Financing Community-Scale Energy Projects

Lessons from Project Developers in the Northwest

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Introduction

Report Context and Goals

Northwest SEED and Cake Ventures commissioned this report in an effort to answer several questions about how community-scale clean energy projects are financed and the challenges developers face throughout the financing process. Both groups have anecdotal evidence that these projects face unique struggles in securing financing, and they wanted to gather data to gain a clearer picture of how developers attempt to finance these projects, and which approaches are most successful.

This report is divided into three sections to serve these goals:

- Provide a better understanding of the unique structures, costs and processes for financing community-scale projects.
- Identify key challenges and weaknesses in financing, both across project types and challenges that are state- and technology-specific.
- Highlight how developers have creatively financed community-scale projects.

The findings outlined in this report are based on in-depth interviews with ten project developers and eight experts in clean energy development, financing and policy in the Northwest. The projects examined vary significantly and each project has faced a unique set of challenges over the course of development, making it difficult to provide broad summaries. Indeed, because the circumstances that determine how a community-scale clean energy project can be successful are different from project to project, there is no decisive statement on how community-scale projects are best financed, no silver bullet for success. Nonetheless, several clear themes emerged from the interviews and it is possible to offer some key findings that illuminate shared structures, costs, processes and challenges of financing for these projects.

What are Community-Scale Projects?

Before presenting the findings, it is helpful to articulate what is meant in this report by "community-scale clean energy" projects. Although the definition of "clean energy" extends more broadly, the technologies covered in this report are electricity-generating projects from sources including wind, solar, and anaerobic digestion. What makes a project "community-scale" can be delineated by the following criteria:

- Larger than something an individual can self-finance, smaller than the kinds of projects usually financed and developed by large corporations (usually $1 million to $50 million).
- Projects that have community involvement and community economic impact.
- Projects that enhance the community's energy independence.

UNDERSTANDING THE STRUCTURES, COSTS AND PROCESSES OF FINANCING COMMUNITY-SCALE PROJECTS

This section provides an overview of the project characteristics that facilitate financing, as well as the financial structures used by projects examined for this report. This section also highlights how financing structures for community-scale projects differ from larger projects, and the types and range of costs incurred by developers in securing financing for community-scale projects.

1) Characteristics That Enable Successful Financing

Although the specifics of each project explored for this report differed, successful projects shared several characteristics. These attributes do not guarantee that a project will be successfully financed, but it makes the process easier and more likely to bear fruit.

▸ Financial Viability

Projects must have all the elements necessary to show financial viability. This includes:

- An uninterrupted, secure energy resource or feedstock supply and a feasibility study showing financial viability of the project under the planned parameters.
- All land leases, permits, environmental impact studies, and other legal contracts related to siting in place.
- A technology platform that is proven and warrantable by a reputable firm.
- A reliable construction firm that will deliver on time/on schedule/on budget. *Often this must be a national firm with a large balance sheet rather than a local contractor, preferably with previous experience on similar projects.*
- A power purchase agreement (PPA) that is sufficiently long and fairly priced to ensure repayment of capital.
- A plan for keeping the equipment running and well maintained over its lifespan.
- Sufficient working capital or other assets to serve as debt collateral, as the value of the equipment itself will be sharply discounted or dismissed by lenders/investors.

▸ A Project Champion

Projects must have a champion. This person does not need experience with project development or financing (although experience helps a lot), but they must be passionate and have the time, intellect and fortitude to stick with the 1-3 year development process.

▸ Proximity to Existing Clean Energy Market Infrastructure

Projects in markets with experienced developers, contractors, consultants, operations and maintenance firms, and with utilities that are familiar with clean energy projects have access to existing market infrastructure that makes them less costly and more attractive for financing.

- **Business Backing**

  Although not necessary, projects that have an existing business backing them are more likely to secure financing (especially through the business's bank).

2) How Community-Scale Projects are Structured Financially

There are multiple financing structures that can work for community-scale energy projects. Structures vary depending on technology and equipment used, developers' access to equity, state incentives, and ingenuity of project design. One shared feature, however, is that they are complex and comprise multiple sources of equity and debt. Community-scale clean energy projects also remain dependent on government incentives for financial viability and are largely structured in ways that are intended to conform to tax credit or grant requirements. For more detail on project-specific financing structures, see the Appendix, which provides a side-by-side comparison of the financing structures of some of the projects examined for this report.

It is worth noting here that there are numerous creative ideas for financing structures for community-scale clean energy projects. Several of the project developers interviewed for this report are involved in piloting these innovative approaches. Examples include:

- **Equity raised through limited securities sales or community buy-in process**

  Regulations and options for raising capital from private investors vary by state, but developers have tried several ways to get direct community investment, including selling limited equity shares through programs like Washington state's small company offering registry (SCOR) and by selling pre-paid electricity subscriptions through virtual net metering payments. These mechanisms must still be supplemented with institutional debt and additional equity, but they provide an opportunity for direct community ownership and needed additional support after initial equity has been used in the early development process.

- **Lower development costs by offering landowners equity in lieu of lease payments**

  In places where developers compete to secure land leases from landowners in windy corridors such as Montana and in eastern Washington and Oregon, some community-scale projects are reducing the costs incurred in making land lease payments (which start as soon as the lease is secured, often more than a year before the project is online) by offering landowners equity stakes in the project instead of lease payments.

- **Combining multiple small projects to make financing attractive to large lenders**

Community-scale developers often find that large lenders are uninterested in their projects simply because the small amount requested does not offer enough in fees to make it worth the time required to service it. Several developers have addressed this by joining forces and are bundling multiple small projects together. In addition to making it easier to secure loans from larger lenders, these developers hope that bundling will reduce the total amount paid in due diligence fees and other development costs.

- **Informal equity pools for development/construction financing**

  Securing institutional financing for construction of community-scale projects can be so difficult, some developers would prefer to rely largely on private investors for financing. But providing equity investors with the information they need to feel confident investing the project still requires a great deal of work. Some developers are working with equity partners to create equity pools that can provide sufficient capital to cover development and construction financing. Through the pools, developers and investors hope to streamline the due diligence process and make construction financing more accessible.

- **Negotiating a pre-paid PPA with a utility, with an ownership flip mechanism**

  For projects that are fortunate to be located near a utility with an active desire or incentive to secure clean energy now and in the future, developers may be able to negotiate a financing structure with includes prepayment from the utility. Some developers have offered utilities a certain amount of guaranteed electricity at low rates in exchange for a lump-sum payment at completion of development that pays off all construction financing. This structure can also contain a flip mechanism, so that ownership of the project transfers to the utility once the tax credits have been utilized and equity investors' returns have be realized.

  For additional examples of innovative approaches to community-scale project financing, see Section III of this report.

3) How Community-Scale Project Financing Structures Differ from Larger Projects

Although each community-scale clean energy project has a unique financing structure, most project developers suggested that they all differed from larger clean energy projects in similar ways. Because no interviews were done with developers of larger commercial projects, these differences were articulated by community-scale project developers and should not be inferred as direct statements about the financing structures of large-scale projects.

- **Community-scale projects are often started by an individual, not by a firm.** This affects how much working capital projects have from the start, which banks they have access to, and whether/how they have equity investors.

- **Community-scale projects often depend on grants and support from state/local government to finance early development.** In contrast, large projects often self-finance this phase.

- **Community-scale projects often have difficulty securing long-term debt, and so depend on government loan programs or loan guarantees.**

- **Large lenders with experience financing clean energy projects are generally uninterested in providing the relatively small loans required by community-scale projects.** Developers reported being told by banks that the loan size needed to be greater than $50 million (or perhaps even $200 million) in order to attract their participation. Community banks and smaller institutional lenders are often unfamiliar with clean energy projects, making them wary of lending, especially in the current economic climate.

- **Community-scale projects often need to secure construction financing (and bridge financing) separately from long-term debt.** In part because of the difficulty community-scale projects face in securing long-term debt on its own, construction financing must often come from different sources. Many reliable long-term lending sources for community-scale projects, such as state revolving loan funds, do not offer construction financing. In contrast, large projects are often able to secure both construction and long-term financing in a single loan, or in two loans from a single lender.

4) The Costs Incurred in Arranging Financing for Community-Scale Projects

Interviews with community-scale project developers provided a general picture of the costs incurred by developers to arrange financing. Developers reported spending between $400,000 and $1.5 million on all project development. Most of that is not a direct cost of project financing, but all development components are necessary for establishing a project's financeability, so they might be considered indirect costs. The research for this report also led to some additional findings on the costs of financing:

- **Financing costs vary depending on source.**

  If an equity firm is engaged to assist in securing investors, costs are higher, but time required to raise sufficient capital and secure debt is often lower.

  If early development is financed with grants and government assistance, costs are low but time required to secure them is high.

- **Regardless of project size, financing and other development costs are similar.**

Many of the costs required to secure financing—including interconnection studies, permitting fees, and due diligence fees from bank lenders—have limited variance, regardless of project size. This means that the relative costs for financing smaller projects are much higher than for larger projects.

- **Projects that must work with banks that are unfamiliar with financing such projects often face steep fees for due diligence.**

  Banks with little familiarity with clean energy projects often require additional information and time to satisfy their due diligence requirements. This adds costs, which are passed on to the applicants in the form of additional fees. For example, one clean energy project paid $400,000 in fees to secure a construction loan for $16.5 million.

- **In Oregon, access to additional state incentives comes with additional costs.**

  The Business Energy Tax Credit (BETC) in Oregon has done a lot to incentivize clean energy development there, but not without adding costs. If a project receives preliminary BETC approval, it must pay a non-refundable fee to apply for technical review of $0.006 for every $1 in projected project costs, up to $35,000. All projects with costs greater than $5.8 million must thus pay $35,000, regardless of size. Furthermore, recent legislative changes make the continued availability of the BETC uncertain.

Key Challenges for Community-Scale Projects in the Financing Process

This section provides specific details about financing challenges faced throughout the development process. Development can be divided into seven components: early development, equity investment, construction and bridge financing, long-term debt, government incentives, interconnection and transmission, and electricity sales. Each component offers its own challenges for the financing package, which are discussed below. In addition, community-scale projects face state-specific and technology-specific challenges that influence financing, as discussed in this section as well.

Early Development

- **Development of community-scale projects can take as long as larger projects.** Development is a consuming (even grueling) process that usually takes 1-2 years, sometimes longer.

- **Development costs depend on participants' experience, rise quickly with delays.** Development costs depend largely on 1) how much a developer relies on outside consultants for assistance, 2) how easy/quick it is to work with the utility on interconnection studies, and 3) any other factors that cause delays (which add costs).

- **Developers with less experience often need support.** Small and mid-sized projects are often being developed by people with no prior experience with the process. This slows things down, can be more expensive; and people often get discouraged by the costs and the hassle.

- **Not all states help developers get started.**

  While some states have incentives/support for early development costs (Oregon in particular), others do not. In states where there is little or no assistance with early development costs, developers have relied more on their own capital and reported having more difficulty covering this phase than developers in Oregon.

- **In addition to state assistance, developers need access to equity to get started.**

  Even when developers receive support for early development costs like studies, permitting and lawyers, there are additional development costs that are not covered, such as early ordering of inverters/transformers (necessary for system operations and often requiring up to one year pre-orders for on-time delivery). Some developers have had more success than others raising capital during this period. Usually, this was from friends, family, acquaintances, neighbors, etc. rather than unknown equity investors.

Equity Investment

- **Equity investors are needed for early development as well as long-term financing.**

  Because the development costs of community-scale projects are relatively higher than those of larger projects, developers often need assistance covering these expenses. A few government grant programs cover some of these expenses, but most federal and state incentives are paid upon completion of the project, so private equity is often required. Such investment can be short term, with repayment happening once federal incentives are received, or they can be part of longer-term investment.

- **Equity investors are often acquaintances rather than strangers.**

  The early equity for many of the community-scale projects reviewed for this report came from the family and friends of project developers, as well as from savings and borrowing of the developers themselves. This suggests potential developers who are not lucky enough to have ready access to equity through these channels may not begin the development process, despite promising project possibilities. It also suggests that project developers may not be reaching investors interested in clean energy projects outside of their immediate circle of acquaintances.

- **Many tax equity investors haven't historically been interested in community-scale projects because due diligence is high relative to tax credit potential.**

  Prior to 2009 and the introduction of the federal Investment Tax Credit (ITC) or Treasury grant in lieu of ITC, investment in clean energy projects has been driven by tax credit appetite to take advantage of the Production Tax Credit (PTC). Most tax equity investors with federal tax liabilities large enough to take advantage of the PTC have found the due diligence required for investment in community-scale projects too large relative to the payoff. Since the introduction of the ITC have developers found attracting tax equity investors less difficult.

- **Successful projects have gotten equity investors interested in further investment.**

  The new federal incentives have attracted more equity investment, but developers also reported that the most effective tool for gaining equity support is having a successful project online. As one developer noted:

  > *"People were always saying, 'community wind doesn't work. Why doesn't it work? Well, no one has ever done it.' Now [that there is a successful project in our community], investors are literally calling in to find out if there are other projects out there that they can put money into."*

Construction and Bridge Financing

- **Most developers felt securing construction/bridge financing was the hardest step.**

  Banks are often hesitant to provide financing until project construction is complete. As one developer put it, "no one wants to jump in first." When construction loans can be arranged, the costs are often steep and developers have little ability to negotiate.

  Also, as previously mentioned, most tax credits and incentives arrive after project completion; in most cases, 60 to 90 days after the project is online. Finding ways to "bridge" the financing between construction (and paying all construction costs) to arrival of incentives and initial revenue is a challenge for many developers. Some construction loans are structured to cover this period, but in other cases separate must be arranged for this period. Developers reported struggling tremendously to secure both construction and bridge financing.

- **Sometimes vendors, contractors or installers are willing to provide bridge financing.**

  Some projects do not require outside financing for construction because the contractors (and sometimes other venders of equipment and services provided during construction) are will to carry equipment and installation costs until the project goes online. This generally does not seem to be a financing mechanism available to community-scale projects, as it usually requires large-scale installation by a major EPC firm, a high volume equipment order, and/or an ongoing partnership between an experienced, trusted large-scale developer and a vender relying on repeated business.

- **Successful financing of community projects sometimes requires choosing national vendors and contractors over local community competitors.**

  In order to secure financing, community-scale projects must withstand scrutiny of all aspects of their structure and demonstrate their viability to potential lenders. One issue that came up for developers as an area where perceived risk must be minimized is in the selection of vendors and contractors. In several cases, project developers had the option of using locally designed or manufactured equipment or local contractors for installation, but instead selected national or international firms with larger balance sheets, longer track records, more generous warranties, or simply more established reputations. Often developers expressed a desire to work with local partners, but felt it was necessary to choose the larger national firms to assure lenders of the low risk of their projects.

Long-term Debt

- **Large banks are not interested in lending because due diligence is as high for small/med projects as large, and the relative payoff too low.**

  Several large investment banks in the U.S.A. have developed expertise in clean energy and have dedicated resources to financing clean energy projects. However, like attracting tax equity investors, community-scale projects have had difficulty attracting the interest of these larger banks due to their relatively small size. One wind developer described the situation succinctly:

> *"I would go to a bank like Wells Fargo or U.S. Bank, that have a lot of wind experience, and they would all say, 'when you can come to us with $200 million in requests, we'll talk to you.' $20 million was just too small for them to get involved. [Their] due diligence costs would be the same for a $20 million project as for a $200 million project.*

- **Small banks are unfamiliar with clean energy technology, hesitant to lend to them, and require external collateral (beyond the project equipment itself).**

  Most renewable technologies are still relatively new in the U.S. and most lenders are not confident in their value. Additionally, the variable nature of most clean energy resources makes these projects perceived as riskier. This is especially true for smaller banks with little experience working with clean energy projects. Consequently, smaller banks, which are better suited to lending of the scope that community-scale projects require, seriously discount or altogether ignore the value of the technology itself and require some other form of debt collateral. It is very difficult for community-scale projects not backed by an existing business to provide this.

- **Lenders are also concerned with developers with no relevant past experience.**

  Many community-scale projects are developed by people with no direct prior experience, who have taken the lead on project development with motivations other than financial return. Even when these developers are knowledgeable and financially savvy, the lack of direct experience is perceived as an added project risk by potential lenders.

- **Developers with a separate business and access to direct corporate lending or some form of collateral fare better.**

  Developers with business backing to their project fare better both because they can offer separate collateral, and because they often have pre-existing relationships with lenders, which can facilitate and expedite the process for securing long-term financing.

- **When dealing with banks less familiar with clean energy projects, having a government-backed loan guarantee can be critical to securing a loan.**

  Developers interviewed for this report have only been successful working with smaller banks with additional support from the USDA loan guarantee program.

Government Incentives

- **Pre-operational grants are often needed to round out the financing packaging.**

Pre-operational grants are often required to fill the gap between what the project has in equity and what it costs to get a project in the ground. Most pre-operational grants come in the form of cost-sharing for specific components, such as feasibility or interconnection studies, rather than as direct cash grants. Developers have ranging views on how valuable the various cost-sharing programs are, but many have utilized them.

- **Changing federal and state incentives have sharply impacted project development.**

  Most clean energy projects at any scale are still dependent on federal incentives for financial viability and the uncertainty created by changing federal and state incentives has made project development difficult. According to developers' interviews, the scheduled sunset of the PTC in 2008 put some projects on hold, made the development process more expensive, and generally disrupted the developers' ability to sustain interest from investors. Likewise, the recent changes to the BETC in Oregon have jeopardized financial viability for several projects in that state.

- **The Investment Tax Credit/Treasury Grant option from the American Recovery and Reinvestment Act has been critical for most projects.**

  The introduction of the Investment Tax Credit (ITC) or Treasury grant in lieu of ITC as part of the American Recovery and Reinvestment Act (ARRA) in 2009 made many more clean energy projects feasible for development. Some of the projects examined for this report were begun specifically in response to the availability of the ITC/Treasury grant.

- **In OR, the Business Energy Tax Credit (BETC) is also seen as necessary for financial viability.**

  Most developers in Oregon interviewed for this report felt that their projects would not be financially viable without the BETC. Among the four Oregon projects analyzed that have received the BETC, the average credit equaled $5.75 million, or roughly 30 percent of average project costs. As noted before, recently legislative changes have made the continued availability of the BETC uncertain.

Interconnection and Transmission

- **Utilities are not very familiar with interconnection and transmission for community-scale projects, adding costs and time delays as a result.**

  Developers had mixed experiences working with utilities and the Bonneville Power Administration (BPA) to secure interconnection and transmission agreements, although most developers found it challenging and some reported much greater difficulty than others. One common explanation for the difficulty of negotiating agreements is the lack of familiarity on the part of utilities with smaller-scale projects. Developers often felt that they were required to take unnecessary additional measures and that the process was extremely slow.

- **Interconnection and transmission charges often begin before project completion, adding to development costs.**

  Interconnection studies are required early in the development process and transmission charges usually begin prior to project completion in order to reserve needed capacity on the line. One developer reported paying $150,000 a year in transmission charges for two full years before the project was even under construction.

- **BPA, the region's primary transmission provider, is adding charges for community wind in 2011.**

  Transmission in the Northwest is largely controlled by BPA, and thus most clean energy projects have shared experiences negotiating with BPA and face similar costs. Recently, however, BPA added a wind integration (WI) rate for wind generators, increasing the cost of transmission of wind energy by $5.70/MWh. While community-scale projects under 20 MW are currently exempt from the charge, they too will be required to pay the WI charge beginning in the 2011-2012 rate period. Given the tight margins of most community-scale clean energy projects, this new rate may pose a barrier to successful development of future projects.

Electricity Sales

- **Low electricity prices make it difficult to generate sufficient revenue at market rates.**

  Electricity rates in the Northwest are among the lowest in the country, making it difficult for clean energy projects to recover their costs through the sale of electricity alone. Even community-scale projects that are well designed to minimize costs and maximize tax credits and grants cannot achieve the level of returns required to attract financing (especially equity investment) unless they can sell the electricity they produce at above-market rates.

- **Some states use PURPA regulations to help small-scale projects get better rates.**

  Under the Public Utilities Regulatory Policies Act (PURPA), utilities are required to purchase electricity from small-scale clean energy projects classified as "qualifying facilities." Some Northwest states go further to assist these projects by requiring utilities to purchase electricity from qualifying facilities at set rates based on avoided costs. In Oregon and Idaho, community-scale projects that are 10 MW or less can enter 20-year, standard offer power purchase agreements (PPAs). In Washington, projects of 1 MW or less qualify for 10-year standard offer PPAs based on avoided costs from investor-owned utilities (WAC 480-107-095). Regulations in these states have also led to avoided costs rates that are often higher than wholesale electricity market rates, making it more possible for community-scale projects to generate sufficient revenue through electricity sales to achieve financial viability.

- **Project developers design projects to qualify for standard offer PPAs.**

  All of the community-scale projects in Oregon and Idaho reviewed for this report were designed to be 10 MW or less qualifying facilities. In Washington, where two of the investor-owned utilities have extended their standard offer PPAs for qualifying facilities of up to 2 MW, projects have been built within that range. Developers emphasized the importance of having access to a fixed rate standard offer PPA, which they believed enabled them to secure higher rates than if they had been required to negotiate pricing independently. Still, the low price of electricity in the region poses a persistent barrier to clean energy projects.

- **Most electricity sales are to investor-owned utilities**.

  Because public utilities have preferred access to BPA electricity supplies at extremely low rates, their avoided cost rates are generally very low, making it difficult for community-scale projects to sell electricity to them. Consequently, projects mostly sell electricity to investor-owned utilities. To do this, projects must either be located within that utility's territory or must arrange for transmission to them, incurring additional costs.

State-Specific Issues

Oregon

Oregon has a host of policies that support community-scale clean energy projects. In addition to the state's Renewable Portfolio Standard, which mandates that 25% of the state's energy sources come from renewable sources—and 8% from small community projects—the state required Oregon's two largest investor-owned utilities to collect a three percent "public purpose charge" from their customers, and created the Energy Trust of Oregon (ETO) to invest in energy conservation, help to pay the above-market costs of renewable energy resources, and encourage energy market transformation in Oregon.

ETO has played a significant role in successful projects there, particularly projects that have been or are being developed by landowners or business owners (not by professional developers). In particular, ETO has subsidized early development costs such as feasibility studies, interconnection studies, permitting. In states where there is little or no assistance with early development costs, developers have relied more on their own capital and equity investors and reported having more difficulty covering this phase than developers in Oregon.

Clean energy developers in Oregon can access long-term financing through the state's Small-scale Energy Loan Program (SELP). The loan fund, financed through the sale of bonds, provides an important source of credit and has been utilized by a number of the developers interviewed for this report.

Oregon developers also benefit from the Business Energy Tax Credit (BETC), mentioned above. Although the future of the BETC is perceived as uncertain, it has been a major driver of clean energy development in Oregon, especially for smaller projects with more tenuous financing. The majority of projects identified for this report are in Oregon, and this is not coincidental. Given how important the BETC has been for financing community-scale projects there, it is not surprising that far fewer projects have been undertaken in less supportive policy environments. If the program changes cut community-scale developers' access to the credit, it seems likely that the number of projects developed there will drop.

At the same time, a new incentive pilot program for solar PV is boosting installation of small-scale solar projects. The pilot program, which began accepting applications in June 2010, is available to residential and small-scale commercial projects installed by customers of the state's three investor-owned utilities (Portland General Electric, PacifiCorp, and Idaho Power). Selected applications receive payment for the kilowatt-hours (kWh) generated over a 15-year period on a net metering basis, at set rates established by the utilities and approved by the state's Public Utility Commission. The program will provide incentives for up to 25 MW installed over five years, with 12 MW reserved for residential projects (<10 kW) and 8 MW reserved for small-scale commercial projects (10-100 kW). The program has proven so popular that its capacity was subscribed in just 15 minutes in the first enrollment period July 1. Additional enrollment will be offered every six months until the program is fully subscribed.

Montana

Montana is a state with tremendous wind resource potential. A number of large-scale projects have been built but opportunity remains, especially at the community scale. However, developers here face three major barriers:

1) Montana's state renewable portfolio standard (RPS) has already been met. Northwestern Energy has met its requirements through major wind projects already online and the smaller public utilities in the state don't have RPS requirements, so there is no driver for building additional clean energy capacity.
2) The avoided cost rate for Northwestern Energy, the major utility in Montana, is relatively low, around $50.00/MWh. There are few state incentives to subsidize clean energy outside of a net metering context, making it difficult for community-scale projects to be financially viable at this rate.
3) Montana is very constrained by transmission. According to one interviewee, any new project larger than 1 MW would likely be unable to access transmission on current lines. Several new transmission projects are under way, but they are already fully subscribed with projects—mostly commercial wind--ready to use that capacity.

The double bind for clean energy projects in Montana is that they are not financially viable when selling electricity in state, and the electricity they could generate can't reach markets with more favorable rates, like California and Nevada, because of the transmission bottleneck.

Idaho

Idaho does not have a state RPS. This means that Idaho utilities have little incentive to purchase clean energy or support clean energy developers.

The main utility—Idaho Power—has historically been very difficult to work with. It has been slow to process needed steps, causing some projects to fall behind or apart completely, reducing the (perceived and real) financeability of projects in the state.

Idaho also faces transmission constraints, meaning that projects developed in Idaho cannot easily sell electricity in more favorable markets.

Washington

Washington has a state RPS and some incentives that drive investment in clean energy, though not to the extent of Oregon. In 2009, however, the state legislature passed an expansion of the state renewable energy production incentive for community solar projects. Interest in this new program has been strong and it is anticipated that numerous new community-scale solar projects will be developed as a result.

Community-scale energy projects in Washington face many of the same challenges as projects throughout the Northwest: most utilities in the region are public utilities with preferred access to the Bonneville Power Administration's power supply at very low rates. This effectively limits community-scale projects to investor-owned utilities. Even then, low avoided cost rates make it difficult for these projects to pencil out.

One positive development in Washington is the expansion of the state's Renewable Energy Production Incentive. Since 2005, the incentive has been available for individuals, businesses, and local governments that generate electricity from solar, wind, or anaerobic digesters. However, in 2009, the WA legislature made the incentive available to community-owned solar projects placed on local government property. The community-owned projects are eligible for a base-rate incentive of $0.30/kWh and the incentives increase if system components are made in Washington.

Technology-Specific Issues

- **Wind**

  After rocketing demand, periods of shortage, and a precipitous price climb, the cost of wind turbines typically used for community wind projects has stagnated, due in part to oversupply. The Wind Turbine Price Index, published biannually by Bloomberg New Energy Finance, shows that turbine prices are down 15 percent from their peak in 2008. This is leading to lower installed costs for community-scale wind developers. According to one developer interviewed, they are now estimating an installed cost of $1.8 million/MW for eight 2.5MW turbines, whereas a few months ago, they were estimating $2.3 million/MW and the revised estimate is due to lower turbine prices. This comment also reflects a trend toward installation of turbines with larger nameplate capacity. For details on these and other wind market trends, see the National Renewable Energy Laboratory's 2008 Wind Technologies Market Report.

- **Solar PV**

  The price of solar photovoltaic modules has also dropped recently, making community-scale solar development more financially feasible. Solar PV remains significantly more expensive per MW than other clean energy technologies, but recent market developments have led to lower prices. One developer forecasted that projects could soon be built for much less than the current cost of $5-8/watt on the commercial scale, a cost that would make community-scale solar projects viable without such heavy reliance on federal and state incentives. For more on price trends and other solar market information, see the National Renewable Energy Laboratory's 2008 Solar Technologies Market Report.

  New incentives and innovative programs are bolstering community-scale solar projects in the Northwest. As mentioned above, both Oregon and Washington have recently instituted or expanded production incentives that make solar PV projects much more attractive for community investment. Solar PV projects are highly compatible with community energy strategies, and these incentive programs promise to magnify the growth of community-scale solar PV projects in the next few years.

- **Biogas**

  Biogas from anaerobic digestion is a very flexible product that has multiple potential applications, including the production of electricity. The technology is particularly well suited to serve dairy farms, where it can remedy a systemic problem by dealing with farms' manure as well as generate electricity, heat or gas. In addition to producing electricity, biogas plants produce fertilizer and dry organic material often used as cattle bedding. The fertilizer can be sold (though this is difficult), or can be used to offset fertilizer expenses at the host site or for participant feedstock suppliers.

  Developers have found, however, that this technology poses some challenges for financing. First, having added revenue sources from multiple outputs adds risk if the project's financial viability depends on all sources over the life of the project. Second, the technology is highly feedstock dependent, and feedstock usually comes from a third party supplier (in potentially volatile quantities), making it difficult to satisfy lenders' concerns about continuous supply.

EXAMPLES OF CREATIVE FINANCING SOLUTIONS FOR COMMUNITY-SCALE CLEAN ENERGY PROJECTS IN THE NORTHWEST

Farm Power: Raising Capital with WA Small Company Offering Registration
After successfully installing one anaerobic digester to serve dairy farms in Mt. Vernon, WA, Kevin and Daryl Maas of Farm Power Northwest wanted to replicate their model and build other third-party owned digester systems for dairy and agricultural waste. To raise the additional capital needed to finance these new projects, Farm Power used a state program called Small Company Offering Registration (SCOR), which allows corporations and LLCs in Washington to raise up to $1 million in securities sales to the public without facing the legal fees and requirements typical of securities offerings. The program has been challenging but rewarding for Farm Power, which is aiming to raise $750,000 through its initial offering. The company is currently developing several more digester projects in Washington and Oregon. For more information, visit ***www.farmpower.com***

Ellensburg, WA: Ellensburg Community Renewable Park
The city of Ellensburg (which is a public utility providing electricity to city residents) wanted to provide its customers with solar power and developed a groundbreaking model to do so.

Local residential and commercial utility customers were asked to partner with the City to help fund the project, with a minimum initial contribution of $250. In exchange for their financial support, contributors receive compensation for each kilowatt-hour (kWh) of electricity produced by the project in the form of a credit on their utility bill for a period of 20+ years. Contributors can provide additional financial support for the project up to the point that their annual solar credit zeros out their electric bill. Though the City of Ellensburg owns the project, the contributing members may at any time sell, assign, or donate their "shares" (the rights to the value of the power) to any other individual or commercial utility customer. The members also own the rights to the environmental attributes (RECs) produced by the system. Financial returns for members are similar to net-metered solar systems in the area, and community funding has helped the City install 58 kW. Over the next three years, the City hopes to expand the project to 165 kW.

For more information, visit ***http://www.ci.ellensburg.wa.us/index.aspx?NID=310***

Cascade Community Wind Company: A Community Financing Model
Using a concept similar to "community supported agriculture," Cascade Community Wind Company (CCWC) is asking individuals to "pay ahead" to support clean energy production. CCWC sells one-time subscriptions to community members, starting at as little as $2,500. These subscriptions provide equity to finance for wind project construction and build community support for development. Once the project is online, CCWC applies a portion of the revenue from electricity sales to the subscriber's utility account for the life of the project. CCWC

anticipates that subscribers will save almost twice as much on their energy bills as they put into the project. For more information, visit ***http://cascadecommunitywind.com***

Case Study: Patu Wind – Beating The Odds For Community-Scale Clean Energy

Project Name:	PaTu Wind
Developer:	Ormand Hilderbrand
Location:	Wasco, OR
Project Cost:	$22-24 million
Project Size:	9 MW

Beginning Down the Path to Community Wind

Ormand Hilderbrand knew his family's farmland in Sherman County, Oregon had a good wind resource because he had already leased some of it to a commercial developer. When a portion of the commercial developer's project stalled, Hilderbrand decided to try his hand at developing a community-scale project. His original project model mirrored a traditional equity flip common among community wind projects in the Midwest. Hilderbrand applied for the federal Production Tax Credit (PTC) and, with that, was able to secure an investment commitment from a large bank experienced in commercial wind investment. The project was approaching construction when, in 2008, Congress failed to extend the PTC, which was approaching its expiration. Even though Hilderbrand was confident that the PTC would be extended at some point, he could not get his turbines installed in time to make the expiration deadline. Wary of proceeding without the PTC extension, the project's primary investor pulled out.

Turbulence in the Economy Hits Home

Hilderbrand found his project without financing just as the financial crisis hit in the second half of 2008. The PTC was eventually extended in October, but by then several of the banks with the most experience monetizing PTCs were being wiped out by the crisis. Those that remained nonetheless retreated from lending to smaller projects like Hilderbrand's.

Putting the Pieces Together

Delayed but not deterred, Hilderbrand decided to move forward with a new financing model. Instead of relying on a conventional equity flip structure, Hilderbrand would be an owner of the project from the start, and would work to secure construction financing and long-term debt himself. The passage of the American Recovery and Reinvestment Act (ARRA) in February 2009 heralded the introduction of the Investment Tax Credit (ITC) in place of the PTC, which provides a credit worth up to 30% of project costs and, using the Treasury grant in lieu of the ITC, funds can arrive in a lump after the project is operational, making it much easier to attract investors and repay construction financing. Hilderbrand also had access to the Oregon Business Energy Tax Credit (BETC), worth 50% of project costs, which could be monetized post-construction to repay investors and financing.

Hilderbrand worked hard to get other critical project components in place. He secured good terms for a long-term lease on his family's land, a 20-year Power Purchase Agreement

(PPA) with Portland General Electric, and a long-term transmission agreement with Bonneville Power (BPA). He covered most of the initial development costs himself—taking out a second mortgage on his house and tapping his retirement savings—but the strength of his project plan and his development tenacity finally attracted needed equity from a few private investors.

The Struggle to Secure Construction Financing

Hilderbrand was able to secure a long-term loan through Oregon's Small-scale Energy Loan Program (SELP) for the balance between the project's costs and what would be received through the ITC grant and the BETC. But the SELP funds would only be available once the project was online. In order to make it that far, Hildebrand needed a loan to cover the purchase of the turbines and the costs of construction. This task proved to be the most difficult of the development process. Construction financing carries greater risk for lenders, as there is no completed project to use as collateral, and for developers, that means higher costs and more stringent requirements, even in ordinary times. With the financial crisis still in full swing, the credit markets remained largely frozen and major banks showed no interest in lending for construction. Hilderbrand approached multiple smaller, regional banks that professed interest in supporting community-scale clean energy, but their lack of experience with similar projects made them extremely cautious. Ultimately, none were willing to back the project.

For a time, the situation seemed desperate, and Hilderbrand was unsure if he would secure the financing he needed. Fortunately, a willing lender finally appeared. It still took a great deal of work and cost to get through the bank's due diligence process, but, finally all of the pieces were in place.

Beating the Odds, Breaking Ground

The PaTu Wind project broke ground in July 2010 and is scheduled to begin operations in November. Hilderbrand is the first to acknowledge how difficult the process has been, but he believes in the importance of community-scale clean energy projects like his. By keeping the ownership and profits from the project local, PaTu Wind will generate local jobs, support local businesses, and provide more overall economic return for the surrounding Columbia River Gorge region than would a large-scale commercial wind project. Now that his project is complete, Hilderbrand hopes his project can be a model and an inspiration, encouraging other developers of community-scale projects to navigate the challenges of the development process to achieve similar success.

METHODOLOGY AND INTERVIEW LIST

The findings in this report are based on in-depth telephone interviews with seventeen project developers, policy and industry experts, and others involved in supporting community-scale clean energy development in the Northwest. The telephone interviews ranged from 30 to 75 minutes in length. Although quotes from these interviews used throughout the text have not been directly attributed, a list of the people we interviewed and their affiliations follows.

Project Developers

Bill Chambers, Stahlbush Island Farms (Biogas, OR)
Don Coats (Wind, OR)
Todd Gregory, Obsidian Finance (Solar, OR)
Ormand Hildebrand (Wind, OR)
Leroy Jarolimek (Wind, ID)
Kevin Maas, Farm Power (Biogas, WA/OR)
Chris Mason, Mariah Wind (Wind, OR)
Terry Meyer, Cascade Community Wind (Wind, WA)
Rhyno Stinchfield, Judith Highlands Energy LLC (Wind, MT)
Andy Wold, United Power (Biogas, WA)

Regional Experts

Brian Buch, USDA Rural Development, Business Program Specialist (ID)
John Crockett, Idaho Office of Energy Resources, Senior Energy Specialist (ID)
Michele Groenevelt, Community Development Director, City of McCall (ID)
Jennifer Grove, Executive Director, Northwest Sustainable Energy for Economic Development (WA)
Sarah Hamlen, Montana State University Extension, Area Economic Development Coordinator (MT)
Kathi Montgomery, Montana Department of Environmental Quality, Revolving Loan Fund Program Coordinator (MT)
Rebecca Sherman, Oregon Department of Energy, Community Renewable Energy Feasibility Fund (CREFF) Coordinator (OR)
Jim Walls, Lake County Resources Initiative, Executive Director (OR)

APPENDIX – PROJECT FINANCING IN DETAIL

Project Location	Mt Vernon, WA	Wasco, OR	Ellensburg, WA and other locations	Moro, OR	Western OR	South Central OR	multiple (CA, IN, NM)	Morrow County, OR
Project Type	Anaerobic Digestion (feedstock from dairy farms)	Wind	Wind	Wind	Anaerobic Digestion (feedstock from ag waste)	Solar PV	Anaerobic Digestion (feedstock from multiple sources)	Wind
Project Size	750kW	10MW	multiple (100kW - 1MW)	10MW	1.6MW	5MW	multiple (3MW-10MW)	10MW
Project Phase	online (2nd under construction)	construction (online by Nov 15, 2010)	in development, near construction on first two turbines	early development	online	late development, planning to break ground this year, online by Spring 2011	early development	late development, hoping to break ground this year
Project Cost	$3.5 million	~$20 million	$300,000 for first 100kW project;several million for multiple projects	~$24 million	$11 million	$25 million	$15-55 million	~$20 million
Financing Split	15% equity, 25% grants/credits, 60% debt	~25% equity, 25% grants/credits, 50% debt			~40% grants/ credits, 40% debt, remaining financing through existing business		1/3 equity, 2/3 debt	25% credits, 25% equity, 50% debt
Project Ownership Structure	owned by developer, local and remote equity investors	owned by developer, remote equity investors	owned by developer, local and remote equity investors	will provide opportunity for local ownership	owned by developer	initially owned by developer, ownership flips at 5 yrs to utility	Traditional flip structure	owned by developer, local and remote equity investors
Development Cost	~$400,000	~$1 million		estimate $100k	unknown		~ $1.5 million	~ $850,000
Development Financing Sources, Early Equity	Equity investors, personal equity	personal equity and borrowing; $5 million via two private equity investors	$60,000 in private equity and borrowing, $40,000 gap in funding remains	$50,000 in personal equity, cost-sharing from ETO	ETO subsidized feasibility study, pro forma and business plan; remaining $ financed through existing business	Self financed	First project development funded via DOE grant; for future projects, development paid for by anchor biomass source, or by equity investors	$210,000 in grants from ETO, USDA REAP and ODOE CREFF program; $15,000 in personal equity; $625,000 being raised from equity investors

Project Location	Mt Vernon, WA	Wasco, OR	Ellensburg, WA and other locations	Moro, OR	Western OR	South Central OR	multiple (CA, IN, NM)	Morrow County, OR
Bridge/ Construction Financing Sources	USDA REAP grant, State grant, equity, Shorebank loan with USDA REAP loan guarantee	Loan (confidential source)	Private investor (not confirmed)	Either bank loan or private investors	Farm Credit (short-term tranche for bridge financing for BETC waiting period)		Equity and debt in traditional project finance structure	Equity investors
Construction Loan Amount	n/a	$16.5 million	$2 million (investor's minimum)	TBD, probably around $25 million	n/a		100% of project cost	n/a
Long-Term Financing Sources	Shorebank loan with USDA REAP loan guarantee (came in during construction)	$10 million via OR Small Energy Loan Program	ShoreBank w/ USDA REAP loan guarantee	TBD, possibly OR Small Energy Loan Program or bank loan or equity partners	Farm Credit	Financed primarily with a utilitiy prepayment structure	currently arranging long-term institutional equity and debt investors.	not sure yet; possibly ODOE's Small Energy Loan Program;
Long-Term Loan Amount	$2 million +	$10 million	$3 million from ShoreBank (their maximum)	TBD, probably around $13 million	~$4 million		65-75% of total project costs	TBD, probably ~$10 million;
Fed Tax Credits/ Incentives	$500,000 grant via USDA REAP	~$6 million via Treasury grant in lieu of ITC	Treasury grant in lieu of ITC for all projects Hoping for ~$2 million in grants from USDA	~$6 million via Treasury grant in lieu of ITC	ITC	$8 million via Treasury grant in lieu of ITC	Treasury grant in lieu of ITC and accelerated depreciation	Treasury grant in lieu of ITC
State Tax Credits/ Incentives	$500,000 grant via WA State Energy Freedom program	~$6.5 million via BETC	Received one-time grant from State Energy Program	~$6 million via BETC (if secured)	~$4 million via BETC	$6.5 million via BETC	Varies based on state	applied for BETC, awaiting notification
PPA	PSE 10-year standard offer	PGE 20-year standard offer	PSE standard offer	PGE 20-year standard offer	PacifiCorp 20-year standard offer	Prepaid PPA with a NW utility	To IOU or industrial user	PGE 15-year standard offer
REC sales	Negotiated contract w/ PSE	currently looking for a buyer	will direct-market half, sell half to PSE	TBD, estimating $7/MWh	unknown	Included in PPA	unknown	TBD
Transmission/ Wheeling	unknown	$150,000/yr paid to BPA	None	currently negotiating w/ BPA	none	$50k deposit to reserve transmission bandwidth; no wheeling charges bcs both are BPA customers	unknown	negotiating w/ BPA and Columbia Basin Electric Cooperative
Other Financing Details	Additional projects being financed in part through SCOR securities sales		Pre-Purchase of Virtual Net Metering Subscriptions to the project are providing a significant source of financing.					