

Georgetown University Energy Prize

# Bellingham Energy Efficiency Program Plan



Bellingham Energy Leadership Team

November 10, 2014

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## Introductory Message

We are pleased to present the Bellingham community's Energy Efficiency Program Plan in furtherance of our participation in the Georgetown University Energy Prize competition. This Plan has been developed, with our full endorsement, by our Energy Leadership Team assembled specifically for this Prize.

This plan strengthens an already well-developed system to deliver energy efficiency improvements in our community and has catalyzed the growth of new partnerships for energy savings. In the area of residential efficiency, it builds upon the successes of the Community Energy Challenge, a collaboration between the Opportunity Council, which serves low-income residents, and Sustainable Connections, which represents green and locally-oriented businesses. The Opportunity Council also contributes the expertise of its Building Performance Center, which provides critical training for contractors in achieving state-of-the art outcomes.

This plan also embodies what may be an unprecedented level of cooperation between a community and its energy utilities: Puget Sound Energy and Cascade Natural Gas. The utilities have agreed to provide the essential data for the project and to troubleshoot technical issues, and are also part of the Energy Leadership Team that has developed this plan. Furthermore, they are planning innovative changes to their conservation programs that will enhance energy savings through 2016. In building this plan, we have also forged new links between the community and a new Institute for Energy Studies at Western Washington University. The Institute has provided a paid intern for the project, is participating in its Leadership Team, and has involved students in helping to develop activities that have become part of the plan.

The Bellingham City Council strongly supports this effort and has provided staff to help coordinate the project. The Council has unanimously affirmed its support of the Plan via the attached Resolution. The Mayor's Office strongly backs the project and has directed the City's Public Works Department to help coordinate project activities. The City has demonstrated its commitment to saving energy by completing \$6.5 million worth of facility retrofit projects in recent years, and we expect that optimization of this investment will yield continued efficiency gains. The City will also extend an innovative program that saves water and energy simultaneously.

The Green Classroom Certification program, representing a partnership between the Bellingham School District and RE Sources for Sustainable Communities, will create hundreds of young advocates for residential energy and water conservation. The School District has upgraded its facilities with the majority of schools receiving ENERGY STAR certification, and additional investments are expected through 2016. Given the success we have had in reinvigorating existing partnerships and creating new ones, we expect that additional innovative ventures will develop. We present this Plan as the beginning of a new set of activities that will take energy conservation to the next level in our community.

Sincerely,



Kelli Linville  
Mayor of Bellingham



Cathy Lehman  
President, Bellingham City Council

## Bellingham Energy Leadership Team

City of Bellingham



Bellingham School District



Cascade Natural Gas



Sustainable Connections



Puget Sound Energy



RE Sources for Sustainable Communities



Opportunity Council



WWU Institute for Energy Studies



## **Chapter 1. Introduction and Overview**

We are pleased to submit the City of Bellingham's Energy Efficiency Program Plan (Plan). With this plan, the City and its community partners are committing themselves to making major strides in reducing energy use during our pursuit of the Georgetown University Energy Prize (GUEP). Although the City of Bellingham's citizens and municipal leaders have been committed to energy reduction for some time, the Bellingham community plans to take its energy reduction performance to the next level by building on a strong base of accomplishment that includes substantial investments in municipal and residential energy efficiency upgrades, and the creation of a number of successful local energy initiatives. This Plan lays out in some detail current energy conservation activities and programs within the City limits of Bellingham, and also identifies a series of new activities or program innovations designed to enhance and fill identified gaps within these programs. With these changes, energy users and decision-makers in the residential, municipal, and school sectors will be able to increase the overall number of people aware of energy efficiency programs within Bellingham and reach new audiences for participation in available programs -- ultimately resulting in accelerated energy use reduction in all sectors.

We have established three overarching goals to guide the construction of this Plan, aligned with the three sectors to be measured for energy use reductions for the performance period for the Prize. These goals are:

- *Accelerate residential energy savings by making the most of our well-developed programs focused on residential energy efficiency retrofits through program innovation and effective outreach;*
- *Reinvigorate our municipal energy savings plan by building on substantial recent investments in energy-saving capital facilities and leveraging employee activities to assist with both municipal and residential energy savings;*
- *Elevate schools as a major platform to catalyze energy savings by utilizing capital investments to the fullest, using classrooms as a focus for education on energy saving practices, and fully involving student populations in energy efficiency activities.*

**Creating this Plan.** To create this Plan, we have assembled an Energy Leadership Team that include representatives from organizations that have played a major role in developing our areas' current energy programs. This team has identified and developed the energy reduction components of the Plan. In the process, we have engaged existing partnerships and developed new ones to identify next steps and further develop the infrastructure and activities to write and carry out the Plan. This has, in turn, created substantial momentum toward the successful implementation of the Plan during the competition period for the Prize.

The Leadership Team draws members from the following organizations: Puget Sound Energy; Cascade Natural Gas; the Bellingham School District; the City of Bellingham; Sustainable Connections; RESources for Sustainable Communities; the Opportunity Council; and Western Washington University's Institute for Energy Studies. As we detail below, all of these organizations have substantial energy expertise that we have drawn upon to develop this Plan. We have held two meetings of the Leadership Group to discuss process and contents of the Plan, and to identify

new ways to encourage conservation. To further develop these ideas, three Working Groups have been formed, corresponding to the required plan areas of Municipal Facilities, Schools, and Residential Conservation. These groups include members of the Leadership Team but also bring in other individuals with expertise in specific subject areas.

The Working Groups operated using the following methodology:

1. Assess activities, programs, and investments through 2014;
2. Identify activities already planned for 2015 and 2016;
3. Identify barriers preventing maximum delivery of energy efficiency services.

Then, building upon this analysis, the groups identified activities or program innovations that will enhance the delivery of energy reduction services. The groups also identified preliminary design elements for the new activities, which we plan to further develop in the remainder of 2014, and in the early implementation stages of the Plan. The Plan also begins the process of specifying program design, evaluation, and social marketing tools that will guide and maximize the effectiveness of activities and outreach planned for the two-year period.

The City of Bellingham is serving as the coordinating agency for Plan development, implementation, and oversight of data collection and reporting. Plan management has been shared among staff of the Bellingham City Council office and the City's Public Works Department, assisted by a paid intern provided by Western Washington University's Institute for Energy Studies.

We have initiated a public communications campaign that will raise the profile of the Plan and its activities, and provide for continuous community input that will strengthen plan implementation. The general outline of our efforts has been presented at two televised presentations before the City Council, and the Council has also passed a resolution in support of the Plan, which communicates to the public our ongoing City commitment. In addition, we are developing a web page for the project, to be hosted on the City's web site, that will include links to project documents, detailed information on available energy audit and rebate programs, and updates on project activities. Many of the Plan elements are based on enhanced engagement with the public on energy efficiency issues.

As we developed this Plan, we reviewed data from a number of locally-conducted surveys or focus groups to more fully understand barriers to energy efficiency adoption, and to identify which measures might be most useful to assist residents in their energy conservation investments and activities. The information from these surveys and focus groups is reflected in the planned activities described in Chapter 3. Lastly, as the project proceeds, we will collect performance measure data to track our progress, and are in the early stages of designing an evaluation framework to assess the effectiveness of Plan activities.

**Current Energy Efficiency Programs and Initiatives.** The Bellingham community will draw upon a substantial body of successful work in designing and implementing energy conservation measures for the Plan, and has much of the infrastructure in place needed to further advance energy saving efforts in the community. Local factors include technical expertise, a skilled workforce, a broad base of support from community organizations and public agencies, and an active and engaged citizenry.

A summary of existing and planned activities is provided below. Most of these activities, and our plans to enhance them, are described in more detail in Chapter 3.

- Community Energy Challenge. The Community Energy Challenge (CEC) is a community-wide campaign involving both residential and commercial properties that performs energy audits, produces a prioritized list of investments, identifies financing and rebate options, and provides referrals for contractors and financing.
- Capital investments. The City of Bellingham and the Bellingham School District have both completed a substantial number of energy efficiency retrofit projects. These include replacement of heating and HVAC systems on the City side, as well as lighting upgrades and the installation of new system controls. The School District has made a number of similar investments, and most of its schools have achieved an ENERGY STAR rating and are monitored using the ENERGY STAR portfolio manager.
- Rebates and subsidies. An extensive system of rebates is in place for energy-efficiency upgrades, offered by Cascade Natural Gas and Puget Sound Energy. In addition, participants in the CEC are eligible for additional payment incentives for specific upgrades and solar panels.
- Utility energy assessments. An energy assessment program offered through Puget Sound Energy, called HomePrint, offers free assessment for possible energy upgrades and free installation of LED lighting. Cascade Natural Gas provides assessments of commercial kitchens and other commercial properties.
- Financing. A low-interest financing program through Puget Sound Cooperative Credit Union offers low-interest loans for CEC energy upgrades for projects up to \$50,000.
- Residential rehabilitation. The City of Bellingham low-income residential rehab program includes energy upgrades when possible. Another program, focused exclusively on energy upgrades for low-income units, is offered locally through the non-profit Opportunity Council.
- Water use efficiency. The City of Bellingham Water Use Efficiency Program focuses on residential water use reduction, including activities that result in reduced water and energy use in the City's water and sewage treatment plants.
- Trained workforce and contractor base. As a result of these programs and initiatives, Bellingham has developed a highly trained energy workforce ready to respond to new commitments and goals. As a substantial part of this capacity, one of our project partners, the Opportunity Council, operates a Building Performance Center that trains both contractors and employees on advanced energy efficiency and rehabilitation techniques.

**Planned Activities and Program Innovations.** In order to accelerate the delivery of efficiency projects, the Bellingham GUEP Leadership Team has identified the following activities for the 2015/16 period that will strengthen or complement the activities and programs outlined above. Most of these changes result from work completed by the Leadership Team and the sector Working Groups for this project.

- Large employer campaign. Creation of a residentially-focused energy efficiency campaign targeting employees who work for large employers.



- Canvassing. Additional outreach to homeowners via canvassing, with a focus on increasing efficiency upgrades for low and moderate income residents.
- Student campaign. Creation of a university student-led energy information campaign, in cooperation with the utilities, focusing on inexpensive upgrades such as LED lighting.
- Neighborhood involvement. Creation of neighborhood involvement events including contests, block activities, etc.
- Community Energy Challenge program modification. A modification of the Community Energy Challenge to include sliding-scale fees to increase participation of lower income residents.
- Deep energy retrofits. Development of informational materials and events, spearheaded by the Community Energy Challenge, to encourage pairing deep energy retrofits with already-planned remodel projects.
- Residential energy use data. Promotion of a web-based tool newly released by Puget Sound Energy that will provide reports and data to residents on home electricity use.
- Capital facilities - City. Additional energy upgrades of City facilities, to include LED street lighting upgrades and additional building retrofits.
- Capital facilities - School District. Planned energy system and lighting upgrades for Bellingham School district facilities will result in additional schools achieving ENERGY STAR ratings.
- Green Classroom certification program expansion. Expansion of the number of classrooms participating in the Green Classroom conservation education program.
- Communications strategy. Use of the web and social media to publicize the project.
- Enhanced multifamily efficiency campaign. Multi-unit campaign to expand incentives to include water use efficiency rebates to increase the sector's participation in energy efficient retrofits.

In addition, the Leadership Team has identified some promising new activities that require further assessment before implementation. Exploratory initiatives include:

- Community Energy Center. Creation of a community energy center that would showcase energy-efficient appliances and technologies in a realistic, furnished setting, and provide technical assistance to consumers on energy efficiency purchases and activities.
- High school education campaign. A high school energy education campaign and interschool-contest, possibly including GUEP competitors from three Washington Counties.
- Residential energy certification program. A city-wide on-line residential efficiency tracking system, modeled on a program in Frederick County, Maryland, that provides a rating for levels of residential energy efficiency achieved and hosts drawings and other incentives for participation.
- Rental housing campaign. A campaign targeted to multi-family and single-family residential rental housing to increase the sector's participation in energy efficient retrofits.



## **Chapter 2. Program Management, Data, and Outcome Measurement**

**Program Leadership and Management.** We have assembled an eight-member Energy Leadership team encompassing a broad range of expertise and competencies in the energy field that will collectively manage this project. In many instances, these organizations have been working together on energy issues for some time, but this project has also brought in new participants, and is resulting in new activities and efficiencies within existing relationships.

As mentioned in Chapter 1, the City of Bellingham is serving as the coordinating agency for plan development and implementation. The City will also oversee data collection and reporting to the GUEP team. Plan management is shared between staff of the Bellingham City Council and the City's Public Works Department. The City will collect and analyze data on implementation activities, and will complete the required reports for the project. In addition, the City will convene its internal Green Team to support certain Plan activities, such as the employee engagement program that is described more fully in Chapter 3 below.

The Opportunity Council and Sustainable Connections are the main operating partners in the Community Energy Challenge (CEC), a program that will be a major component of our activities in the residential sector. The Opportunity Council's many years of completing energy retrofits for low income households, coupled with the expertise of its Building Performance Center, will provide critical assistance in the residential retrofit portions of the Plan. The involvement of Sustainable Connections, which is a membership network of more than 600 businesses committed to sustainable business practices and local economic development, will provide a boost to business engagement as we implement the Plan. The CEC project also directly involves a number of trained and certified contractors who regularly work with the program to provide retrofits, providing a further point of engagement with the business community. (The CEC is described more thoroughly in Chapter 3, below).

Bellingham's two energy utilities, Cascade Natural Gas and Puget Sound Energy, are an integral part of this project and also participate in the Leadership Team. These utilities provide an extensive array of rebates and incentives for energy saving upgrades. As will be made clear later in the Plan, activities to increase the uptake of these incentives will play a central role in the Efficiency Plan. The utilities are also intimately involved in providing energy use data for the Plan, to be described more fully below.

The Bellingham School District is also centrally involved in the project. One of the School District's Resource Conservation Managers participates in the Leadership Team, and the District has a robust capital investment program for the schools, organizes employee engagement activities within the schools, and supports other school-based educational activities. RE Sources for Sustainable Communities is also a participant in the Leadership Team, and staffs a partnership with the School District to support the Green Classroom Certification program, as described in Chapter 3. In partnership with the School District and RE Sources, we hope to expand planned activities in the schools during the Prize competition phase.

As an initial step in creating the energy efficiency plan, the project partners reviewed the effectiveness of existing programs and identified opportunities to fine-tune or strengthen various practices. As mentioned above, Leadership Team members have participated in the Working Groups to develop the details of the plan.

A faculty member from Western Washington University's Institute for Energy Studies has joined the Leadership Team and will continue to be instrumental in involving university students in Plan activities. Energy Policy students have researched various aspects of the Plan as a course activity, and elements of their findings have been incorporated into the Plan. The Institute also provides resources to program management via its funding of an intern, and is involved in other activities to identify resources for the project.

We expect to retain the same leadership structure that produced the Plan through the remainder of the project and expect to convene the Leadership Team periodically to work through larger implementation decisions over the next few years. This approach to shared leadership will allow us to continue to benefit from the expertise and capacities of the involved groups. The sector Working Groups will also meet as needed to develop detailed work plans for each of our energy initiatives. Table 1 describes the strengths and capacities of each organization involved in the Leadership Team for the Plan.

Table 1. Leadership Team Strengths and Capacities	
Team Member:	Strengths:
City of Bellingham	Research, financial incentives, policy, capital investment
Opportunity Council	Financial incentives, technical expertise
RE Sources	Education and outreach
Puget Sound Energy	Financial incentives, technical expertise
Cascade Natural Gas	Financial incentives, technical expertise
WWU Institute for Energy Studies	Research, technical expertise, education
Sustainable Connections	Research, technical expertise, capacity building, education
Bellingham School District	Education, capital investment

**Staffing and Funding.** As Chapter 3 indicates, there are many programs already in operation, and our community's main challenge is to maintain or enhance utilization of such programs. Therefore, the Plan has a strong focus on enhancing outreach and education, and in recalibrating program operations to increase effectiveness. As a result of participating in this partnership, the involved groups are modifying already planned activities to take advantage of synergies created by the partnership, and to identify more creative and effective ways of directing current activities to maximize effectiveness.

Creation of an effective partnership will allow most of the activities represented in the Plan to be implemented via current staff and budgets of the partnering agencies. Monetary and staff

resources have been identified in the budgets and work plans of the City of Bellingham; the Bellingham School District; RE Sources for Sustainable Communities; and our utilities, Puget Sound Energy and Cascade Natural Gas. In addition, the Community Energy Challenge is supported by the budgets and staff of the participating organizations, and by grant funding that has already been obtained. We expect that future funding to continue to support an energy intern for the prize will also be forthcoming.

Public, non-profit, and education institution staffing across the groups that are involved in the project encompass a number of trained energy efficiency staff with expertise in a number of areas. While not all energy-related staff will be involved in direct implementation of this Plan, this indicates the depth of energy expertise available in our community.

<b>Table 2. Energy Efficiency Staffing Across Area Organizations</b>	
<b>Entity</b>	<b>Staff</b>
City of Bellingham	2
Puget Sound Energy	4
Cascade Natural Gas	4
Opportunity Council	20
RE Sources	2
Bellingham School District	2
Sustainable Connections	4
Building Performance Center	5
Western Washington University	3
Note: This table only includes staff with a specialization in some aspect of energy efficiency; other staff are deployed for various aspects of implementation activities	

As will be discussed in Chapter 3, certain activities will require additional funding to proceed as planned. As one example, complete replacement of City street lighting with LEDs will require grant assistance to complete the project under the preferred schedule, and City staff have already submitted a proposal to the State Department of Commerce to partially fund this activity. In addition, certain enhancements to the Community Energy Challenge, as outlined in Chapter 3, will also require additional funding. Innovative programs, such as a community energy center, will require identification of a source to pay for rent and/or location of a facility with subsidized rent. As we search for new resources, we believe that our local partnerships, and our participation in the Georgetown University Energy Prize, will enhance our ability to obtain the resources necessary to carry out these activities.

**Diversity plan.** Reaching diverse audiences in the implementation phase of the Plan is integral to the Plan itself. A key strategy to increase uptake of energy efficiency services is to provide information on the payoffs in better building performance and lower bills to a wider range of income groups. Aspects of the program that would reach underserved communities include a campaign directed at off-campus college students; an effort targeting renters and owners with electric heat; canvassing to provide information on refrigerator rebates to multifamily properties in

lower-income areas; and, development of a sliding scale fee structure for the residential component of the Community Energy Challenge. (These initiatives are described more thoroughly in Chapter 3.) Assisting our goal to reach as many audiences as possible, both the City of Bellingham and the Opportunity Council have programs that reach low-income communities. In addition, we anticipate further engagement with low income housing providers as the plan proceeds to assess need for energy upgrades in their facilities and for education campaigns directed at lower-income renters.

To ensure that energy activities are delivered to geographical areas not always reached by existing programs, we will target certain neighborhoods on the periphery of the city limits often outside the service area of sustainability and energy programs. With regard to outreach materials, we will translate as necessary to reach affected populations. Unlike some communities in Western Washington, the City of Bellingham is relatively homogeneous with regard to languages spoken by residents, but translation into Spanish would improve engagement in some instances.

### **Utility Data and Program Evaluation.**

Data Plan for the Municipal, School, and Residential Sectors. The partners in this project are working together to assemble the data and information needed to participate in the project and meet the utility data requirements for quarterly reporting. We have assembled most of the municipal account data necessary to proceed during the performance period, and are working through some of the technical details of the accounts with our utility and School District partners. Our preliminary list of municipal accounts is attached in the Supporting Documents section of this Plan.

The utilities have identified the proper residential codes needed to pull out and aggregate the residential accounts, using a combination of zip codes and tax districts to identify accounts within the City boundaries. Residential accounts will be identified by billing rate class, and individually metered customers in multifamily buildings can be clearly identified. For master-metered properties with a commercial rate schedule, data codes for apartments will be used, but common areas such as pools, etc. will be included in the total in most instances.

Our examination of the data requirements and local data system capacities has revealed some issues requiring further research. We have obtained residential account numbers for university on-campus housing facilities and utilities are investigating whether these need to be pulled out of the residential accounts. On the City side, we are working with Department of Public Works staff to understand the facilities characteristics of the different accounts. Regarding the School District, we are proceeding to examine some of the conditions on the ground that are expected to occur through 2016 that will affect energy use. For example, one elementary school will be completely rebuilt during the performance period, and other schools and facilities will undergo substantial remodels or additions. We will need to understand how these changes will affect utility accounts and whether certain energy uses may not be appropriate for measurement during the performance period.

For private school participation, we have obtained a list from the State Superintendent of Public Instruction of all accredited private elementary or secondary schools within the City of Bellingham, and we will notify these organizations of the Prize and request their participation. Our utility partners have informed us that they cannot aggregate these counts into the municipal/school total without permission from the participating organizations.

Program Performance Measurement and Evaluation. Program performance measures and evaluation are an essential component of determining whether a program is meeting its goals and, if not, where improvements can be made. Our Energy Leadership Team has reviewed existing programs to determine achievements to date and opportunities for improvement. This review was conducted by analyzing participant data, survey results, and by conducting a SWOT (strengths, weaknesses, opportunities, threats) analysis and needs assessment.

Bellingham has integrated the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) of instructional design theory into its plan to effectively focus on various target audiences of each sector, conduct appropriate activities, and have SMART outcomes (Specific, Measurable, Audience-directed, Realistic, Time bound). A logic model (see Supporting Materials, below) containing existing program activities and planned new activities provides an overview of the development and implementation approach to be used in the residential sector. Inclusion of these strategies helps ensure that proposed activities are meeting Plan outcomes and goals to enhance the adoption of residential energy efficiency measures.

To track our implementation progress, we expect to display our energy reduction performance prominently on our web page for the project and in supporting materials. We will also provide a link to the Performance Dashboard on the GUEP web site. In addition, we will track a series of measures to provide feedback on whether the enhanced activities in the plan are resulting in the desired outcomes. While some of the activities in the plan have a process or diffused outcome, many are measureable with available program data. To assist this process, we have begun to collect program-level baseline data (through 2014) in order to be able to track changes in trends in various program measures going forward. Identification of benchmark program performance data will assist us in evaluating the overall success of the Plan and enhance the long-term sustainability of the plan. Measures to be used in each area of the Plan will be further developed as the design of various activities proceeds. However, some of the measures may include the following:

- Number or percent of residences either retrofitted by or involved in an energy reduction program;
- Number of utility rebates processed over time;
- Reduction in energy use in City facilities;
- Percent of employees in large organizations engaged in energy reduction activities;
- Reduction in energy use in Bellingham School District facilities;
- Number of classrooms reached by the Green School Certification Program;
- Percent of schools involved in a targeted energy savings effort;
- Percent of students involved in energy savings activities at school or home.

### **Chapter 3. Bellingham's Energy Efficiency Plan**

This chapter presents our community's plan to increase energy efficiency in the residential, municipal, and education sectors. The Plan will build on current programs, proposing modifications when necessary to improve their operations. In addition, it contains a series of new activities to enhance the effectiveness of existing programs, or to create new energy-related programs in our community.

For each sector, we are planning refinements of existing programs as well as new initiatives designed to provide support for current and planned activities. On the residential side, we will build upon the retrofit capacity of the Community Energy Challenge program, and will also utilize energy assistance programs offered by Puget Sound Energy, Cascade Natural Gas, the Opportunity Council, and the City of Bellingham.

As a central part of the Plan, we are proposing a number of outreach activities to enhance the availability of existing programs. Activities will include marketing efforts using the web and social media; door to door canvassing; and, programs for neighborhood involvement. We are also exploring other innovative ideas, such as the creation of a new energy information center in our community, and new ways to involve high school and university students in conservation activities.

In the municipal and school sectors, major recent energy retrofits to facilities will be followed with additional capital upgrades, and there will be ongoing efforts to optimize installed systems. Both the City and the School District will develop work- and residentially-focused education programs for their employees, and a classroom based education program will be expanded in 2015.

The next three sections of the Plan describe in some detail current and planned activities and programs in the residential, school, and municipal sectors.

#### **Energy Conservation Activities in the Residential Sector.**

This section describes current activities in the residential sector, followed by a description of new initiatives to enhance energy conservation in our community. We start with the major organizations providing support for retrofits in our community, discuss our general approach to community engagement, and then provide information on program innovations and new activities planned for 2015-16.

Three main organizations or programs that provide a complete package of energy efficiency services and retrofits in our community include the Community Energy Challenge (CEC), Puget Sound Energy (PSE), and Cascade Natural Gas (CNG). These organizations in turn have identified a network of private contractors to deliver some of the energy-related services. In addition, the Opportunity Council, which is an integral part of the CEC, provides additional energy saving upgrades for low-income residents through a low-income energy retrofit program. The City of Bellingham supplements these efforts by sponsoring a conservation program focused on water use efficiency, and also supports low income retrofits in the community. These activities are described in some detail immediately below.

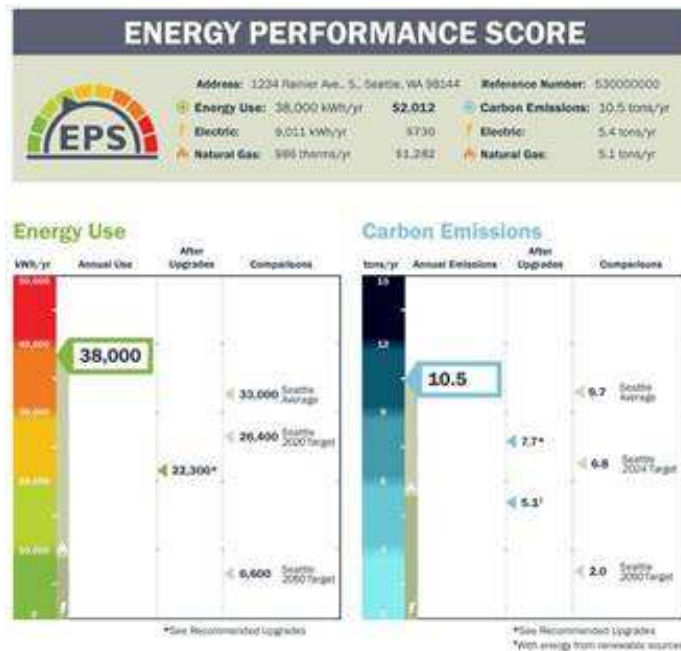


Community Energy Challenge. The Community Energy Challenge is an integral part of our participation in the Energy Prize competition. This program, a multiagency partnership created in 2009, includes or is supported by a number of organizations such as the Opportunity Council, Sustainable Connections, Cascade Natural Gas, Puget Sound Energy, the City of Bellingham, the Northwest Clean Air Agency, and the Bellingham School District. The program, which operates in four Counties, received a \$2 million grant in 2013 from the Northwest Clean Air Agency to continue its activities.<sup>1</sup> The Opportunity Council and Sustainable Connections share a lead role in organizing the delivery of services through the program, with the Opportunity Council overseeing the delivery of residential efficiency activities and Sustainable Connections focusing on the commercial side of the program.

The CEC provides whole-building energy assessments for homes and businesses, resulting in a list of prioritized upgrades, from no to low cost measures, as well as financing options for larger retrofits.<sup>2</sup> Following these assessments, many residences and businesses go on to complete projects such as insulation improvements or sealing of the building envelope. After the efficiency work is completed, some participants add solar panels or upgrade their heating systems. Participants in the program have access to utility rebate programs, which will be described in some detail below.<sup>3</sup>

Other programs bring additional expertise to this effort. The Building Performance Center (BPC), an affiliate of the Opportunity Council, is an essential partner to the Community Energy Challenge.<sup>4</sup> The BPC provides weatherization training for contractors and other community action programs in one of the state's three state-of-the art building performance training facilities.<sup>5</sup>





Energy Performance Score Sample

Financing is also available to support these upgrades. For example, a low interest financing program through Puget Sound Cooperative Credit Union offers low-interest loans for energy upgrades up to \$50,000 for participants in the CEC.<sup>6</sup> The Community Energy Challenge supplements rebates offered by the utilities for CEC participants, offering additional cash incentives for up to 30 percent of the project cost. In addition, the CEC matches utility rebates on qualifying upgrades. The CEC offers contractor referrals for weatherization, HVAC, and renewable energy, with a referral being required to receive CEC incentives.

According to an analysis of the program, through January 2014, more than 1,000 residential units and almost 350 businesses

went through the first phase of the CEC program, an energy assessment. Over half of the residences went on to make specific upgrades, as have about one-quarter of the businesses. Energy savings on the residential side were estimated at 4.2 million kilowatt hours, with over 1 million saved on the business side.<sup>7</sup> Across all operations the Energy Challenge has catalyzed \$14 million in direct economic activity and resulted in more than \$500,000 in energy savings per year. In addition, more than 80 jobs have been supported by the program. A recent analysis of data from the program indicates that, within the City limits of Bellingham, the program has completed 1,082 assessments, with 795 residences completing one or more projects, to date.

In addition to the Community Energy Challenge, the energy utilities also offer a wide variety of conservation-related energy services. In particular, Puget Sound Energy and Cascade Natural Gas are a major source of rebates for energy upgrades, and both utilities support efficiency assessments and installation activities.

**Puget Sound Energy.** PSE offers rebates for appliance upgrades, and currently rebates 100 percent of the cost for replacement of older refrigerators and washing machines for qualifying households. Rebates are available for heat pumps/ conversions and energy efficient water heaters, as well as for window replacement and whole-house ENERGY STAR retrofits. Income-eligible customers may qualify for free upgrades. PSE has a list of banks and credit unions that offer financing for residential energy-efficient equipment retrofits and/or natural gas conversions.



An energy assessment program offered to single-family residential customers through Puget Sound Energy, called HomePrint, offers free assessment of potential energy upgrades and free installation of LED lighting. In this program, an independent specialist performs audits and identifies ways to increase efficiency. Customers receive a customized summary of energy-saving recommendations, as well as the installation of up to 20 free LED light bulbs and up to two efficient shower heads. As a further incentive for upgrades, PSE sponsors free pick-up and recycling of old refrigerators or

freezers, and offers a \$25 prepaid Visa gift card for participating. PSE provides referrals for pre-screened independent contractors for energy efficiency projects through its Contractor Alliance Network (CAN).

PSE also offers a free assessment program for multi-family properties. This includes assessment of building envelope, appliances, hot water and space heating, common area lighting systems, and commercial equipment. Incentives vary and include per unit and square-foot options. PSE will install LED light bulbs to replace incandescents; efficient showerheads; water heater pipe wrap; and advanced power strips. To date, PSE has audited 20 properties, and provided rebates to 52 properties encompassing 1,647 units, with an incentive value of \$470,845 and annual savings estimate of 1,315,814 kWh in Bellingham. Some enhanced conservation activities have already been identified for the 2015-16 period. For example, PSE is expanding its multi-family program and will provide incentives for replacement of old refrigerators in multifamily dwellings. As will be addressed later in this chapter, some of the new activities catalyzed by this Plan will target this sector.

Cascade Natural Gas. CNG offers rebates to customers for energy-efficient natural gas equipment and efficiency upgrades. Incentives include rebates for energy-efficient furnaces, high efficiency or tankless hot water heaters, whole house sealing, sealing of fireplaces and hearths, increases in insulation to higher R thresholds, and ENERGY STAR whole-house rebates for new construction. Additional services offered by CNG include free home weatherization and energy efficiency improvements for low-income households offered through local community action agencies and Washington's Weatherization Assistance Program. The Weatherization Assistance Program determines eligibility and conducts the energy review, while participating contractors provide the upgrades. CNG provides referrals to pre-screened contractors and also provides contractors with training through its Trade Ally network.

Additional details about rebate program offered locally are provided in Table 3 (page 16).

**Table 3. Residential Efficiency Upgrade Rebates Available in Bellingham**

Type of Rebate	Puget Sound Energy	Cascade Natural Gas	Community Energy Challenge
Floor Insulation	50% of the cost, up to \$200	\$0.30 per square foot	30% of project cost
Wall Insulation	50% of the cost, up to \$400	\$0.35 per square foot	30% of project cost
Attic Insulation	50% of the cost, up to \$600	\$0.30 per square foot	30% of project cost
Efficient Natural Gas Furnace	N/A	\$250	Will match utility rebates on qualifying heating upgrades
Efficient Natural Gas Fireplace	N/A	\$150-\$250	Will match utility rebates on qualifying heating upgrades
Whole House Air Sealing	50% of the cost, up to \$350	\$100	30% of project cost
Duct Sealing	50% of the cost, up to \$300	N/A	30% of project cost
Efficient Combination Space and Water Heater	\$800	\$825	Will match utility rebates on qualifying heating upgrades
Home Energy Assessment	Basic evaluation: Free; Comprehensive evaluation: \$400	N/A	\$195, or \$100 if participant implements recommended improvements
Water-Conserving Shower-heads	Free showerheads available on shoppse.com	Can apply for 1-2 free shower heads	30% of project cost
Efficient Water Heater	Up to \$800	\$45-\$150	Will match utility rebates on qualifying heating upgrades
Lighting	20 free LED bulbs through HomePrint*; Plus discounts at local retailers	N/A	20 free LED bulbs through HomePrint*
Mobile Home Energy Projects	\$500 worth of home energy improvements, for free. Floor insulation: Up to 2/3 of cost	N/A	N/A
Efficient Exterior Door	N/A	\$50	N/A
Efficient Window Upgrade	\$75 per window, up to \$1000	N/A	N/A
Refrigerator and Freezer Upgrades	Free replacement of pre-1993 refrigerators if home electrically heated; Free recycling plus \$25 gift card	N/A	30% of project cost
Heat Pump Upgrades	Up to \$1,500, depending on type	N/A	Will match utility rebates on qualifying heating upgrades

\* [HomePrint Assessment](#) is a free home energy overview performed by a PSE-qualified specialist. It includes up to two free high-performance showerheads and on-the-spot installation of 20 LED light bulbs.

PSE Residential Rebates: <http://www.pse.com/savingsandenergycenter/forhomes/pages/rebates-and-offers.aspx>

CNG Residential Rebates:  
<http://www.cngconserve.com/wp-content/uploads/2014/09/CNG-IncentiveProgram-IncentiveList-current.pdf>

CEC Residential Rebates: <http://sustainableconnections.org/energy/energychallenge/residential-incentives-1>

City of Bellingham Water Use Efficiency Program. This program recognizes that water and energy are inextricably linked. It takes water to produce energy, and energy to produce drinking water at the City's water treatment plant and to transport water to households and businesses for drinking, bathing, cooking, washing clothes, flushing toilets, operations, and outdoor watering. This program saves electricity use in City facilities and also results in water and energy savings on the residential side of the equation.

A 2010 study on the treatment, delivery, and volume of water consumed and wastewater treated at both the City's Water Treatment and Wastewater Treatment Plants found that for every 100 cubic feet of water conserved within the water system, a \$0.37 savings would be realized in treatment and delivery costs.

A project within the City's Water Use Efficiency Program is a partnership with the Opportunity Council and Sustainable Connections to deliver water use efficiency services via the Community Energy Challenge. Each participating household and business is provided with quality information, a full energy assessment, a water assessment for City of Bellingham water customers, a customized energy action plan detailing cost-effective measures, assistance with utility and tax rebates (water and energy), identification of reliable contractors, and quality assurance.

In a residential project, participants can access a \$150 rebate for purchase and installation of a WaterSense labeled toilet, qualifying energy and water efficient clothes washer, or outdoor water conserving equipment (e.g. rain barrel, tank/cistern, drip irrigation, etc.). Under this option, approximately 144 rebates have been issued with approximately 1.1 million gallons of water saved over a five-year period, and \$1,400 in treatment and delivery cost savings. Alternately, commercial customers are also eligible for rebates on water-efficient equipment, ranging from toilets, commercial clothes washers, and commercial kitchen equipment. The City also offers free water conservation kits to its water customers. These include one low-flow showerhead, a kitchen and a bathroom faucet aerator, and toilet leak detection tablets.

City-Sponsored Housing Rehabilitation and Construction Programs. The City of Bellingham Home Rehabilitation Program uses federal grants to pay for home rehabilitation for owner-occupied low-income homes. Although these renovations are focused on health and safety, improved energy efficiency is usually a side-effect of the rehabilitation. For example, the City requires ENERGY STAR-rated appliances when it pays for appliance upgrades. The program coordinates with the Opportunity Council for additional energy upgrades when possible.

A citywide Housing Levy was passed by voters in 2012 to increase and maintain affordable housing stock. New construction and renovation projects funded by the Levy are required to be built to the state's Evergreen Sustainable Development Standard that sets a high threshold for energy efficiency and other sustainability features.<sup>8</sup>

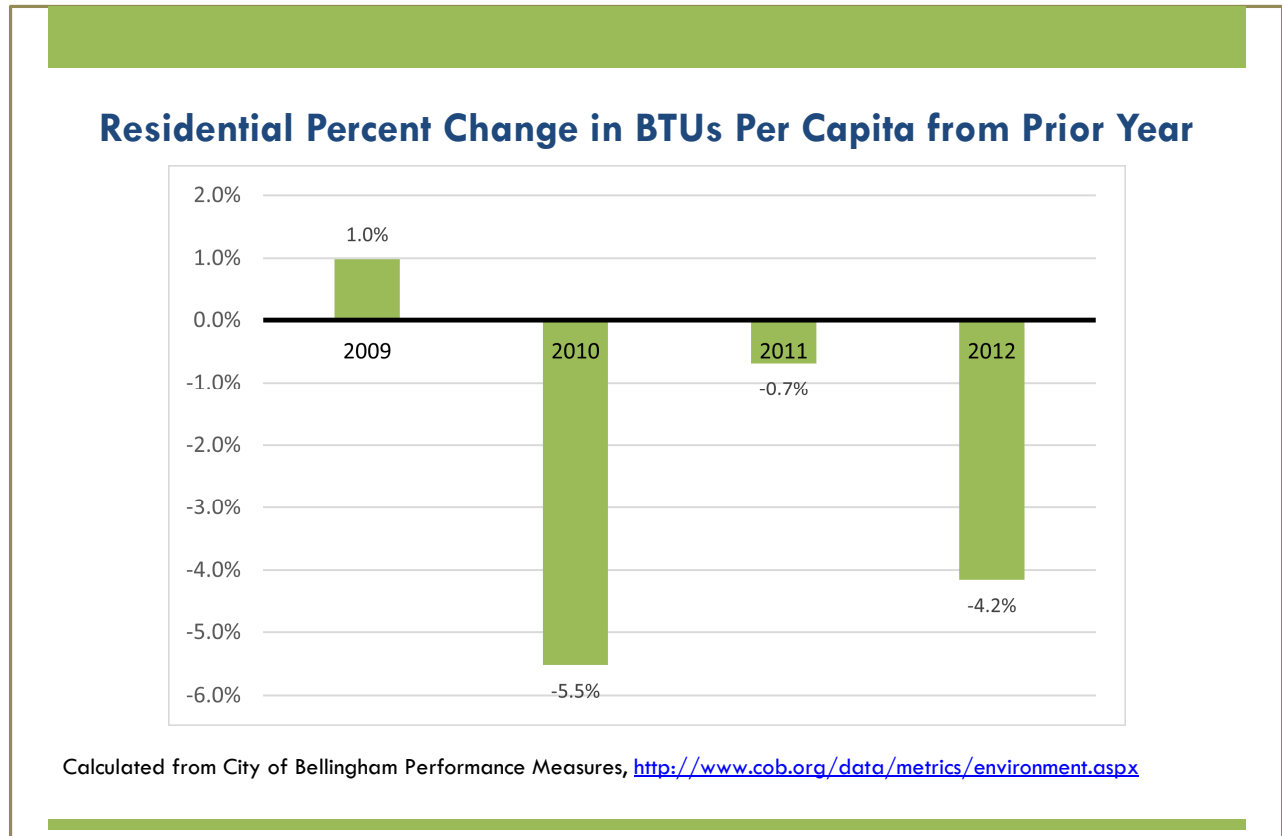
Bellingham Whatcom Housing Authority. The Bellingham Whatcom Housing Authority is a local government agency with approximately 3,000 units that house over 7,000 residents in Whatcom County. The Housing Authority works to provide needed housing in our community. Populations served include:

- Low-income families, including working families in need of affordable housing;

- Seniors;
- People with disabilities.

The Housing Authority has completed energy efficiency retrofit projects on all of its properties within City limits. As implementation of the GUEP prize begins, we will work with the Housing Authority and other non-profit housing providers to tap into their knowledge of multi-family conservation methods and help develop new conservation ideas that could apply to other types of affordable housing. We will also work with the utilities to maximize participation in existing utility programs targeting multi-family developments.

Taken together, the many innovative programs developed in Bellingham have resulted in some measureable energy efficiency gains in the residential sector. Data extracted from the City's performance measure system indicate that city-wide residential energy use per capita across gas and electricity accounts dropped in recent years, sometimes dramatically. The goal of the activities presented below are to ensure continual improvement in this measure.



Increasing the effectiveness of energy efficiency programs. Our Energy Leadership Team will continue to review existing programs to identify accomplishments and barriers to their continued effectiveness. The insights at present have led to the identification of a number of promising activities that will enhance the adoption of residential energy efficiency measures.

**Messaging.** Messaging is a fundamental component for any successful program. Existing energy efficiency messaging was developed in part through surveys, needs assessments, focus group

findings, and other marketing tools. This messaging has proven to be effective, as evidenced by the number of participants in energy efficiency programs to date. However, all programs come up against various barriers to continued participation. Some of the identified barriers include:

- Lack of knowledge by residents of available programs;
- Lack of understanding of the paybacks for upgrades;
- Lack of expendable income for upgrades;
- Unwillingness on the part of owners to proceed with large or seemingly risky projects.

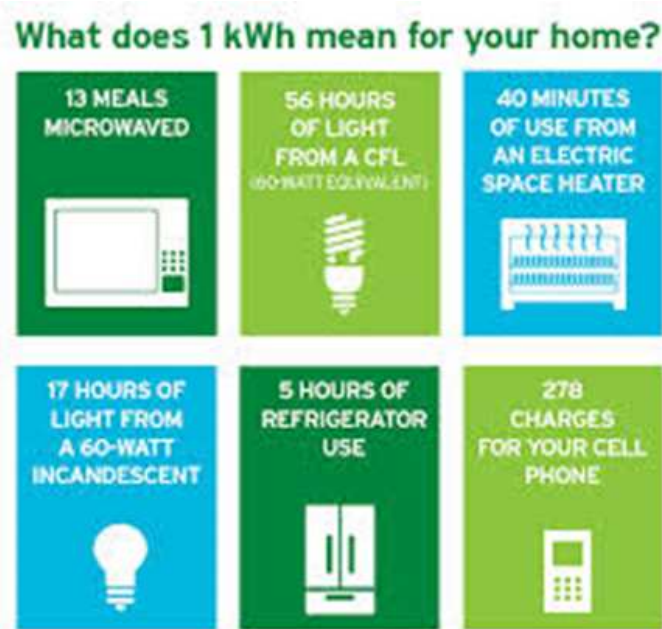
While each local program has employed various measures to overcome these barriers, the Leadership Team recognizes that targeted messaging, barrier removal, and outreach to new audiences will assist in increasing participation in energy efficiency programs. The communications framework below illustrates the types of strategies that can be employed with targeted messages to various audiences for existing and new activities in the Plan, to help address and remove some of the barriers listed above.



*Outreach.* The Leadership Team has identified some geographic areas as well as sectors that have been underserved in energy efficiency program outreach (e.g. certain neighborhoods, and rental single and multi-family housing located outside the 'heart' of the City). Some activities in the Plan seek to address this by raising awareness about programs to the groups where participation to date has been low.

*Education.* People are more likely to take action on something they understand. Messaging on financial and energy savings is more likely to be effective when people understand their energy use, can identify the largest energy-using appliances, and know the payback for retrofits. The home energy assessments offered in existing programs address this issue, and the Leadership Team sees opportunity to incorporate more of this type of education into its outreach messaging. The infographic below provides an example of how information can bridge this gap.





*Community Engagement.* There are segments of the population that are aware of and understand energy efficiency programs, but still have a financial or lack-of-interest barrier to participation. Leadership Team members will review program data to identify residences that have participated in energy assessments but haven't followed through with energy efficient upgrades, and will determine what can be done to assist this group in adopting the recommended actions.

A common denominator among existing programs is the number of "innovators and early adopters" that have participated to date. All programs recognize the need to develop and implement targeted outreach to new audiences. These 'new' audiences can be further segmented into different populations, as described by Diffusion of Innovation researchers. These scholars believe there are five different segments of a population when it comes to adopting an innovation: innovators, early adopters, early majorities, late majorities and laggards. Each segment is characterized by specific attitudes and needs.<sup>9</sup>

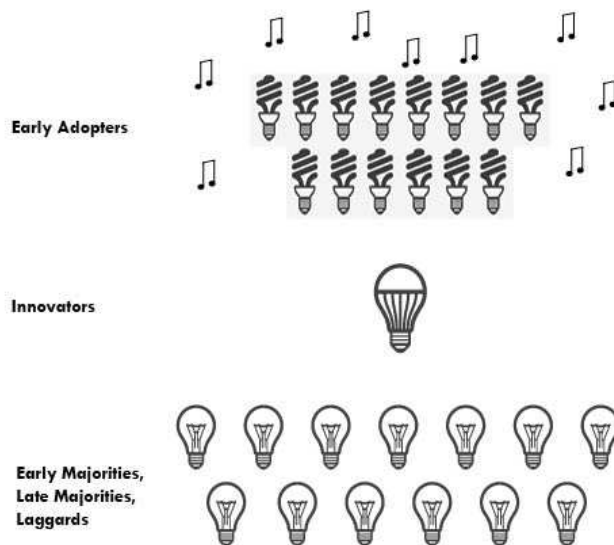
With these segments in mind, the Bellingham Energy Efficiency Program Plan's new activities will focus primarily on the early and late majority populations. Les Robinson, Diffusion of Innovation theory scholar, provides some recommendations for working with these segments:

- Offer giveaways or competitions to stimulate buzz;
- Use mainstream advertising and media stories featuring endorsements from credible, respected, similar folks;
- Lower entry cost and guarantee performance;



- Redesign to maximize ease and simplicity;
- Cut the red tape: simplify application forms and instructions;
- Provide strong customer service and support;
- Focus on promoting social norms rather than just product benefits;
- Keep refining the product to increase convenience and reduce costs;
- Emphasize the risks of being left behind;
- Respond to criticisms from laggards.

Diffusion of Innovations Population Segments...  
as applied to Bellingham Energy Efficiency Program Plan



The City and its partners will utilize innovation theory, social marketing, surveys, and focus group findings, to develop messaging that meets the intended audience and clearly communicates opportunities available to them.

*Communications delivery mechanisms.* Radio advertising, utility bill inserts, websites, yard signage, email newsletters, canvassing, and events have all been utilized in energy efficiency program outreach to date. While these have been successful in obtaining participation from the innovator and early adopter sectors, the Leadership Team will also develop processes and events to bring additional expertise from citizens and energy-related businesses into the plan. The partner organizations will work together in development of a public involvement plan. Elements that have been identified thus far include the following:

- Kickoff events to involve municipal and community leaders;
- Hosting an energy fair focused on residential energy conservation and renewable energy options;
- Involvement of City neighborhoods in developing targets to achieve residential savings;
- Use of traditional and social media to publicize the Plan;
- Use of City and energy utility bills and newsletters for continued distribution of information on the program;
- Creation of a list of interested participants to receive regular communication;
- Use of bus sign advertising to publicize trends in energy use or savings.

A website for the project, to be hosted on the City server, is under development. This site will contain all pertinent documents about the project, provide links to local rebate information, publicize energy-related community events, and track our performance overall and in the three required sectors. As outlined below, much of our plan involves publicizing existing or new opportunities for conservation, and corresponding outreach to specific portions of the community for each. As these initiatives roll out, our relationship with the community will be interactive, and we expect that community feedback will lead to continued changes and improvement in the plan.

The following activities are intended for implementation during the 2015-16 period, categorized by type of activity (refinements to programs; outreach for current programs; and, new activities). For additional information regarding each activity's outputs and measurable outcomes, see the Logic Model in the Supporting Materials section.

Refinements to enhance Program performance. Some planned actions involve minor to moderate changes in existing programs to overcome barriers or limitations arising from current program design or practices. Overall goals in the residential sector include the following:

- Increased utilization of energy audit programs;
- An increase in the share of residences completing upgrades;
- Increased knowledge and use of energy-saving technologies and appliances;
- Increased general knowledge in the community regarding energy efficiency options and associated savings;
- Strengthening of the delivery system for ongoing energy education programs;
- Involvement of new groups in adopting conservation investments and behaviors.

Specific activities for the residential sector are detailed immediately below, grouped by general category of activity: modification of existing programs; outreach to increase utilization of existing programs; and new efficiency-related programs or activities. The first set of activities listed involves modifications of existing programs.

**Activity R.1. Reduce costs for moderate income residences in the Community Energy Challenge.** Currently, the CEC offers free or very low cost upgrades and services to the very lowest income participants, but moderate income residents are required to pay standard cost-sharing. A modification of the program to include sliding-scale fees is designed to increase participation of a broader range of households in the program. The CEC is seeking additional funding from a state agency to help pay for this modification. If approved by the State, this would result in additional subsidies to residences with incomes up to 250 percent of the Federal Poverty Level.

Goal:	Method:	Expected Outcome:
Overcome cost barriers to participation of moderate income households in CEC programs	Create sliding scale of fees for participation in CEC	Gain in number and share of moderate income households able to participate in the program

**Activity R.2. Deep energy retrofits.** Homeowners or owners of rental units may not consider the utility of pairing more extensive energy upgrades with planned remodels of a residential unit. Spearheaded by the Community Energy Challenge, this effort will encourage the inclusion of deep energy retrofits in already-planned remodel projects. Activities will include development of educational materials for homeowners and builders that emphasize long-term savings; presentations to the City's Permit Center staff; and other educational activities.

Goal:	Method:	Expected Outcome:
Encourage residents to couple comprehensive energy retrofits with remodel projects	Provide educational materials and activities showcasing payoffs for deep energy retrofits	Increased number of deep energy remodels

**Activity R.3. Innovations in permitting.** Although the state and the City have adopted very advanced energy efficiency codes, code or interpretation issues regarding emerging energy saving technologies and techniques may arise from time to time as innovations in "best practices" emerge. This effort would seek to organize continuous improvement in the application of regulations. One possibility would be to encourage pilot projects to assimilate new technology or techniques. Another possibility would be to allow the use of performance-based regulations, as compared to code based standards, when possible. Possible educational events would be targeted both to the City Permit Center staff, and private contractors.

Goal:	Method:	Expected Outcome:
Accelerate approval of new energy-saving technologies and building techniques	Provide educational materials and activities to demonstrate feasibility of new technologies	Acceleration in innovation regarding permitting new technologies and techniques

The second set of activities involves outreach activities to increase program uptake and efficiency knowledge. These are designed to increase utilization of available energy conservation services by identifying new ways to disseminate information on the programs, and to reach new audiences that may not have been part of existing or former communications efforts. These activities are identified below.

**Activity R.4. Large employer campaign.** This activity will involve the creation of a residentially-focused education and information campaign targeting large employers. The activity could include a number of large employers such as the City of Bellingham, the Bellingham School District, Western Washington University, and Whatcom County. Leadership Team members have also identified a number of private firms that could be participants in such a campaign. The City of Bellingham will convene its Green Team to develop materials for this activity, drawing locally from utility and CEC materials, and also materials produced elsewhere such as the energy guides created by GUEP. A best practice would include a wraparound letter or flyer providing a custom "hook" for each employer. Provision of information would involve both passive and active methods, with the latter including possible lunch events, etc. The creation of an outreach team for major employers would allow distribution of conservation kits, such as those provide by CNG, PSE, or the City of Bellingham.

Goal:	Method:	Expected Outcome:
Increase distribution of knowledge regarding residential energy efficiency options	Development of packets for distribution at major employers and creation of appropriate events	Increased uptake of energy audit and retrofit programs, and increased homeowner energy efficiency projects and activities completed

**Activity R.5. Enhanced canvassing.** This activity involves outreach to homeowners via canvassing, to target adoption of low-cost efficiency measures and increased energy audits and upgrades for low-to-moderate income residents. We are exploring the possible involvement of student groups in such a campaign. Currently, PSE contracts for canvassing crews on a periodic basis, and PSE will budget for increased canvassing in 2015 in Skagit and Whatcom counties. General canvassing may focus on signing people up for Homeprint and LED installation. Separately, PSE staff are in conversations with CEC staff for the development of a canvassing and outreach campaign focused on low-to-moderate income households. The activity would include efforts to identify the presence of electric heat systems for possible upgrades, and to pair this with provision of information on refrigerator and lighting replacement options.

Goal:	Method:	Expected Outcome:
Increase awareness and adoption of energy upgrade by residents living in select areas	Door-to-door canvassing	Increase in uptake of energy audit and retrofit programs, and increased homeowner energy efficiency projects and activities completed

**Activity R.6. Neighborhood involvement.** This activity involves creation of neighborhood involvement events including contests, block activities, etc. to disseminate energy information and encourage uptake of programs. The Community Energy Challenge has already used neighborhood channels to encourage neighborhood participation in their programs, so this effort would focus on identifying new ways to increase involvement. For example, energy conservation block parties could be used to promote neighbor-to-neighbor contact and the direct presentation of energy information in a social setting. Another possibility is to use neighborhood competitions to encourage audits and retrofits. Lastly, we will use neighborhood communication networks, such as electronic newsletters, to spread information on both the Prize and the specific activities that the campaign is encouraging.

Goal:	Method:	Expected Outcome:
Increase residential energy information and program participation in City neighborhoods	Organize neighborhood events, activities, and contests, and use neighborhood communication channels to publicize energy information	Increase in uptake of energy audit and retrofit programs, as well as increased homeowner energy efficiency projects and activities completed

**Activity R.7. Promotion of a web-based tool for individual residential energy information.** This activity entails promotion of a web-based tool newly released by Puget Sound Energy that provides information to residents on home electricity use. Along with a detailed historical use profile for specific households, the tool also creates a comparison with the use profiles of other similar customers. As residents more fully understand their energy use, they may be prompted to inquire about options for saving energy. (Providing information about this tool could occur across a number of outreach activities, including neighborhood events, canvassing, etc.)

Goal:	Method:	Expected Outcome:
Increase use of new web-based PSE energy information tool	Develop materials to publicize this tool and tie its promotion to other outreach activities	Increased use of on-line tool and additional resident awareness of their energy use

**Activity R.8. Media and communications.** This entails use of the web and social media to publicize the project and available energy efficiency services. Media to be used could include the local governmental channel, BTV-10; YouTube and other video platforms; bus ads; and a wide array of social media. As part of the effort, an informational spot on home energy conservation could be created, or the activity could use an existing CEC spot, perhaps with a new introduction. Another product could include short energy saving testimonials from residents on their own energy projects, to be used in rotation on BTV-10. We will also look into ways of involving university and high school students in media creation.

Goal:	Method:	Expected Outcome:
Increase general awareness of GUEP campaign and retrofit resources in support of energy retrofit programs	Use both existing resources and involve new people to create an array of energy related materials for numerous media	Greater awareness of and uptake of energy retrofit programs and possibilities

In addition to the above activities that are designed to enhance existing programs or to provide information about retrofit options and rebate programs, the Leadership Team has identified promising *new activities that require further assessment* before we can commit to them in this Plan. While there is support for all of these ideas among the Leadership Team, we will need to identify additional resources and explore various practical barriers to these before proceeding.

These exploratory initiatives include:

**Activity R.9. Community energy center.** The creation of a community energy center, modeled on a similar center in Worcester, MA, could showcase energy-efficient appliances and technologies in a realistic, furnished setting, and provide information and technical assistance to consumers on energy efficiency purchases and activities. Rather than having appliances organized in retail fashion, the center would arrange equipment in fully-furnished "rooms" that would mimic both office and home settings. In addition, private contractors could provide displays of space heating and water heating equipment. Promotion and marketing could be assisted by Sustainable Connection's Green Building Program, and WWU's Institute for Energy Studies may be able to organize students to provide an "energy ambassadors" program to provide technical information on the proper selection and use of appliances. Local retrofit and auditing programs would have information at the center, and staff may sign-up interested people for these programs, or provide referrals. Depending on its location, the center could be cross-promoted with other community events such as a monthly Art Walk. In addition, schools may want to organize field trips to the center. Creating this energy center would require identification of a location and funding for ongoing operations and staffing.

Goal:	Method:	Expected Outcome:
Provide another focal point for energy education in the City; provide technical expertise; provide visual demonstrations of technology and equipment to encourage and guide the purchase of efficient equipment	Create an energy information center for ongoing energy education in a "life-like" setting	Greater awareness of energy saving appliance options and selection of appropriate devices and services

**Activity R.10. Community energy tracking.** A city-wide residential efficiency tracking system, modeled on a program in Frederick County, Maryland, could be constructed. Such a platform provides a rating according to levels of residential energy efficiency achieved, and the program could also host drawings and contests, or other incentives for participation. The platform allows people to record their energy savings activities on the web and get "certified" at various levels of energy performance. Participants who earn certifications have their profiles featured on the website so that they are recognized for their achievements, and they act as role models to other community members. Residents can offer support to one another by sharing their stories online and through Green Teams that they are automatically assigned to by their zip code.

Such a program could unify Bellingham's various energy programs by providing a single point of entry to encourage and track energy saving activities. Initial explorations indicate that software to run such a program is available for a modest fee, but there may be ongoing charges for maintenance. In addition, we would like to explore whether a site could be modified so that people could not only get their activities "rated" but could also fill out a web form, if interested, that would automatically send an e-mail directly to local retrofit programs with a person's contact information.

Goal:	Method:	Expected Outcome:
Create a focal point for entry into and participation in energy retrofit and conservation activities	Create central web platform to encourage residents to log their energy-saving upgrades and activities	Increased participation in energy campaigns and support for other outreach activities

**Activity R.11. Multi-family outreach.** Developing this energy savings plan has required finding ways to mesh existing local multifamily efforts with innovative best practices. Leadership Team members are currently reviewing research on multi-family dwelling energy conservation to identify promising options for program innovation, including financing or incentive programs that work around the "split incentive" problem with rental housing. WWU's Institute for Energy Studies students are researching the feasibility of a "green lease" program to assist in resolving incentive issues and provide behavioral and technical components of energy efficiency for both landlords and tenants. One part of the program could target master-metered rental properties for conservation efforts. Larger properties could access ESCO's (Energy Service Companies) that do retrofits with guaranteed savings. The City's Water Use Efficiency Program will also provide incentives for water use efficiency retrofits that result in energy savings.

Goal:	Method:	Expected Outcome:
Engage multifamily sector in energy efficiency	Provide consumer tips and no/low-cost info. to tenants; provide energy assessments and financing for property owners	Increased participation of the multifamily sector in energy efficiency programs



**Activity R.12. Single-family residential rental housing outreach.**

Bellingham has a significant single-family rental house population due in part to the 14,000+ enrolled students at Western Washington University (WWU) and surrounding neighborhoods that house a significant number of these students in off-campus housing. While tenants most often do not have the expendable income to make upgrades in their rental



homes, behavior change education can be implemented, with an emphasis on utility bill savings that result through energy-saving habits. Collaboration between the Leadership Team, WWU's Institute for Energy Studies and the Western Campus Community Coalition to provide resources to student tenants can be initiated. Additionally, engagement with property management companies and landlords to increase awareness of energy efficiency programs available to them will further address this under-tapped sector.

To supplement this effort, utilities could set up energy displays at colleges, with an emphasis on LED upgrades and other low-cost measures. In addition, students could be provided with tools to assess their own off-campus housing to identify other potential energy saving activities. Such a program could begin at Western Washington University given its large local enrollment, but an expanded campaign could be appropriate for Bellingham Technical College and Whatcom Community College.

Goal:	Method:	Expected Outcome:
Engage rental housing sector in energy efficiency	Provide consumer energy-saving tips and no- or low-cost information to tenants; provide free energy assessments and financing for property owners	Increase in participation of rental sector in energy efficiency

## Energy Conservation Activities in the Municipal Sector.

In this sector, our Energy Efficiency Program Plan builds upon an extensive record of investments in efficiency in municipal facilities. Recent investments are described in some detail below, and we outline additional investments scheduled through 2016. The plan for the sector also includes current and anticipated efforts to maximize energy use gains through continued employee education in energy saving practices. This effort will be part of our large employer campaign described more fully in the section on residential conservation.

The City has made major investments to improve its energy infrastructure and reduce energy use in most facilities, outlined below.

Energy conservation bonds. In this project, Federally-backed Qualified Energy Conservation Bonds were issued March 14, 2011, in the amount of \$6,500,000. A total of 47 specific energy improvement projects across 23 buildings or facilities were completed. Across these facilities, 12 had heating, ventilation and air conditioning (HVAC) replacement or improvements, 15 had lighting and controls upgraded, and four had boiler replacements. Other measures at one or more facilities include air balancing, water heater replacements, programmable thermostats, and pipe and tank insulation.<sup>10</sup> (These projects are itemized in Table 4 on Page 30.)

The contract required the contractor to guarantee a 20 percent reduction in energy costs. According to the first annual verification report, the projects are expected to exceed the 20 percent energy cost reduction goals specified in the project, saving the City over \$20,000 annually.<sup>11</sup> In addition, because of the retrofits, the City received an incentive payment of \$109,312 from Cascade Natural Gas for the portion of the retrofits completed at its Arne Hanna Aquatic Center.<sup>12</sup>

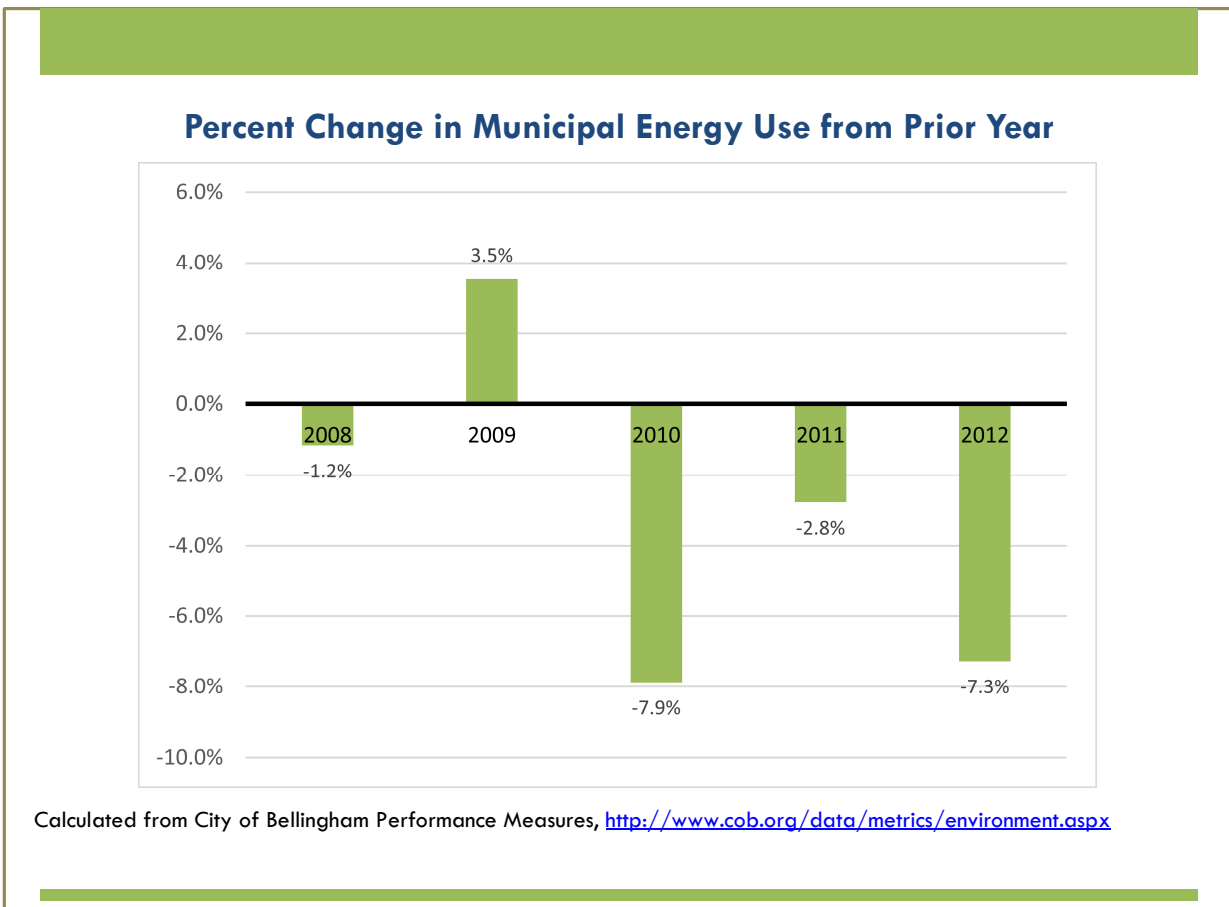
Sewage treatment energy improvements. Other investments have included the installation of a new centrifuge at the City's sewage treatment plant in 2011, an investment resulting in savings of approximately 300,000 kilowatt hours annually.<sup>13</sup> The City also implemented a number of process improvements to improve operations and reduce energy at the plant. Lastly, the City has completed an expansion project at the plant, which was at permitted treatment capacity, to handle increased waste load from population growth. While this could increase treatment volumes over time, simultaneous investments in energy efficient equipment may offset increased volumes. At the same time as plant expansion, the City initiated a pollution source control effort with industrial users, measures which should slow the growth of needed treatment activity.<sup>14</sup>

Residential metering. A residential water metering program, involving the installation of approximately 15,000 water meters citywide, is also proceeding. Through 2014, 4,000 residences in 11 neighborhoods have had meters installed, with charges by volume starting for each neighborhood at the beginning of the next calendar year. Through 2016, an additional 4,000 residences in 13 neighborhoods will have meters installed to complete the citywide metering schedule.<sup>15</sup> While this project does not involve municipal facilities directly, it nevertheless impacts the volume of water treated in the City's treatment plant, since metering has been shown to reduce consumer use by tying water use to cost. This project has contributed to further reductions in per capita water use, with corresponding reductions in the energy needed to treat water. (Note that the City's Water Use Efficiency Program, covered in the Residential sector discussion above, also contributes to reductions in the volume of water treated in municipal facilities and in treatment costs).

**Table 4. Municipal Facilities Upgrades**

<b>Building</b>	<b>Completed Improvement Measure</b>
Arne Hanna Aquatic Center	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> <li>• HVAC Mechanical Systems Replacement</li> <li>• HVAC Control System Improvements</li> </ul>
Bloedel Donovan Community Center	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> <li>• HVAC Control System Improvements</li> </ul>
Central Library	<ul style="list-style-type: none"> <li>• HVAC Equipment Replacement</li> <li>• Lighting and Controls</li> <li>• HVAC Control System Improvements</li> <li>• Boiler Replacement</li> <li>• Air Balancing</li> </ul>
City Hall	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> <li>• HVAC Control System Improvements</li> <li>• Air-cooled Chiller</li> <li>• 6 Rooftop Units Replaced</li> <li>• Air Balancing</li> <li>• Domestic Hot Water Tank</li> <li>• Pipe and Tank Insulation Added</li> </ul>
Fairhaven Library	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> <li>• HVAC Control System Improvements</li> <li>• Domestic Hot Water Tank</li> <li>• Pipe and Tank Insulation Added</li> </ul>
Federal Building	<ul style="list-style-type: none"> <li>• HVAC Control System Improvements</li> <li>• Boiler Replacement (2 steam boilers)</li> <li>• Pipe and Tank Insulation Added</li> </ul>
Fire Stations 2, 3, 4	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> </ul>
Fire Station 5- Northwest	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> <li>• Boiler Replacement</li> </ul>
Municipal Court	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> <li>• 7 Programmable Thermostats Installed</li> </ul>
Parkade (parking garage)	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> </ul>
Parks Administration	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> </ul>
Parks Operation	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> </ul>
Police Administration	<ul style="list-style-type: none"> <li>• HVAC Control System Improvements</li> <li>• Air Balancing</li> </ul>
Public Works Operations- Fleet Building	<ul style="list-style-type: none"> <li>• HVAC Equipment Replacement</li> </ul>
Public Works Operations- Administration Building	<ul style="list-style-type: none"> <li>• Domestic Hot Water Tank</li> <li>• HVAC Equipment Replacement</li> </ul>
Public Works Operations- All 6 buildings	<ul style="list-style-type: none"> <li>• HVAC Control System Improvements</li> </ul>
Railroad Avenue Parking Structure	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> </ul>
Syre Education Center	<ul style="list-style-type: none"> <li>• HVAC Control System Improvements</li> <li>• Steam Boiler Replacement</li> <li>• HVAC Equipment Replacement</li> <li>• Pipe and Tank Insulation Added</li> </ul>
Water Treatment Plant	<ul style="list-style-type: none"> <li>• Lighting and Controls</li> <li>• Programmable Thermostats Installed</li> </ul>
Whatcom Museum	<ul style="list-style-type: none"> <li>• Water-Cooled Condenser Replaced</li> <li>• 28 Programmable Thermostats Installed</li> <li>• Pipe and Tank Insulation Added</li> </ul>

The following chart illustrates the cumulative energy savings of some of these activities. Note that this chart does not reflect additional savings achieved via building upgrades coming on-line in 2013.



Near-term facility upgrades (2015-16). The City's efforts to upgrade the efficiency of its facilities will continue through 2016. Two projects are summarized below.

**Federal Building Retrofits.** The City of Bellingham Federal Building, a structure completed in 1913 that is on the National Register of Historic Places, will receive major mechanical, electrical, and plumbing infrastructure upgrades in the first six months of 2015 to conform to the State's stringent new energy code. Renovations will include replacement of inefficient air distribution systems, conversion of the heating system from steam to hot water, installation of a new boiler room to reduce overheating in the basement, new insulated plumbing and water-saving fixtures, and upgrading of lighting control systems and replacement of bulbs with LEDs.

**LED Streetlighting upgrades.** In the near future, the City is seeking to replace the remaining conventional streetlighting with LED lighting and adaptive controls. By mid-2015, approximately 80 streetlights on Alabama Street, a major commuting corridor, are scheduled to be replaced. A more extensive upgrade effort, subject to the availability of partial funding via state grants, would result in the replacement of an additional 3,600 street lights with LED fixtures and adaptive controls.

The total cost of this project would be approximately \$4 million. If funded, such a project would proceed in 2015, and would result in a 1.8 million reduction in pounds of CO<sub>2</sub> produced annually, along with \$178,000 in energy savings. The project would also result in more than \$40,000 in annual operational savings.<sup>16</sup>

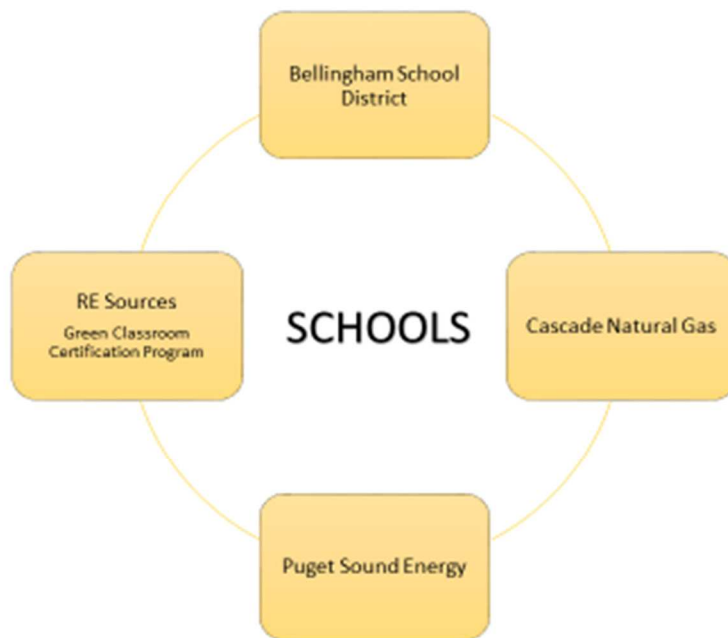


The City of Bellingham's Federal Building

Maximizing capital via operations and employee actions. In order to maximize the energy savings from these facilities improvements, the City will convene its "Green Team" to conduct a focus group that can assist in developing energy efficiency behavior best practices in the workplace for employees. Materials will also be developed focused on residential savings. Creation of materials that are appropriate for City employee energy saving activities will result in a template for a packet that can be distributed to other large employers, as per the large employer campaign mentioned above.

## Energy Conservation Activities in the Schools.

Energy efficiency in the schools encompasses a range of activities including capital investments, optimization of existing investments, and involvement of students and teachers in conservation activities. This section describes completed capital projects and outlines planned projects, followed by a description of new initiatives that will involve students and teachers in conservation education, directed toward both school and home energy savings. (In addition, we plan to involve district employees in our large employer campaign, described in the residential section above.) Entities executing and/or supporting activities in this sector are shown below.



Capital investments. Energy efficiency can be achieved through both technological improvements and behavior modifications. The Bellingham School District includes both aspects in its current and future operating budget and work plan.

*Completed investments.* In the past 8 years the Bellingham School District has upgraded most of the energy control systems at its schools, and most schools have achieved an ENERGY STAR ranking at the 90<sup>th</sup> percentile or better, with some achieving a 100 percent rating. The district has built six new or replacement schools, all meeting Washington Sustainable Schools Protocol, equivalent to LEED Silver. In 2010 the school district completed a \$1 million project which upgraded two additional schools to the latest digital control technology, changed exterior lighting at four locations to more efficient lamps and upgraded interior lighting at two sites. Also in 2010, the district completed water saving measures at four schools, consisting of reduced flush capacity at toilets and reduced flow at water taps. To sustain the savings from these capital investments, the District also performs behavioral interventions such as prohibiting staff from using energy-gobbling appliances in classrooms and meeting rooms. The Bellingham School District has one FTE Resource Conservation



Manager position distributed across two employees and will continue efforts to ensure that additional facilities achieve energy reductions during the Prize period.

*Planned investments.* The District has secured many of the funds needed to further upgrade its infrastructure during the Plan period. A recent voter-approved school capital bond will fund a number of energy use reduction projects. One elementary school will be completely rebuilt to advanced energy codes and another will be expanded and remodeled in 2016, to include energy upgrades. Also, in 2014 the District received a grant of \$310,000 from the state to be used for additional energy saving investments, such as the installation of an energy control system at Bellingham High School and additional lighting upgrades.<sup>17</sup> With this money, seven schools or facilities will get lighting upgrades to LED. The district is continuing to evaluate existing schools and will undertake projects with 15 years payback or less. Two additional elementary schools have been identified as poor energy performers and will be upgraded as resources permit.

*Classroom intensive focus.* The energy savings plan will also include an education campaign directed at students, teachers, and school administrators, to focus on conservation both at school and at home. Such efforts will be assisted by RESources for Sustainable Communities, which works with individual classrooms to help them become certified through a Green Classroom Certification Program, and encourages students to adopt at least one energy-conserving behavior. The program also includes community action projects focusing on water, energy, and waste reduction. In 2014 a pilot project involved 31 elementary schools in Bellingham, reaching 1,000 students. This program will continue in 2015, with a scheduled increase to 40 classrooms, with an additional 10 to be added in 2016.

*Proposed school-based activities.* New school-based activities in the plan include the following. Some of these ideas will require additional development in the early implementation period of the Prize.

**Activity S.1. High school student involvement.** We are in the process of identifying ways to get high schools/middle schools involved in the conservation plan. This would supplement efforts already planned for the elementary schools. One possibility we are exploring is involving representatives to the Youth Earth Summit, attended by students in environmental clubs or enrolled in AP science courses, in energy-related activities. Since three of the counties that send students to the Earth Summit include GUEP cities, we are examining the possibility of a joint high school project. For example, one possibility includes a school competition, with regular reporting of energy saving results to engage students.

Goal:	Method:	Expected Outcome:
Expand the number of students involved in energy conservation efforts in the schools	Design and create a high school involvement plan	Increase in HS students directly involved in energy conservation activities



**Activity S.2. School kitchen improvements.** Participants in our Schools Working Group noted that there are a number of utility programs paying, all or in part, for upgrades to kitchen facilities. While these are designed for commercial properties, schools are also eligible and may not be fully utilizing the programs. As such, we are in the process of identifying ways to leverage available resources, either as part of a capital facilities effort, or by engaging students to assist in the project.

Goal:	Method:	Expected Outcome:
Further reduce school facility energy use by upgrading school kitchens	Identify all utility incentives that could be applied to school kitchens and work with the district and schools to assess feasibility of implementation	Reduced energy use as a result of upgraded kitchens

**Activity S.3. Teacher involvement.** While a program to engage elementary students is operational, and we are developing a high school student involvement plan, teachers not directly involved in these activities may still have an interest in including energy conservation in a class project or a set of lesson plans. This component will involve putting together outreach kits for all classrooms, to include both an in-school and residential focus. There are a number of web sites identified by our local GUEP project partners that could be promoted in the schools. In addition, Puget Sound Energy has developed a school curriculum that is available on the web. We will look for opportunities to promote these materials to interested teachers.

Goal:	Method:	Expected Outcome:
Involve teachers directly in energy conservation education activities	Identify best available resources for direct energy education in the classroom, or for student projects	Increase the number of teachers and students involved in energy conservation activities

**Activity S.4. Elementary school electricity competition.** As the number of schools participating in the Green Classroom Certification program increases, opportunities exist to further engage students after action projects have been completed. A competition between the different elementary schools could build upon student behavior changes made within the school day, comparing energy consumption from school to school. WWU Institute for Energy Studies students are assisting in feasibility assessment of implementing a school-wide competition building upon the school district's current and planned work, and leveraging RE Sources' existing program.

Goal:	Method:	Expected Outcome:
Extend energy efficiency engagement with elementary students	Implement energy competition between elementary schools across the district that are participating in the Green Classroom Certification Program	Further engagement with energy efficiency behavior by students



Teaching school conservation behaviors

## Chapter 4. Innovation, Replication, and Future Performance.

Bellingham's energy efficiency success can be summarized in one word: relationships—with both organizations and resources. The innovative and creative approach the Bellingham Plan takes does not just focus on energy efficiency in isolation, but couples it with the additional resource efficiency opportunities it is connected to, such as waste reduction and water efficiency. Through existing programs executed in these areas by Leadership Team members, collaborative relationships have proven effective in both qualitative and quantitative results. Bellingham's existing resource efficiency programs can be replicated by communities that have any combination of energy utility purveyors, water utility purveyors, local government, and state agencies working with sectors of the community. Establishing new relationships, and strengthening existing ones between various service providers allows for even greater achievements to be realized.

Our Plan, as outlined in Chapter 3, offers both behavioral as well as technological energy efficiency options; one size does not fit all. Programs strive to deliver a service option that meets energy consumers and decision makers where they are at, and show them where they can go. This occurs in the form of technical, financial, and educational assistance, targeted to the populations of each sector. The following are some replicable elements.

**Energy-Water nexus.** Acknowledging the importance of this nexus, the City of Bellingham's Water Use Efficiency Program contracts with Community Energy Challenge providers. This partnership facilitates awareness of the energy-water connection, increases understanding of water fixtures and consumption in homes and businesses, and provides financial incentives for retrofits for CEC participants. In addition to home and business energy assessments conducted by CEC providers, water assessments have also been incorporated into the package. This approach maximizes efficiency opportunities, staff time, participant time, and budgets. Survey results from CEC participants to date reveal support for pairing these efforts together.

**School-based education programs.** Rising costs and declining State funds continue to strain local school systems. In light of this on-going issue, Bellingham Public Schools (BPS) has worked hard to implement sustainable practices as a district; each school has recycling and composting, and most have been retrofitted with energy efficient lights, upgraded operation controls, and adjusted thermostat settings. Two Resource Conservation Managers are in charge of monitoring the savings from these and other operational conservation measures. Even with these improvements, it became apparent that there were additional opportunities to further increase efficiency. Great schools cannot exist without great teachers, principals, and outside support. Thus, RE Sources partners with Bellingham Public Schools and other entities to deliver the Green Classroom Certification Program, which was created to bridge the gap between the technological and operational improvements already made and the behavioral components that enable their effectiveness. For example, having compost available is only effective if it is used properly; energy efficient lighting still uses extra energy if left on in empty rooms, etc. RE Sources believes the best way to utilize the improved conservation measures is to increase the knowledge and activation of sustainable behaviors in the schools. The creation of the multi-faceted Green Classroom Certification program provides teachers a simple, meaningful way to add waste, water, and energy conservation education into the curriculum and integrate sustainable changes in the classrooms and beyond.

**Multi-Family Residential and Rental Programs.** Bellingham's Leadership Team has identified multi-family residential and single family rental housing sectors as prime candidates for increased and targeted outreach regarding energy efficiency program options. The City estimates that there are approximately 18,000 rental units and 6,200 rental properties, of which a large proportion are managed by property management companies. With strong energy efficiency program foundations already in place, increased and targeted outreach to this sector will be a prime focus during the two-year competition. In addition, the City may be creating a rental housing registration program, whereby owners of rental units would be required to register annually with the City. With this system in place to identify owners, a direct pathway will be created to provide outreach, education and further community engagement to this sector.

*Multi-family.* Multi-family housing accounts for more than 2,000 properties. The City's Water Use Efficiency Program will be partnering with Puget Sound Energy to craft a specific outreach plan for this sector. The City of Bellingham will be the lead for conducting a survey and focus group to multi-family properties, with PSE being the primary contact for technical and financial assistance. Free and/or low-cost incentives will be offered by PSE, CNG, and the City of Bellingham Water Use Efficiency Program.

*Single-family residential rental properties.* The City will work with the CEC to target single-family residential rental properties for increased outreach. Both multi-family and single-family residential rental program plans will work with property management companies, and will use both a survey and focus groups to determine how best to serve these two sectors more effectively. Additionally, the research assistance of WWU's Institute for Energy Studies, and Campus Community Coalition outreach services, will aid in program implementation.

The energy efficiency programs and activities contained in this Plan will be sustained during the GUEP competition period and into the future due to the strong financial and collaborative commitment of each entity to achieving energy reductions in the community. Each organizational member brings a strength to the table that supports and enhances the end goal, and the desire to work together to maximize budgets, staff time, and services offered-- helping to ensure longevity of energy savings.

**Additional activities that could be supported if Bellingham won the Georgetown Prize.** We expect that a number of specific ideas will emerge as we implement the Plan regarding what we would do if we received a \$5 million prize by winning the GUEP competition. Putting this Plan into place will reveal both barriers and opportunities that need to be addressed, as well as opportunities to institutionalize program changes to ensure continuing progress. Nevertheless, we have started initial discussions to identify possible innovations that could be supported by additional resources. These include the following, categorized by general approach:

*Schools:*

- Further development of programs in the schools, including a focus on students in low-income schools;
- Education programs with a focus on renewable energy (solar, wind, etc.).

*Energy conservation initiatives:*

- Funding to incentivize net-zero deep-energy retrofits;
- Demonstration projects for retrofits involving super-insulated systems (drawn from Danish models);
- Funding for a (smaller) local open-source Energy Prize to catalyze development of innovative energy systems or techniques.

*Renewable energy and energy infrastructure:*

- Possible creation of a revolving fund to incentivize certain renewable energy projects;
- Renewable energy installation on public facilities;
- Investment to catalyze a local, resilient Smart Microgrid;
- Support for the conservation aspects of a District Energy system, and for options that would accommodate more renewables in the system.

*Other activities to support energy conservation and renewables:*

- Further development of programming for an educational Community Energy Center;
- Infrastructure development for electric vehicles charging.



## **Materials in Support of the Bellingham Energy Efficiency Program Plan**

A. Supporting Energy Initiatives in Bellingham	Page 41
B. October 2014 Council Resolution supporting the Bellingham Energy Efficiency Program Plan	Page 43
C. Other Energy-related Resolutions and Plans	Page 45
D. List of Municipal Accounts	Page 46
E. Notes to this Plan.	Page 50
F. Logic Models - Residential and School	Page 51

## A. Supporting Energy initiatives In Bellingham

There are a number of activities outside the scope of the Energy Efficiency Program Plan that contribute to the upgrading of our energy infrastructure, reduce greenhouse gas emissions, and improve local control of energy resources. While many of these will not immediately affect energy use during the Prize competition period, these activities are part of our Community's base of energy expertise and accomplishments and are worth noting here.

**Waterfront District Energy Planning.** The City, working in conjunction with the Port of Bellingham, has drafted a Waterfront District Sub-Area Plan for the rebuilding of the site of a former paper mill. Provisions in the Plan include exploring the development of advanced energy systems on the site. According to the utility chapter of the Plan, the area "could include additional piping and infrastructure to support the long-term development of district heating and cooling, on-site energy generation, and wastewater reuse." The City has taken the next step to examine this in its utility planning for the site, which reviewed and updated the initial feasibility numbers. According to the recent report, "Waste heat recovery, thermal energy storage, balance of renewable generation, and regional renewable energy processing (as a district energy asset) at scale all have high potential."<sup>18</sup> The report also estimates that a district energy project would substantially reduce overall energy use in the area, as well as Greenhouse Gas emissions. One viable option under consideration for district energy includes using an existing Puget Sound Energy gas-fired turbine on the waterfront to supply waste heat for a district system.

Although further development of district energy options will likely involve a number of months of evaluation and feasibility analysis, and the project not likely to come on-line during the contest period, this project will allow the city to continue to develop its energy-related expertise and to help galvanize community interest in energy issues.

**Green Power.** A successful student-led campaign to get Western Washington University (WWU) to purchase Green Power began in 2003. In 2005 WWU became the first U.S. university to purchase 100 percent renewable energy.<sup>19</sup> Building off this success, a citywide Green Power campaign was created in 2006 as a partnership of Sustainable Connections, Puget Sound Energy, and the City of Bellingham.

In 2007, both the City of Bellingham and Whatcom County also chose to purchase 100% green power. As a result of the Green Power campaign, in 2007 Bellingham was named the #1 EPA certified Green Power community in the US, with a total purchase of Green Power equaling about 12 percent of Bellingham's residential energy electricity use.<sup>20</sup> While other cities have now surpassed Bellingham in terms of total KWh of green power, Bellingham is still in the top 20 nationally for municipal purchases.<sup>21</sup> Puget Sound Energy and its partners have also encouraged residential participation in the Green Power program. As a result of these efforts, the number of residences purchasing some level of Green Power has risen steadily.

**CEC Commercial Program.** The Community Energy Challenge includes a component focused on commercial energy audits and upgrades. The program targets businesses of all sizes to offer energy audits and a prioritized list of upgrades. This business involvement creates numerous points of engagement in the workplace with employers, employees and, potentially, customers, helping to



create a high baseline of energy awareness in the community. In addition, as we move further into Plan implementation, we expect that many businesses will work with the GUEP project to educate employees and customers on residential opportunities.

**Solar permitting improvements.** According to energy analysts, a substantial proportion of the expense of residential solar results from costs associated with permitting, system design, and installation.<sup>22</sup> Locally, as part of a project advocated by Sustainable Connections, the City of Bellingham initiated a project to streamline solar permitting processes. An exemption to standard permitting for small rooftop solar was adopted as City policy on September 4, 2009. This allows an exemption from structural review and building permits for small (according to weight and projected load) solar projects on single-family, two-family, and town home buildings.<sup>23</sup> A similar exemption process was approved for solar hot water heating.<sup>24</sup> As a side effect of solar installations, many residents also opt to increase the efficiency of their residences.

**University energy and sustainability measures.** Local colleges and universities have adopted a number of energy reduction measures and have also created energy-related research, education, and training programs. These raise the profile of energy issues in the community and may act as catalysts for community energy initiatives. The role of WWU in catalyzing the shift toward Green Power is mentioned above. Additional energy-related efforts include:

- In 2009, WWU approved a Climate Action Plan. Energy goals for the university include the achievement of climate neutrality by 2050, and a 10 percent reduction in energy use by utilities by 2012. WWU also created a Sustainability Office to oversee a wide range of sustainability programs, including energy.<sup>25</sup>
- A Green Energy fee was adopted by WWU students in 2009 to raise funds for on-campus projects. For example, one project included a \$167,000 solar array on the Environmental Studies Building. The fee also helps pay for Renewable Energy Credits.
- An energy-reduction residence hall campaign at WWU resulted in over 20 percent energy use reduction from baseline levels.
- A WWU Institute for Energy Studies was founded in 2013. The institute has a broad focus including research, education, and energy policy. The program currently offers a minor in energy studies, and plans for a major are being implemented.<sup>26</sup>
- A "10x12" program was adopted to reduce overall campus energy use by 10 percent by the end of 2012.
- The university contracted for \$3.2 million in building energy retrofits in 2011.

Both Bellingham Technical College (BTC) and Whatcom Community College have adopted energy reduction plans. In addition, BTC has training programs in renewable energy systems.

**B. October 2014 Council Resolution in Support of the Energy Plan**

**RESOLUTION NO. 2014-38**

**A RESOLUTION IN SUPPORT OF THE BELLINGHAM ENERGY EFFICIENCY PROGRAM PLAN AND ENDORSING BELLINGHAM'S PARTICIPATION IN THE GEORGETOWN UNIVERSITY ENERGY PRIZE COMPETITION**

WHEREAS, the City of Bellingham's Legacy Goal of a Healthy Environment includes a commitment to continual efficiency gains in the use of residential and municipal energy; and

WHEREAS, achieving the City's Climate Protection Action Plan goals will be assisted by continuous improvements in energy efficiency; and

WHEREAS, Bellingham's enterprising community spirit has resulted in numerous partnerships to enhance energy efficiency and the growth of renewable energy; and

WHEREAS, the Bellingham community has demonstrated a long-term commitment to improving the energy performance of its buildings via its creation and support of the successful Community Energy Challenge; and

WHEREAS, past energy campaigns in Bellingham have been successful and have resulted in, for example, Bellingham being named the Nation's Number One Green Power Community by the EPA in 2007; and

WHEREAS, the City of Bellingham has committed to long-term energy savings in its buildings and facilities by investing millions of dollars in energy upgrades; and

WHEREAS, the City acknowledges the energy-water nexus whereby conserving energy conserves water, and vice-versa, and has included this in its energy-saving activities; and

WHEREAS, other local organizations including the Bellingham School District, have similarly invested in energy efficiency; and

WHEREAS, the City of Bellingham has submitted a Letter of Intent to participate in the Georgetown University Energy Prize project, and has been selected to be a quarter-finalist in the Prize competition; and

WHEREAS, the Bellingham community has assembled an Energy Leadership Team to identify activities to accelerate efficiency innovations, and has created an Energy Efficiency Program Plan to carry out such activities; and

WHEREAS, The Energy Leadership Team is broad and representative, and includes members from the Bellingham School District, Puget Sound Energy, Sustainable Connections, the City of Bellingham, Cascade Natural Gas, REsources for Sustainable Communities, the Opportunity Council, and Western Washington University's Institute for Energy Studies; and

WHEREAS, the Energy Efficiency Program Plan results from the creation of highly effective partnerships and will lead to substantial improvements in efficiency in the community; and

WHEREAS, the participating organizations have each identified a set of actions that will contribute substantially to the success of the Energy Efficiency Program Plan;

**NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BELLINGHAM:**

**We endorse the City of Bellingham's Participation in the Georgetown University Energy Prize. We also endorse the Bellingham Energy Efficiency Program Plan and pledge to support the energy plan's implementation over the 2015-16 period.**

### C. Other Energy-Related Resolutions and Plans

- **Resolution 2005-08**, passed in March of 2005, committed the City to participate in the five milestones of the Cities for Climate Protection. The milestones are: Conduct a baseline emissions inventory and forecast; Adopt an emissions reduction target; Develop a Climate Action Plan for reducing emissions; Implement policies and measures; and Monitor and verify results.
- **Resolution 2005-21** promotes the use of LEED standards for city buildings and commits the City to encourage LEED construction in the private sector.
- **Resolution 2006-28** commits the City to purchase renewable electricity. The resolution states that "The City shall begin purchasing renewable energy credits from Puget Sound Energy equal to 100 percent of electricity used in municipally-owned facilities in 2007."
- **Resolution 2007-05** committed Bellingham to an environmentally-preferable purchasing program which includes energy-related components such as choosing "energy efficient equipment and appliances, such as Energy Star, whenever practicable."
- **Resolution 2007-10** adopted Greenhouse Gas reduction targets as called for in Resolution 2005-08, above. The goals call for reducing annual emissions of greenhouse gas pollution in municipal operations by 64% below 2000 levels by 2012 and by 70% below 2000 levels by 2020. The City also planned to reduce greenhouse gas pollution in the entire Bellingham community by 7% below 2000 levels by 2012 and by 28% below 2000 levels by 2020.

**Greenhouse Gas Inventory and Climate Protection Action Plan, May 2007.** Bellingham conducted a planning process to achieve broad-scale greenhouse gas reduction, to be guided by the creation of a Climate Protection Action Plan and associated reduction targets. The resulting plan endorsed the greenhouse gas reduction goals for municipal operations and the community as specified above in Resolution 2007-10.<sup>27</sup> The report also noted that by buying Green Power, a greenhouse gas reduction of 83 percent of the 2012 municipal target had already been achieved. (Although the City did not conduct a complete performance review in 2012, in the second half of 2014 a revision to the plan, to include data on achievement of goals to date, is underway. Activities planned for the GUEP will be represented in the Climate Action Plan as appropriate).

**City of Bellingham Comprehensive Plan.** The Comprehensive Plan *Environment Element* Chapter includes statements of goals or policies regarding energy. The most notable sections include goal statements reiterating the above-specified greenhouse gas emission reduction targets, and discussing possible future use of sewage heat recovery systems or district heating in appropriate locations. Policies in the Chapter include promotion of LEED and "Built Green" standards in new housing developments, energy-efficient construction codes, and energy efficiency investments and operating procedures in municipal facilities. The Chapter also calls for energy efficiency efforts to be monitored to assess the effectiveness of reductions and cost savings.<sup>28</sup> The City is in the process of revising its Comprehensive Plan, to include a revision of the environment chapter. As with the Greenhouse Reduction Plan, this revision will dovetail with and be informed by the energy plan.

**D. List of Municipal Accounts**

COB ACCOUNT NUMBERS - ELECTRIC		PARKS & REC ACCOUNTS	
	07-31-2014 08-15-2014		
829 Electric S	08-08-2014	2214 Electric Ave	
638 ELECTRICI	07-18-2014	2015 St Clair St	
829 Electric S	06-20-2014	1401 Electric Ave	
636 Vactor Pow	06-20-2014	2900 Sylvan St	
183 201 Prospe	07-18-2014	1800 F St	
WTP POWER	06-02-2014	2806 W Maplewood Ave	
183 121 Prospe	07-14-2014	1900 Eldridge Ave	
183 216 Grand	07-14-2014	2114 Electric Ave	
638 ELECTRICI	06-03-2014	514 W Holly St	
724 1886 Grand	07-01-2014	900 Taylor Ave (RR)	
724 1886 Grand	06-02-2014	1501 Washington St	
638 1523 RAIL	07-31-2014	1200 Franklin St	
EF3-Station 2	06-11-2014	100 Boulevard Park (RR)	
435 AHAC Elect	07-01-2014	1410 Moore St	
		4892 Samish Way	
253 851 COHO W	06-11-2014	2900 Dakin St	
183 121 Prospe	06-12-2014	1114 Potter St	
183 216 Grand	06-13-2014	1207 10th St (RR)	
EF3-Station 5	06-02-2014	4501 Wilkin St	
638 ELECTRICI	07-11-2014	2300 Meridian St	
125/671-Fed Bl	07-11-2014	2235 Verona St	
EF3-Station 1	06-02-2014	2700 King St	
811 2106 Grant	07-14-2014	Lake Padden Ballfield (RR 2)	
823 Usage 2134	07-14-2014	1555 Puget St (RR)	
811 Usage 205	07-14-2014	107 Chuckanut Dr N	
EF3-Station4	06-02-2014	3424 Meridian St	
EF3-Station 6	06-12-2014	2700 N Park Dr (RR)	
638 1130 RAILR	07-31-2014	1251 Central Ave	
636 Vactor Pow	07-01-2014	3424 Meridian St	
410/628-WCC sp	07-11-2014	3424 Meridian St	
WTP - POWER	06-18-2014	1401 Electric Ave	
EF3-Station 3	06-02-2014	347 Van Wyck Rd	
638 ELECTRICI	08-01-2014	1001 Squalicum Way	
636 VACTOR POW	07-01-2014	1400 Woburn	
183 201 Prospe	07-01-2014	2701 Lakeway Dr B	
ES498-3700 Jam	07-14-2014	2701 Lakeway Dr	
TRAFFIC POWER	06-30-2014	2501 Lakeway Dr	
WWTP POWER	07-07-2014	1420 Woburn St	
EF3-Facilities	07-07-2014		
WTP - POWER	06-02-2014		
WTP POWER	07-07-2014		
724 858 E Smit	07-07-2014		
423 Ref #90484	06-25-2014		
EF3-Green Pow e	06-25-2014		
EF3-Fire stati	07-01-2014		

Note: Account numbers are suppressed in this public document.

City of Bellingham Cascade Natural Gas		
Site ID	Site Name	Utility
Plt.Post	Plants - Sewage Treatment	Cascade Natural Gas Corporation
Aqua	Arne Hannah Aquatic Center	Cascade Natural Gas Corporation
911	What.Comm 911 Admin	Cascade Natural Gas Corporation
PW.Annex	PW Ops Annex - GIS Office	Cascade Natural Gas Corporation
Fire04	Fire Station 4	Cascade Natural Gas Corporation
PkOps	Parks Operations	Cascade Natural Gas Corporation
Pol.Admn	Police Administration	Cascade Natural Gas Corporation
Fire03	Fire Station 3	Cascade Natural Gas Corporation
Fire01	Fire Station 1	Cascade Natural Gas Corporation
ELC	Environmental Learning Center	Cascade Natural Gas Corporation
Depot	Depot Market Square	Cascade Natural Gas Corporation
LIB02	Fairhaven Library	Cascade Natural Gas Corporation
Fire02	Fire Station 2	Cascade Natural Gas Corporation
PkAdmin	Parks Administration	Cascade Natural Gas Corporation
Fire06	Fire Station 6	Cascade Natural Gas Corporation
Fire05	Fire Station 5	Cascade Natural Gas Corporation
Plt.H2OS	Plants - Water Treatment Screenhouse	Cascade Natural Gas Corporation
Bloe.Pk1	Bloedel Donovan Park Children's Ctr	Cascade Natural Gas Corporation
Bloe.Prk	Bloedel Donovan Park Community Ctr	Cascade Natural Gas Corporation
Plt.H2O	Plants - Water Treatment	Cascade Natural Gas Corporation
WorksOps	Public Works Operations	Cascade Natural Gas Corporation
Court	Municipal Courthouse	Cascade Natural Gas Corporation
MUch	Syre Educational Center	Cascade Natural Gas Corporation
CH	City Hall	Cascade Natural Gas Corporation
LIB01	Central Library	Cascade Natural Gas Corporation
Mus.Chld	Museum - Lightcatcher	Cascade Natural Gas Corporation
FED	Federal Building	Cascade Natural Gas Corporation
Civ.Fld	Civic Field Complex	Cascade Natural Gas Corporation

Bellingham School District Accounts		
Site ID	Site Name	Utility
SunnylES	Sunnyland Elementary School	Puget Sound Energy - Electric
KulshaMS	Kulshan Middle School	Puget Sound Energy - Electric
AlderwES	Alderwood Elementary School	Puget Sound Energy - Electric
HSO/G	High School Options/Grads	Puget Sound Energy - Electric
NortheES	Northern Heights Elementary School	Puget Sound Energy - Electric
BirchwES	Birchwood Elementary School	Puget Sound Energy - Electric
ShksnMS	Shuksan Middle School	Puget Sound Energy - Electric
HSO/G	High School Options/Grads	Puget Sound Energy - Electric
SehomeHS	Sehome High School	Puget Sound Energy - Electric
SilverES	Silver Beach Elementary School	Puget Sound Energy - Electric
SilverES	Silver Beach Elementary School	Puget Sound Energy - Electric
LarrabES	Larabee Elementary School	Puget Sound Energy - Electric
LarrabES	Larabee Elementary School	Puget Sound Energy - Electric
LarrabES	Larabee Elementary School	Puget Sound Energy - Electric
HappyVES	Happy Valley Elementary School	Puget Sound Energy - Electric
ColumbES	Columbia Elementary School	Puget Sound Energy - Electric
WhatcoMS	Whatcom Middle School	Puget Sound Energy - Electric
EarlyChi	Early Childhood Center	Puget Sound Energy - Electric
EarlyChi	Early Childhood Center	Puget Sound Energy - Electric
EarlyChi	Early Childhood Center	Puget Sound Energy - Electric
HSO/G	High School Options/Grads	Puget Sound Energy - Electric
SunnylES	Sunnyland Elementary School	Puget Sound Energy - Electric
HSO/G	High School Options/Grads	Puget Sound Energy - Electric
AlderwES	Alderwood Elementary School	Puget Sound Energy - Electric
RoosevES	Roosevelt Elementary School	Puget Sound Energy - Electric
Ship&Rcv	Shipping & Receiving	Puget Sound Energy - Electric
Cordates	Cordata Elementary School	Puget Sound Energy - Electric
HSO/G	High School Options/Grads	Puget Sound Energy - Electric
SqualIHS	Squalicum High School	Puget Sound Energy - Electric
SqualIHS	Squalicum High School	Puget Sound Energy - Electric
BellIHS	Bellingham High School	Puget Sound Energy - Electric
CarlCoES	Carl Cozier Elementary School	Puget Sound Energy - Electric
HappyVES	Happy Valley Elementary School	Puget Sound Energy - Electric
1169	1169 Mt Baker Hwy	Puget Sound Energy - Electric
HappyVES	Happy Valley Elementary School	Puget Sound Energy - Electric
HappyVES	Happy Valley Elementary School	Puget Sound Energy - Electric
HappyVES	Happy Valley Elementary School	Puget Sound Energy - Electric
CarlCoES	Carl Cozier Elementary School	Puget Sound Energy - Electric
CarlCoES	Carl Cozier Elementary School	Puget Sound Energy - Electric
CarlCoES	Carl Cozier Elementary School	Puget Sound Energy - Electric
Transpor	Transportation	Puget Sound Energy - Electric
Transpor	Transportation	Puget Sound Energy - Electric
ShksnMS	Shuksan Middle School	Puget Sound Energy - Electric
ParkviES	Parkview Elementary School	Puget Sound Energy - Electric
ParkviES	Parkview Elementary School	Puget Sound Energy - Electric
FairhaMS	Fairhaven Middle School	Puget Sound Energy - Electric
LarrabES	Larabee Elementary School	Puget Sound Energy - Electric
Battersb	Battersby Field Restroom	Puget Sound Energy - Electric
WK ES	Wade King Elementary	Puget Sound Energy - Electric
GenevaES	Geneva Elementary School	Puget Sound Energy - Electric
SqualIHS	Squalicum High School	Puget Sound Energy - Electric
SunnylES	Sunnyland Elementary School	Puget Sound Energy - Electric
GenevaES	Geneva Elementary School	Puget Sound Energy - Electric
WhatcoMS	Whatcom Middle School	Puget Sound Energy - Electric
WhatcoMS	Whatcom Middle School	Puget Sound Energy - Electric
WhatcoMS	Whatcom Middle School	Puget Sound Energy - Electric
Admin	Administration Building	Puget Sound Energy - Electric
Maintena	Maintenance	Puget Sound Energy - Electric
LowelIES	Lowell Elementary School	Puget Sound Energy - Electric
GenevaES	Geneva Elementary School	Puget Sound Energy - Electric
BellIHS	Bellingham High School	Puget Sound Energy - Electric



Site ID	Site Name	Utility
ShksnMS	Shuksan Middle School	Cascade Natural Gas
CordatES	Cordata Elementary School	Cascade Natural Gas
Maintena	Maintenance	Cascade Natural Gas
NortheES	Northern Heights Elementary School	Cascade Natural Gas
Transpor	Transportation	Cascade Natural Gas
CarlCoES	Carl Cozier Elementary School	Cascade Natural Gas
WK ES	Wade King Elementary	Cascade Natural Gas
WhatcoMS	Whatcom Middle School	Cascade Natural Gas
SilverES	Silver Beach Elementary School	Cascade Natural Gas
LarrabES	Larrabee Elementary School	Cascade Natural Gas
LowellES	Lowell Elementary School	Cascade Natural Gas
SilverES	Silver Beach Elementary School	Cascade Natural Gas
FairhaMS	Fairhaven Middle School	Cascade Natural Gas
ShksnMS	Shuksan Middle School	Cascade Natural Gas
SunnylES	Sunnyland Elementary School	Cascade Natural Gas
Admin	Administration Building	Cascade Natural Gas
HappyVES	Happy Valley Elementary School	Cascade Natural Gas
BirchwES	Birchwood Elementary School	Cascade Natural Gas
AlderwES	Alderwood Wood Elementary School	Cascade Natural Gas
Ship&Rcv	Shipping & Receiving	Cascade Natural Gas
KulshaMS	Kulshan Middle School	Cascade Natural Gas
KulshaMS	Kulshan Middle School	Cascade Natural Gas
ColumbES	Columbia Elementary School	Cascade Natural Gas
SehomeHS	Sehome High School	Cascade Natural Gas
BellliHS	Bellingham High School	Cascade Natural Gas
ParkviES	Parkview Elementary School	Cascade Natural Gas
WhatcoMS	Whatcom Middle School	Cascade Natural Gas
SquallHS	Squalicum High School	Cascade Natural Gas

## Notes

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- <sup>2</sup> Sustainable Connections, "Community Energy Challenge hits targets, creates jobs," March 1, 2013, <http://sustainableconnections.org/news/sc-press-releases/community-energy-challenge-hits-targets-creates-jobs>
- <sup>3</sup> U.S. Environmental Protection Agency, The Whatcom Energy Challenge, "<http://www.epa.gov/statelocalclimate/local/showcase/whatcom.html>
- <sup>4</sup> Thomas Dolan, "Nonprofit Energy Savers Thrive in Washington State," *Home Energy*, January 3, 2012, <http://www.homeenergy.org/show/article/id/1751/viewFull/>
- <sup>5</sup> Building Performance Center web site, <http://www.buildingperformancecenter.org/about-2/>
- <sup>6</sup> See information from Puget Sound Cooperative Credit Union at: <http://psccu.org/efficiency.php#cec>
- <sup>7</sup> Community Energy Challenge, Report from January 1010 to March 15, 2013.
- <sup>8</sup> See Washington State Department of Commerce, Evergreen Sustainable Development Standard: <http://www.commerce.wa.gov/Documents/HTF-Published-ESDS2-OKS.pdf>
- <sup>9</sup> Les Robinson, *A summary of Diffusion of Innovations*, [www.enablingchange.com.au](http://www.enablingchange.com.au)
- <sup>10</sup> City of Bellingham, Municipal Facilities Energy Conservation Project List.
- <sup>11</sup> Johnson Controls, "Post Installation Measurement and Verification Report," May 2013.
- <sup>12</sup> City Council Agenda Bill number 19371, November 7, 2011
- <sup>13</sup> City of Bellingham, City Council Agenda Bill 19687, Puget Sound Energy Grant for Energy Efficiency Upgrades at Post Point Waste Water Treatment Plant (WWTP): [http://www.cob.org/web/COUNCIL.nsf/0/B885B84E7DC85F1088257A7F0054529C/\\$File/24sep2012\\_AB19687.pdf?OpenElement](http://www.cob.org/web/COUNCIL.nsf/0/B885B84E7DC85F1088257A7F0054529C/$File/24sep2012_AB19687.pdf?OpenElement)
- <sup>14</sup> Facilities Planning report, Post Point Wastewater Plant Improvements, Carollo Engineering, October 2011.
- <sup>15</sup> City of Bellingham, Water Metering Program: <http://www.cob.org/services/utilities/water-metering-program.aspx>
- <sup>16</sup> City of Bellingham, internal communications.
- <sup>17</sup> Bellingham School District, "Bellingham Public Schools Awarded Energy Efficiency Grant," <http://bellingshamschools.org/news/2014-04/bellingham-public-schools-awarded-energy-efficiency-grant>
- <sup>18</sup> FVB Energy, *Bellingham Waterfront Utility Master Plan District Infrastructure Assessment, Preliminary Finding Report*, April 2014.
- <sup>19</sup> US EPA, Green Power Partnership, Partner Profile, <http://www.epa.gov/greenpower/partners/partners/westernwashingtonuniversity.htm>
- <sup>20</sup> U.S. Environmental Protection Agency (and others), "Guide to Purchasing Green Power," March 2010, [http://www.epa.gov/greenpower/documents/purchasing\\_guide\\_for\\_web.pdf](http://www.epa.gov/greenpower/documents/purchasing_guide_for_web.pdf)
- <sup>21</sup> Environmental Protection Agency, <http://www.epa.gov/greenpower/toplists/top20localgov.htm>
- <sup>22</sup> For more information, see Rocky Mountain Institute, "Solar PV Balance of System," <http://www.rmi.org/SolarPVBOS>
- <sup>23</sup> Jim Tinner, City of Bellingham Policy, "Roof Mounted Photo-Voltaic Solar Panels for One and Two Family Dwellings," September 4, 2009.
- <sup>24</sup> City of Bellingham, "Advanced Methods and Materials, Solar Water Heating Systems," undated.
- <sup>25</sup> Western Washington University, "2010-2011 Western Sustainability Report," undated.
- <sup>26</sup> See <http://www.wvu.edu/energy/>
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- <sup>28</sup> City of Bellingham, Comprehensive Plan, Environment Element Chapter.

Residential Sector Logic Model - Single-family residential and Multi-family			R.xx = modifications to existing programs	R.xx = outreach activities to increase program uptake and efficiency knowledge	R.xx = new activities that require further assessment	
Goal: Accelerate residential energy savings by making the most of our well-developed programs focused on residential energy efficiency retrofits through program innovation and effective outreach			ANTICIPATED OUTCOMES			
RESOURCES	ACTIVITIES (what you will do)	OUTPUTS (what you will produce)	SHORT (2015)	MID (2015-16)	LONG (2017)	
Opportunity Council						
Community Energy Challenge	Provide Energy Assessments (SFR)	Energy Saving Report based on assessment	New target audiences will be able to describe the offerings of one or all programs applicable and savings opportunities to them	2,000 energy assessments completed	5% reduction in residential sector energy consumption	
	Provide Project Assistance	Rebates; Free energy-saving items (e.g. light bulbs, showerheads, etc)	Increased uptake of rebates; Increased uptake of free energy saving items installed	1,600 retrofit projects completed; 900 rebates processed; 8,000 free items distributed		
	R.1 Reduce costs for moderate income residences for participation in CEC	Sliding-scale fee for CEC program participation	Moderate income residents become aware of new program costs and savings opportunities available to them	200 moderate-income residents have an energy assessment through CEC		
	R.2 Market deep energy retrofits	Educational materials for homeowners and contractors that emphasize long-term savings	Homeowners and contractors become aware of EE opportunities that can be included in already-planned remodel projects and savings opportunities available to them	5 homeowners and contractors executing already-planned remodel projects include EE retrofits in project		
Puget Sound Energy						
	Utility bill insert to customers	Rebates	Increased uptake of rebates	96,000 customers receive bill insert promoting rebates available		
	Energy Assessments (SFR)	Rebates; HomePrint energy assessment; showerhead and LED installations	Increased uptake of rebates; Increased sign-ups for assessments via online web tool	8,000 rebates processed; 400 HomePrint energy assessments		
	Energy Assessments (MFR)	Energy Audits	Increased number of multi-family properties signing up for energy audits	40 energy assessments on MF properties completed by PSE; 50 rebates processed for MF customers		
	R.5 Enhanced canvassing	Sign-up sheets for HomePrint energy consumption web tool and LED installations	Geographic areas of low participation in CEC/PSE/CNG programs targeted for canvassing which result in greater awareness of EE programs and savings opportunities available	5% homeowners participate in EE program due to canvassing		
	R.7 Promote MyPSE web-based tool that provides personalized home energy use on-line	Reports on customer account energy use; no-cost/low-cost energy savings options customized to user's existing energy use in home	Homeowners become more aware of where energy is being used most in their homes	300 PSE customers set up MyPSE accounts; 100 implement recommended energy-saving measures		
Cascade Natural Gas						
	Utility bill insert to 24,700 residential customers	Rebates; Free energy-saving items (e.g. showerheads, aerators, etc)	CNG customers will know what EE program are available and savings opportunities; CNG customers will know they can access rebates via website	900 rebates processed; 45 free items distributed		
City of Bellingham						
	SFR: Bill insert to ~20,000 water customers regarding water & energy efficient prog. opportunities	Rebates for retrofits	SFR water customers aware of water conservation rebates	400 water conservation rebates processed		
	R.3 Promote innovations in permitting	Provide training to Permit Center staff regarding EE programs available; List of EE programs by provider and targeted sector for distribution to Permit Center visitors	Permit Center able to direct visitors to EE resources; COB utility customers aware of WC/EE rebate opportunities, understands benefits of WC and EE retrofits	Permit center recives 5 deep energy retrofit project applications		
	R.4 Large employer campaign	The City's Green Team will spearhead a focus group comprised of city employees to determine effective ways of increasing employee participation in EE programs at home and work	Based on focus group findings, initiate campaign that brings additional awareness to large employer employees of EE programs available and benefits	50 employees of large employers participate in an EE program		
Water Use Efficiency Program	R.12 SFR: Promote EE program to registered rental housing owners (TBD)	List of EE programs by provider for distribution to registered rental housing owners and occupants	Registered rental housing owners and occupants aware of EE programs available, potential savings opportunities	100% of registered rental houses receive EE programs info; 2% of registered rental houses participate in an EE program		
	SFR: Partner with Opp Co on CEC	CEC provides assessments to City SFR water customers; Free water-energy saving kit (e.g. showerheads, faucet aerators)	SFR water customers aware of water conservation rebates, free water-energy saving items	250 water & energy assessments completed; 400 free kits distributed		
	R.11 MF and R.12 SFR: Conduct focus group on SFR and MFR rental property owners; develop contact list of Bellingham property managers containing number of MFR properties managed	Report on focus group findings; targeted outreach to sector based on focus group findings	Focus group info drives outreach plan to MFR and SFR rental sectors; sector knows EE programs available to them, understands benefits of EE upgrades	10 MF and 5 SFR rental focus group participants participate in an EE program; 20 water assessments completed; 20 MF water conservation rebates processed; 40 energy and water free items installed		
Western Washington University						
Institute for Energy Studies	R.9 Provide Community Energy Center staff	Showroom staff	Visitors to showroom will see EE lighting, appliances, fixtures, and systems examples and the associated cost savings, will know what EE programs are available to them	1,500 Bellingham residents visit showroom; 5% of showroom visitors participate in an EE program		
	R.11 MF and R.12 SFR: Research 'green leases' for student rental housing EE - SFR and MF; split incentive issues.	Report on feasibility of green lease program in Bellingham	Collaborate with WWU's Campus Community Coalition for a student-led initiative for EE program promotion to rental housing to landlords and tenants	5% adoption in 2015, 15% adtpotion in 2016, 15% adoption in 2017 by landlords		
Sustainable Connections						
	R.11 MF: research tax credits and financing innovations	Memo on potential tax credit and financing innovations for MF sector	Possible policy & budget-driven pathway for increasing EE program participation by MF sector	Increase in MF EE retrofits		
	R.9 Promote Community Energy Center	Promote center via SC membership network and event-hosting	Business owners/visitors to showroom will see EE lighting, appliances, fixtures, and systems examples and the associated cost savings	100 business owners visit showroom; 5% of showroom visitors participate in an EE program		
Leadership Team						
	R.6 Neighborhood involvement	Sponsor 4 block parties/events in neighborhoods with the lowest % of participation in EE programs	Increased awareness of EE programs and savings opportunities to homeowners in areas with low participation rates	2% increase in participation from lower-participation neighborhoods in EE programs		
	R.8 Media promotion of GUEP	Produce 3 videos: YouTube videos, 30-minute segment for airing on local government TV channel	Promotion of EE programs to larger audience via television and video	Increase in participation of EE programs by viewers		
	R.9 Create Community Energy Center	Create model EE residence, office, and school classroom for visitors to enjoy	Visitors will see various EE examples of lighting, appliances, heating/cooling systems, etc	5% of showroom visitors participate in an EE program		
	R.10 Community energy tracking system	City-wide residential energy tracking system; prizes and giveaways for individual milestone EE achievements	Increased motivation/incentives/recognition for individual EE efforts	2,000 participants registered for energy use tracking system		
EE= energy efficiency MF= multifamily SFR= single-family residential						