Final Report:

Recommendations for Community-Based Energy Program Strategies

Developed for the Energy Trust of Oregon

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Executive Summary

This report presents recommendations regarding the potential role of community-based energy programs for the Energy Trust of Oregon.

To develop the recommendations, the project team conducted a review of selected community-based programs from around North America. The goal of reviewing these programs was to determine key strategies and lessons learned that might influence the choices made by the Energy Trust. Nine projects received full reviews, and four additional projects or concepts were documented briefly.

Using the lessons from the reviewed projects, six community-based program concepts were developed that served as the basis for a series of interactive workshops with Energy Trust staff. The workshops helped clarify Energy Trust needs, goals, and operational issues related to community-based strategies. On the final afternoon of the workshops, a multi-faceted approach to community-based strategies was formulated for the Energy Trust, which has since been refined, and served as the basis for the recommendations contained in this report.

In general, the project team believes that adopting community-based energy program strategies will create significant benefits for the Energy Trust and the citizens of Oregon. Key among these benefits are:

- Increasing public awareness regarding the Energy Trust and its programs.
- Developing improved long-term support in Oregon for energy efficiency and renewable energy development.
- Balancing the current portfolio of services to ensure adequate provision of resources to customers of the three utilities providing funding to the Energy Trust, remote communities, and hard to reach populations.
- Increasing recognition of the value of the Energy Trust.
- Leveraging additional resources to support energy efficiency and renewable energy development in Oregon.
- Supporting community economic development.
- Enhancing consumer knowledge of the value of energy efficiency and renewable energy.
- Engaging public and business leaders in energy efficiency and renewable energy support.

There are several key challenges that the Energy Trust will face in implementing community-based energy strategies. These challenges generally surround four topic areas;

1) How does a change to community strategies mesh with current programs and operations? 2) What level of financial commitment to community-based programs is appropriate? 3) How can the Energy Trust reduce the costs and improve the success of community-based approaches? 4) How does a change to community-based approaches impact the ability of the Energy Trust to meet its goals, particularly its cost-effectiveness goal.

To capture the benefits of community-based strategies while meeting the challenges a series of recommendations have been developed by the project team. The recommendations have been developed to present a complete strategy, with options for more detailed implementation choices. The recommendations include development of two types of community-based strategies, positioning for a community-based T&D alternative, a proposed budget, and focused effort on several significant program and policy issues. The recommendations cover the following eight areas:

1. *Develop a "Community Outreach Project" as a community-based marketing strategy to reach underserved customer groups in a more effective and cost efficient manner.*

2. *Develop a "Community Partnerships" program as a strategy that provides a strong focus on responding to community needs and a mechanism to build community capability to leverage long-term energy savings.*

3. *Develop a planning framework and sufficient experience in community-based energy projects so that the Energy Trust is viewed as a realistic alternative to T&D related capital projects.*

4. *Provide funding and management resources to begin implementation of community-based program strategies.*

5. *Develop a partnership arrangement with a foundation or state government entity to broaden the range, appeal and effectiveness of community-based strategies.*

6. *Begin to break down the barriers between narrowly defined staff functions and between discrete PMC functions so that cooperative frameworks that can focus on community goals are clearly supported by the organization and begin to form.*

7. *Review cost-effectiveness methodologies to ensure that the benefits of community approaches are captured.*

8. *Evaluate the ability of community-based strategies to create benefits in public awareness, program participation, cost-effectiveness, resource leveraging, and community impacts.*

The project team believes that adoption of these recommendations will enable the Energy Trust to begin the successful implementation of community-based strategies with very little risk, and will position the Energy Trust to capture the multiple benefits that community-based energy strategies provide.

Section I: Introduction

Background

This report presents recommendations regarding the potential role of community-based energy programs for the Energy Trust of Oregon. These recommendations were developed by a team that was assembled specifically this project. The project team includes senior staff and consultants from Oregon, Washington, Vermont, Wisconsin, Illinois, and California; all with significant previous experience in operating or evaluating community-based energy efficiency programs.

To develop recommendations, the project team first reviewed previous community-based energy programs, then developed program concepts that were refined in conjunction with Energy Trust staff. To complete the review and development process, the project team completed the following major tasks:

- Selected a wide-ranging sample of community-based energy programs from around North America. The team looked for a diversity of project types representing rural communities as well as urban strategies. Particular attention was paid to finding programs that worked to offset transmission or generation expansions, or that included renewable energy strategies.

- Conducted an in-depth review of each program, including personal interviews with project managers, and reviewing evaluation reports, project status reports, and earlier case studies. Information on the selected programs is presented in a series of brief one-page summaries in **Appendix B: Program Summaries**. The more detailed reviews, ranging up to 10 pages each, are attached as **Appendix C: Program Reviews.** The detailed reviews are useful for readers looking for additional context and detailed information on program strategies and results, both quantitative and qualitative. Nine programs were selected to receive full reviews and four programs received more limited reviews. The programs reviewed were:

    - *Neighborhood Power Project: Seattle, Washington*
    - *New London Resource Project: New London, Wisconsin*
    - *Jasper Energy Efficiency Project: Jasper, Alberta, Canada*
    - *The Poultney Change A Light Challenge: Poultney, Vermont*
    - *Peterborough Green Up: Peterborough, Ontario, Canada*
    - *ODDA Resource Teams Plus Energy: Multiple Projects in Rural Oregon*
    - *Comprehensive Demand-Side Management Program: Osage, Iowa*
    - *Community Energy Cooperative: Chicago, Illinois*
    - *Davis Energy Efficiency Project: Davis, California*
    - *Hood River Conservation Project: Hood River Oregon (limited)*

- *Solar Bonds: San Francisco and Honolulu (limited)*
- *Community Wind/Energy Project: Multiples (limited)*
- *Matching Efficiency Grants to Green Power: Massachusetts (limited)*

- The project team also reviewed a wide variety of energy related programs in Oregon, including the programs offered by the Energy Trust, the Northwest Energy Efficiency Alliance, the Oregon Department of Energy and other state agencies. This review was cursory, and was completed to attempt to capture a picture of current program offerings that might influence and/or relate to community-based approaches. The report generated was used internally by the project team to better understand the Oregon context.

- Created an initial mapping of community-based energy program strategies consistent with Energy Trust and other Oregon goals, resources, programs and strategies. Team members attempted to identify community-based program models that provide the best fit, greatest benefits, and greatest likelihood of success. These models are included in **Appendix A: Program Concepts**, along with a matrix that summarizes their relevance to the Energy Trust.

- Worked interactively with Energy Trust staff and Board members to test and further develop these initial models into solidly grounded concepts with a realistic understanding of the costs and benefits of particular community-based strategies.

- Developed this final report of findings and recommendations, designed to assist the Energy Trust in determining whether and how to proceed with community-based energy efficiency efforts.

Initial Findings

At the beginning of this project, there was not a clear definition of what was meant by a community-based energy program and how such efforts may differ from the ongoing operations of the Energy Trust. Beyond a focus on energy efficiency and/or local renewable energy development, the project team has found that the following characteristics are common among the projects reviewed, and have implications for how the Energy Trust might use community-based approaches:

1. At the most basic level, community-based energy programs are identified with a specific community, typically within the project name.

2. Community-based programs typically have a citizen committee of volunteers that provides guidance to the project.

3. Community-based programs typically have a strong educational component.

4. Community-based programs use community dynamics for marketing and generating interest and enthusiasm within the community.

5. They rely on community partners, whether businesses, local media, schools, or volunteer citizens, to deliver as much of the marketing and service delivery as reasonably possible.

6. Some, but certainly not all, develop on-going ownership of project goals that continue beyond the provision of funding.

It appears from this review that community-based programs can do a variety of things to reduce energy use. Some of what they do is not necessarily different from what a trusted utility or public benefits organization can readily do without using community-based strategies; some accomplishments may be quite different.

The types of things that community-based programs have been demonstrated to do include:

- Provide cost-effective DSM.
- Defer generation and/or transmission expansions.
- Provide economic benefits to communities by retaining income within the community and by helping businesses expand.
- Generate incredible local and national publicity.
- Generate community enthusiasm and pride.
- Generate goodwill and high levels of satisfaction with project sponsors.
- Test new strategies, both marketing and service delivery.
- Connect with hard-to-reach consumers, such as small businesses and ethnic populations.
- Create multiple reasons for businesses and consumers to save energy, beyond money and environmental benefits.
- Develop strong partnerships and networks within communities, including long-lasting community infrastructures.
- Engage public and business leaders in energy efficiency.

Section II. Program Concept Development and Discussion

The purpose of the initial research was to "set the table" for a more detailed discussion about how community-based energy programs might work to accomplish the goals of the Energy Trust of Oregon. While the project team found that community-based strategies have a demonstrated track record of success, it should also be noted that there are inherent risks in community-based strategies. For example, the number of variables that can impact program success is increased, and handing over some control to the community means that the Energy Trust would have correspondingly less control. Additionally, there is a cost of organizing communities that occurs prior to the stream of energy savings.

Table 1 shows some of the key aspects of the programs reviewed and their potential relevance to the Energy Trust. There is particular attention paid to cost-effectiveness in this table, although many of the projects reviewed were designed using criteria that differ from the Energy Trust's definition of cost-effectiveness. The final column in Table 1 refers to the Program Concepts that were developed by the project team to help sort through the key rationale and related fundamental strategies of program options.

Table 1. Community-Based Energy Project Matrix

Project Name	Target Markets	Other Goals	Key Benefits	Relative Cost Effectiveness	Relevance to Energy Trust	Related Concepts
Neighborhood Power	Ethnic Residential Small Business.	Community issues, hard to reach customers, public relations.	Provides deep outreach within urban communities. Replicable model.	Less cost-effective. Substantial overhead and slightly higher incentives.	Relevant only for the inclusion of hard to reach customers. Otherwise, may not be a useful model.	Efficiency Expresso, Oregon Star Communities
New London	Small community. Residential and commercial.	Community involvement and participation.	Replicable model.	Cost effective. Relies on loans more than rebates; done in a location where rebates were not available.	Some relevance. Project rebalances marketing and incentive dollars. Many good community marketing ideas.	Efficiency Expresso
Jasper	Community wide. Multiple technologies and markets.	Conservation rather than new power plant..	Demonstrated benefits of community efforts. Efficiency successful and cost-effective strategy.	Less cost-effective than existing program mix. However, approach is cost-effective relative to capital projects.	Directly relevant only for areas with T&D constraints. Focused effort within geographical constraints.	TeDDy
Poultney	Small community. Single measure (CFLS) to residential and business.	Reach all members of community.	Reached high percentage of customers. Engaged local community. Residual impacts?	Much less cost-effective as implemented. Higher marketing and incentive costs.	Directly relevant. Simple, replicable approach to community engagement. Could be cost-effective, but is it better than Trust's current strategy? Are CFLs saturated?	Light Touch
Green Communities	Typically residential.	Community environmental issues.	Lasting community infrastructures. Addresses multiple needs. Attracts additional funding.	Likely less cost-effective. Mobilizes multiple resources, but has costs of community infrastructure.	Somewhat relevant. Demonstrates long-term benefits of establishing local infrastructure. Adds new resources.	Oregon Star Communities

Oregon Downtown Development	Rural small business and government.	Economic development, downtown infrastructure.	Community scale projects. Retail enhancement. Hard to reach markets.	Less cost-effective. Limited savings.	Relevant, although approach would need to be expanded to meet efficiency targets. Match with renewables strategies?	Back My Piggy
Osage	Community wide.	Infrastructure change.	Energy and community impacts.	Very cost effective.	Not relevant. Structural differences in organizations severely limit usefulness	
Community Energy Cooperative	Community wide.	Demand reduction, neighborhood empowerment.	Demonstrated demand reduction. Transparent prices.	Unclear. Focus on demand.	Relevant to T&D issues. Different structural model but useful strategies. Demand not a driving issue, yet.	TeDDy
Davis	Community wide.	Alternative to utility programs. Expanded effort to small business.	Reasonable cross-the-board success.	Less cost effective. Similar incentives, more marketing and education.	Generally not relevant. Similar to Trust, but on county scale. Focus on hard to reach customers useful.	Efficiency Expresso
Solar Bonds	Funding for community scale projects.	Using renewables and efficiency together.	Demonstrated PR value, but no projects yet.	Adds resources. Cost-effectiveness unclear.	Relevant for larger community scale projects. A strategy for cities to raise matching funds.	Renewables Plus, Oregon Star Communities
Hood River	Community wide.	Demonstrate breadth and depth of conservation programs.	High participation and savings.	Less cost-effective. Included marginal measures and higher incentives.	Directly relevant only for areas with T&D constraints. Focused effort within geographical constraints.	TeDDy, Efficiency Expresso
Green Power Match	Community projects and low income.	Build benefits from green power purchases.	Results not available. Could enhance green power marketing.	Difficult to compare.	Relevance unclear. Depends on Trust goals.	
Community Wind	Combines wind and efficiency to improve economics.	Create revenue source.	Not demonstrated.	Adds resources. Cost-effectiveness could be similar.	Appears to be relevant, although only a concept at this point.	Renewables Plus, Oregon Star Communities

Listed below in Table 2 are the Program Concept names and a one line description of their key purpose. (One-page descriptions of the Program Concepts are included in Appendix A.) These concepts were used to help clarify Energy Trust interest and objectives, define fundamental strategies related to those interests, and surface challenges related to current program structures.

Table 2. Program Concepts

Concept Name	Purpose
Light-Touch	Secure high community participation and high visibility at a low cost. Possible first step to other efforts.
Efficiency Expresso	A concentrated effort to provide services to hard to reach communities.
Renewables Plus	Focuses around a community scale renewables project, and uses the community interest generated by that project as a marketing and educational tool for other energy efficiency efforts.
Oregon Star Communities	Supports development of a local infrastructure that can leverage existing community interest and resources.
Back My Piggy	Leverage the existing resources and local connections of a "host" entity as a relatively easy way to access community leaders and community marketing dynamics.
Transmission and Distribution Dynamics (TeDDy)	Use energy efficiency and demand reduction as a carefully focused, community-based alternative to T&D expansion.

The Program Concepts formed the basis for discussions about the purpose, benefits and challenges of community-based energy strategies. A series of workshops with various combinations of staff, contractors and project team members were conducted over a three-day period. While the types of discussions varied substantially by group, several key themes resonated with the participants.

- Groups tended to want to merge elements of concepts to get multiple benefits.

- Across several different concepts, participants ranked the concepts very highly on:
  - Creating increased public awareness of the Energy Trust,
  - Leveraging additional resources to assist efficiency and renewables projects, and
  - Building community capabilities.

- At least one concept, Light Touch, was viewed as a way to help balance participation and get to hard-to-reach communities.

- The current structure defines kWh goals for staff and Program Management Contractors within relatively narrow markets, which may conflict with community-based approaches that tend to work on multiple markets at the same time.

- There was an interest in developing an alternative to T&D expansion, but no current capacity or opportunity.

- Several Program Management Contractors are independently considering strategies to use community marketing dynamics to some degree.

Additional comments, that convey some of the key aspects of the discussion include:

- Ownership by the community is critical.
- Enhanced persistence of benefits is possible and real.
- Public relations/awareness is one of the key benefits. This can lead to interest by other communities and can lead customers to take other actions
- Cost-effectiveness is complex. It should be a screen more than a goal/benefit. Delivery efficiency should be considered, as well as the depth of the resource and reduced free riders. Costs may go up compared to existing programs, but community investment should also go up. This may hurt societal CE, but improve Trust/Utility CE.
- Better marketing potential.
- Prepares for urban planning and renewal outcomes – long-term efficiencies.
- Focused concentration of efforts may lead to other system benefits
- May be one of the only ways to break through to the next level of customers, goes well beyond free riders and early adopters.
- Goals/reasons: Public Awareness, especially as it drives additional capability, participation and action. Addressing underserved communities. Lots of leverage opportunities, both local resources and state programs like BETC.
- Better addresses the needs of each community.
- Provides additional ownership of the Trust.
- Make the strategies less presumptuous, more grass roots, and then customize the packaged offer based on needs and interests.
- This kind of targeting will also help consciously expend funds to balance contributor needs. For example, target PGE and NW Natural rather than Pacific because the Trust has been spending well in Pacific territories. This might be supported by an analysis that includes whether the number of trade allies is sufficient or not.

During the morning of the third day of discussions, a simple framework of Level 1 programs (oriented towards balance, outreach and short-term results) and more complex Level 2 programs (oriented towards capability building, community ownership, and long-term savings) was proposed. The recognized need for an approach focused on mitigation of T&D issues was added to the program mix, with the notation that the Energy Trust was not currently in a position to offer such programs.

In the afternoon of the third day, the Level 1 and Level 2 program concepts were defined in a finer level of detail. The project team has continued to refine these concepts along with other key issues that need to be addressed for a community-based energy strategy to be successful for the Energy Trust. The following section contains these specific conclusions and recommendations.

Section III. Conclusions and Recommendations

Benefits

The project team believes that adopting community-based energy program strategies will create significant benefits for the Energy Trust and the citizens of Oregon. Community-based energy programs should enable the Energy Trust to:

- **Increase public awareness regarding the Energy Trust and its programs.** It appears that general awareness of the Energy Trust is low. Community-based projects are proven vehicles both for reaching consumers in the communities that are being served, as well as for generating press stories about the projects, their rationale, and their sponsors. Increased awareness can support marketing of all Energy Trust programs throughout the state.

- **Increase recognition of the value of the Energy Trust.** Community-based projects typically create substantial good will and recognition for sponsors. There are opportunities for press events and other public relations opportunities, and a clear understanding that a valuable community project would not have happened without the sponsors.

- **Enhance consumer knowledge of the value of energy efficiency and renewable energy.** Energy education is a theme in most community-based projects as a central element in marketing. Education supports action, whether through program offerings or through independent action.

- **Support community economic development.** Energy is a major cost that rapidly leaves most communities. Retention of dollars within the community, and the creation of jobs associated with energy efficiency and renewable energy development have major positive impacts on local economies.

- **Leverage additional resources to support energy efficiency and renewable energy development in Oregon.** While the Energy Trust has considerable resources at its disposal, it is very possible to leverage substantial additional funding from foundations, local governments, businesses and individuals through community-based approaches. Most projects also involve local volunteers, schools and service groups in project support as well. Community-based projects are very engaging to the community, and create opportunities and motivation that attract other resources.

- **Balance the current portfolio of services to ensure adequate provision of resources to customers of the three utilities providing funding to the Energy Trust, remote communities, and hard to reach populations.** The Energy Trust can examine who actually takes advantages of services to determine where gaps in service occur. Targeting specific communities is one approach that can help the Energy Trust balance service provisions across many variables.

- **Engage public and business leaders in energy efficiency and renewable energy support.** Community-based projects rely on local leadership from the public sector and business community. Leadership engagement in the process of mobilizing their community has many potential benefits to future Energy Trust activities.

- **Reduce free ridership for some types of programs.** A concentration of services within a given area leads to higher market saturation and correspondingly lower percentages of free riders. This can enable some types of program activities to occur that otherwise might be restricted due to free ridership issues, such as appliance recycling. Community strategies may also support overall program cost-effectiveness.

- **Develop improved long-term support in Oregon for energy efficiency and renewable energy development.** Through education, the engagement of community leaders, enhanced public awareness, and the creation of recognized local economic benefits, a community-based strategy should substantially strengthen public support for energy efficiency and renewable energy development in Oregon.

Challenges/Obstacles

There are several key challenges that the Energy Trust will face if the Board decides to implement a community-based energy program strategy. In general, these challenges are regarding four topic areas:

- How does a change to community strategies mesh with current programs and operations?

- What level of financial commitment to community-based programs is appropriate?

- How can the Energy Trust reduce the costs and improve the success of community-based approaches?

- How does a change to community-based approaches impact the ability of the Energy Trust to meet its goals, particularly its cost-effectiveness goal?

Each of these four areas is covered by at least one of the recommendations in the following section. However, one of these challenges rises to the level of potential obstacle, the meshing with current program strategies and operations.

The Energy Trust has organized its current program operations around narrowly defined markets and focused kWh goals for programs. Generally, each program area, and the associated staff and PMCs, has a separate marketing budget and a distinct strategy to achieve kWh goals. Community-based approaches operate in very different ways from this approach. For example, community approaches typically:

- ⇨ Take a broad marketing approach within the community.
- ⇨ Spend time on education and organizing community infrastructure.
- ⇨ Pay attention to community agendas that are broader than energy (while focusing on energy related goals).
- ⇨ Look for synergistic opportunities.

There are ways to manage this conflict, and several strategies are either explicit or implicit in the following recommendations. However, it will likely be necessary for the Energy Trust to consider organizational issues that are beyond the scope of this report. The project team certainly believes that the Energy Trust should be clear in its intent to its staff and contractors, and needs to organize the community projects in a way that removes impediments to cooperative strategies. Some basic ways to support this are:

- Clear direction from the Board and Executive Director to staff and contractors.
- Consideration and discussion of how to manage time and goal conflicts among staff.
- Contract modifications for PMCs and/or performance goals for staff that reflect the importance of the community-based orientation.
- Sufficient ongoing management attention, at a high enough level in the organization, to address issues that occur.

Recommendations

A series of specific recommendations for action are detailed below. Most of the recommendations can be implemented with only minor changes to existing operating frameworks, while creating public awareness benefits, reaching underserved areas and populations, leveraging community and financial resources, and building capabilities at both the community and Energy Trust levels.

These recommendations are linked together in a way that forms a strategic plan. While some recommendations could be adopted separately, and certainly there is room for flexibility within the recommendations, they have been developed as a way of presenting a complete strategy, with options for more detailed implementation choices.

The recommendations include development of two types of community-based strategies, positioning for community-based T&D alternative, a proposed budget, and focused effort on several significant program and policy issues. The project team believes that adoption of these recommendations will enable the Energy Trust to begin the successful implementation of community-based strategies with very little risk, and will position the Energy Trust to capture the multiple benefits that community-based energy strategies provide. These recommendations also support the economic development of the local communities by training and supporting new contractors and retaining income locally.

Recommendation 1. Develop a "Community Outreach Project" as a community-based marketing strategy to reach underserved customer groups in a more effective and cost efficient manner.

Purpose
A concentrated effort to secure substantially higher customer interest and participation in basic energy efficiency programs, focused on hard-to-reach communities.

Rationale
The Energy Trust needs to balance its portfolio for multiple reasons; to reach the customers of the three utilities it provides services for, to reach relatively isolated areas of the state that might be underserved by contractors striving for cost-efficiency, and to reach customers with language, cultural, or economic barriers that hinder their participation in current programs. Currently, each program is responsible for finding customers for their particular program services, when customers within a given community might be interested in multiple services. Community-based marketing techniques are proven as a way to reach these customers, and costs of the marketing effort can be low.

Key Characteristics
Simple
Energy Trust driven
Short-term
Replicable
Targeted
Broad, not deep
Relationship marketing

Key Benefits
Fill Service Gaps
Enhance public awareness
Marketing enhancement
Aggregate opportunities
Engage public and business leaders

Description
In the recommendation, the Energy Trust selects smaller communities (neighborhoods or towns of 5,000 to 10,000 people) that they know or believe are underserved. The Energy Trust solicits the participation of the community through discussions with community and business leaders. A local committee of volunteers is established to help support marketing efforts and develop local partnerships, and a local contact person is identified and contracted part-time by the Energy Trust to recruit projects and answer questions. Additional service vendors (contractors, retailers) in the community are recruited and trained. After a three-month initial organization and development period, a kick off event is held, and a limited portfolio of programs (home products, weatherization, small business, small scale renewables, appliance turn-in) is offered to the community, perhaps with a modest boost in incentives for a 3 to 6 month participation period. Provision of services would be through normal PMC channels, hopefully with new local vendors established through this process

The project is designed to be replicable in a variety of communities, including development of a marketing toolkit, outlines of successful community marketing strategies, and a planned process for community engagement. Some customization will be needed for each community to respond to specific community characteristics. Key marketing partners (schools, churches, grange, neighborhood associations, service groups) will vary by community.

Options

- The project could start with either a "Light Touch" promotion similar to the Poultney VT project or a high profile community renewable energy project as a way to engage the community and create initial interest.
- The initial organizational and marketing elements of this strategy could be provided by an Energy Trust field staff, or one PMC could staff this function and provide coordination with other PMCs to provide services.
- Creating challenges that engage multiple communities across the state at the same time could generate more publicity and higher saturation.
- Instead of an incentive boost to the participant in a program, the incentive could go to support a community project such as a playground, school project, or a reduced cost share on a community renewables project, as selected by the community. Higher participation during the project period means more funding for the project.
- The relatively modest budgets for Community Outreach efforts (estimated at $10,000 to $50,000 per community) may mean that appropriate PMC budgets can be reduced to fund part of the marketing effort.
- This concept could reach even smaller communities, in the 2,000 to 5,000 person range.

Reference Concepts and Projects

Concepts: Light Touch, Efficiency Expresso, Renewables Plus
Projects: The Poultney Change-A-Light Challenge, Neighborhood Power Project, New London Resource Project, Davis Energy Efficiency Project, Community Energy Cooperative

Recommendation 2: Develop a "Community Partnerships" program as a strategy that provides a strong focus on responding to community needs and a mechanism to build community capability to leverage long-term energy savings.

Purpose
Change long-term community dynamics regarding energy efficiency through development of a local infrastructure and integration into the fabric of the community and its resources.

Rationale
Building community capabilities related to energy efficiency and renewable energy creates stronger long-term markets for energy savings. This concept would also reach deep into communities to secure a high level of citizen involvement and leverage additional community and financial resources. A deeper resource of energy efficiency and renewables support is created.

Key Characteristics

Community designed	Community owned
Partnerships	Integrated with non-energy objectives
Custom themes and focus	Long-term

Key Benefits

High profile	Supports community economic development
Builds community capability	Leverages other funding
Builds long-term markets	Persistence of savings and effort

Description
This concept folds energy efficiency into other, higher priority community projects such as community development and redevelopment, local housing needs, and achievement of broader environmental goals. The project priorities are set by the community, and existing community interest and locally controlled financial resources are leveraged to help achieve project goals. Additionally, Community Partnerships could support enhanced local marketing of Energy Trust programs and/or could serve as a test bed for new program concepts.

In this concept, the Trust would issue and promote an RFP to communities that would compete for project funding. As part of the proposal process, communities would propose; 1) Which energy opportunities they would like to focus on, 2) What resources the community would bring to the project , and 3) How the proposed activities would support Energy Trust goals. Using criteria such as innovative marketing and delivery mechanisms, organizational cooperation, financial leveraging, and energy savings, communities would be selected and/or prioritized for implementation of a community project.

This concept would probably be most applicable to mid-sized communities of 10,000 to 50,000 people. The local applicant could be a part of local government or a local non-profit

or association. The Energy Trust funding should be limited to two or three years for a given project, with the expectation that some communities would continue for a much longer period of time with an enhanced focus on energy issues. A goal would be for the community to provide or secure continued funding for some aspects of the infrastructure created through this process. Development of a business plan to accomplish this goal should be a funded project activity.

Options

- Inclusion of large-scale demonstration projects on government buildings or schools.
- Given the level of current Energy Trust involvement currently, consider starting with Klamath Falls.
- There may be a need for local planning support and initial community outreach to assure competitive proposals from a range of communities.
- Influence on master planning that may occur in the local jurisdiction; such as colleges and universities, hospitals, major housing developments, and urban redevelopment projects.
- This project could be the beginning of a "sustainable community" approach, but other themes (energy independence, local economic development) may resonate better with the community. Themes should be customized depending on community interest.
- The project concept could be extended to smaller communities as well (5,000 to 10,000 people), especially as a second phase to a successful Community Outreach Project.
- The Energy Trust may want to recruit one or more foundations, government entities, or non-profits to be a partner on the community solicitation and sponsorship. A partner could broaden goals and strengthen the process, while adding additional financial resources. See Recommendation 5.

Reference Concepts and Projects

Concepts: Oregon Star Communities, Renewables Plus
Projects: Peterborough Green Up: Ontario Green Communities Projects, ODDA Resource Teams Plus Energy, Solar Bonds

Recommendation 3: Develop a planning framework and sufficient experience in community-based energy projects so that the Energy Trust is viewed as a realistic alternative to T&D related capital projects.

Community-based energy projects have been shown to be a very real and lower cost alternative to T&D investments on multiple occasions (see the Jasper and Chicago case studies). Despite this success, deployment of energy efficiency and renewable energy strategies are seldom given much consideration by utilities faced with T&D problems. Given the growth in Oregon, T&D constrained areas will likely surface in the near future, despite current protestations to the contrary.

When compared to short-term capital projects, the value of reductions in energy use are much greater, and expenditures to achieve demand reduction can be much greater than normal. Technical solutions may vary, depending on whether peak demand is driven by residential space heating, commercial cooling, or some other combination of factors.

Various groups are working on technical solutions to demand reduction, using "Smart Grid" technologies. Community-based strategies can be used both in conjunction with such efforts or instead of such efforts, delivering both demand and energy savings.[1]

There are at least three steps that the Energy Trust can take to position itself as an alternative to expenditures on T&D.

- Establish relationships with T&D planning staff for utilities so that consideration of community-based approaches can be integrated into systems planning. Work jointly with an interested electric utility to develop a technical analysis of the demand savings for measures based on the peak periods that are pertinent for critical points of delivery to that utility. This may include the need to add staff or consultants who can assist with analysis of T&D options and can speak the T&D language.
- Develop a planning framework that would allow for rapid analysis of alternative strategies and their mobilization. The planning framework should have two primary components.
    - The first is technical analysis of demand savings for measures, including measures that cost many times the current limit. Estimates of T&D capital costs per KW and estimates of demand savings potential can be created. Typically, reliable analyses of this nature might take months to complete.
    - The second component is a community mobilization framework, perhaps an expansion of the Community Outreach Project concept with a set of programs focused on peak demand reduction, which would enable rapid mobilization within a community.

[1] The second year evaluation of the Community Energy Cooperative found that participants in the real-time pricing experiment have also overwhelmingly started seeking energy efficiency improvements – demonstrating "learning induced" conservation behavior.

- Establish the capability of the Energy Trust to reliably deliver energy savings within narrow time frames and geographically constrained areas. Successful operation of the Community Outreach and Community Partnership Projects should provide highly visible evidence that community-based strategies and the Energy Trust can deliver the savings needed in a timely fashion to defer capital expenses.

Recommendation 4: Provide funding and management resources to begin implementation of community-based program strategies.

Within the Energy Trust's service territory for electricity, there are approximately 25 communities between 5,000 and 10,000 population. Similarly, there are about 25 communities between 10,00 and 50,000 population, and six between 50,000 and 100,000. A number of the larger communities are suburbs of Portland, which may influence their suitability for community-based approaches. Also, some of the larger cities, notably Portland, have well defined neighborhoods and active neighborhood civic and business associations, which expands the list of eligible communities.

The project team recommends that the Energy Trust serve 3 to 5 of the smaller communities each year with Community Outreach Project services, and add one Community Partnership each year. (Community Partnerships operate for two to three years.) Community Outreach Projects are estimated to cost $10,000 to $50,000 to develop and support, in addition to the regular program services received. Community Partnerships are estimated to cost $100,000 for initial planning, followed by two years of $300,000 to $500,000 per year for operations. (There would be substantial savings associated with the operational budgets of the Community Partnerships.)

To guide the development of the Community Outreach Projects, and the coordination of several ongoing Community Partnerships, a 1.0 FTE field staff and a 0.5 FTE management staff are recommended. Table 3 below shows the estimated costs of this level of effort.

Table 3. Estimated Costs of Implementing Recommended Approach

	Year One Funds/Projects	Year Two Funds/Projects	Year Three Funds/Projects	Year Four Funds/Projects
ETO Staff	$150,000	$155,000	$160,000	$165,000
Community Outreach	$105,000/3	$140,000/4	$175,000/5	$175,000/5
Community Partnerships Planning	$100,000/1	$100,000/1	$100,000/1	$100,000/1
Community Partnerships Operations	0/0	$400,000/1	$800,000/2	$800,000/2
Total Costs	$355,000	$795,000	$1,235,000	$1,240,000

At the end of the four-year period described above, the Energy Trust will have reached 20 communities in Oregon (about 200,000 people) with a substantially enhanced level of engagement and services. Energy Trust expenditures over this time are $3.6 million.

Recommendation 5. Develop a partnership arrangement with a foundation or state government entity to broaden the range, appeal and effectiveness of community-based energy projects, expanding the Community Partnership scope and scale, while controlling Energy Trust costs.

Community-based energy projects can have significant impacts on broader community goals such as economic development, environmental quality, and long-range community planning efforts. Energy efficiency and renewable energy projects typically address these issues only indirectly or partially, because of the narrow focus on kWh savings.

An excellent way to expand the breadth and impact of a community energy project is to enter into partnerships with other organizations that have related and compatible goals for community development. Such partnerships are likely to be most attractive and viable for capability building projects such as the Community Partnership efforts. There are three primary options for structuring these partnerships:

- Team with one other funder for multiple years to issue RFPs for Community Partnerships. This would require agreement on project goals and selection.
- Team with a different funder each year (or multiple funders), which would develop a series of projects with somewhat different emphasis, each perhaps serving as a model project in some capacity.
- Work with selected communities to pursue additional funding for projects in the initial year of funding. To some degree, this is inherent in the Community Partnership efforts, and while a key aspect of project development, does not provide the breadth of focus of the other two options.

Engaging partner funding, especially if it results in additional Community Partnerships being developed, will also entail some additional costs for the Energy Trust. The Program manager position associated with community projects would likely need to be full-time rather than half-time, and additional Community Partnership funding may need to be available to serve additional communities and increase the attractiveness of the strategy to potential funders.

Table 4 below shows a funding scenario that includes this staff expansion and an increase from one new Community Partnership per year to two new projects per year. Planning costs for the Energy Trust remain the same, as these costs would likely be shared by the partner, and annual operating budgets per project are trimmed slightly to recognize administrative cost sharing. This scale of operations would reach about 250,000 people with enhanced engagement and services in the four-year period with Energy Trust expenditures of $5.3 million. Partnership contributions would likely be in the range of $1.5 million to $4.0 million over the same four year period

Table 4. Estimated Energy Trust Costs of Implementing Expanded Projects with a Funding Partner

	Year One Funds/Projects	Year Two Funds/Projects	Year Three Funds/Projects	Year Four Funds/Projects
ETO Staff	$200,000	$205,000	$210,000	$215,000
Community Outreach	$105,000/3	$140,000/4	$175,000/5	$175,000/5
Community Partnership Planning	$100,000/2	$100,000/2	$100,000/2	$100,000/2
Community Partnership Operations	0/0	$700,000/2	$1,400,000/4	$1,400,000/4
Total Costs	$405,000	$1,145,000	$1,885,000	$1,890,000

Recommendation 6. Begin to break down the barriers between narrowly defined staff functions and between discrete PMC functions so that cooperative frameworks that can focus on community goals are clearly supported by the organization and begin to form.

Staff and PMCs appear to be largely driven by savings goals that are set for discrete areas of responsibility, and have little time, interest, or enthusiasm for broadening their scope beyond those areas. This "silo effect" makes it difficult to work cooperatively to solve community marketing or delivery problems, or stated more affirmatively, to use the power of community marketing techniques to deliver energy services more effectively.

Customers and communities routinely violate the rules of engagement established by the Energy Trust. That is, an individual may be treated by the Energy Trust as a potential residential retrofit project, when they may also be a school board member and a small business owner. Communities have long-established communication and support networks, that link up at the grocery store, the local café, a church, or the Rotary Club. Narrow messages that only are concerned about one behavior miss the opportunity to take advantage of these networks; missing both the efficiency of the network in communication and the support these networks can provide to broader community goals.

As noted in the preceding section on Challenges/Obstacles, the differences between current operations and community-based approaches are substantial, and will require management attention. However, implementation of the Community Outreach Projects and the Community Partnership require, in the short-term and at the budget levels proposed, only incremental changes in the organization's structure. Should the Energy Trust begin to move more substantially into community-based efforts, more substantial changes may be required.

Recommendation 7: Review cost-effectiveness methodologies to ensure that the benefits of community approaches are captured.

Cost-effectiveness is an overarching consideration for programs supported by the Energy Trust. Community energy initiatives should be fairly and empirically supportable. However, community-based programs will likely face several challenges in meeting cost-benefit performance and evaluation criteria.

First, the practice of evaluation uses several standard models for judging cost effectiveness that may not easily capture the full range of benefits associated with community energy initiatives. A principal benefit excluded is the economic contribution of program participants and other leveraged resources. The so-called "societal cost test" treats the full investment in the program measure, irrespective of the source, as a cost.

To the extent that leveraged resources are treated as a cost and not a benefit of community-based programs, this is an unrealistic evaluation criterion, and should not be used unless additional societal benefits are included as well. These additional societal benefits might include retained income in a community, enhanced economic vitality, and job creation.

Second, the kinds of initiatives we examined have the characteristics of (a) an aggregation of many program measures either in customer bundles or in community-wide bundles, and (b) a healthy dose of soft investments. Aggregation requires social capital, the costs of organization and shared knowledge, which leads to trust and reciprocity that enables rapid deployment. Communities already have unique information and support networks that may not be dedicated to energy efficiency or alternative energy per se, but are ideally suited to adapt and take advantage of a program that the Trust may chose to offer in a community that such networks already serve. There is a need to fairly consider the long-term consequences of a community approach to achieving energy performance.

A reasonable hypothesis is that "community" is a long-lived asset. The evidence is that what is perceived as "communities" last a very long time. For example, a park maintained by a community is typically protected and invested in, in perpetuity. The park is not only providing recreational services but is also providing "local cooling" (e.g., heat island mitigation through higher reflectivity and through biological evapotranspiration) and storm water management through the provision of permeable surfaces. The park is likely to last many times longer than the standard civil engineering solution to storm water management (a buried set of sewer pipes and associated treatment plants) and provide the energy benefit as a bonus.

By analogy, a community's capacity to help large numbers of households and institutions to act together is a potentially long-lived asset that could be considered as part of a community energy resources portfolio. From this point of view, the hypothesis might be that investing in community energy resources requires a longer start time to build core learning capacity (or alternatively to adapt community knowledge to energy program goals) but that this approach

provides at least two additional, significantly scaled benefits that traditional market-oriented approaches do not;

- First, a community-oriented and/or community-based approach is likely to last longer. In regulated-DSM approach parlance, savings will be more persistent.

- Second, participation will be broader (more participants) and deeper (they will seek a higher level of benefits). The ratio of participants to non-participants and free riders will increase, as will the typical participant savings level, and arithmetically, the aggregate community-wide participation rates and savings rates will increase too.

The literature on the value of such capacity, known as the learning rate, seeks to measure the value of "learning by doing," that is, the value of continuous learning and continuous improvement. For most products and services, unit costs decrease with increasing experience. For most products and services, it's also the case that it is not the passage of time that leads to cost reductions, but the accumulation of experience. Unlike a fine wine, a technology or program approach that is left on the shelf does not become better the longer it sits unused (Alan McDonald, Leo Schrattenholzer, Learning Rates for Energy Technologies, Energy Policy 29 (2001) 255-261).

The search for "low hanging (energy efficiency) fruit" carries with it (a) the limited amount available and (b) the opportunity cost of misunderstanding the larger potential benefits that could be obtained from the harder-and-slower to attain smaller energy users. From an empirical point of view, there is no difference between getting program results from a smaller number of larger users or a larger number of smaller users, if the unit or the portfolio costs of acquisition are comparable.

The Trust should invest in gaining the competency to price community energy resource acquisition fairly, and in developing the ability to identify the kinds of organizations and places that can provide a fair test of these propositions.

Recommendation 8: Evaluate the ability of community-based strategies to create benefits in public awareness, program participation, cost-effectiveness, resource leveraging, and community impacts.

While community-based efforts have potential advantages, the Energy Trust should assure that these potential advantages are realized through their program efforts. Because the Community Outreach recommendation can be implemented relatively rapidly, some results from evaluation will also be available in a relatively short period of time.

Given the current relatively low awareness of the Energy Trust, an initial baseline of awareness within a community may not be needed. The Energy Trust can move at the conclusion of the Community Outreach project to measure post-program awareness and independent actions. Participation and cost-effectiveness can be calculated from data collected during the project.

Resource leveraging and broader community impacts will take substantially longer to measure, and may be most appropriate for the Community Partnership projects. Mechanisms to track resource leveraging may need to be added to financial reporting requirements. Several categories of leveraging will likely to needed to account for in-kind contributions, hard dollar match for energy projects, and funding directed to related goals. Broad community impacts will be the most difficult parameter to measure, but could include income retained in the community, local jobs created, and increases in sales for certain types of businesses. Anecdotal information regarding community impacts should also be created.

Options include:

- Setting metrics for awareness and program participation by community.
- Developing a specific set of community economic health indicators that reflect program impacts.