



Building Performance Professionals
Association of Vermont
BPPA-VT
Vermont's Authorities on Energy Efficiency

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BPPA's Zero Energy Now Program

Proposal for the 2017

Community Energy & Efficiency Development Fund (CEED Fund)

August 30, 2016

(revised from 8/26/16 submission)



CEED FUND PROPOSAL QUESTIONNAIRE

BPPA Comprehensive Energy Improvement Approach

| | |
|--------------------|--|
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Program and Customer Information

1. What type of project is being proposed?

The Building Performance Professionals Association (BPPA) is proposing to continue development and implementation of the Zero Energy Now Program in 2017. Zero Energy Now is Vermont's first program to offer a simple, comprehensive approach to improving building energy efficiency and switching to renewable energy sources, resulting in at least 50% energy savings.

Zero Energy Now was conceived of by BPPA in 2015, proposed for the 2016 CEED program a year ago, approved by the Public Service Board (PSB) in February 2016, then developed, launched and implemented through 2016. BPPA and our partners have accomplished a tremendous amount in the seven months since approval by the PSB, including the following:

- Program Plan developed with stakeholder review and input;
- Eligibility requirements and program standards developed and updated;
- Guarantees developed and in place;
- Home Performance and renewables contractors recruited, reviewed and selected;
- Two trainings held for BPPA and Renewable Energy Vermont (REV) contractors and installers, with a third scheduled for September 2016;
- One-on-one in-field sales trainings for leading contractors;
- EUSAVE modeling and qualification tool developed and in use;
- Marketing team recruited and hired, marketing plan developed and implemented;

- Website, brochures, PowerPoint presentations and additional marketing materials developed and out in the market;
- More than 15 outreach events (over 200 attendees) carried out;
- Kick-off press event and follow-up radio shows featuring U.S. Representative Welch, Agency of Natural Resources Secretary Markowitz, Green Mountain Power CEO Mary Powell and others;
- Established call center for homeowners and lead generation process for contractors;
- Ongoing coordination and promotion of Zero Energy Now with stakeholders throughout Vermont involved with clean energy (GMP, EVT, PSD, CESA, REV, VECAN, VEC, WEC, EAN and others); and
- Regular program coordination with Efficiency Vermont, development of savings attribution and reporting processes, and planning for future program integration.

As of August 2016, two Zero Energy Now projects are complete and 38 others are enrolled in EUSAVE at various stages of completion. One contractor states they have and additional 10 projects lined up that haven't yet been entered pending program adjustments, which are being considered.

The two projects that have been completed each report annual savings of more than 70 MMBtu, with Net Societal Benefits (NSB) values of more than 2.0. If this is any indication of other projects, the Zero Energy Now comprehensive approach will be a real success. Challenges remain in supporting the participating contractors in completing their projects while recruiting the additional 10 projects needed to meet our goal of 50 completed projects by the end of 2016. We have great momentum, engaged partners, motivated contractors and a strong management team driving this effort forward.

While 2016 has brought great success following record time to develop and stand up the Zero Energy Now program and line up projects on the ground, 2017 would be anticipated to be the year to solidify the program and plan for the future of Act 56 Tier 3 efforts going forward. We have learned a tremendous amount this year about how a comprehensive program can work in Vermont and would look forward to the opportunity to work with our partners to adjust and enhance the program while continuing to support contractors and projects to deliver an additional 50 completed projects in 2017. Through our marketing efforts, we now have a strong message, materials and partnerships with local town energy committees and others who are all interested in continuing to spread the word. BPPA has the pieces in place to carry the momentum from 2016 into 2017 to grow Zero Energy Now and prepare the Vermont existing buildings market for this comprehensive approach going forward.

However, at the same time, the State's net metering laws will change in 2017 so this will impose some challenges in selling PV to potential Zero Energy Now customers. While we would like to set a target above this year's 50 homes, the impending net metering hurdles give us some pause. We want to be realistic about what we think we can deliver.

In order to ensure that Zero Energy Now is able to be consistently offered without interruptions that could have negative market effects on customer and contractor confidence and participation, it will be important to provide a consistent program offering into 2017. We have seen the damage to programs and markets with start-stop approaches to other programs and hope to avoid that damage with Zero Energy Now, especially as the State gears up to offer Tier 3 services starting in 2017.

Some of the activities planned for 2017 include the following:

- On-going support of certified energy contractors and their Zero Energy Now projects to enable them to continue to enroll projects early in 2017;
- Selection, training and support of additional contractors to expand Zero Energy Now options for customers and ensure coverage in key areas of the state, like Pantou;
- An expanded marketing and outreach campaign leveraging our relationships with town energy committees and the key organizers throughout the state who have expressed interest in the Zero Energy Now approach, supported by a social media campaign through venues such as Front Porch Forum and Google search;
- A focused outreach effort with Vital Communities in the Upper Valley to leverage their interest and efforts working with local towns to support Zero Energy Now;
- Contractor trainings to build their sales and computer modeling skills;
- Software integration with NeighborWorks' Cake Systems modeling tool to enable its use as an alternative compliance tool to EUSAVE;
- Some minor enhancements to EUSAVE to streamline its use for contractors and to simplify reporting to both customers and GMP;
- Coordination with Efficiency Vermont's Home Performance with ENERGY STAR program in an attempt to: 1) develop a program and incentive offering for the remaining customers outside of the former CVPS territory, and 2) to plan for life-after-CEED for Zero Energy Now in 2018 and beyond; and
- Coordination and strategizing with GMP in development of Tier 3 offerings.

At the same time these program enhancements would improve and bolster Zero Energy Now offerings in 2017, there remains an on-going need to

oversee and manage the program. The staff time necessary for program management and coordination in 2016 was significantly under-budgeted (with a significant number of hours ending up being donated by many of the organizations involved in our commitment to deliver what had been promised). We now have the benefit of understanding what it really takes to offer Zero Energy Now, so the 2017 budget reflects that reality.

BPPA would plan to offer the program in 2017 as currently outlined on the Zero Energy Now website (www.zeroenergynowvt.com), with incentives, the energy usage and quality guarantees and services similar to what has been developed and is now being offered. Based on our experience with project incentives, we have budgeted for an average of \$4,000/project, rather than the \$5,000/project we had for 2016. While we won't know the claims rate for the energy usage guarantee for another year, we have budgeted \$1,000 per project as a worst-case scenario. We feel that there is room here for budget reductions since we can't imagine every project maximizing their available claim, but we would need to determine the risk associated with this approach.

2. Which customer segment(s) is targeted?

The customer segments targeted are residential existing homes and small businesses, with an emphasis on residential. Existing homes have been our target in 2016 and we would expect to continue to this focus in 2017. We will continue our focused efforts towards town energy committees and their members as our most likely audience, and will leverage their local influence and connections as we expand our recruitment efforts.

3. How many customers will participate?

We are targeting to complete another 50 projects in 2017. Due to more restrictive net metering laws, it will be more challenging for contractors to sell PV projects, which will impose some hurdles as they attempt to sell Zero Energy Now projects.

4. Which geographic areas of the legacy CVPS service territory will be served?

All of the legacy CVPS service territory will be served by the Zero Energy Now Certified Energy Contractors.

Investment and Benefits Information

5. What is the investment schedule being proposed?

\$1,065,768 is the total being requested for 2017. See budget below for the schedule of activities covered by this budget. These activities will take place

across 2017 in on-going support of the Zero Energy Now program throughout the year.

| Zero Energy Now - BPPA | | | | | | | | | | |
|--------------------------------------|--|----------------|----------------------|-----------|--------|--------------|-------------------|-------------------|---------------------|---------------------|
| 2017 Budget (8/26/16) | | | | | | | | | | |
| # | Task | Start-Up Costs | Implementation Costs | Lead | Rate | Hours | Cost | Expenses | Total | Subtotal |
| 1 Program Implementation | | | | | | | | | | |
| 1.1 | Coordinate HP and REV contractors | | Admin | EFG | \$ 190 | 350 | \$ 66,500 | \$ 273 | \$ 66,773 | |
| 1.2 | Coordinate subcontractors | | Admin | EFG | \$ 190 | 150 | \$ 28,500 | \$ 273 | \$ 28,773 | |
| 1.3 | Coordination, reporting and QA with EVT & GMP | | Admin | EFG | \$ 190 | 150 | \$ 28,500 | \$ 273 | \$ 28,773 | |
| 1.4 | Manage leads, coordinate contractors | | Admin | Capstone | \$ 95 | 1000 | \$ 95,000 | \$ 273 | \$ 95,273 | |
| 1.5 | EUSAVE enhancements and coordination with EVT | | IT | PS | \$ 125 | 120 | \$ 15,000 | \$ 10,000 | \$ 25,000 | |
| 1.6 | REV Contractor Training | | TA | REV | \$ 100 | 50 | \$ 5,000 | | \$ 5,000 | |
| 1.7 | BPPA Contractor Training | | TA | EFG | \$ 190 | 120 | \$ 22,800 | \$ 15,000 | \$ 37,800 | |
| 1.8 | Sub Total | | | | | | | | | \$ 287,390 |
| 2 Marketing & Outreach | | | | | | | | | | |
| 2.1 | Support marketing efforts | | Mkt | EFG | \$ 190 | 120 | \$ 22,800 | \$ 273 | \$ 23,073 | |
| 2.2 | Marketing Committee | | Mkt | BPPA | \$ 100 | 180 | \$ 18,000 | \$ 545 | \$ 18,545 | |
| 2.3 | Marketing Consultant (Flywheel) | | Mkt | BPPA | \$ 100 | 240 | \$ 24,000 | \$ 100,000 | \$ 124,000 | |
| 2.4 | Outreach and energy committees (Bob Walker) | | Mkt | BPPA | \$ 100 | 240 | \$ 24,000 | \$ 273 | \$ 24,273 | |
| 2.5 | Marketing expenses (ads, social media, outreach) | | Mkt | BPPA | \$ 100 | 24 | \$ 2,400 | \$ 50,000 | \$ 52,400 | |
| 2.6 | Contractor Sales Training | | Mkt | EFG | \$ 190 | 80 | \$ 15,200 | \$ 12,000 | \$ 27,200 | |
| 2.7 | Upper Valley initiative with Vital Communities | | Mkt | BPPA | \$ 100 | 200 | \$ 20,000 | \$ 10,000 | \$ 30,000 | |
| 2.8 | Sub Total | | | | | | | | | \$ 299,490 |
| 3 Incentives & Guarantees | | | | | | | | | | |
| 3.1 | Provide Incentives | | Incent | Customers | \$ - | | \$ - | \$ 200,000 | \$ 200,000 | |
| 3.2 | Offer Guarantees | | Admin | Customers | \$ - | | \$ - | \$ 50,000 | \$ 50,000 | |
| 3.3 | Sub Total | | | | | | | | | \$ 250,000 |
| 4 Program Development | | | | | | | | | | |
| 4.1 | QA Development | P&R | | EFG | \$ 190 | 100 | \$ 19,000 | | \$ 19,000 | |
| 4.2 | 2018 Program Development (BPPA Share) | | P&R | BPPA | \$ 100 | 300 | \$ 30,000 | | \$ 30,000 | |
| 4.3 | 2018 Program Development (Partner with EVT) | | P&R | EVT | \$ 150 | 300 | \$ 45,000 | | \$ 45,000 | |
| 4.4 | Sub Total | | | | | | | | | \$ 94,000 |
| 6 Program Management | | | | | | | | | | |
| 6.1 | Oversight, coordination, management | | Admin | EFG | \$ 190 | 200 | \$ 38,000 | | \$ 38,000 | \$ 38,000 |
| 7 Total | | | | | | | | | | |
| Sub Total | | | | | | 3,924 | \$ 519,700 | \$ 449,180 | \$ 968,880 | \$ 968,880 |
| | Administration (pct total) | | Admin | BPPA | 10% | | | \$ 96,888 | \$ 96,888 | \$ 96,888 |
| Total | | | | | | 3,924 | \$ 519,700 | \$ 546,068 | \$ 1,065,768 | \$ 1,065,768 |

6. When are customer benefits first achieved?

Customer benefits will be achieved soon after the PSB approves the 2017 CEED Plan. We expect that we will have projects lined up from the 2016 activity and in early 2017 that will be ready to be closed if and when this plan is approved.

7. What are the Net Societal Benefits (NSB) that will be achieved per dollar invested?

The NSB for this project will be somewhere between 1.4 and 1.8, depending on the program cost assumptions.

8. How will the NSB be calculated?

For this re-submission of this application, we have now used the 2017 NSB screening tool instead of the 2016 tool used in the original application.

We ran the first two completed 2016 Zero Energy Now homes through the NSB tool assuming they would represent typical participants. We assumed half of the 50 homes might have costs and savings like each of these first two

actual Zero Energy Now homes, and used those as proxies for all anticipated participating homes in 2017.

We have entered the cost and kWh savings from the PV system for each home, assuming that Efficiency Vermont will be claiming the savings for the other weatherization and heat pump measures.

In the “full cost” scenario, we have taken 100% of the program costs (less incentive costs, or \$865,768) (= \$1,065,768 - \$200,000) but not all of the savings benefits that accrue from these jobs. The result of this budget will result in all of the additional Home Performance projects including weatherization, heat pump and fuel switching savings that Efficiency Vermont is claiming for all of these jobs. We have just claimed the PV portion of the savings for GMP, yet are carrying all of the costs and still see an NSB of 1.4.

For the “shared cost” scenario, we have taken just the portion of the program costs (less the incentive costs) attributable to the saving from PV. For the two projects we have used as proxies for the 50 jobs we expect to secure in 2017, 70% of the savings will be claimed by Efficiency Vermont and 30% will be claimed by GMP. Therefore, we have allocated 30% of the \$865,768 non-incentive budget, or \$260,428 (= 30% * (\$1,065,768 - \$200,000)) and used that for the “shared cost” scenario. In this scenario, the NSB is 1.8.

We have provided two NSB tool files, one with each scenario. The calculations behind them are both shown in the “Calcs” worksheet of each file. The only difference between the two files is the total amount in the “Program Costs” column. In the “Full Cost” file, the program costs total \$865,768 (split evenly between the two proxy measures). In the “Shared Cost” file, the total program costs are \$260,428 (also split between the two proxy measures).

For actual projects in 2017, we would enter homes into the NSB tool based on the results from the energy modeling software (EUSAVE or other approved tools).

9. What % of NSB will the program achieve in electric benefits?

100%

10. What are other non-electric benefits?

There are fossil fuel savings from the weatherization upgrades and fuel switching from oil to heat pumps, but Efficiency Vermont is looking to claim those savings.

Start-Up Information

11. Is this a new or established program?

Zero Energy Now was a CEED program that was started in 2016, so it would be considered now as “established”.

12. How does this program meet the “But/For” test?

This comprehensive energy approach both enlists new participants who would not have participated in Home Performance with ENERGY STAR due to relatively small savings and drive significantly deeper savings beyond the typical 20% Home Performance job savings. This approach is unique in treating efficiency and renewable technologies comprehensively in residential buildings. No other such comprehensive program exists in Vermont.

13. What are the expected costs of the program?

\$1,065,768 is the total being requested for 2017.

14. Can the program be easily scaled up or down within 2017 to use the remaining CEED funds if necessary?

Zero Energy Now can be scaled up or down in order to use the remaining CEED funds in 2017 by adjusting the incentive offer to customer and contractors, with sufficient notice to ensure our contractors and customers could be informed ahead of time.

15. When is the proposed start date of the program?

This program would be ready to start January 1, 2017.

16. How long will customer benefits persist after the initial benefit is achieved (in years)?

Customer benefits will persist for the life of the solar panels and equipment in each house, typically 25 years. The weatherization work conducted will persist for the life of the house.

Efficiency Vermont’s quality assurance oversight as part of Home Performance with ENERGY STAR will ensure that measures are installed and the savings persist for the expected lifetimes for the efficiency components.

17. How will program results be measured and evaluated?

Program retrofit results will be tracked and reported through the initial and then post-improvement EUSAVE audits (and Home Energy Label, when implemented), which generate a report we will share with GMP. In this way, we will be able to capture pre- and post- projected energy use at each home. Public Service Department evaluations of the Home Performance with ENERGY STAR Programs will likely include a sample of participating Zero Energy Homes.

18. How will program costs and benefits be reported to GMP?

Program costs and benefits will be tracked, compiled and reported to GMP on a regular basis by BPPA and their subcontractor EFG.

19. How often will reports be provided to GMP?

Reports will be provided to GMP quarterly, unless GMP requests them to be provided more frequently.

Direct Cost Breakdown

| <i>Cost Element</i> | <i>Start-Up Costs</i> | <i>Implementation Costs</i> | <i>Total Program Costs</i> |
|----------------------------|-----------------------|-----------------------------|----------------------------|
| Planning & Reporting | \$ 19,000 | \$ 75,000 | \$ 94,000 |
| Admin | \$ - | \$ 404,478 | \$ 404,478 |
| Tech Assistance | \$ - | \$ 42,800 | \$ 42,800 |
| Incentives | \$ - | \$ 200,000 | \$ 200,000 |
| Marketing | \$ - | \$ 299,490 | \$ 299,490 |
| Information Technology | \$ - | \$ 25,000 | \$ 25,000 |
| Participant Share of Costs | \$ - | \$ - | \$ - |
| Total Costs | \$ 19,000 | \$ 1,046,768 | \$ 1,065,768 |

Who is Who in the Vermont Building Performance Professionals Association?



Malcolm Gray, Montpelier Construction Founding member and Chairman of Building Performance Professionals of Vermont. Carpenter since 1971, in Vermont since 1975. Building energy efficient homes and additions since late 70's. Home Performance with ENERGY-STAR certified since 2006; BPI Building, Envelope & Heating certified. Passive House consultant since winter 2012. Secretary of Vermont chapter of Passive House Alliance. Principal of Montpelier Construction, a full service residential construction company comprised of 8 partners and 3 to 4 core employees. BA in Social Ecology from Goddard College, 1975-8. Specialized in renewable energy, energy efficient building, affordable construction.



Jonathan Dancing has broad experience in business development, management and administration. Most recently, as a BPI certified professional, he ran a full-service construction company in Southern Vermont that quickly became one of the highest producing Home Performance with ENERGY STAR contractors in the state. This experience made it clear that contractors participating in the state's Building Performance Program are unreasonably vulnerable to market development strategies and efforts that are not within their control.

Believing in the potential of the Building Performance Industry as a powerful driver for economic development and job creation, he became an early participant in helping start the Building Performance Professionals Assoc. of Vermont and has acted as the Executive Dir. for the past several years.



Richard Faesy is a principal and co-founder of Energy Futures Group in Hinesburg, Vermont. As a Certified Energy Rater and LEED Accredited Professional, he specializes in residential buildings, technologies and markets, with a focus on residential new construction and retrofits, energy rating and labeling, ENERGY STAR Homes, building codes, energy efficiency financing, green building and effective energy efficiency policy, program design and implementation. He currently works with clients in California, Connecticut, Iowa, Massachusetts, Maine, New Hampshire, Rhode Island and Vermont. Prior to founding EFG, Richard worked at the Vermont Energy Investment Corporation for 21 years and was a builder before then.



Paul Zabriskie is Director of energy efficiency and weatherization programs at Capstone Community Action. For ten years he has brought a background in ecological engineering and international green construction to programs that lower fuel bills and raise awareness of energy saving opportunities for Vermonters. He endeavors to lead a team that can navigate compliance with funder's rules while delivering sensible solutions in exceptional situations, whether they be related to the uniqueness of buildings or the diversity of people and how they live in their homes. Paul believes that we can't engineer our way out of a climate crisis. We need to invest in infrastructure renovations to use less energy, and evolve our behavior to eliminate waste.



Chuck Reiss is owner of Reiss Building and Renovation, a green construction company, building high performance net zero energy homes and moving existing homes closer to net zero energy since 1982. Chuck is one of the founding members of Building for Social Responsibility and Building Performance Professional Association of Vermont. He is the present Chair of the Vermont Builds Greener Program. A certified BPI professional and a Home Performance with Energy Star contractor, he is dedicated to getting existing homes off of fossil fuel by a combination of energy efficiency, renewable energy and heat pumps. Chuck is also an adjunct professor at UVM teaching courses on building the green, low energy load home and Chair of the Hinesburg Energy Committee.



Paul Scheckel has twenty five years of hands-on experience delivering energy efficiency and renewable energy services, information, and analysis to residential and business customers, and to utility program managers. During his 18 years serving various roles for the Vermont Energy Investment Corporation, Paul developed extensive knowledge and experience with residential energy use, savings, analysis, and utility program design. Tenure as a partner in Shelter Analytics led to deepened understanding of commercial energy use and savings strategies, and business owner concerns. Work with renewable energy and electric vehicle conversions rounds out Paul's experience "from basements to board rooms".

In addition to project management skills, Paul develops analytical methodologies that help simplify energy and economic analysis. His experience includes delivering professional trainings, workshops and conference presentations. Paul has addressed numerous audiences as author of *The Homeowner's Energy Handbook*, *The Home Energy Diet* and as an energy ambassador. He is a hands-on, off-grid homesteader with a commitment to sustainability and a passion for music, the arts, and nature.

Additional BPPA-VT Board Members include:

Allan Bullis, Common Sense Energy

Phil Cecchini, BPPA-VT Treasurer, Business Manager, Capstone Community Action

Oliver Dorfman, Comfort Homes, LLC

Bruce Landry, 5 Star Energy Tech

Tom Perry, Tom Perry Carpentry, Building and Design, LLC

Walter Scott, Senior Energy Consultant, Efficiency Vermont / VEIC

John Unger-Murphy, Murphy Cell-Tech