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Final Report for the RePower Kitsap Demonstration Program Strengthening Energy Efficiency Retrofit Markets Project

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Contents

Tables and Figures

Executive Summary

The RePower Kitsap partnership sought to jump-start the market for energy efficiency upgrades in Kitsap County, an underserved market on Puget Sound in Washington State. The Washington State Department of Commerce partnered with Washington State University (WSU) Energy Program to supplement and extend existing utility incentives offered by Puget Sound Energy (PSE) and Cascade Natural Gas and to offer energy efficiency finance options through the Kitsap Credit Union and Puget Sound Cooperative Credit Union (PSCCU). RePower Kitsap established a coordinated approach with a second Better Buildings Neighborhood Program project serving the two largest cities in the county – Bainbridge Island and Bremerton. These two projects shared both the "RePower" brand and implementation team (Conservation Services Group (CSG) and Earth Advantage).

The program established a goal of completing comprehensive energy upgrades in 2% of homes in the target market area during the third year of the project. This target represented approximately 1,000 homes.

The RePower implementation team faced several barriers to achieving comprehensive energy upgrades in Kitsap County. Some of these barriers were known from the start and motivated the selection of the target market area:

- **A weak contractor network.** Many contractors did not have the training and contracting/subcontracting relationships required for comprehensive weatherization projects. Contractors initially were suspicious of both the program and each other.
- **A population with limited access to capital.** Few financing tools were available in the county to support energy efficiency upgrades. The weak economy and a mobile population combined to limit willingness to take on debt. Additional direct incentives, which were not envisioned in the initial grant budget, were needed to drive demand and reduce first costs.
- **A hard-to-reach market with limited potential.** Less than half of the single-family households were likely targets for comprehensive upgrades.
- **Two utilities served the county**, each of which offered a separate, complex package of energy efficiency incentives. An initial 2011 RePower Incentive Guide explaining utility and program incentives was 11 pages long. Utility service territories were fragmented and overlapped.

Other barriers were not apparent until the program was being implemented.

- **Two Better Building Neighborhood Program (BBNP) Grants served the county** – RePower Bainbridge and Bremerton (RBB) and RePower Kitsap. Although both grantees were under the BBNP umbrella, RBB participated under the American Recovery and Reinvestment Act (ARRA) Energy Efficiency Community Block Grant (EECBG) program

grant and RePower Kitsap participated under the competitive State Energy Program (SEP) grant. The two projects had similar objectives but different approaches, delivery strategies, incentives structures and areas of emphasis. The projects also were governed by different program guidance.

The original target market area for RePower Kitsap included the entire area to be served by RBB. Even after RePower Kitsap revised its target market area to eliminate the overlap, service area boundaries defined by Bremerton's city limits were unclear to participants and trade allies. An address in the RePower Kitsap service area could have a Bremerton mailing address. Trade allies reported that it was difficult to keep these two programs straight and to have the right application and promotional material on hand.

- **The DOE grant was not structured or sized to provide cash rebates or intensive customer support** and follow-up, which were needed given the complex delivery environment described above. As it became apparent that the original model would not be effective, DOE encouraged the program to restructure the budget and allowed it to shift funds from financing mechanisms to incentives and marketing. The final delivery model included incentives but not intensive customer support.

The RePower team tested a broad mix of services and strategies to reduce barriers and drive demand for energy upgrades including:

- **Intensive locally branded marketing and outreach**.
- **Intensive workforce development with energy auditors and home improvement contractors** to build skills and establish a viable trade ally network. This included providing technical and non-technical training, quality assurance, and regular contractor brown-bag meetings.
- **No or low-cost energy assessment or audits.** Homeowners had two options:
    1. A no-cost clipboard audit offered by either CSG energy advisors or through local contractors that could be accessed through the PSE electric and electric/gas utility program.
    2. A full detailed diagnostic energy audit including an Energy Performance Score (EPS). For the first two years of the RePower program, homeowners who completed an EPS assessment received an instant rebate for nearly the full cost of the assessment from Kitsap County through an EECBG grant administered by Kitsap County. In addition, homeowners were eligible for a $400 Home Performance with ENERGY STAR® rebate from PSE when they completed three qualifying energy efficiency improvements that were prioritized by an energy advisor.

- **Low-cost financing offered through local credit unions.** RePower worked with Kitsap Credit Union and PSCCU to develop energy efficiency loan products.

  Kitsap Credit Union developed three products:
  - An unsecured home improvement loan for up to $10,000 for 5 years,
  - Home equity loans for $10,001 to $50,000 for up to 15 years, and
  - A business improvement term loan for $5,000 to $25,000 for up to 7 years.

  The APR for these loans ranged from 4% to 5%.

  PSCCU offered energy efficiency loans of up to $25,000 with APR ranging from 4.25% to 8.74% for up to 15 years. Neither of these products was available prior to the program.

- **Incentives to supplement existing utility incentive programs to encourage more comprehensive upgrades.** Three strategies were tested. Initially the rebates were offered for EPS audits only. A second series of incentives was offered to encourage deeper upgrades and encourage specific high-value measures. These incentives included RePower Rewards ($400) if two or more qualifying upgrades were installed and targeted incentives for air sealing and high-efficiency heating systems. In the later part of the program, RePower Kitsap adopted incentives to encourage whole-house energy upgrades and qualify homes for PSE's Home Performance with ENERGY STAR® rebates. Increasing participation and awareness of the Home Performance with ENERGY STAR® program, which was not well established in Washington State, became a core strategy for sustaining a market for comprehensive upgrades.
- **Incentives for homes without utility incentives (oil, propane or wood).** When initial efforts to expand program participation through RePower Rewards did not yield high levels of uptake, RePower Kitsap developed incentives to encourage upgrades in underserved markets. This capitalized on experience from Seattle's Community Power Works for Home program, which found that homes heated with oil, wood or propane had greater weatherization opportunities and energy cost savings and were good candidates for whole-house upgrades.
- RePower also hoped to drive demand by **raising awareness of the value of energy efficiency in the real estate industry, including realtors and appraisers.**
- "**Low-intensity" energy advising services** were offered through a call center for all customers and as part of clipboard (Home Energy Check Up and HomePrint) audits offered by CSG. Support was largely focused on providing referrals to the RePower Trade Ally Network and helping with paperwork related to RePower incentives; this support did not extend to active case management.

RePower Kitsap effectively addressed a number of the barriers by adapting initial program offerings and completing most tasks specified in the Statement of Project Objectives (SOPO).

- **Coordination of branding and service delivery with RePower Bainbridge/Bremerton.** Because service territories were adjacent and overlapped in some cases, RePower Kitsap chose to coordinate branding and service delivery with RBB. The RBB grant had been awarded earlier and they had already established a brand identity and contracted with CSG to coordinate and deliver services. RePower Kitsap partnered with RBB and contracted with CSG to minimize duplication of services and contracting, increase economies of scale, and decrease confusion among participants.
- **Integration with existing utility incentive programs**. RePower Kitsap invested significant time to coordinate program services and incentives with local utilities and to share data.
- **Building a strong Trade Ally Network.** A major success of the RePower Kitsap program was building a stronger Trade Ally Network and moving HVAC contractors and insulation contractors from the original retail model of home energy retrofits to the home performance upgrade model. Three strategies were deployed:
  - Establishing a Trade Ally Network with regular monthly meetings to share program developments and to encourage communication and collaboration among contractors.
  - Partnering with several training providers including WSU Energy Program, Olympic Community College, and Advanced Energy to provide training on standardized work specifications and quality assurance; Earth Advantage provided auditors, contractors' training and access to Cake Systems EPS audit software.
  - Strong programmatic quality oversight including training contractors on internal quality control processes, performing in-field, in-process and post-upgrade quality assurance, and contractor mentorship.
- **Strengthen energy efficiency financing.** Two credit unions, Kitsap County Credit Union and PSCCU, offered energy efficiency financing options. A total of 71 loans totaling $691,673 were issued by both lenders.
- **Using incentives to encourage more comprehensive upgrades and upgrades for heating fuels not eligible for existing utility incentives**. Initially, the program relied on existing utility incentives and was supplemented by $450 rebates on the cost of a full EPS audit funded through a Kitsap County EECBG grant. These incentives were not sufficient to drive demand, nor did they result in comprehensive upgrades. In late 2011 and 2012, RePower Kitsap modified incentives to encourage installation of multiple (two or more) measures and later added additional incentives for whole-house upgrades, oil to electric or gas conversions, and air sealing.

- **Raising awareness in realtor community:** RePower partnered with Earth Advantage to provide real estate professionals with Sustainability Training for Accredited Realtors (STAR) and Certified Green Appraisal training for real estate appraisers. A total of 45 realtors and appraisers attended the first trainings. Both trainings were repeated due to high demand and excellent feedback from attendees. And, in the fall of 2013, the Multiple Listing Service (MLS) of Puget Sound increased the capacity of the MLS to include home energy efficiency features and scores.

As a result of these efforts, RePower Kitsap made significant progress toward its goals of completing 1,000 upgrades and creating a sustainable local market for comprehensive whole-house energy upgrade services.

Between October 2010 and December 2013:

- **Between 1,200 and 1,400 homes received either a comprehensive energy audit or an assessment, or both.**
- **606 energy upgrades were recorded in the RePower Kitsap service area, generating over $3.27 million in energy efficiency upgrades.** Of these, 46% involved RePower Kitsap assessments or incentives, 27% involved utility-sponsored assessment and incentives, and 30% were installed by contractors without direct program support.
- **The project established that upgrades with RePower Kitsap assessments and incentives were more comprehensive** (2.5 measures and $5,690 total costs) and saved more energy (20.1 MMBTU per year) **than contractor** (1.1 measures, $5,100, and 12.1 MMBTU) **or utility-supported upgrades** (1.4 measures, $5,500, and 13.6 MMBTU).
- **Estimated energy savings per project were likely to have met or exceeded DOE target project energy savings level of 20%**, particularly those projects receiving RePower Kitsap assessment and /or incentives.
- **The number of homes qualifying for Home Performance with ENERGY STAR certification in the county increased from less than two per year prior to the program to 77 in 2013.**
- **Thirty contractors worked on RePower Kitsap upgrades** – which resulted in over 12,000 direct construction hours and over 4,000 support hours.
- The program's **workforce development efforts** resulted in:
  - Establishing a Kitsap County whole house upgrade Trade Ally Network
  - Providing 24 in-depth training events, which were attended by over 230 builders, contractors, auditors and other trade allies.
  - 26 BPI or PCTS certifications
- **Increased the profile of energy upgrades among realtors and appraisers,** including making progress toward including energy efficiency in real estate listings.

- **Worked with two local lenders to establish three energy efficiency loan products.** As of September 3, 2013, the two credit unions issued $690,000 in energy efficiency loans to 71 homeowners.
- **The project also explored options for increasing capital access by using secondary markets and alternative financing mechanisms with the Washington State Housing Finance Commission** (WSHFC)**.** It ultimately concluded that the pool of energy efficiency loans was insufficient to enable securitization through a secondary market. However, the analysis provided the WSHFC with a better understanding of the role of energy efficiency in mortgage financing and identified a potential role.

Final Technical Report

Program Design and Business Model

- **Collaborative Business Model** – Both RePower Bainbridge and Bremerton (RBB) and utilities offered energy efficiency upgrade services in or adjacent to the RePower Kitsap service territory. Rather than compete or duplicate services – RePower Kitsap elected to develop a collaborative business model and to use RePower Kitsap resources to extend or complement existing programs.
    - **Coordination of branding and service delivery with RBB.** Because service territories were adjacent and in some cases overlapped, RePower Kitsap chose to coordinate branding and service delivery with RBB. RBB grant had been awarded earlier and they had already established a brand identity and contracted with an implementation partner. RePower Kitsap partnered with RBB to minimize duplication of services and contracting, increase economies of scale, and decrease confusion among participants. The RePower Kitsap worked with RBB to successfully establish RePower as a common local brand. Because of the timing of the grant, differing goals, reporting requirements and guidance, this strategy was only partly successful at achieving economies of scale for administration. While there were ongoing efforts to coordinate between RBB and RePower Kitsap, program models and incentive offerings diverged. These differences made it challenging for contractors and some homeowners, particularly those serving homeowners in the Bremerton area to navigate the program and to identify which program (and benefits) homeowners were eligible for.
    - **Integration with existing utility incentive programs.** RePower Kitsap invested significant time to coordinate program services and incentives with local utilities and to share data. This strategy was particularly effective with PSE where the program drove demand for PSE's HomePrint assessment, measure incentives and Home Performance with ENERGY STAR. The program also worked closely with PSE to pilot an incentive for whole house air-sealing which was later adopted and offered utility service territory-wide. The program was less effective in establishing data sharing and program integration with Cascade Natural Gas.

Program Design and Customer Experience

The RePower Team tested a broad mix of services and strategies to reduce barriers and drive demand for energy upgrades including:

- **Intensive locally branded marketing and outreach**.

- RePower Kitsap invested heavily in multi-channel marketing and outreach including a website, social media, community and government groups, media outlets, community partners, community events and adverting placement (ferries) to keep costs down and emphasize local community connections under the theory that homeowners would be more likely to take action from a trusted local organization.
- There was a strong focus on social marketing - Facebook, Twitter, and local websites such as Macaroni Kids Kitsap.
- Staff spoke at meetings of business groups, the local economic development association, the local realtor association, and homeowner's associations and the local professional community, Kitsap Economic Development Alliance, the Chamber of Commerce, and local and county government offices.
- There was a great deal of outreach to local news outlets (with some success – several well placed, positive stories resulted). Slides were placed on the Kitsap public access TV station/show.
- CSG partnered with community groups to host community outreach events.
- Marketing materials (posters, supporting material for community events, brochures, mailers and the website) were professionally produced. CSG and its marketing partners received three national APEX (Awards for Publication Excellence) from Communication Concepts.
- The following findings from the Cadmus Multi-State Residential Retrofit Process Evaluation (Multi-State Evaluation) suggest that RePower Kitsap was successful at creating a "trusted local brand" and that was an important motivator for action.
  - **Knowing that contractors were affiliated with a local program motivated homeowners to pursue audits and retrofits.** Ninety percent of partial participants and seven of ten full participants reported knowing the program was locally run. Of these respondents, 75% of partial participants stated knowing the program was local helped persuade them to have a home energy assessment, and 56% of full participants stated knowing about the program's local status helped persuade them to undertake retrofits.
  - **Most participants learned of RePower Kitsap through local events, participating local auditors or contractors, and word-of-mouth.** Approximately 26% of partial participants reported first learning of the program from auditors or contractors (including their advertising). Partial participants also commonly learned about the program through local events (22%), word-of-mouth (11%), and utility bill inserts (11%). Four of the 11 full participants (36%) learned about the program directly from a participating auditor or contractor, or from an

auditor's or contractor's advertising. Another four learned about the program through word-of-mouth.

- While the RePower Kitsap marketing plan was successful at creating a local and trusted brand which was a motivator for action, there was not a systematic evaluation of whether the marketing program was cost effectively and efficiently targeted households which were likely to convert. Other Washington community-based energy efficiency programs moved away from broadly targeted outreach (community events, news and print media) to more targeted mailings and other micro-targeting strategies over the past five years.
  - The lower than hoped for uptake of loans, comprehensive assessments, incentives, and ultimately upgrade projects suggest that outreach, marketing assessment and audits are insufficient to drive sufficient demand to move the market.
  - It was also challenging to isolate the effectiveness of marketing strategies from program and incentive design. As discussed in the next section, the marketing environment was challenging, program design was very complex and resources available to "help" homeowners through a complex and cumbersome process were hard to come by.

- **Intensive work with energy auditors and home improvement contractors** to build skills and establish a viable Trade Ally Network. This included providing technical and non-technical training, quality assurance and contractor brown-bag meetings.
- **No or low cost energy assessment or audits.** Homeowners had two options: 1) a no-cost clipboard audit offered by either CSG energy advisors or through local contractors that could be accessed through the PSE electric and electric/gas utility program or 2) a full diagnostic energy audit including an EPS. For the first two years of the RePower program, homeowners who completed an EPS assessment received an instant rebate for nearly the full cost of the assessment from Kitsap County through an EECBG grant administered by Kitsap County. In addition, homeowners were eligible for a $400 Home Performance with ENERGY STAR® rebate from PSE when they completed three qualifying energy efficiency improvements that were prioritized by an energy advisor.
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ranging from 4.25% to 8.74% for up to 15 years. These products were not available prior to the program.

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- RePower also hoped to drive demand by **raising awareness of the value of energy efficiency in the real estate industry including realtors and appraisers.**
- "**Low-intensity" energy advising services** were offered through a call center for all customers and as part of a clipboard (Home Energy Check Up and HomePrint) audits offered by the CSG. Support was largely focused on providing referrals to the RePower Contractor network and help with paper work related to RePower incentives and did not extend to active case management.

Driving Demand

Between October 2010 and December 2013:

- RePower Kitsap logged 2,150 contacts in their master customer contact database.
- Between 1,200 and 1,400 homes received either a comprehensive energy audit or an assessment or both.
  - 306 comprehensive EPS audits were completed
  - 900 HomePrint assessment incentives were paid for by PSE to Kitsap County homeowners. HomePrints were completed either by CSG staff or other PSE contractors.

- CSG also recorded 115 Home Energy Check Up assessments which did not qualify for HomePrint incentives.

- 606 energy upgrades were recorded in the RePower Kitsap service area. Upgrade data was captured from PSE and from Trade Ally Network contractors regardless of whether the upgrade involved RePower Kitsap or utility incentives or assessment. This broader data collection provides an informal control group that provides a gauge of how the utility and RePower Kitsap services and incentives influence upgrade levels. This data set does not include incentives provided by Cascade Natural Gas.
  - 144 projects received RePower Kitsap rebates
  - 46 received both RePower Kitsap and utility rebates
  - 188 received utility rebates only
  - Of the 606 upgrades:
    - 124 had an EPS (40% conversion rate)
    - 103 had HomePrint assessment (11.4% conversion rate – 19.7% conversion rate if include HomePrint and EPS[1])
    - 32 had a CSG or other clipboard audit (27.8% conversion rate)
    - 340 (56%) were contractor assessments (no conversion rate calculated)
- The 606 upgrades generated over $3.27 million in energy efficiency upgrades.
- Completed upgrades were assigned to one of three categories
  - Directly influenced upgrades (277 or 46%) – projects where RePower Kitsap provided a RePower Kitsap assessment, audit, or rebate. About 40% of these projects also involved a PSE incentive or assessment.
  - PSE supported upgrades (161 or 27%) projects where only PSE measure incentives or HomePrint rebates were recorded. RePower Kitsap marketing and outreach campaigns help drive action here.
  - 180 reported upgrades (30%) were reported by contractors but occurred without RePower Kitsap or PSE incentive or audits. RePower Kitsap may or may not have influenced these projects. Some of these projects may have involved Cascade Natural Gas incentives.
- **Table 1** shows that upgrades supported by RePower Kitsap and PSE were comprehensive and deeper than upgrades without PSE or RePower Rebates.
- **Table 2** shows that projects with RePower Rebates were more likely to include shell and air sealing measures. Contractor driven projects were more likely to be single measure projects and include furnace replacement.

[1] Sixty percent of completed upgrades with EPS Audit matched to homes which received a HomePrint Assessment.

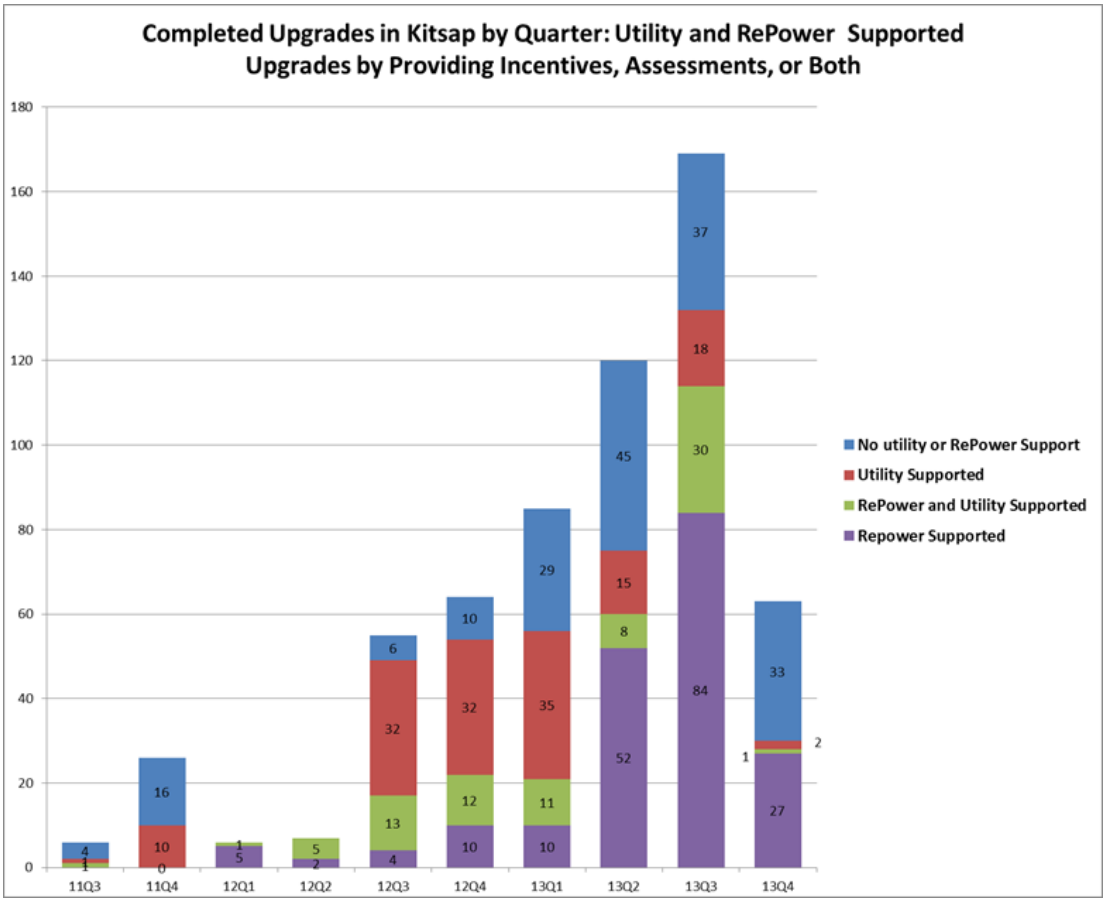

Figure 1. RePower Kitsap Production by Quarter

Table 1. RePower Kitsap Upgrades by Level and Type of Support

Upgrade Type	Upgrades Reported	Installed Measures (Average)	Upgrade Cost (Average)	RePower Rebate (Average)	Utility Rebate (Average)
Contractor	180	1.1	$ 5,105	$ 0	$ 0
Utility Incentive or Assessment	145	1.3	$ 6,352	$ 0	$ 795
RK Incentive	225	2.5	$ 5,690	$ 1049	$ 261
RK Assessment – Utility Incentive	52	1.4	$ 5,256	$ 0	$ 941
Total	**606**	**1.7**	**$ 5,612**	**$ 389**	**$ 368**

Table 2. RePower Kitsap: Measures Install by Assessment and Incentive Source

	RK Incentive or Assessment	RK and Utility Incentive	RK Assessment Utility Incentive	Utility Incentive or Assessment	Contractor Only	All Projects
Total Projects	195	30	52	145	180	602
Heat Pump	44%	53%	50%	59%	37%	47%
Furnace/Boiler	5%	7%	2%	2%	26%	10%
Water Heater	22%	10%	17%	8%	9%	13%
Attic Insulation	53%	67%	21%	19%	17%	32%
Wall Insulation	10%	7%	2%	7%	2%	6%
Floor Insulation	43%	60%	13%	19%	14%	27%
Windows	6%	0%	10%	5%	0%	4%
Air Sealing	30%	47%	4%	0%	0%	12%
Duct Insulation	25%	20%	0%	4%	3%	11%
Refrigerator	0%	7%	2%	0%	0%	0%
Measures	**2.37**	**2.77**	**1.21**	**1.22**	**1.08**	**1.63**

As the data in **Table 3** indicates, most of the upgrades occurred in electrically heated homes.

Table 3. Upgrades by Fuel Type

Electric	464	76.6%
Gas	88	14.5%
Fuel Oil	26	4.3%
Propane / LPG	23	3.8%
Wood	5	0.8%

There is evidence that on average RePower Kitsap upgrades achieved the DOE energy savings target of 20% for BBNP SEP projects. Three approaches were used:

- A total of 85 homes received an EPS test in and test-out audit. Average kWhe reported savings for the 43 projects we have data for was 7,377 kWhe (or 29%).
- For homes that did not have test-in and test-out data deemed savings were calculated and reported to DOE.[2] Deemed savings ranged from 6,390 kWh (22%) for electrically heated homes and 146 therms (12%) for gas heated homes. Savings for oil-heated

[2] Deemed savings were calculated using Energy Performance Score tool to model a series of prototype homes and typical measure installations. WSU Energy Program reviews of EPS deemed energy saving calculations indicate that they are likely to overestimate actual savings. This is particularly true for projects involving air source heat pumps, both ducted and ductless.

homes were 379 gallons. Propane heated homes were estimated to have reduced propane use by 186 gallons.

- WSU Energy Program recalculated energy savings using a more structured approach and assumptions used by the Northwest Power Planning Council Regional Technical Forum for this report. Energy savings were calculated for each project based on installed measures, adjusted for home floor space (when that data was available), for interactions between heating system and shell measures, and for climate.[3] Deemed savings estimates were calculated conservatively. For example, deemed energy savings for heat pumps assumed that heat pump upgrades where primarily ducted – forced air systems – when more than half of heat pump replacements were ductless. Energy saving were aggregated by primary space heat fuel, averaged across completed units, and converted to equivalent units (millions of BTU of site energy).
  - On average projects were estimated to save about 15.5 MBTU (see **Table 4**). Estimated energy savings for non-metered energy use were significantly greater (24-34 MBTU) than for homes with electric or gas as the primary heating fuel. Homes with oil, propane and wood heat involved more and deeper measures.

Table 4. Estimated Energy Saving per Project by Primary Heating Fuel

Savings million Btu				**1,800**	**Sq ft**
Heat Fuel	**Count**	**Total MBTU**	**Total/site MBTU**	**RBSA MBTU**	**% Savings**
Electric	464	6553	14.1	68.7	21%
Gas	88	1345	15.3	103.6	15%
Propane / LPG	23	560	24.3	103.6	23%
Fuel Oil	26	761	29.3	103.6	28%
Wood	5	174	34.8	103.6	34%
Total	**606**	**9392**	**15.5**	**77.58**	**20%**

  - Estimated energy savings were compared to estimates of total energy use indexes for Washington State single family homes developed for the 2011 Regional Building Stock Assessment.[4] This suggests that estimated energy savings were about 20% of energy use for the typical Washington State home.

[3] Energy savings were estimated based results and coefficients developed for weatherization project completed in Western Washington (Zone 1)

[4] Ecotope 2012. 2011 Residential Building Stock Assessment: Single-Family Characteristics and Energy Use. Northwest Energy Efficiency Alliance: Portland 2012

- RePower Kitsap is likely to have met or exceeded the 20% savings goal if contractor reported projects which did not receive either RePower Kitsap or utility assessment or incentives are excluded as energy savings for these projects were lower (12.2 MBTU) and were frequently single measure projects.

Table 5. RePower Kitsap Estimated Savings by Assessment and Incentive Source

Upgrade Type	#	Average MBTU Saved
RK Incentive	195	20.1
RK and Utility Incentives	30	19.1
Utility Incentive or Assessment	145	13.6
RK Assessment Utility Incentive	52	13.1
Contractor	180	12.2
Grand Total	606	15.5

Workforce Development

- **RePower Kitsap invested heavily in Workforce Development to strengthen the contractor and auditor base and encourage more comprehensive upgrades.** Contractors were initially wary of one another, and tended to work in their specialty and often did not have working relationships with other contractors. Two strategies addressed this.
  - A Trade Ally Network was established - with regular monthly brown bag meetings to discuss RePower Kitsap program goals and requirements, rebate structure and go over general record-keeping. Additional technical (building science) and non-technical training (sales and business management) was offered at no cost as part of these programs The monthly meetings helped contractors get to know one another and develop trust. This trust has evolved into working relationships. Most trade allies now share leads with other trade allies who specialize in the types of projects they can't or don't want to handle. Longer term sustainability has been fostered by the currently developing formation of a local chapter of Home Performance Washington – a building trade group that fosters whole house upgrade services. In addition – two local builders have been certified by CSG through the Building Performance Institute (BPI) Train the Trainers program in order to teach and proctor future BPI training in Kitsap County.
  - RePower Kitsap partnered with WSU Energy Program, Earth Advantage, CSG, and Olympic College (OC) Building Trades Program to develop a comprehensive training program for trade allies. Topics were identified in consultation with training partners

and trade allies and provided at no charge. Trade allies were required to attend BPI and lead safety training and encouraged to attend building science classes and sales/professionalism training. Training was provided locally and in Olympia (about an hour drive from Kitsap County). As part of this effort CSG worked with OC to build a model home as a training tool. Between January 2011 and December 2013 twenty-four training opportunities for auditors and builders were provided which attracted 230 participants. As a result of this training:

  - 20 builders and auditors were certified or recertified to BPI standards
  - Six builders were certified to the Performance Tested Comfort Systems (PTCS) standards

- **Building a Strong Quality Assurance Program**
  - In 2012, RePower Kitsap contracted with Advanced Energy for a comprehensive review of program quality assurance (QA) protocols and training program against best practices. Advanced Energy's recommendations were incorporated into the program QA model.
  - RePower required that trade allies comply with the Material and Installation Guidelines developed by the CSG Residential Retrofit Technical Committee. This guideline provides program participants with the rules and requirements for acceptable materials and installation procedures for energy efficiency measures installed in existing homes. This guideline covers the proper selection and installation of air sealing, insulation, HVAC and instant savings measures materials. Its goal is for program participants to share a common understanding of how specified energy conservation measures are to be implemented for given residential applications. These guidelines were linked to the RePower Kitsap website:

    http://www.positiveenergybi.org/sites/default/files/RePowerWeatherizationManual.pdf

  - All EPS audits received a quality assurance review of audit data inputs by the WSU Energy Program. Errors found in the review were summarized and provided to in-field quality assurance staff who verified inputs during on-site quality assurance visits. Errors impacting the energy score by more than 5% were revised and an updated score was forwarded to the homeowner.
  - All RePower Kitsap homes receiving incentives (~180) had an onsite inspection. Of these, 85 homes (15%) received follow-up EPS test-out audit at no charge. If there was a problem with installations or with the test-in EPS audit procedures, CSG QA staff required contractors to come back and correct errors. CSG QA staff provided one-on-one training and mentorship in proper building techniques for contractors who made errors.

- As of summer 2013, the number of call backs has dropped to near zero because contractors quickly improved their skills through the call back retraining process.

- **Raising the Profile of Energy Upgrades among Realtors and Appraisers**
  - In an effort drive long-term demand for energy efficiency upgrades RePower Kitsap worked to raise awareness of energy efficiency among realtors and appraisers. Initial efforts to deliver training did not get much traction. RePower cultivated a partnership with the Kitsap County Association of REALTORS® (KCAR) to sponsor and promote Sustainability Training for Accredited Real Estate Professionals (S.T.A.R.) offered in Kitsap County by Earth Advantage through RePower Kitsap in the fall of 2013. The free, accredited S.T.A.R. course—sponsored in partnership with the RePower program, DOE's Better Buildings Neighborhood Program, WSU Energy Program, Washington State Department of Commerce and CSG—prepares real estate professionals to market and sell new and remodeled "green" homes. After taking the two-day course, which includes visits to two energy-efficient homes, real estate professionals are able to identify which features and building products provide greater energy and water efficiency and create a healthier living environment for their clients. Three training sessions were held, attracting 57 attendees. Attendance increased each time due to word of mouth marketing by realtors that attended earlier sessions. The timing of the training was too late to have an appreciable impact on demand for upgrades delivered through the BBNP grant. It is expected to help support awareness and demand for energy efficiency upgrades, but may require additional future support.
  - As part of this effort RePower Kitsap offered training and certification through the Certified Residential Green Appraiser (CRGA) program. This also proved to be attractive. Fifty-two attended these trainings and 39 continued on to take (and pass) the CRGA test.
  - RePower Kitsap staff reached out to the Major Listing Services (MLS) early in the program but was unable to convince them to add energy related information to listings. However, in Sept 2013, SEEC LLC (Social, Environmental & Economic Consulting) announced that they had worked with MLS to create "green" fields on Northwest MLS listings. These fields include construction methods (SIPS, Advanced Framing, Double-wall framing); HVAC and Auxiliary systems (ductless heat pumps, energy recovery ventilator systems); Home Performance Scores (HERS, EPS); and energy sources (geothermal, solar PV, wind, etc.). SEEC is offering a three-hour course to train realtors around Puget Sound about the new MLS fields.
  - Because the project team recognized the lead generation role that home inspectors can potentially provide to the energy efficiency industry, RePower Kitsap supported

the delivery of a 'Building Science Toolkit for Home Inspectors' course. The training curriculum familiarized home inspectors with basic building science and 'house as a system' concepts and included information on the role of home performance auditors and contractors in evaluating home performance, making recommendations and implementing upgrades.

Home inspectors from Kitsap County and around the state of Washington attended the six hour training, developed and conducted by Earth Advantage, to learn how to effectively identify energy and indoor air quality components in the residential structures during their inspection of homes. The course also identified potential problems, safety hazards, and upgrade opportunities in forced air HVAC systems. A visual inspection checklist addendum was provided to home inspectors to use as a tool to list home performance improvement opportunities at the time of inspection.

Financing and Incentives

- **Energy Efficiency Upgrade Financing**
  - One lender, Kitsap Credit Union, offered unsecured home improvement loans for up to $10,000 for 5 years and secured home equity loans for $10,001-$50,000 for up to 15 years and. APR ranged from 4% to 5%. The Kitsap Credit Union loan program was supported by a loan loss reserve mechanism funded by Kitsap County using EECBG funds outside of this project.
  - In 2012 few participants were using the KCU loan offer, and the program decided to expand lending options by adding a lender. RePower Kitsap conducted a competitive solicitation and selected PSCCU, which already offered energy efficiency financing in other Puget Sound markets. PSCCU offers loans of up to $25,000 with APR ranging from 4.25% to 8.74% for up to 15 years depending on credit history, with most loans receiving the lower rates. The program provided up to $100,000 of credit enhancement funds to PSCCU and redirected the remainder of the original $400,000 credit enhancement budget to incentives and marketing.
  - As of September 3, 2013 the two credit unions issued $690,000 in loans to 71 homeowners.
  - PSCCU will continue to offer its energy efficiency loan product in the county, using the credit enhancement funds. Kitsap Credit Union will offer a more traditional home improvement loan at a higher interest rate.
- **Examining the role of secondary markets and alternative financing to provide access to capital for comprehensive retrofits**
  - As part of its objective of transforming the residential retrofit market, the project also explored options for increasing capital access by using secondary markets and alternative financing mechanisms. The Washington State Housing Finance Commission led this research effort. It ultimately concluded that the pool of energy efficiency loans was insufficient to enable securitization through a secondary market. However, the analysis provided the WSHFC with a better understanding of the role of energy efficiency in mortgage financing and identified a potential role for its mortgage products in supporting comprehensive retrofits. The value of these WSHFC mechanisms is limited in the current environment of low interest rates.
- **Designing incentives to fill the gaps and encourage more comprehensive upgrades**
  - After early results indicated that the program's initial offers of subsidized audits and assistance was not generating upgrades and what upgrades were being completed tended to be single measures, RePower Kitsap redesigned its offer to include incentives to encourage more comprehensive upgrades and upgrades in sectors that

were not served by existing utility programs. Several incentives were offered in 2012 and 2013 including:

- RePower Rewards (October 2011 – January 2014): $400 for two or more qualifying measures. This was later increased to $800 for some promotional events in 2013.
- Air Sealing Incentive (April 2012 – July 2013): $100 for blower door testing and an additional $300 for achieving at least 400 CFM50 reduction.
- Whole house upgrade (Oct 2012 – July 2013): up to $3500 for completing a package of measures.
- Fuel switch or Ductless Heat Pump Conversion (October 2012 – July 2013): $1,200 for DHP, $200 for other heating systems.

- Although the incentive structures were complex – **Table 6 and Table 7** suggest they were successful at encouraging more comprehensive upgrades and upgrades for homes which did not have existing utility incentives available (oil, propane or wood).

Table 6. RePower Kitsap – Upgrade Depth by Year

Year	Upgrades Reported	Installed Measures (Avg)	Upgrade Cost (Avg)
2011	77	1.3	$ 5,604
2012	162	1.7	$ 5,800
2013	367	1.8	$ 5,678
Total	**606**	**1.7**	**$ 5,699**

Table 7. RePower Kitsap Upgrades by Primary Heating Fuel by Year

Year upgraded	Primary Heating Fuel				
	Electric	Gas	Fuel Oil	Propane / LPG	Wood
2011	86%	14%	0%	0%	0%
2012	83%	10%	2%	4%	1%
2013	72%	17%	6%	5%	1%
Total	**77%**	**15%**	**4%**	**4%**	**1%**

- The program's 2012-2013 sustainability strategy to qualify projects for PSE Home Performance with ENERGY STAR® (HPwES) rebates was successful. Prior to the grant less than 5 homes in Kitsap County qualified for HPwES rebates, this increased to 12 in 2012 and 77 in 2013.

Data and Evaluation

Data and Reporting: The WSU Energy Program was responsible for compiling and assembling data for progress reporting and to support internal and external evaluation projects. A major weakness of the program, which is discussed in more detail in the challenges section, was the lack of an integrated reporting and project tracking system. Filling out Quarterly DOE Retrofit Reports required obtaining, cross-matching, and compiling data from:

- CSG – CoreApp data tracking system for tracking dates, assessment and customer contacts, some building data, contractor names and measure data for program and contractor reported measures.
- CSG – Financial Systems data on incentive amounts was tracked in a separate system.
- Earth Advantage (CakeSystems) - Data for EPS test-in and test-out audits
- PSE - Data on assessment, measures installed, costs and incentives for utility rebated measures.

WSU Energy Program and Washington Department of Commerce provided US DOE with quarterly reports on project progress towards goals. These reports underwent a process of data validation with DOE and subcontractor, Navigant. Data summary reports were regularly provided back to RePower Kitsap from DOE with an opportunity to identify data anomalies and provide corrections where needed. Follow-up phone calls were completed with participation from DOE, Navigant and staff from Washington State Department of Commerce and the WSU Energy Program.

WSU Energy Program **Evaluation:** Provided indirect support and consultation in establishing an evaluation plan and strategy and making the best of very limited and fragmented data collection system.

NASEO Four State SEP Evaluation Collaborative: The RePower Kitsap program in Washington State was one of four states participating in the evaluation collaborative led by the National Association of State Energy Officials. The collaborative conducted a needs assessment and common evaluation strategy/plan. The plan was used to create an evaluation RFP which was used to competitively select a third party evaluation contractor, The Cadmus Group, to provide process evaluation services.[5] WSU Energy Program and Washington State Department of Commerce staff attended regular calls to coordinate and share experiences. These calls were useful opportunities to share best practices for the four states that were using similar tools (Energy Performance Score) and approaches to energy efficiency upgrades.

One of the original intentions of the collaborative was that the contractor would be able to work with grantees to provide ongoing “real-time” feedback to improve process and programs

[5] Other participants were Massachusetts, Virginia and Alabama.

through surveys and targeted reviews. This proved more challenging for both the grantees and the selected contractor. The diversity of approaches, delivery strategies, implementation schedules and sophistication and maturity of the programs, coupled with wide geographic reach did not allow for economies of scale.

This effort did generate survey data and useful summary report (see page 28).

Accomplishments

RePower Kitsap statement of projects and objectives was a detailed work plan outlining 20 tasks. The status of these tasks is summarized in **Table 8**.

Table 8. Summary of Accomplishments Relative to RePower

Project Task	Complete?	Where Discussed
Phase 1 – Planning		
Task 1.0 Perform Initial Planning -	Yes	Throughout
Task 2.0 Conduct Stakeholder Outreach	Yes	Page 7-8: See below
Task 3.0 Finalize Implementation Planning	Yes	Page 7, 23
Task 4.0 Develop Evaluation Plan	Yes	Page 20
Phase 2 – Training		
Task 5.0 Develop and Integrate Curriculum	Yes	Page 15-16
Task 6.0 Establish Auditor Training	Yes	Page 15-16
Task 7.0 Establish Contractor Training	Yes	Page 15-16
Task 8.0 Establish Technical Training for Installation	Yes	Page 15-16
Phase 3 – Implementation		
Task 9.0 Conduct Awareness Campaign	Yes	Page 8-9, 24-25
Task 10.0 Conduct Realtor/Appraiser Outreach & Training	Yes	Page 17
Task 11.0 Implement Dashboard Monitoring System	Omitted	See below
Task 12.0 Explore Web Interactive Portal with Multiple Listing Service Linkage	Yes	Page 17: See Below
Task 13.0 Create Financing Programs	Yes	Page 3, 18
Task 14.0 Conduct Energy Audits and Labeling	Yes	Page 3, 10-11
Task 15.0 Install Retrofits	Partial	See below
Task 16.0 Implement Mentoring and Quality Assurance (QA) Protocols	Yes	Page 16
Task 17.0 Participate in NASEO Team Review Meetings	Yes	Page 20
Phase 4 - Evaluation		Page 20
Task 18.0 Conduct Quality Assurance Evaluation	Yes	Page 16
Task 19.0 Estimate Energy Savings Achieved	Partial	Page 13-15: See below
Task 20.0 Evaluate Success of Project Objectives	Yes	This Report
Task 21.0 Project Management and Reporting	Partial	Page 23,25-27

Tasks and Accomplishments

Task 2.0: Task 2.0 Conduct Stakeholder Outreach

This was conducted through the RePower Kitsap Leadership Team and ongoing local outreach efforts conducted by CSG as part of the marketing plan. This process and specific strategies were inconsistently documented.

Task 11.0 Implement Dashboard Monitoring System

The project team determined in the fourth quarter of 2012 that this task would not be undertaken or completed. Limited resources ($10,000) were allocated to this task in the budget and the project team determined that other tasks were more central to the overall project goals.

Task 12.0 Explore Web Interactive Portal with Multiple Listing Service Linkage

Earth Advantage conducted a market assessment in 2013 for including energy efficiency home valuation listings in Kitsap County. This assessment found demonstrated need and illustrated potential but also identified multiple barriers that needed to be addressed first. The trade allies were resistant to full-scale implementation of the interactive web portal, so full execution of this linkage was not implemented during the project period.

Task 15.0 Install Retrofits

RePower Kitsap fell short of the target of 1,000 homes. As of December 2013, 606 homes had been upgraded. The final count of projects is likely to land just beyond this total as no program incentives have been available to homeowners after December 31, 2013.

Task 19.0 Estimate Energy Savings Achieved

As discussed on pages 13-15 three methods of estimating energy savings were calculated. The SOPO indicated that one of the methods would be billing analysis on a sample of homes. Billing was not feasible or cost-effective for the program. The program did obtain and report electricity usage data from PSE to DOE. The program was unable to obtain natural gas, heating oil, or propane consumption data for 23% of the projects where electricity was not the primary heating fuel.

Challenges

The RePower Kitsap program fell short of original targets. Contributing factors included:

- **The Lack of a Clear Management Structure.** Multiple organizations and multiple funding sources contributed to the RePower effort as a whole; without being consolidated into a single organization or management structure. This was the result of multiple funding sources and inconsistencies in project goals across RePower as a whole. Four organizations shared some aspect of policy, program and operational leadership. Responsibilities overlapped and decision-making authority was not clearly articulated.
    - Contractual relationships were challenging to navigate. CSG had a dual role as direct recipient and decision making authority in RBB and also as subcontractor to the RePower Kitsap program. Trade ally contractors had pre-existing contractual relationships established with Kitsap County to deliver EPS audits prior to start of RePower Kitsap.
    - Program design decisions were discussed by the RePower implementation team monthly during regularly scheduled operational meetings. Program focus and policy direction decisions were made via committee which met at least quarterly.

  This diffuse management structure slowed decision-making, blurred accountability, and increased administrative and reporting costs.
- **No Local Champion.** Unlike RePower Bainbridge where the City of Bainbridge was the grant recipient and primary local focal point for the grant, RePower Kitsap did not have a local champion. Kitsap County participated in the leadership committee in a contributing role. They were not the clear lead and local champion. The lack of a clear local lead has complicated efforts to find a successor organization.
- **Unrealistic Goals Developed without a Market Assessment**. RePower Kitsap goals were set prior to conducting a market assessment. The initial goal was dictated by the Funding Opportunity Announcement, which required a goal of conducting comprehensive retrofits in 2% of the homes in a target market area. RePower Kitsap's original target market area included the entire county, which has approximately 75,000 occupied housing units. An in-depth analysis of US Bureau of the Census and County Assessor data found that a 2% target was too high. Kitsap County excluding Bainbridge Island and Bremerton had 54,000 single family units. In 2012 the project redefined its target market to this area and adjusted its target from 1,500 to 1,000 homes. WSU Energy Program completed a market assessment in 2012 -2013 to refine estimates of the target market and assess upgrade potential. This verified that the Kitsap County market was difficult to serve and more than half of the homes in the target area would have low potential for whole house upgrades:

- Two-fifths (41%) of single-family buildings stock was built since the 1990s. The first statewide mandatory energy code was adopted in the early nineties. Homes built after the energy code were much less likely to need comprehensive upgrades.
- Initial non-participant surveys found that homeowners were less responsive to energy efficiency upgrade marketing built around environmental messaging and more responsive to messaging around thrift and saving money. Participant surveys conducted as part of the Cadmus Multi-state Evaluation also found that cutting energy costs was primary motivator for action and partial participant surveys found that upgrade cost and lack of capital were the biggest barriers to action.
- Messaging around energy savings has less traction since the population is transient. An analysis of US Census American Community Survey data found that at least 20% of Kitsap county's single family households are rentals (15%) or have moved in the past year (11%) or both.

- **Poorly Targeted Marketing:** Although there was some research done to develop and refine marketing messages, there was little market research or marketing done to target homes which were more likely convert. The program explored efforts to target oil, propane and wood heated homes and concluded that there was no cost-effective approach available. Kitsap County assessor records currently do not identify fuel source. Using census data, the program team identified neighborhoods with higher concentrations of non-utility heat sources, but lacked the resources to market at this level. RePower approached oil heat dealers about direct marketing but found them unwilling to participate. These dealers cited the Seattle Community Power Works program fuel-switching campaign as a cause of their concern.
- **Lack of Demand for Financing**. RePower Kitsap offered customers specialized energy efficiency loan products from two lenders. Take-up was low; only one in ten efficiency upgrades involved program-related loan financing. The program loans reduced the final cost to participants, but there is little evidence that the loans provided capital access for households with lower incomes, poor credit scores, or negative home equity.
- **Including Energy Efficiency in Home Valuation was not an effective strategy for driving demand for energy upgrades for existing homes.** The RePower program hoped to increase demand for energy upgrades by raising awareness and valuation of energy efficiency in real estate profession and the home buying process. RePower made significant progress toward raising awareness and valuation of energy efficiency and 'green' features in the home buying process. A 2013 Earth Advantage assessment of the potential for including green features in the real estate listing and the appraisal process reported that this process was difficult and may take a number of years. RePower Kitsap was eventually able to penetrate real estate market and provide training and resources

to appraisers and real estate professional. This training was not provided until summer and fall of 2013 when the program was winding down and was generally too late to influence upgrades. Even if the training had been provided earlier, the Multi-State evaluation reported that appraiser and real estate professionals were not seeing much activity in the energy efficient home market. What activity they noticed was associated with new construction rather than upgrading existing homes. Including energy efficiency in home valuation may have some value as a long-term strategy but in general, it had little or no effectiveness in the two to four year timeframe of the program.

- **Complex Program and Incentive Structures.** RePower Kitsap offered several choices and paths for completing upgrades:
  - There were three assessment options for participants:
    - Initially the program offered a fully subsidized EPS audit.
    - Later the program provided an options for:
      - A free walk-through assessment for customers of PSE (HomePrint Assessment)
      - A low cost walk-through for households without electric space heat provided by the CSG Home Energy Check-Up
      - Partial incentives for comprehensive EPS audits
  - At least ten measure incentive variations were offered each with a separate application process and form which included
    - RePower reward (a flat $400 incentive for completing two or more measures)
    - Rebates to encourage specific measures (air sealing, duct sealing and blower doors)
    - Rebates to encourage Whole House Energy Upgrades,
    - Rebates targeted to oil, propane and wood-heated homes
    - Special event rebates (Final Boarding Call)
  - Each utility also offered multiple rebates and incentives which required separate documentation.
  - Initial incentive levels were set low and were increased as program progress and take up was below expectation. The low initial incentive levels were not attractive and not that distinguishable from existing utility incentives. It may have been more effective to start out with higher incentive to capture attention and then reduce them.

    One of the core principles of energy efficiency program design is “keep it simple”. The need to simplify and streamline rebate process was raised by contractors, auditors and lending partners in evaluation interviews. RePower Kitsap call center reported several customers and contractors expressed frustration at how difficult it

was to figure out what incentives were currently available, what incentives customers were eligible for, what they had to do to apply and what their final project cost would be.

However, the trade allies and other program participants also resisted efforts to simplify the incentive structure. They wanted an EPS incentive separated from the comprehensive retrofit incentive, a blower door incentive and a water heater incentive separated from the air sealing incentive, and a two-measure incentive separated from the comprehensive retrofit incentive.

- **Insufficient Customer Support.** RePower Kitsap did not have sufficient funding to provide intensive customer support or Energy Advising services. Most customer support was provided through the program website, and a call center, and initial walk-through assessments. Support services were limited to referral and scheduling assessments, referral to the Trade Ally Network and assistance with process RePower rebate paper work, and quality assurance. Support services were largely reactive (customer call driven) rather than proactive (customer cases being actively managed and tracked with lead assignment to contractors and follow-up). Applicants were responsible for selecting and managing contractors, developing project scopes, determining what incentives they were eligible for and filling out paperwork. Customers reported that process could be difficult to navigate, especially for more complex whole house upgrades. It is also worth noting that conversion rates for homes which had an EPS audit which includes more intensive support and coaching were significantly higher than conversion rates for HomePrint and Home Energy Check Up assessments.
- **The lead implementation contractor (CSG) competed with the program trade allies for HomePrint assessment jobs.** CSG provided HomePrint assessments as part of its effort to increase demand and identify prospects for comprehensive retrofits. Another factor was concern over the lack of local contractor capacity to complete assessments within the grant period. However, offering a competing service made it more difficult to build and maintain the trust required for establishing a Trade Ally Network.
- **Inconsistent Funding – Lack of Long Term Stable Market Presence.** Funding for RePower Kitsap was scheduled to end and then was extended several times throughout the life of the program (March 2013, July 2013, and December 2013). Marketing materials and messages had to be revised multiple times. Each time this happened there was a pause in program momentum. Customers and trade allies were confused by the mixed messaging and became somewhat distrustful of the on and off again nature of the program. This challenge was compounded by the fact that the two BBNP projects had different award periods and extension periods.

- **Data collection and reporting systems were not integrated, complete, or timely.** The low-touch referral-based decentralized delivery model did not support the creation of centralized well managed data system. Data were combined manually from three systems.
  - CSG tracked customer contacts, RePower Kitsap Rebates, Home Energy Checks Ups, and measures installed that were rebated and reported on applications or voluntarily reported by participating contractors.
  - Earth Advantage maintained the CakeSystems database for those receiving EPS audits and test outs.
  - PSE provided a quarterly download of audit and incentive payments and project amounts. Cascade Natural Gas did not report incentives or projects it funded.

  As a result it was difficult to compile accurate and timely counts of key indicators including the number of completed audits and assessments, completed upgrades, conversion rates, upgrade costs or measure installation which are necessary to assess program progress effectiveness. A significant amount of time was required to assemble data to meet DOE retrofit reporting requirements. Data quality reported to DOE is potentially unreliable and in some instances, not available.

Program Sustainability Plans

As of March 2014 WSU Energy Program is working with Kitsap County and local stakeholders to create a long-term strategy for sustaining the program and the RePower brand. Key elements of the plan include:

- The RePower Bainbridge and Bremerton and RePower Kitsap programs were merged on January 1, 2014 under a single RePower Kitsap brand.
- Kitsap County has agreed to serve as the local sponsor of the program and will commit to providing a minimum of .5 FTE to provide policy direction and local outreach and coordination.
- WSU Energy Program is providing continuity on program delivery services including marketing, rebate fulfillment, customer support and technical assistance for the Kitsap County Trade Ally Network including ongoing training and quality assurance.
- Customer service and technical support are a key element of the long-term RePower Program and its delivery strategy.
- In addition other local stakeholders have made initial commitments to continue the following investments:
    - PSE and Cascade Natural Gas will be offering existing rebates including the PSE new whole house air sealing incentive.
    - PSCCU and Kitsap Credit Union will offer energy efficiency financing through existing home improvement loan offerings.
    - Kitsap County will support efforts to further integrate energy efficiency features into realtor and appraiser training and including efforts to include green fields in the MLS to help drive longer term demand for efficiency.

Verification of Data

Verification of DOE Reported Data: WSU Energy Program has provided the US DOE ten quarterly reports from 3rd Quarter of 2011 through the 4th Quarter of 2013. Data consistency and completeness has been a continual challenge. Data was compiled from multiple sources and some critical data was not available (for example incentives for natural gas upgrades supported through Cascade Natural Gas and workforce hours).

As part of preparing this final report the WSU Energy Program reviewed, cross-mapped and recompiled the multiple data sets used to compile DOE reports. This recompiled data was used to prepare the final report. When we compared the recompiled data to for project reported though the third quarter of 2013 to DOE supplied summary data dashboard, we found that:

- The number of audits was over-reported – we found that there were between 1,200 and 1,400 single-family audits and assessments completed. The figure reported to U.S. DOE was 1655.
- There was close agreement but slightly fewer completed upgrades (542 vs. 549). There are significant differences in completion time with WSU Energy Program recompiled data showing later completion dates. Although there were few upgrades – cumulative total upgrade investment was slightly higher ($2.937 vs. 2.905 million). Utility and BBNP incentives were incorrectly reported or missing in about a third of the projects.
- Workforce data was not required and consequently was not reported for almost half the projects. If this data was supplied, reported work hours would increase from 6,328 to 12,000 hours.
- Training participation and certifications were under-reported by more than 25%.

It was cost prohibitive to update and resubmit revised data for ten quarterly retrofit reports as it would have involved adjustment to most records in all ten reports. A copy of the recompiled data used to generate this report is available on request.

- **Evaluation Reports:** Four assessment and evaluation reports are attached to this report. Multi- State NASEO Evaluation Collaborative: RePower Kitsap participated in the Multi-state Residential Retrofit Process Evaluation conducted by the Cadmus Group. The NASEO evaluation provides a summary of the program, progress and process summaries and interviews with participants, partial participants and trade allies. This report provides a good overall summary of the program, key accomplishments, barriers to success and preliminary outcome data.
- Earth Advantage completed and assessment of barriers and opportunities to including energy efficiency in home valuation Energy Ratings on Property Tax Records: A Policy Analysis.

- Earth Advantage drafted an Energy Scoring and Disclosure Playbook and facilitated a group of energy efficiency and policy organizations in the Pacific Northwest that joined together to develop a residential energy scoring "policy playbook" that provides policymakers and utility program staff with technical, administrative, and marketing best practices for residential energy scoring and disclosure. The Playbook is close-to final at the time of drafting this technical report.
- Advanced Energy provided an assessment RePower Kitsap of training and quality assurance program, Analysis Summary for RePower Kitsap and an evaluation of Advanced Energy's two-day Success with Home Energy Upgrades training offered May 31-June 1, 2012, Training Evaluation Summary for RePower Kitsap. Results from both of these assessments were used to refine and strengthen RePower Kitsap's training and quality assurance efforts.

Other Developed Technology Transfer Products and Services

The RePower Kitsap program developed, supported or contributed to the following Technology Transfer Products:

- The RePower Kitsap Website http://repowerkitsap.com/ was one of the program's primary tools for outreach and communication to the public about the program and energy efficiency upgrades. The WSU Energy Program currently maintains the website until it can be operated by a successor organization.
- EPS Audit and Assessor Data Analysis. WSU Energy Program developed tools for downloading and graphically analyzing data in bulk from the EPS database to assess potential for energy efficiency upgrades, review data in the EPS to identify data quality issues, common data entry errors and bugs in the EPS Audit data system. Outcomes were shared with Earth Advantage who used the feedback to revise and improve data quality controls in the software. These error trapping routines were also applied to 6500 energy assessments conducted by Seattle City Light and Community Power Works to assess auditor performance and error patterns. Findings from this work are being used to refine the Earth Advantage Software and provide feedback and quality assurance to auditors on common data errors and proper use of the audit tool.
- RePower Kitsap participated in two WSU Energy Program information sharing session to encourage information sharing and collaboration among Washington State Community-Based Energy Efficiency Programs.