 7 WB facilities (Hazelwood, Powell Valley, Capitol Hwy, Sandy River Station, Headworks, San Rafael and 112th Pump Station).
- Participated in city-wide effort to document materials recovery practices at construction sites
- FY 09-10 bureau paper increased 6% from FY 07-08 (paper use data includes billing and federally mandated drinking water report)
- Of 15 remaining single-sided printers in the Portland Building, 2 have been disconnected, 5 were replaced with duplex capable printers, and 7 are plotters. Only one single-sided printer remains.

	CY 2011 Actions	Lead Staff
Recycling	<ul style="list-style-type: none"> • Track data for waste recycled, composted and thrown away • Review recycling requirements in custodial contract • Place recycling signage on all recycling bins, esp. for industrial recyclables like PVC, concrete, hard hats, etc. • Pilot an ongoing Styrofoam recycling dumpster at Interstate Facility • Pilot a truck-cab recycling program • Conduct second waste sort of Interstate garbage and compare to previous sort to document improvements • Expand plastic bag and clam shell recycling at Interstate Facility • Plan for recycling facilities at new Interstate building 	ResPro/Stewardship –Kim Dinan, Matt Weatherly
Paper use reduction	<ul style="list-style-type: none"> • Continue paper reduction education with employees • Collect single-sided paper at Interstate • Track largest uses of paper and use data to identify potential reduction strategies 	ResPro/Stewardship - Kim Dinan, Matt Weatherly, WB Green Team

Water Efficiency

Goals:

- Incorporate best management practices and proven water-saving technologies to increase water efficiency. Use no more water at bureau facilities in 2015 than was used in 2007.
- Increase reuse of water from hydrant and main flushing, as well as reservoir cleaning, to the extent feasible
- Maintain systemwide water loss due to infrastructure leaks at less than 10% (industry standard)

Status:

- Water use at most bureau facilities is not metered. Investigating ability to measure/estimate water use.
- Water audit for the Portland Building identified several opportunities to save water and improvements were implemented.
- Bureau prepared a business case analysis for reusing water from hydrant flushing using a new technology. Other reuse options evaluated separately (e.g., collection in trucks for landscape irrigation) weren't found to be feasible.
- Acoustic echogram technology was tested as a tool for large conduit leak detection.
- System water loss was approximately 6.5% in 2009-10 (this is measured as water produced vs. water sold, so includes unbilled uses such as firefighting from hydrants).
- Water conservation education was included at Sustainability fairs for employees

	CY 2011 Actions	Lead Staff
Water efficiency at existing bureau facilities	<ul style="list-style-type: none"> • Contribute to support effort to LEED certify the Portland Building (EBOM) • Continue employee education • To the extent staff resources allow, survey facilities with highest water use to identify water use types, estimate baseline use, and identify opportunities to reduce 	ResPro/ Conservation – Jeff Sandberg, Sarah Santner
Water efficiency at new bureau facilities	<ul style="list-style-type: none"> • Comply with water conservation components of Citywide green building policy in project designs for new buildings. Plan for efficient use of water at new Interstate building, including fixtures and landscaping. • Assess potential to reduce water use as part of asset management plans and CIP project planning. 	Engineering – Luanne Zoller ResPro/ Stewardship – Janet Senior
Infrastructure Leak Reduction	<ul style="list-style-type: none"> • Document leak improvement opportunities in appropriate asset management plans 	Engineering – Teri Liberator

Toxics

Goals:

- Replace toxic substances with viable least-toxic alternatives
- Reduce quantity of batteries purchased
- Implement integrated pest management approach for grounds maintenance to minimize use of pesticides and herbicides

Status:

- Replaced seven remaining mercury-containing seals on groundwater pumps with mercury-free double mechanical seals.

	CY 2011 Actions	Lead Staff
Chemical Product Analysis	Evaluate new products through the Chemical Assessment and Ranking System Analysis. Where necessary, substitute non-toxic or less toxic alternatives, and/or identify safety protocols.	Safety – Jeff Guard
Rechargeable Batteries	Conduct a materials use analysis with the locators and revisit the use of rechargeable batteries for locator equipment	Locators – New locator lead ResPro/ Stewardship - Matt Weatherly
Green Cleaning Products	Monitor janitorial contract at Interstate to ensure use of green cleaning products and materials	ResPro/ Stewardship – Kim Dinan
Integrated Pest Management	Document compliance with IPM program at Bureau facilities	Grounds – Rich Rice

Property Management

Goals:

- Enhance neighborhood livability and improve neighborhood security by maintaining HydroParks
- Control spread of invasive plants on city-owned lands in the Bull Run Watershed and on riparian easements acquired as part of implementing the Bull Run Water Supply Habitat Conservation Plan
- Minimize potential for introducing aquatic nuisance species in the Bull Run watershed
- Preserve existing trees at bureau facilities and plant new trees for shade and habitat

Status:

- Seven hydroparks are currently in place. Planted native plants at the Pittman Addition Hydropark.
- Adopted a Standard Operating Procedure for aquatic invasive species, which requires the decontamination of boats and gear entering the Bull Run Reservoirs
- Completed road surveys in the Bull Run Watershed to help detect and control invasive species
- Conducted intense ivy and clematis control work in the lower portions of the Bull Run Watershed to prevent the spread of seed and plants into higher elevations

Actions	CY 2011 Actions	Lead Staff
HydroParks	<ul style="list-style-type: none"> • Maintain existing Hydroparks to provide park/open space in Portland neighborhoods 	Property – Darcy Cronin
Invasive Plants	<ul style="list-style-type: none"> • Plan for appropriate invasive species control, restoration and enhancement at Powell Butte and Kelly Butte • Complete an Invasive Species Management Plan for the Bull Run Watershed • Control seed-spreading tree ivy on Water Bureau properties when feasible 	ResPro/ Env. Compliance – Angie Kimpo
Trees & Native Plants	<ul style="list-style-type: none"> • Identify opportunities for grant funding to plant native plants (e.g., for properties in the Columbia Slough Watershed) 	Property – Darcy Cronin

Institutionalizing Sustainability

Goals:

- Educate employees about sustainability objectives and methods
- Encourage employee involvement in sustainability projects
- Incorporate sustainability criteria into bureau decision-making processes

Status:

- September 2010 designated as Sustainability Month with multiple employee education events
- Recycling presentations were conducted with all work groups. Presentations were conducted with Interstate staff on food and yard debris composting. Brown bag was held on DEQ life-cycle analysis of bottled water.
- Three LEED accredited WB staff
- Sustainability Coordinator has completed 50% of U of O Sustainability Certificate requirements

	Ongoing Actions	Lead Staff
Green Team	These cross-functional teams identify and help implement actions to incorporate sustainable practices into daily office and work practices.	ResPro/Stewardship – Kim Dinan
Energy Team	Energy team works on both renewable energy projects and energy efficiency improvements. Effort also includes energy education for employees.	Engineering – Marie del Toro
Asset Management	Incorporate sustainability principles into the following processes as opportunities allow: <ul style="list-style-type: none"> • Basis of design reports • Asset management plans • Standards and specifications 	ResPro/Stewardship - Janet Senior
General Education	<ul style="list-style-type: none"> • Install and maintain info kiosks at Portland Building and Interstate • Create and distribute educational materials – articles in Dispatch, e-mail information, employee sustainability webpages, signage, fact sheets, etc. • Provide general sustainability training – brown bags and workgroup presentations on WB-related sustainability actions • Host annual sustainability fair at the Portland Building. Co-host annual safety/sustainability fair at Interstate. • Sponsor voluntary NWEI discussion courses as appropriate 	ResPro/Stewardship – Matt Weatherly
Sustainability Credentials for WB Staff	<ul style="list-style-type: none"> • U of O Sustainability Certificate for Sustainability Coordinator by July 2012 	ResPro/Stewardship – Janet Senior

Progress Reporting and Measuring Success

The Water Bureau will provide status information in the annual plan update. When available, trend data will be included. The plan update will be made available to the Bureau of Planning and Sustainability and the Water Bureau Management Team.

Communication Strategy

This updated plan will be posted on the Water Bureau's website. Periodic highlights of implementing the plan will be posted on the blog and included in the employee newsletter. A multi-faceted employee education program was initiated in 2009, including rotating information boards and sustainability fairs.

Appendix: Other Related Water Bureau Programs

Many of the programs implemented by the Water Bureau on a daily basis are in the general category of “sustainable.” Some of the ongoing programs and activities not covered in the Action Plan include the following:

- **Residential Water Conservation:** The bureau’s residential water conservation program uses education and outreach, complemented by rebate programs for targeted customers and pilot projects to test out new water conservation devices. Water providers in the Portland metropolitan area and Metro work together, through the Regional Water Providers Consortium, to target shared conservation messages to residential customers.
- **Business, Industry, & Government (BIG) Water Conservation:** The BIG program helps businesses and multifamily facilities reduce water use by diagnosing increases in water usage, finding inefficient or malfunctioning equipment, and helping to improve existing methods and processes.
- **Bull Run Watershed Protection:** The Bull Run watershed has been Portland’s primary water supply since 1895. The more than 100 square mile area is closed to the public to protect drinking water quality. Commercial timber harvest is prohibited. No recreational uses are allowed. Maintenance projects are scheduled to avoid impacts to wildlife.
- **Bull Run Water Supply Habitat Conservation Plan:** Implementation of the Bull Run Habitat Conservation Plan, adopted by City Council in 2008 and approved by the National Marine Fisheries Service in 2009, is improving water temperatures, river flows, and habitat conditions in the Bull Run and the Sandy rivers to benefit threatened fish populations.
- **Groundwater Protection:** The Columbia South Shore Wellfield is used as an emergency backup and also provides supplemental supply during the summer demand season. The protection program includes regulations adopted by Portland, Gresham and Fairview to address use and storage of hazardous materials that pose a threat to groundwater. Educational programs are also provided.
- **Low-Income Programs:** The bureau provides financial assistance to low-income families through the Water/Sewer Low Income Assistance Program. The program consists of crisis assistance, bill discounts, fixture repairs, payment extensions, and interest/penalty write-offs.
- **HydroParks:** The HydroPark program converts suitable water system properties into neighborhood parks and greenspaces, thereby increasing livability of the surrounding neighborhoods. HydroParks are equipped with sustainable features when possible, such as recycled benches and/or picnic tables, water conservation demonstration gardens, stormwater swales, and community gardens.

- **Employee Safety and Health:** The Water Bureau is the first city bureau to be honored with Safety and Health Recognition Program (SHARP) certification by the State of Oregon. The program involves a comprehensive audit and inspection of 56 safety program components.
- **Lead Hazard Reduction Program:** The Lead Hazard Reduction Program is an innovative effort to reduce not just hazards from lead in water but all hazards posed by lead. In addition to water treatment and monitoring, the program provides education, outreach and testing for customers in the Bull Run water supply service area. The program is implemented in coordination with state and local public health agencies.

More information about all of these programs is available on the Water Bureau website: www.portlandonline.com/water/