

Q1. For low-income agencies a complete budget and expenditures with a list of all funding sources for low-income conservation including housing repair, health and safety assistance and the amount of funding available as a proportion of the total agency budget.

A1. The Energy Project was unable to retrieve data from the agencies at the level of detail that this request and question 7 would require. The table below was constructed from data supplied by the Department of Commerce (Commerce) for the DOE Weatherization Assistance Program (WAP) and Department of Health and Human Services Low-Income Home Energy Assistance Program Weatherization (LIHEAP Wx), the Bonneville Power Administration funds that Commerce administers, and the Energy Matchmaker state-funded program, which is now called the Matchmaker Program (MM). It is important to note that this table does not include all line items in agency budgets. For example, WAP and LIHEAP Wx budgets provide significant funding for training and technical assistance to the agencies. Some agencies use some of their funding sources to provide conservation education. There are also line items for liability insurance and auditing that are not accounted for in either program support or administration. In addition to BPA's funding there is also consumer-owned utility (COU) funding directly from the utility to the local agency for which we do not have the detailed amounts. We are also aware that some agencies receive funding that can be used for repairs that is not administered by Commerce. The Metropolitan Development Council, for example, receives \$40,000/year from the City of Tacoma that they can use for repair. Agencies that provide weatherization services often provide home rehabilitation services. Funds dedicated to repairs can be useful, and can sometimes be used for energy efficiency, but funding sources may have spending requirements for line items that do not support energy efficiency measure installation.

Program	Budget	Expenditures	Admin Budget	Admin Expenditures	Program Support Budget	Program Support Expenditures	Health & Safety Budget	Health & Safety Expenditures	WX-Related Repairs Budget	WX-Related Repairs Expenditures
DOE WAP 4/08-3/09	4,476,296	4,436,100	522,966	498,201	2,833,007	2,926,709	487,151	413,170	201,352	299,146
HHS WX 10/07-9/09*	13,690,138	13,065,754	1,098,004	962,671	5,461,195	5,504,933	789,607	789,607	898,258	898,258
EM 7/07-6/09	5,039,316	5,016,416	NA	527,365	NA	3,342,086	NA	516,930	NA	555,657
BPA 10/06-9/09*	1,953,890	1,910,312	232,682	213,324	1,295,769	1,334,941	152,011	152,019	172,594	136,061
Total	25,159,640	24,428,582	1,853,652	2,201,561	9,589,971	13,108,670	1,428,769	1,871,726	1,272,204	1,799,121
% of Budget				9%		54%		8%		7%

* This is a multi-year budget which has been "normalized" to 12 months.

The chart above is based on data from Commerce for the 2007-2009 timeframe to develop a representative picture of the weatherization funding available. Sometimes weatherization program budgets cover two years. An agency might spend the majority of a particular budget's funds in one year or the other. In a couple cases the agencies were allowed to carry funds over into the next program year. The fiscal years themselves also do not line up. The 2008 WAP program year was from April 2008 through March 2009. The 2008 LIHEAP Wx and BPA Weatherization program years ran from October 2007

through September 2008. The Energy Matchmaker Program year ran from July 2008-June 2009. In order to create a representative year, the Energy Project took the entire program funding from a given source and divided by the number of years for which it was allocated.

The 2007-2009 timeframe was used because it seemed to best encompass the years identified in the third data request. In this respect no ARRA budget data is included. This is reasonable for a few reasons. First, ARRA funds are intended to be a one-time occurrence. We expect weatherization budgets going forward will be more like the pre-ARRA funding levels. Second, while the ARRA contracts began in April 2009, agencies could not really spend the funds until late in the year due to lack of program guidance for wages and reporting. Finally, the ARRA spending is clearly a “stimulus” package with goals of job creation as well as achieving energy efficiency.

The low-income weatherization agencies rely on multiple funding sources to provide their services in addition to the IOU provided funds. Twenty-four of the twenty-five WAP sub-grantees have some amount of IOU service in the areas they serve. Conversely, it is important to note that a local weatherization agency in PSE's service territory, for example, may also have several consumer-owned utilities and possibly a different gas company, as well as clients who use non-regulated fuels. Another challenge in providing a clear picture of available spending is that these funding sources all operate on different fiscal and program years.

Agencies do not draw down funds in an equal portion each month from each funding source. Spending is determined by the mix of homes that come in for assistance, the specific needs in those homes, as well as the local agency's spending strategy. An agency might emphasize spending more of one particular funding source in order to maximize its use as a budget year winds down. While agencies use multiple funding sources in the same dwelling in order to capture as many cost effective measures as they can, not all of these funding sources are available in all homes. Clearly, BPA funding can't be used in any electric IOU homes, though BPA does allow work their funding to be used for base load measures in gas-heated homes in a consumer-owned electric utility service territory.

Q2. For each utility, a complete budget for low-income conservation including housing repair, health and safety assistance and spending as a proportion of total conservation budget.

A2. The Energy Project defers to the utilities to respond to this question.

Q3. Total utility disbursement to CAP agencies in 2008-09.

A3. The Energy Project defers to the utilities to respond to this question.

Q4. An explanation of the administration of low-income conservation programs.

A4. The spectrum of low-income conservation programs includes federal funding from the U.S. Department of Health and Human Services (Low Income Home Energy Assistance Program, or LIHEAP) of which Washington uses a percentage for weatherization, and the U.S. Department of Energy Weatherization Assistance Program (WAP); utility funded programs (Investor Owned Utilities; Bonneville Power Administration; other Consumer Owned Utilities); State funding (Energy Matchmakers, funded out of the state capital budget); and other sources of funding, such as settlement funds via the WA Attorney General's office, as they are available. Commerce is the administrative entity for federal, BPA, and state funded low-income energy efficiency dollars. Commerce must follow rules and guidance for the federal low-income weatherization dollars as to their subrecipients (e.g., the local agencies).

Typically, the program works as follows. A local agency will have a grant agreement Commerce to administer low-income weatherization programs. The local agency may also have contracts with utilities. The agency is responsible for the marketing and outreach of the federal and state programs, and collaborates with the utility for its program. Commerce includes funding for training and technical assistance to keep the agency on the cutting edge of new weatherization and building technology and practices, as well as to maintain crews and contractors with the required skills. Intake for eligibility for interested customers is done by the local agency, often in cooperation and support of the energy assistance program at the same or another agency. For every eligible client found, the agency ends up screening some number of additional applicants.

When a likely weatherization candidate is found, a home energy audit is scheduled and performed. This assessment determines whether the home meets the criteria necessary to install weatherization and efficiency materials (see A7 for more detail). At this point, a fan-door test is performed to determine the need for air leakage control. While not typically a service from standard insulation contractors, fan-door tests are a low-income weatherization program requirement. In addition, the auditor will look for characteristics that might significantly increase the cost of weatherization or prevent the work from being performed, such as repairs needed to protect efficiency measures, unsafe combustion appliances, or the presence of asbestos or lead containing materials. Sometimes the home is determined not to be appropriate or ready for installation of weatherization measures due to extreme disrepair of the overall structure. In such cases the agency has incurred costs, nevertheless.

After the assessment, an approved methodology or software program authorized by the funding source is used to determine which measures are eligible for which funds. A schedule is set up for the agency's weatherization staff and/or contractors for installation of approved measures. Often there is a long waiting list for services as need far exceeds available resources. The weatherization crews or contractors install weatherization

measures, with the goal to do all cost-effective (as guided by the funding source) measures and to not “strand” efficiency measures due to the need of energy-related repairs.

Upon completion of the unit, an inspector is sent out by the local agency to ensure the work is done properly and completely. The local agency is required to send regular reports to Commerce or the utility. Commerce then reimburses the local agency for measures funded through the sources they oversee based on invoices for completed units. Generally this is how utilities reimburse agencies as well, though one utility is able to reimburse for measures completed before a job is closed. Each year Commerce performs random inspections of a percentage of the homes as a quality check of the local agency's inspections.

The size of the agencies, the programs they administer, the amount and diversity of funding, compensation schedules, and resources available in their service areas vary across the state. Some of the agencies have federally approved indirect rates for administration that are applied to all their funding sources. Consequently, there is no set percentage or methodology that can be used for all agencies. The local agencies have had the on-going challenge of melding a multitude of funding sources together to make the weatherization program work. Federal, state and utility funding sources often have different fiscal years, program years, eligibility guidelines, payment schedules, cost-effectiveness tests, goals and objectives.

The local agencies differ from the standard for-profit energy service companies that deliver energy efficiency in that their highest interest is in making as great a difference in energy efficiency and comfort for the household as possible. Over time this has led to following a “whole house” approach, taking care not to strand any weatherization measures that could provide benefit. The years of experience working in a variety of residential buildings has also revealed the interrelatedness of systems within the structure – which can result in hazards to either the structure or the inhabitants when one aspect of the building is changed without paying attention to others. In the federally funded programs this ultimately developed into requirements that agencies assure to the best of their ability that such problems will not be caused or exacerbated by their work. For example, the agency is expected to “tighten-up” a home to reduce heat loss and control air leakage. However, doing so could expose the occupants to indoor air quality issues for which the agency and its funding sources could be legally liable unless they perform related health and safety measures such as combustion safety testing and the provision of carbon monoxide detectors. Program goals, however, go beyond energy efficiency and energy-related health and safety, to the preservation of affordable housing, the use of “green materials”(as directed by the federal funding sources), occupant comfort, and networking with the customer for other social services they may need.

Q5. A list of the types of conservation measures installed.

A5. The list of conservation measures used in the federal programs (as well as BPA and State Matchmaker funds) include the following:

- shell measures such as attic, wall, and floor insulation;
- base-load measures such as refrigerator replacement, incandescent light bulb and fixture change-outs;
- energy-related water efficiency measures such as hot water tank wraps; showerheads, flow restrictors;
- heating system treatments such as furnace tune-ups, furnace replacement, duct sealing and insulation;
- diagnostically-driven air leakage control; and
- low-cost/no-cost energy-saving measures

Consumer conservation education is also required. BPA will also fund microwave ovens and clothes washer replacement. DOE will allow renewable energy systems that are included in the average cost per unit when combined with any energy efficiency expenditures.

In addition, when a repair is necessary in order to protect the energy measure or the structure, such as patching a roof leak to protect attic or wall insulation, or repairing mechanical ventilation, those costs are allowed and must be included in the SIR calculation. The inclusion of an allowance for repair funds is critical to reducing the possibility of stranding an energy-saving measure as well as reducing the cost of “walk-aways.” Prior to ARRA funding weatherization-related repairs were limited to a \$200/unit average cost, with a maximum of \$550/unit. This cap made it very difficult for agencies to fund even some of the more commonly needed repairs, so when the allowable program average expenditure was increased, Commerce also changed the allowable weatherization-related repair costs to 15% of program budget. Because not all funding sources are available at all times, having some allowance for health and safety and energy-related repair in each funding source provides agencies with the flexibility to access the funds when they need to complete the package of measures installed. Remaining budget allowances not spent on repairs are spent on energy efficiency measures.

Q6. A list of the types of health and human safety measures installed.

A6. Commerce and the federal funding sources make a key distinction between what are called health and safety repairs or measures and energy efficiency measures or weatherization-related repairs. Agencies must install health and safety repairs or measures when they are determined necessary to protect the inhabitants of the home. Weatherization-related repairs are those required to protect the efficiency measures installed. Health and safety measures that can be paid for with WAP, LIHEAP Wx, BPA

or MM funding include:

- electrical knob-and-tube wiring and minor energy-related electrical repair;
- diagnostic testing for indoor air quality;
- heating system repair or replacement;
- combustion safety testing;
- repair of a solid fuel burning appliance (not allowed by BPA);
- smoke detectors;
- carbon monoxide detectors;
- window repair or replacement; and
- lead-safe weatherization (required when lead containing materials will be disturbed by the installation).

The policies allow for the expenditure of labor, materials and, in some cases, equipment purchases to remediate these situations. Commerce administered funding sources do not require expenditures to protect the health and safety of the occupants to be included in the cost-effectiveness determinations (SIRs required by DOE or LIHEAP Wx). Spending allocations for health and safety also increased when the average spending limit/unit increased.

Q7. A spreadsheet showing the cost effectiveness calculations with line items for housing repair and safety assistance.

A7. The Energy Project and agencies do not have this information available. They have not analyzed their program in this manner. During 2008, the local weatherization agencies, in conjunction with Commerce, began the process of constructing a statewide data collection and reporting system intended to address this type of information. However, training and implementation of the data system is just starting for the local agencies this month. Some interim data has been collected over the last year, but that data has not yet been organized and analyzed.

As discussed above, weatherization funding sources have designated allowable measures that may be installed with their funds. In considering what measures are cost effective to install, an agency looks at the need for repair and the availability of various funds to address repairs, then takes one of two approaches.

1) They may choose to use a computer energy audit tool. In Washington the accepted tool has been TREAT. TREAT requires the agency to enter building data and the quantities and estimated costs for the measures they would like to install to derive a Savings to Investment Ratio (SIR). As long as that SIR is 1.0 or higher, the unit is eligible for weatherization services. This is the only allowable option for multifamily structures.

2) The second option is to follow a list of weatherization measures that are deemed cost-effective. The DOE has approved a "matrix of conduction measures" or priority list that

are considered to be cost-effective for all agencies to install. The matrix of conduction measures was determined by running computerized energy audits on many single-family buildings, including a variety of building characteristics (such as some with crawlspaces, some with basements), fuel types, and from various climactic regions of the state. The matrix reflects those measures for which an average SIR of greater than 1.0 was established.

In addition to the weatherization measures described in the priority list (below), Commerce allows the installation of CFL bulbs, energy efficient lighting fixtures, and no-cost/low-cost measures without performing an audit.

Priority List of Conservation Measures			
		Recommended Measures	
Component	Existing Condition	Site-Built Homes	Mobile Homes
1. Ducts	In conditioned space	No measure	No measure
	In unconditioned space R-0 (effectively little or no R value)	Add up to R-19	Add up to R-19
2. Ceiling	R-0 to R-11	Add up to R-38	Add up to R-38 or max allowed by cavity.
	R-12 to R-19	Add up to R-38	No measure
	Over R-19	No measure	No measure
3. Exterior Wall	Closed cavity	Fill cavity if empty	Fill cavity if empty
	Open knee wall	R-11 batt or fill cavity	N/A
4. Under floor/ Foundation	Conditioned R-0	R-11 foundation	N/A
	Vented R-0 to R-11	Install maximum insulation based on floor joist cavity depth up to R- 30	Install maximum insulation based on floor joist cavity depth up to R-30
	Greater than R-11	No measure	No measure

Q8. The best information available on conservation potential for low-income customers and a description of how that information was determined.

A. The Energy Project looked at this question in two ways: 1) what are the energy savings out there to be captured in low-income housing, and 2) how large is the population of dwellings that could be weatherized under the low-income program.

In regard to the first question, the information is not available. We suspect the best estimate of the residential savings potential would be from the NW Power and Conservation Council. To our knowledge they do not have an estimate specifically for “low-income” conservation; neither do we know how to factor in what is “achievable,” given the clear need for repairs in low-income housing stock.

We do not have precise information as to how many eligible homes are still left to do, although Commerce can supply the number of homes weatherized from 1995-2010 (55,294). This averages 3,456 per year, though the figures are skewed by the recent U.S. DOE ARRA funding that boosted units completed to 7,161 in 2010. Commerce has data from before 1995, but many houses built before the 1993 State Energy Code would still benefit from energy efficiency improvements. Existing dwellings weatherized before 1995 may also be eligible for major conservation measures that were not considered cost effective at that time or did not have the benefit of newer technologies, methodologies, and best practices that have evolved and for which agencies have been trained since that time. Recognizing this, the WAP program allows agencies to “reweatherize” homes treated before 1994 if cost-effective measures are available.

The transitory nature of the eligible population alone makes it difficult to pin down the homes remaining to be treated. Historically a standard of 125% of the federal poverty level (FPL) was the income eligibility threshold for the federal programs. In their 2007 Washington State Energy Needs Final Report for CTED based on 2005 population data, APPRISE estimated there were over 353,000 households in Washington living at or below 125% of the poverty level, and another 99,000 between 125% and 150%. Given the economic decline over the last few years, it is only logical to assume that more households are falling into this category. While not every house will need full energy efficiency services, we believe that a great many will, since households that are “near low-income” do not have the funds to weatherize their homes on their own, nor are they eligible for access to services that will provide it for them.

The movement of more households into the historically eligible income levels (i.e., ≤125% FPL) is accompanied by a new perspective on what constitutes living in poverty. Just a little over five years ago in a low-income workshop this Commission convened (September 2005), Diana Pearce illustrated how far below a self-reliant lifestyle the federal poverty levels fall. It would appear that the U.S. Department of Energy Weatherization Assistance Program has recognized this as it recently extended eligibility to participate in the program to households earning up to 200% of Federal Poverty

Guidelines.

Attempting to see what the impact of this would be, the Energy Project applied the percent of the Washington population living at or below 200% of the Federal Poverty Level from the 2000 census (comparable data from the recent census will not be available for some months) to the most recent population figures we could find. We used the 2000 census percentage (25.9%) because it is more statistically reliable than subsequent estimates and it provides a conservative estimate. According to the American Community Survey's 2007-2009 3-Year Estimates (published Jan. 11, 2011), there are approximately 2,537,656 households in Washington. Conservatively, this means over 657,000 households would be income eligible for the WAP program. Even after subtracting the units that have been served, the units that don't need to be served, and the units that can't be served because the need for repair is too great, we believe the potential number of units that can be served will still be a considerably large number.