

A photograph of the Grand Coulee Dam, showing water cascading over the spillways. The dam structure is visible at the top of the image.

Energy Matters in Washington State

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Grand Coulee Dam

WASHINGTON STATE UNIVERSITY
 EXTENSION ENERGY PROGRAM

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Introduction

“Energy Matters in Washington State” is a quick reference resource designed to help public and academic librarians guide patrons to the best information about energy production, consumption, conservation and regulation in Washington State. Energy information about our state is spread among several agencies and organizations, which sometimes makes it difficult to find. Our purpose is to bring this array of information to a central location and highlight the most reputable and useful resources.

“Energy Matters in Washington State” is a reincarnation of what was once a print publication produced by the WSU Energy Program Library and distributed to libraries statewide. This new, online-only publication will be updated periodically.

For more information, contact the WSU Energy Program Library:

(360) 956-2076

or send an email to library@energy.wsu.edu.

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Energy Data and Statistics

Energy Information Administration, Washington, DC

A part of the **U.S. Department of Energy**, the Energy Information Administration is one of the best sources for nationwide energy data and statistics. Washington State information is available by fuel source, including renewables (solar, wind and geothermal energy); petroleum, natural gas, electricity, nuclear and coal. Price and consumption data are presented by sector: residential, commercial, industrial, transportation, and utilities. The following link is to the Washington State Profile Overview page which includes an overview of energy issues with an interactive map; from there the other information is available.

<http://www.eia.gov/state/?sid=wa>

The U.S. Census Bureau

A Census Bureau publication, "*Historical Census of Housing Tables: House Heating Fuel*," covers 60 years of census data on housing characteristics, including home heating fuel by state. The site offers some national analysis of home heating trends, followed by decennial data for each state from 1940-2000.

<http://www.census.gov/hhes/www/housing/census/historic/fuels.html>

Washington Public Utility Districts Association

The **Washington Public Utility Districts Association** represents 28 nonprofit, community-owned utilities that provide electricity, water and wastewater services, and wholesale telecommunications to almost 1 million Washington State residents. The association has posted 2011 summary data including Total Customers, Line Miles Installed, Sales, Revenue from Sales, and Annual Sales per Customer.

http://www.wpuda.org/PDF_files/About_PUDs_2013.pdf

Washington State Department of Commerce (COM)

The Energy Policy Division of the **Washington State Department of Commerce** maintains and periodically updates a collection of 17 energy indicators for Washington State. These Indicators are found in Chapter 5 page 53 (*pdf page 63*) of the *Biennial Energy Report*.

<http://www.commerce.wa.gov/Documents/2013-biennial-energy-report.pdf>

Washington State Data Book – Energy

This **Office of Financial Management** (OFM) site provides historic information from the Washington State Data book including petroleum, natural gas and electricity consumption, and prices by commercial, residential, and industrial sectors. Scroll down to the section on Energy. Data may be downloaded as an Excel® spreadsheet or pdf file.

<http://www.ofm.wa.gov/databook/default.asp#energy>

Washington Utilities and Transportation Commission (WUTC)

The Washington Utilities and Transportation Commission regulates only investor-owned electric and gas utilities. The Commission prepares reports titled “Annual Statistics of Electric Companies” and “Annual Statistics of Gas Companies,” which give detailed company financial and operating statistics from 1999 to 2011. Electric utilities included are: Pacific Power & Light, Puget Sound Energy and Avista Utilities. Gas utilities included are: Cascade Natural Gas, Northwest Natural Gas, Puget Sound Energy, and the Avista Corporation.

“Annual Statistics of Electric Companies”

<http://www.utc.wa.gov/regulatedIndustries/utilities/energy/Pages/financialDataForElectricCompanies.aspx>

“Annual Statistics of Gas Companies”

<http://www.utc.wa.gov/regulatedIndustries/utilities/energy/Pages/financialDataForGasCompanies.aspx>

Renewable Energy Maps

Geothermal

The **Idaho National Engineering and Environmental Laboratory** (INEEL) publishes a digital map showing geothermal resources in Washington State. Geothermal energy is derived from heat that occurs naturally in the earth.

According to the laboratory website:

“For commercial use, a geothermal reservoir capable of providing hydrothermal (hot water and steam) resources is necessary. Geothermal reservoirs are generally classified as being either low temperature (<150° C) or high temperature (>150° C). Generally speaking, the high temperature reservoirs are the ones suitable for, and sought out for commercial production of electricity.”

<http://www.energy.wsu.edu/documents/wa.pdf>

Dynamic Maps from the National Renewable Energy Laboratory (NREL)

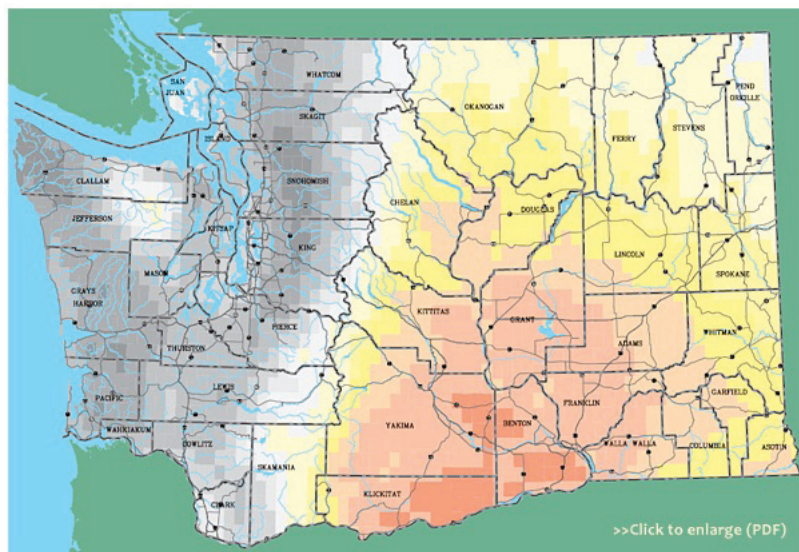
NREL’s GIS team develops maps for various renewable resources; view solar, wind, biomass resource, geothermal, marine, and hydrokinetic and hydrogen maps in a live-interactive session. Also provided from this page are links to the Federal Energy Management program maps.

http://www.nrel.gov/gis/maps.html#resource_atlas

Solar and Wind Power Maps – Resource Potential in Washington

The **Washington State Department of Ecology** has produced these maps of Washington, clickable by county.

http://www.ecy.wa.gov/climatechange/greenenergy_maps.htm



Reports and Publications

These selected reports and publications are from various state, regional, and national energy agencies and organizations.

Washington State Department of Commerce Energy Office Reports

By law, the **Washington State Department of Commerce** is required to produce research reports on energy strategies, trends in energy consumption and prices, bioenergy, and other energy related topics. A link to information about these reports including the most recent *Biennial Energy Report* is found here.

<http://www.commerce.wa.gov/Programs/Energy/Office/Topics/Pages/Reports.aspx>

Following are several Energy Office reports:

Biennial Energy Report: Issues, Analysis, and Updates – 2013

In 2012, Washington issued its first comprehensive *Washington State Energy Strategy* in 20 years. This report offers the first look back at implementation of the new strategy. The report covers energy consumption and price trends, electricity trends, greenhouse gas emissions, and energy intensity indicators, as well as an examination of the implications of Washington's energy trends.

<http://www.commerce.wa.gov/Documents/2013-biennial-energy-report.pdf>

Biennial Report on Critical Energy Infrastructure and Key Resources, Washington State - April 2013

This report is a requirement of the **Washington State Sector Specific Plan for Critical Energy Infrastructure**, an implementation plan describing how the State and energy companies partner to identify and protect critical energy infrastructure. It is intended to provide an understanding of the efforts being taken to identify and protect energy infrastructure critical to the State of Washington.

<http://www.commerce.wa.gov/Documents/Biennial-Critical-Infrast-Report-2013.pdf>

Energy Freedom Program: 2010 Status Report – December 2010

The **Energy Freedom Program** was established in 2006 to “promote public research and development in bioenergy, and to stimulate the construction of facilities in Washington to generate energy from farm sources or convert organic matter into fuels.” (RCW 43.325.001) This report addresses projects associated with state-level funding under the original Energy Freedom Account.

<http://www.commerce.wa.gov/Documents/Energy-Freedom-Report-2010.pdf>

Energy Newsletter

The **Department of Commerce** produces a monthly newsletter of timely topics related to Energy. Links to the current and past newsletters are found here (*scroll down to the heading “Energy Newsletters”*).

<http://www.commerce.wa.gov/Programs/Energy/Office/Pages/default.aspx>

Fuel Mix Disclosure

The *Fuel Mix Disclosure* is written to inform electric utility customers about fuel sources powering their homes. Reports are available in pdf format back to the year 2000.

<http://www.commerce.wa.gov/Programs/Energy/Office/Utilities/Pages/FuelMix.aspx>

Washington State Energy Strategy with Forecasts 2012-2035

Issues and Analysis for the Washington State Legislature and Governor - December 2011

This is the first Energy Strategy written in Washington State for almost 20 years. As most energy use and greenhouse gas production is in the transportation sector the primary focus of the current strategy is on transportation.

<http://www.commerce.wa.gov/Documents/2012WASStateEnergyStrategy.pdf>

Washington State Electric Utility Resource Planning – 2012 Report - December 2012

By law (RCW 19.280), all state utilities must develop, update, and provide resource plans or integrated resource plans to the Department of Commerce every two years.

<http://www.commerce.wa.gov/Documents/Electric-Utility-Resource-Planning-2012-Report.pdf>

Reports from Other State, Regional and National Agencies and Organizations

2007-08 Gas Price Study Final Report

State residents saw gasoline prices climb dramatically in spring 2007. This document reports on the investigation of factors that influence Washington’s gasoline prices. The study focused on whether regional price differences can be identified and explained analytically, and if not, whether the differences suggested illegal activity.

http://www.atg.wa.gov/uploadedFiles/Another/Safeguarding_Consumers/Antitrust/Unfair_Trade_Practices/Gas_Prices/41708gasstudy.pdf

Builder's Field Guide (BFG) - Eighth Edition - 2009

Washington State has recently adopted the **2012 Washington State Energy Code**. While this 2009 edition of the **Builder's Field Guide** has valuable information about building practices and much of it still is valid, but it is important to note that not everything in the 2009 BFG applies to the 2012 Code.

http://www.energy.wsu.edu/Documents/entire_guide.pdf

Greenhouse Gas Inventory and Reference Case Projections 1990-2020 – December 2007

Relying on the State projections of population and employment growth, projections of electricity use, and input from staff at Commerce, Ecology, and other departments, a simple reference case projection was developed for Green House Gas emissions through 2020.

<http://www.ecy.wa.gov/climatechange/docs/Updated1990GHGreport20071219.pdf>

Green Power Programs in Washington: 2011 Report to the Legislature – December 2011

Washington State law requires larger electric utilities to offer their customers a “green power” electricity product – that is electricity produced from renewable resources. This Commerce and UTC report presents information about these utility programs for the Legislature’s review.

<http://www.utc.wa.gov/regulatingIndustries/utilities/Documents/2011%20-%20Green%20Power%20Programs%20in%20Washington.pdf>

Northwest Energy Coalition Reports and Studies

This page links to several studies including ***The Power of Efficiency: Pacific Northwest Energy Conservation Potential Through 2020***, a report which assesses the region’s potential for meeting load growth; ***Solving the Energy Efficiency Puzzle: Achieving Bigger Savings in the Pacific Northwest***, which addresses the keys to increasing energy savings in the Pacific Northwest and the most recent ***Tellus Report***, which determines that the future power needs of the Northwest can be met by efficiency and, what have become cheaper, renewables investments; fossil fuels may not be needed.

<http://www.nwenergy.org/category/resources-publications/studies/>

Powerful Choices: Survey of Retail Green Power Programs in the Pacific Northwest

The Renewable Northwest Project has produced the **Powerful Choices** report since 2000 to track the impact of voluntary purchases of green power by utility customers. On this page you will find links to the current and previous “**Powerful Choices**” reports in PDF format. The most recent report shows that over 177,000 utility customers at more than 40 utilities in the Northwest have voluntarily elected to purchase renewable energy.

<http://www.rnp.org/node/917>

Review of the Economic and Workforce Effects of Biomass and Solar Electricity Generation in Washington State - 2012

This report provides a review of existing economic and employment research as well as data for Washington State related to the production of electricity from renewable biomass and solar resources.

<https://fortress.wa.gov/esd/employmentdata/docs/special-reports/biomass-solar-report-2012.pdf>

Small Wind Electric System – A Washington Consumer’s Guide - 2007

Produced by the **National Renewable Energy Laboratory** and the **U.S. Department of Energy**, this is a practical guide for the consumer answering questions such as is wind energy practical for me; how much do wind systems cost; and what size wind turbine do I need?

<http://www.nrel.gov/docs/fy07osti/41391.pdf>

Washington Consumer’s Guide: Solar Electric Systems – 2003

Mike Nelson, formerly of the Washington State University Extension Energy Program, adapted this 22-page document from a publication produced in 2000 for the U.S. Department of Energy. It explains equipment, financing options, siting and sizing considerations, regulatory requirements, and net-metering agreements.

<http://cru.cahe.wsu.edu/CEPublications/wsuceep03-48/wsuceep03-48.pdf>

Washington’s Solar Electric Industry: Sunrise or Sunset – 2003

Mike Nelson and Gary Shaver, at the time both employees of the Washington State University Extension Energy Program, wrote this 26-page publication analyzing the potential development of Washington State’s solar electric industry.

<http://cru.cahe.wsu.edu/CEPublications/wsuceep03-08/wsuceep03-08.pdf>

Washington State Electricity Profile – 2010

This is a page of statistical information from the **Energy Information Administration** of the U.S. government. Information is downloadable in Excel® and pdf formats.

<http://www.eia.doe.gov/electricity/state/washington/>

Washington State Energy Code Legislative Report – 2012

By law (RCW 19.27A.160), the Washington State Building Code Council must report on progress toward a seventy percent reduction in net annual energy consumption in newly constructed residential and nonresidential buildings by the year 2031. This is the most recent report at time of publication.

<https://fortress.wa.gov/ga/apps/sbcc/File.ashx?cid=2498>

Washington State Quarterly Gasoline Report

The Attorney General's Office regularly monitors gasoline pricing to determine whether price increases indicate possible anticompetitive behavior or reflect normal market forces. This report, produced by the Washington Attorney General's Antitrust Division, provides information to help consumers understand the many factors that contribute to our current gas price situation.

<http://www.atg.wa.gov/Antitrust/GasPrices/QuarterlyGasolineReport.aspx>

Sixth Northwest Conservation and Electric Power Plan

Adopted in 2010, this is the current 20-year plan that was developed by the Northwest Power and Conservation Council, an interstate governmental compact that includes Washington, Oregon, Montana, and Idaho. The Council is tasked with producing a new 20-year plan every five years. Taking into consideration the risks to the region's electricity future, the Plan concludes that efficient electricity use poses the least risk and the lowest cost of any other power resource. The Seventh Power Plan is under development and due to be completed in 2015.

http://www.nwcouncil.org/media/6383/SixthPowerPlan_Overview.pdf

Sixth Power Plan Mid-Term Assessment Report

This is the report on the region's progress toward the implementation of the Sixth Power Plan. It, also, considers the changing energy field and suggests topics for the Seventh Power Plan.

<http://www.nwcouncil.org/energy/powerplan/6/>

Laws and Legislation

State Energy Office

Chapter 43.21F of the Revised Code of Washington (RCW) sets out which agencies are responsible for various aspects of energy planning and regulation in our state.

<http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21F>

The statute is titled STATE ENERGY OFFICE. However, due to budget constraints, the state Legislature closed the Energy Office in 1996 and turned over responsibility for energy education, applied research, and technology transfer programs to Washington State University. Today, the WSU Extension Energy Program in Olympia handles these functions.

Additionally, the Legislature assigned responsibility for energy efficiency in public buildings to the state Department of Enterprise Services.

Finally, by law, the Department of Commerce retains its planning and advisory roles through its Energy Policy Division, which, also, is known as the Washington State Energy Office.

State Energy Legislation Tracking Tool

The status of energy-related bills pending or recently passed by the Washington Legislature is on the WSU Energy Program website.

<http://www.energy.wsu.edu/EnergyLibrary/EnergyLegislationTrackingTool.aspx>

Energy Code Resources

This page provides access to information about residential permit applications. Included are links to the text of the 2012 Energy code as well as Energy Code training information, compliance publications, and a list of those who meet the requirements to test ducts under the 2012 code.

<http://www.energy.wsu.edu/code/>

Net Metering in Washington

In 1998, Washington state passed a law that allows utility company customers who generate their own power from renewable sources to get credit for electricity they generate in excess of what they use. The credit is applied to the customer's monthly energy bill.

See Revised Code of Washington 80.60 NET METERING OF ELECTRICITY at

<http://apps.leg.wa.gov/RCW/default.aspx?cite=80.60>

Seattle Energy Code

This site links to the webpage of the energy code currently in effect. However, the Seattle Energy Code is due to be updated in fall of 2013 when the Seattle version of the *Washington State 2012 Building Code* is adopted. “Our completely revised 2012 edition will help reduce the energy used by Seattle’s buildings in the most cost-effective manner possible.”

<http://www.seattle.gov/dpd/codesrules/codes/energy/overview/>

Washington State Energy Code

On July 1, 2013 Washington State adopted the 2012 WSEC. Links to the code, both residential, and commercial, can be found on the Washington State Building Code Council webpage (*scroll about 2/3rds down to “Energy Code”*).

<https://fortress.wa.gov/ga/apps/sbcc/Page.aspx?nid=14>

For residential Washington State Energy Code support, contact energycode@energy.wsu.edu or call the WSEC Residential Code Hotline at (360) 956-2042.

For non-residential Washington State Energy Code support, visit the Northwest Energy Efficiency Council (NEEC) website at

<http://www.neec.net/energy-codes>

or contact: Lisa Rosenow – lisa@putnamprice.com – (206) 624-0283 or Stan Price – stan@putnamprice.com – (206) 292-5592

Washington State Energy Legislation and RCWs

This is a list of all the RCWs (Revised Code of Washington) and WACs (Washington Administrative Code) in Washington State. Links are also provided to current and historic legislation concerning energy issues.

<http://www.commerce.wa.gov/Programs/Energy/Office/Pages/EnergyLaws.aspx>

Contacts:

Washington State University Energy Program

(360) 956-2000

<http://www.energy.wsu.edu/>

Washington State Department of Enterprise Services

(360) 902-7272 or (360) 407-9372

<http://www.des.wa.gov/services/facilities/Energy/Pages/EnergyContact.aspx>

Washington State Department of Commerce, Energy Policy Division;

(360) 725-3118

<http://www.commerce.wa.gov/Programs/Energy/Office/Pages/Contact-Us.aspx/>

Rebates, Incentives and Other Assistance

Your utility is the best place to start looking for rebates and other incentives on the purchase of appliances or renewable energy equipment, such as solar panels. Ask for the *conservation manager*.

Some utilities in Washington State offer incentives on solar-powered residential heating systems or other renewable energy systems. (See the *Database of State Incentives for Renewable Energy* below.) The State of Washington offers a sales tax exemption on the purchase of equipment used to generate renewable power. Retailers should have the exemption form, or visit the **Washington State Department of Revenue**'s website and download the Buyers' Retail Sales Tax Exemption Certificate. http://dor.wa.gov/Docs/Forms/Excstx/ExmptFrm/BuyersRetailTxExmptCert_E.pdf

The Database of State Incentives for Renewable Energy (DSIRE)

DSIRE is a comprehensive, up-to-date listing of federal, state and utility incentives, which is searchable by state. The database is a project of the **Interstate Renewable Energy Council**, funded by the U.S. Department of Energy and managed by the North Carolina Solar Center.

<http://www.dsireusa.org/>

Washington State Department of Revenue

Many of the tax incentives in Washington State are administered by the **Department of Revenue**. See a list of Renewable and Green Energy Incentives at <http://dor.wa.gov/content/findtaxesandrates/taxincentives/incentiveprograms.aspx#Energy>

For more information about incentives, contact Beth Mills - (360) 705-6642.

Green Building Incentives and Assistance

Seattle's **Department of Building and Development** has gathered information and resources on incentives for building green. Some of these are code- or tax-based, while others involve cash paid for energy and water conservation.

<http://www.seattle.gov/dpd/greenbuilding/resources/incentivesassistance/default.asp>

Low-Income Home Energy Assistance

The Low-Income Home Energy Assistance Program is federally funded through the **U.S. Department of Health and Human Services** and administered through the state Department of Commerce. The purpose of the program is to maintain a warm, safe and healthy environment for households with young children, the elderly, and the disabled. A link to a chart of income eligibility levels is found here: <http://liheap.ncat.org/profiles/povertytables/FY2011/popstate.htm>

For those who qualify, there are often waiting lists for financial assistance.

For more information on how to apply, go to:

<http://www.commerce.wa.gov/Services/individualassistance/Low-Income-Home-Energy-Assistance-Program/How-to-Apply/Pages/default.aspx>

Washington State University Energy Program Library

Anyone who lives in Washington State can get free answers to questions about residential energy efficiency and conservation through the WSU Energy Program Library. Call the Library at (360) 956-2076, or email your question to library@energy.wsu.edu.



Directory of Energy Organizations

Washington State and the Northwest

The **Bonneville Power Administration**, under the U.S. Department of Energy, markets transmission services and wholesale electrical power from hydro projects, one nuclear plant, and small nonfederal power plants in the Pacific Northwest.

<http://www.bpa.gov>

The **City of Seattle's City Green Building**, a subsidiary of the city's Department of Planning and Development, is an organization whose mission is to make green building the standard practice in Seattle through education, technical assistance, and incentives.

<http://www.cityofseattle.net/dpd/GreenBuilding/>

The **Climate Impact Group** is an interdisciplinary research group studying the impacts of natural climate variability and global climate change on the U.S. Pacific Northwest.

<http://www.cses.washington.edu/cig/>

Climate Solutions is a nonprofit, based in Olympia, Washington; it is dedicated to halting global warming by helping to develop practical and profitable solutions in the Northwest.

<http://www.climatesolutions.org/>

Energyexperts.org is a gateway to timely and objective energy efficiency and renewable energy information resources for building owners, operators and occupants, including publications, multimedia programs, and Q&As.

<http://www.energyexperts.org/>

The **Energy Facility Site Evaluation Council**, a state agency that coordinates all of the evaluation and licensing steps for siting major energy facilities in Washington, oversees construction, and manages environmental and safety oversight.

<http://www.efsec.wa.gov/default.shtm>

Energy Northwest is a joint operating agency comprised of public utilities that operates four electricity generating stations, including a nuclear facility near Richland, Washington.

<http://www.energy-northwest.com/whoweare/Pages/default.aspx>

The **Foundation for Water and Energy Education** is an organization dedicated to providing balanced information for students, teachers, and others about water as a Northwest renewable energy resource.

<http://fwee.org/>

The **Geo-Heat Center**, funded by the U.S. Department of Energy, provides information about geothermal projects and development.

<http://geoheat.oit.edu/>

The **Low-Income Home Energy Assistance Program**, a federally-funded program formed to assist households in maintaining a warm, safe, and healthy environment.

<http://www.acf.hhs.gov/programs/ocs/programs/liheap>

The **Northwest EcoBuilding Guild** is an association of builders, designers, home owners, tradespersons, manufacturers, and suppliers interested in ecologically sustainable building.

<http://www.ecobuilding.org/>

The **Northwest Energy Coalition**, an alliance of environmental and civic organizations, utilities, and businesses that promotes renewable energy, conservation, consumer protection, low-income energy assistance, and fish and wildlife restoration on the Columbia and Snake rivers.

<http://www.nwenergy.org/>

The **Northwest Water and Energy Education Institute** offers learning opportunities throughout the Northwest for practicing professionals in the energy industry including an energy management certification program.

<http://www.nweei.org/>

The **Northwest Energy Efficiency Alliance (NEEA)** is a nonprofit corporation supported by a federal power administration, electric utilities, state governments, public interest groups, and others; it promotes affordable, energy efficient products.

<http://neea.org/>

The **Northwest Energy Efficiency Council (NEEC)** is a nonprofit trade association of the energy efficiency industry.

<http://www.neec.net/>

The **Northwest Gas Association** is an industry trade organization of the Pacific Northwest natural gas industry.

<http://www.nwga.org/>

The **Northwest Hydroelectric Association** is a regional trade organization.
<http://www.nwhydro.org/>

The **Northwest Power and Conservation Council**, created by Congress, oversees planning for electrical generation at Columbia River Basin hydropower dams, and related fish and wildlife protection.
<http://www.nwcouncil.org/>

The **Northwest Power Pool** is a membership forum for the electrical industry.
<http://www.nwpp.org/>

The **Northwest Public Power Association** is an organization representing consumer-owned, locally controlled utilities in the western United States and Canada.
<http://www.nwppa.org/>

Northwest SEED (Sustainable Energy for Economic Development) is a non-profit organization working throughout the Pacific Northwest to establish a clean, diverse, and affordable Northwest energy system based on efficient use of renewable resources, with local control and ownership of energy issues.
<http://www.nwseed.org/>

The **Renewable Northwest Project**, a coalition of public-interest organizations and energy companies, promotes development of the region's renewable resources.
<http://www.rnp.org/>

Solar Washington is a private, not-for-profit chapter of the American Solar Energy Society.
<http://www.solarwashington.org/>

The **Washington Association of Building Officials** is a nonprofit, professional association of state, county, city, and town building officials.
<http://www.wabo.org/>

The **Washington State Department of Commerce – State Energy Office** is the agency responsible for developing state policy for an economically and environmentally sound energy future for Washington.
<http://www.commerce.wa.gov/Programs/Energy/Office/Pages/default.aspx>

The **Washington State Department of Enterprise Services** is the state agency responsible for energy efficiency in public buildings. The legislature created this agency in 2011 from parts of the General Administration, Printing, Information Services, Personnel, and Financial Management agencies.

<http://www.des.wa.gov/services/facilities/Energy/Pages/default.aspx>

The **Washington Public Utility Districts Association** is an organization that represents nonprofit, community-owned utilities that provide electricity, water, sewer, and broadband telecommunications.

<http://www.wpuda.org/index.cfm>

The **Washington Rural Electric Cooperative Association** is a lobbying and advocacy organization representing the interests of customers served by member utilities.

<http://www.wreca.coop/>

The **Washington State University Energy Program** provides information and technical assistance to promote industrial, commercial, and residential energy efficiency.

<http://www.energy.wsu.edu/>

The **Washington Utilities and Transportation Commission** is the state board that regulates the rates, services, and practices of privately owned utilities and transportation companies.

<http://www.utc.wa.gov/Pages/default.aspx>

The **Western Energy Institute** is a regional association serving the electric and gas industries, both public and private, throughout the Western United States and Canada.

<http://www.westernenergy.org/>

The **Western Washington Clean Cities Coalition**, a voluntary collaboration of public and private agencies and businesses, promotes the use of alternative fuels.

<http://www.wwcleancities.org/>

For a more comprehensive and detailed listing of organizations with a direct or indirect interest in energy, see the

Northwest Power and Conservation Council's

"Directory of Organizations," on-line at

http://www.nwcouncil.org/media/29731/2009_13.pdf

Energy Activities: Teaching Tools

Bonneville Power Administration (BPA) - Classroom Presentation

Employee volunteers from BPA are available to make classroom presentations within the BPA service area. Presentations are about an hour long, and can be tailored for age and classroom curricula. Specific information about presentations is found here:

<http://www.bpa.gov/PublicInvolvement/CommunityEducation/Pages/Classroom-presentations.aspx>

To schedule a classroom visit, contact Christy Adams at cfadams@bpa.gov.

Bonneville Power Administration: Curriculum & Activities

Provides curricula and various other instructional materials for K-12 on energy related topics.

<http://www.bpa.gov/PublicInvolvement/CommunityEducation/CurriculumActivities/Pages/default.aspx>

National Energy Foundation: Resources for Education

Provides instructional material, teacher training, and student programs.

<http://nef1.org/natural-gas-fulfillment/energy-education-materials/>

U.S. Department of Energy Education Resources

Provides energy related curriculum links from the U.S. Department of Energy's Energy Smart Schools program.

<http://www1.eere.energy.gov/education/lessonplans/default.aspx>

Energy Activities: Field Trips

Some Washington State utilities and local governments offer access to facilities in the vicinity of their hydroelectric projects. Following are some examples of places to visit (*see map*). For other ideas, call your utility and ask for the conservation manager; talk to your school district's resource conservation manager.



Bonneville Lock and Dam

Location: Columbia River area, west of Stevenson, Washington

Hours: Visitors center (Washington side), 9 a.m. to 5 p.m. daily, except Thanksgiving, Christmas, and New Year's Day

Comments: Facilities subject to security closures. Programs on fish, hydro-power, navigation, history, or geology. The Washington Shore visitor complex offers an easily accessible view of the powerhouse. Generators can be viewed from an area 85 feet above the powerhouse floor. Inside the fish-viewing building and the adjacent Visitor Orientation building are exhibits on the history of fish in the area and how a modern hydropower plant works.

Schedule: Call for group reservations

Contacts: (541) 374-8820

Website: <http://www.nwp.usace.army.mil/Locations/ColumbiaRiver/Bonneville.aspx>

Bonneville Power Administration Laboratory Tour

Location: Vancouver, Washington

Hours: Advance reservations required

Comments: School tours available for the high-voltage, and mechanical labs, and a visit with “Dr. Science.” Tours are given for one week in the fall and one week in the spring, and are offered on a first-come, first-served basis. About 2 hours.

Maximum group size: 100.

Contacts: Kelly Payne, email: kapayne@bpa.gov

Website: <http://www.bpa.gov/PublicInvolvement/CommunityEducation/Pages/Tours.aspx>

Clark County Public Utility Tours

Location: Vancouver, Washington

Hours: Tuesdays, Wednesdays, and Thursdays from 9:30 a.m. to 11:30 a.m., October through June.

Comments: The tour, geared toward fourth and fifth graders, features a video presentation, a walking tour of several parts of the operations center, and a hands-on presentation of electricity and magnetism,

Schedule: Visit company website and select dates from calendar.

Contacts: (360) 992-8728 or email studenteducationprogram@clarkpud.com

Website: <http://www.clarkpublicutilities.com/index.cfm/community-involvement/school-programs/student-tours/>

Grand Coulee Dam

Location: Coulee Dam and Grand Coulee, Washington

Hours: Visitor Center open daily (except Thanksgiving, Christmas, and New Year’s Day) from 9:00 a.m. to 5:00 p.m., with extended hours between Memorial Day and September 30.

Comments: The tour lasts about 50 minutes. Tours include transportation in a van, where you are taken to the Pump-Generating Plant. Highlights include viewing the large pumps used for transporting water from Lake Roosevelt to the Columbia Basin Irrigation Project and concluding with a van ride across the top of the dam. Accessible tours are available with advanced notice.

Schedule:

- May 25 - July 31: 8:30 a.m. - 11 p.m.
- August 1 - 31: 8:30 a.m. - 10:30 p.m.
- September 1 - 30: 8:30 a.m. - 9:30 p.m.

Contact: Visitor Center - (509) 633-9265

Website: <http://www.usbr.gov/pn/grandcoulee/gcvc/index.html>

Kettle Falls Generating Station

Location: North of Kettle Falls, Washington

Hours: 7:00 a.m. - 3:30 p.m. Open year round except during maintenance shutdown in May or June.

Comments: This thermal generating facility, an Avista subsidiary, is fueled by wood waste from sawmills and pulp mills.

Maximum group size: 20

Schedule: Call at least one day in advance.

Contact: (509) 738-2449

Website: <http://www.avistautilities.com/inside/resources/kettlefalls/Pages/default.aspx>

LOTT's Water Education and Technology Center

Location: 500 Adams Street NE, Olympia, Washington

Hours: Monday - Saturday, 10:00 a.m. - 4:00 p.m., except on observed holidays

Comments: Interactive exhibits, weekend family activities, and environmental presentations are available to make learning all about water a fun experience.

Call ahead to make group reservations, or to find out when groups will be in the exhibit area.

Schedule: Call for group reservations.

Contact: (360) 528-5742, or email ambersmith@lottcleanwater.org

Website: <http://www.lottcleanwater.org/education.htm>

Rocky Reach Hydroelectric Project

Part of the Chelan County Public Utility District

Location: On U.S. 97A seven miles north of Wenatchee, Washington.

Hours:

Visitor Center: 9 a.m. - 4 p.m. March 1 - October 31.

Museum: 9 a.m.- 3:30 p.m.

Park: 9 a.m.- 4:30 p.m. (open until 9 p.m. May 1 - September 1.

Comments: Self-guided tours of historical galleries, exhibit areas, and fish viewing. A 90-seat theater shows movies throughout the day and upon request.

Guided tours available by appointment.

Schedule: Call 10 days in advance to schedule school tours or reserve picnic shelter.

Contact: Visitors Center – (509) 661-4960

Website: <http://www.chelanpud.org/visitor-center.html>

Seattle City Light

Seattle City Light has hydroelectric generating facilities in several regions of the state.

The Boundary Hydroelectric Project

Location: is located in northeastern Washington on the Pend Orielle River, about 107 miles north of Spokane.

Comments: See turbines and electrical generating facilities, plus a visitor center in a limestone cavern. Reservations are not required, but groups of 10 or more should call in advance.

Schedule: Free guided group tours are available Memorial Day weekend through Labor Day weekend.

Contact: (509) 446-3083, and press “9” for more information. Then, press “0” to schedule a tour.

Website: <http://www.seattle.gov/light/tours/boundary/>

The Skagit River Hydroelectric Project

Location: The project is about 140 miles north of Seattle off the North Cascades Highway (State Route 20) near Newhalem, Washington.

Comments: The project includes three dams: Gorge, Diablo and Ross, and is on the National Register of Historic Places. The utility offers commercial tours, but visitors can also take self-guided walks to attractions such as the Gorge Powerhouse and Ladder Creek Falls. Due to security concerns, there is no public access to Ross and Diablo powerhouses, the Incline Railway, and Diablo Dam.

Contact: (360) 854-2589

Email: skagittours@seattle.gov

Website: <http://www.seattle.gov/light/tours/Skagit/powerhouse.asp>

For more information, see Seattle City Light’s website:

<http://www.cityofseattle.net/light/tours/>

Spokane Waste-to-Energy Facility

Owned and operated by the **City of Spokane**, this facility burns municipal refuse.

Location: S. 2900 Geiger Blvd., Spokane, Washington.

Hours: Varies

Comments: Tours open to anyone, but need to call to make arrangements. Can do classroom tours.

Schedule: Must call to make an appointment.

Contact: (509) 625-6521

Tacoma Power

Locations:

Cowlitz River Project: near Mossyrock, Washington.

Cushman Project: near Hoodspport, Washington.

Nisqually River Project: near Eatonville, Washington.

Hours: Monday-Friday, 8 a.m. - 3 p.m.; year round except holidays.

Comments: Each tour includes a powerhouse visit to see a penstock, a generator, and the control room. A trip to the top of the dam is also included.

Schedule: Call (253) 502-8759 to schedule a tour

Contact: Randy Sternes, email: rstearne@cityoftacoma.org

Wild Horse Wind and Solar Facility and Renewable Energy Center

Location: 16 miles East of Ellensburg

Hours: 9 a.m. to 5:30 p.m. daily, April through November, weather permitting.

Comments: Guided tours daily at the Renewable Energy Center. Reservations are not needed. To schedule a group tour of Wild Horse, please call to make arrangements. Guided tours are free. All participants are required to wear closed-toe shoes and sign a liability waiver form.

Schedule: Daily at 10 a.m. and 2 p.m., weather permitting

Contact: (509) 964-7815

Website: <http://www.pse.com/aboutpse/ToursandRecreation/WildHorse/Pages/default.aspx>

Other places to visit in your own backyard

- Your local sewage and wastewater treatment facility may be using waste heat or sludge for renewable energy production.
- Your local landfill may be using garbage or other waste to produce renewable energy.
- Your local utilities can tell you where they get electricity and if those facilities are open to visitors.
- Your local Master Builders Association may be able to arrange a tour of an energy-efficient home.
- Your local recycling center might offer tours.

Tips and Tools for the Homeowner

Analyze Your Use – Home Analyzer

This is a useful tool to analyze home energy use. Users are given a choice of a fast track or an in depth analysis. Recommendations on ways to save energy are provided.

<https://www.energyguide.com/audit/haintro.asp>

Bonneville Power Administration: Do-It-Yourself Home Weatherization Guide

Information for the homeowner on insulation or ceilings, floors, walls, pipes, and ducts, as well as weather stripping, caulking, vapor barriers, and storm windows.

http://www.bpa.gov/Energy/N/Energy_Tips/weatherization/

Bonneville Power Administration: How to Save Energy

The BPA provides simple steps to cut energy consumption. Subjects include appliances, workplace, heating, cooling, lighting and water, and windows and doors.

http://www.bpa.gov/Energy/N/Energy_Tips/save_energy/

City of Seattle – Green Home Guides

The **City of Seattle** has produced a series of green home guides which cover common building topics, giving helpful hints on materials and strategies to create a home that's healthy, saves money, and is easy on the environment. These consumer-oriented guides are downloadable in pdf format.

<http://www.seattle.gov/dpd/GreenBuilding/SingleFamilyResidential/Resources/RemodelingGuides/default.asp>

Energy Efficient Rehab Advisor

This tool is based on the **U.S. Department of Housing and Urban Development's** guidelines for conducting energy efficient housing rehabilitation. Individual profiles are created based on type of building, climate, age of building. Projects can be narrowed to specific areas of the home. Project recommendations are analyzed by cost, savings, payback, and benefits.

<http://rehabadvisor.pathnet.org/>

Fact Sheet: Selecting Energy Efficient Windows in Washington

Information for the home owner includes benefits and performance of energy-efficient windows in Seattle and Spokane.

<http://www.efficientwindows.org/factsheets/washington.pdf>

The Home Energy Saver

This is an internet-based tool for calculating energy use in residential buildings. It is designed to help consumers identify the best ways to save energy in their homes, and find the resources to make the savings happen.

<http://hes.lbl.gov/>

FAQs

Where can I find information on BioEnergy?

BioEnergy Washington
<http://www.bioenergy.wa.gov/>

Where can I find information on Solar Energy?

Seattle City Light – Solar Energy FAQs
http://www.seattle.gov/light/Conserve/cgen/cv5_cgen5.asp

How can I locate energy conscious businesses and professionals?

Green Pages
The Northwest EcoBuilding Guild's directory of ecologically sustainable professional services.
https://www.ecobuilding.org/seattle/gp/images-files/2012gp_dwnld

Where can I find definitions of terms relating to energy?

Energy Information Administration's Energy Glossary
<http://www.eia.gov/tools/glossary/index.cfm>

Green Building Glossary
<http://www.seattle.gov/dpd/greenbuilding/resources/greenbuildingglossary/default.asp>

