Colorado Community Wind Project
Development Considerations

IBC Education Foundation

Colorado Working Landscapes
Private Lands Producing Public Benefits

Celebrating 100 Years 1907–2007
Rocky Mountain Farmers Union
Proud History, Promising Future

Rebirth Capital LLC

Element Markets
powering the clean energy revolution

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EXECUTIVE SUMMARY[12]

Notwithstanding the rich wind resource on Colorado's eastern plains, wind development has been limited, and community wind project[3] development has not occurred.[4] Feasible opportunities to sell power to the local cooperatives or to Tri-State Generation and Transmission have not presented themselves. Colorado's large RPS, with no special carveout or other significant policy in support of community wind projects, has fostered large project development, only. And these and other large projects could satisfy all RPS requirements, leaving little if any community wind project opportunities.

The purpose of this paper is to help rural Colorado interests pursue community wind projects by identifying options to consider that may facilitate a project. As the options discussed in this paper can only be considered in the context of an actual development, this paper starts with an explanation of the development process. Following this explanation, this paper sets out means to improve a project's development potential and then on options to consider if a project stalls.

This paper presumes projects being pursued will be developed using the federal production tax credit and available depreciation benefits (for purposes of this paper, together the "PTC"). Using these benefits likely will require significant third-party tax-credit investment. As any such investment will depend on the investor's return or "IRR," much of the focus on each of the ways to improve a project's development potential is geared to increasing the investor's return.

Notwithstanding a good, overall wind resource and public support, those interested in developing community wind projects in Colorado face a number of difficulties. These include:

- Relatively low power prices
- Lack of federal and state policy supporting community wind development
- High construction, equipment, and operations costs and limited availability of contractors and equipment
- Inability to take advantage of economies of scale
- Competition with larger projects
- Lack of transmission
- Limited availability of cost-effective financing

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[1] This paper is a resource, only. No part of this paper may be considered as accounting, investment, legal, tax or other advice, professional or otherwise. Anyone considering a wind project, in Colorado or elsewhere, should retain accounting, legal, and tax professionals, as well as other professionals experienced in the different facets of wind project development. Professional assistance is essential, and no part of this paper may be relied on as or substituted for such assistance. This paper includes numerous references to many concepts, resources, statutes, and websites. The authors and sponsors assume and have no responsibility for any inaccurate, incomplete, incorrect, or outdated information set out in this paper. The resources referenced in this paper are subject to change at any time or become disabled or unavailable at any time. The authors and sponsors assume no responsibility related to these resources and no responsibility to update this paper. Further, the authors and sponsors in no way ensure or endorse any resource referenced in this paper and will have no responsibility with respect to any advice, information, program, or service referenced in this paper or provided by any resource referenced in this paper. The reader must evaluate all such resources. We would like your feedback. If you have concerns, questions, or thoughts regarding this paper, please email those to bhaight@hackstaffgessler.com.

[2] The authors especially thank Jon Griffin for the time he committed to this project. Without his research, this project would not have been possible.

[3] The term "community wind project" is not universally defined. For purposes of this paper, we presume the features of a community wind project to include: (i) a project developed and/or owned by rural, community interests; (ii) that includes wind turbines with a combined nameplate capacity of two to 30 megawatts ("MW"); (c) that sells power to a utility or large electricity consumer; and, (d) that is in part financed using the PTC and accelerated depreciation benefits. Our definition certainly is not absolute. Numerous other definitions and characteristics exist and may be appropriate.

[4] One small project was built in conjunction with the 162 MW Colorado Green project in Lamar, Colorado. This project was in essence built as a piggy-back project, which is an option discussed below. http://www.ci.lamar.co.us/lightpower/Wind%20Energy.html

These factors do not mean community wind projects cannot be built in Colorado. The hope is that by taking certain steps, such as those outlined in this paper, those interested will in fact be able to successfully develop projects.

Of the steps outlined in this paper, some are likely to have a greater, favorable impact on a project's development potential. These include:

- Most importantly, developing a project in an area with a strong wind regime
- Reducing turnkey construction costs and operating costs, such as by aggregating projects, developing in conjunction with a larger developer, or reducing equipment and infrastructure costs
- Securing more favorable finance options, such as by securing reduced loan interest rates through longer-term debt or by securing loan guarantees
- Maximizing revenue, such as by selling the electricity produced to an end user

While these steps may have the greatest effect, this paper outlines a number of other options to consider, which individually or combined may affect and even determine a project's viability.

At the end, this paper sets out 10 basic sample projects that employ some of these concepts, showing how their application may affect a project's return and thus its viability.

SPONSOR INFORMATION

The Independent Bankers of Colorado (IBC Education Foundation)

The IBC Education Foundation is a non-profit foundation that provides and supports education and training opportunities for the community banking industry, Colorado students, and the public. Among its primary events are its Annual Convention, Agriculture and Natural Resources Conference, and Career Banker Network Conference. The IBC Education Foundation offers regular courses though its Education and Training Program and Banking Forums. The Foundation also publishes important financial services information to educate consumers, offers a variety of financial literacy information on its website--including training modules for consumers, and offers a variety of scholarships for graduating high school seniors and continuing education for bankers. Visit us at www.ibcbanks.org and click on IBC Education Foundation.

Rocky Mountain Farmers Union

Representing the independent agricultural producer for 100 years, Rocky Mountain Farmers Union (RMFU), a grassroots organization, was founded in 1907. Since that time, RMFU has served the interests of independent family farmers and ranchers throughout Colorado, New Mexico and Wyoming.

RMFU's Educational and Charitable Foundation, founded in 1996, has opened the door for many programs, such as the Cooperative Development Center; campaigns such as 'Buy Fresh, Buy Local'; and seminars and conferences on renewable energy.

Rocky Mountain Farmers Union believes that stable farm and ranch families are the foundation of healthy rural communities. Healthy rural communities bolster the entire U.S. economy and provide the nation with a steady, wholesome, local food supply. RMFU's mission statement reflects the importance of these issues: Rocky Mountain Farmers Union is a progressive, grassroots organization dedicated to achieving profitability for family farmers and ranchers; promoting stewardship of land and water resources; delivering safe, healthy food to consumers; strengthening rural communities through education, legislation and cooperation; and, being the voice for family agriculture and rural communities.

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Colorado Working Landscapes and the Colorado Harvesting Energy Network

Colorado Working Landscapes ("CWL") is a non-profit organization established in 2002 serving as a landowner-driven public policy forum. The CWL Board of Directors established the Colorado Harvesting Energy Network as a project to pursue rural prosperity through renewable energy development This network consists of a wide range of rural interests actively engaged in promoting development of community-based energy projects that are less than 30 megawatts in capacity, are substantially locally owned, and that maximize a wide range of economic benefits to rural communities. CWL supports public policy advancements at the national and state levels and through direct involvement with electric service providers, developers, advocacy organizations and rural entrepreneurs.

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Element Markets

Element Markets LLC invests in and develops renewable energy projects across North America, targeting opportunities by geographic region and technology, including wind, biomass, solar, methane capture and other renewable technologies. Element Markets' focuses on Greenfield development projects, and our current pipeline is in excess of 1,000MW of wind capacity. We provide a full spectrum of renewable project life cycle proficiencies inclusive of investment banking and direct investing. We generally focus on wind development projects that have capacity starting at 20 megawatts.

We believe in developing a relationship with landowners and local developers that works for all parties. Element Markets brings together the best technology, service providers, and solutions to the development process. We believe that incentives should be created for all constituents in a project's life cycle.

Element Markets brings several strengths to help with the development process for wind projects:

Technology Focus – Element Markets understands that technologies perform differently by resource and geography. We treat each project as unique and recognize that peak performance tends to require a customized approach.

Financial Expertise – Element Markets marshals relationships and capabilities from the capital markets, commercial banking and principal finance to complete a project. We not only look to optimize the capital structure, but also maximize revenue production through credit trading and financial structuring expertise.

Extensive Market Experience – Element Markets' principals have over 150 years of combined energy, finance, renewable energy, emissions and commodity experience and regulatory acumen. Our team includes:

- Extensive financial expertise
- Top renewable energy credit experience; our senior management has been involved as principles in REC markets for over ten (10) years
- Deep, well-versed experience in contract development, negotiation, and resolution
- Successful executive level managers in the energy industry
- Vast commercial experience activity to evaluate pricing and market trends
- Exceptional knowledge of market specific supply/demand and ongoing evaluation of market changes
- Dedicated and Skilled Research Staff – Element Market retains a research staff dedicated to keeping abreast of all relevant market, regulatory developments and technology developments. The staff provides due diligence and market intelligence.

To learn more about wind farm development and ways that we can work with you, please contact us at 281-207-7200 or visit our website at www.elementmarkets.com.

Rebirth Capital

Rebirth Capital is a specialty finance firm providing a range of services for renewable energy companies, including providing tax credit equity and new markets tax credit investment capital. In addition, the firm provides private capital advisory, working capital and term debt, equipment leases, and mergers and acquisitions advisory.

In 2007, Rebirth Capital launched the Rebirth Capital Renewable Energy Fund ("ReCREF"), which provides tax credit equity investments for US-based projects, including wind, solar, waste-to-energy, landfill gas, geothermal, fuel cell, small hydro and biomass. The fund has received investment commitments to date of $250 million.

Rebirth Capital is interested in smaller, community development projects as well as larger projects, with investment parameters for wind ranging from 5MW to 100MW+ and $500,000 to $100 million. In addition, team members have the in depth knowledge necessary to combine investments with additional incentive programs, such as New Markets Tax Credit and state tax credits.

Combined, Rebirth Capital team members have over 35 years of experience investing in and providing innovative solutions for high growth industries. The firm's combined transaction experience exceeds $1.5 Billion.

Rebirth Capital is committed to providing both advisory expertise for navigating complex tax credit transactions as well as the necessary tax credit equity for project developers to enable them to control upfront costs while preserving long-term cash flows and equity value.

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Hackstaff Gessler, LLC

Hackstaff Gessler, LLC is a Denver law firm. The firm provides services in the areas of general corporate, government, real estate, and tax law. The firm also focuses on alternative energy matters. Its clients include: landowners in wind and solar projects; commercial wind and solar project developers; and, designers and manufacturers of alternative energy equipment.

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PART A -- BACKGROUND

1) Introduction

The wind energy business is extraordinary and presents great opportunities for rural Colorado participation and benefit. Projects are being developed and will be built, including projects being developed and that may be owned by rural interests.

To date, options for rural interest participation in the Colorado wind business have been limited. The purpose of this paper is to help local interests (e.g. landowners) interested in participating in this business through community wind project development by generally explaining the development process and identifying development hurdles and then also identifying ideas, resources, and tools that may help overcome these hurdles and ultimately enable a project's development.

We hope this paper achieves this purpose by setting forth: a preliminary process by which rural interests can evaluate the potential for project development; a separate process for pursuing project development; strategies and tools to employ to enhance a project's potential or that may help overcome hurdles encountered; and, resources to assist with development.

Enabling community wind projects is important to all of Colorado and is especially important to rural Colorado. While large wind projects are valuable, they do not provide the same range of benefits as community projects. Community projects will directly and in a more substantial way benefit rural landowners, rural counties, local banks, and local business and industry by providing them with the long-term benefits associated with these long-term projects.

When we started this project in early 2007, we had high hopes of finding a great variety of incentives a developer could secure to make a project work. We reviewed dozens of papers and websites and interviewed dozens of experts from across the country. By the end of this preliminary process, we unfortunately determined the number of incentives we had hoped to find does not exist. So, in part, we changed focus. We considered concepts a developer could use to enhance a project, and we found (and in some cases conceived) a collection of ideas that, in the end, should be useful considerations.

To give context to the enhancements and concepts listed in this paper, we have very generally outlined the development process, including in particular the development steps that relate to the listed enhancements. These development steps are set out in Part B. We have broken down the development process into three Phases. Phase 1 sets out what we believe to be important, preliminary development steps (failing which development should be reconsidered), and Phases 2 and 3 set out more detailed development steps. Part B is by no means comprehensive. Many more steps exist. The limited purpose of Part B is to give context, only. And while much of the information in Part B may be well understood by some, not all readers will be familiar with these steps. Therefore, in order to serve a greater audience, we chose to include this information.

The real objectives of this paper are set out in Parts C and D, which list enhancements a developer may wish to consider (Part C) and other options to consider, such as if development stalls (Part D). Some of these, like US Department of Agriculture ("USDA") resources, are well recognized and have been frequently used. Others, like utilizing Federal New Markets Tax Credits ("NMTC") are

recognized, but not well-established. And others, like introducing photovoltaic ("PV") systems to a project, to our knowledge, have never been tried. Some or all of what we set out in Parts C and D may not work in a particular project (or possibly with any project). Nevertheless, we thought these ideas merit consideration.

Part E of this paper lists basic, sample projects and their general economics and then shows how changes in project features and economics (like those set out in Parts C and D) may affect a project's return, and thus its development potential.

Part F of this paper lists human and information resources readers may want to consult if embarking on a wind project. (As with the other parts of this paper, this is not a comprehensive list but may be a useful tool and good start.)

The wind industry is dynamic. Laws change. Equipment changes. Demand for wind power will change. Opportunities available now may not be available next month, but new opportunities may arise. Given the dynamic nature of the industry, we emphasize flexibility and creativity. Anyone embarking on a project must do so recognizing that what is initially planned will be different from what is finally built. The developer and local rural communities that recognize this will have the greatest potential success.

Two industry features that are not likely to change are cost and complexity. The wind business is expensive (particularly for smaller projects), and current demand and energy trends suggest the business will become more expensive. Similarly, wind project development is complex. In preparing this paper, one developer pointed out that a successful project may involve up to 100 steps. And, no two projects are the same. Given this complexity and the distinctiveness of each project, engaging experienced consultants is imperative. Anyone embarking on a project should not try to reinvent the wheel.

2) Options for rural participation in wind in Colorado, to date

While Colorado is a leader in wind and has one of the country's most aggressive renewable portfolio standards ("RPS") (requiring utilities provide up to 20% of their energy sold from renewable resources), the policy in place does not foster smaller, rural projects, such as have been developed in the Midwest.

Community interests have participated in the wind business, but almost exclusively as landowners in connection with large projects. The revenue to these landowners is not inconsequential. But it also is not as meaningful to the landowner, the local community, and Colorado overall as local ownership.

3) Options for advancing rural participation in Wind in Colorado

We fully expect community wind projects will be built in Colorado. In 2007 alone, policies were adopted to encourage community wind project development: the Legislature extended Colorado's RPS to the state's rural electric cooperatives; the Colorado Public Utilities Commission ("PUC") adopted rules providing additional RPS value to community-owned renewables projects; and, the PUC adopted rules extending additional consideration to non-utility benefits, such as the economic benefits associated with community wind projects. At the same time, outreach organizations like CHEN have initiated campaigns encouraging development models, like the piggy-back model

discussed below, that will facilitate community development. But more can be done and the opportunities for community wind project development improved.

Even though this paper was not conceived as and is not intended to be an advocacy piece, in preparing it we identified a variety of policies in place outside Colorado that are helping advance community wind project development. If local communities, the Legislature, the Governor's office, and the PUC, want to further Colorado community wind project development opportunities, they should look to what other states have done, which include:

- Meaningful net metering (i.e. for projects of a meaningful size and not just at avoided cost rates)
- Feed-in tariffs (or standard offer programs[5]), such as in Minnesota
- State production tax credits[6]
  - Tradable credits with enhancements (i.e. larger credit, particularly in the early years of the project; longer credit period) for community wind projects would be most useful
- State investment tax credits
  - Tradable credits with enhancements for community wind projects would be most useful
- State income tax credits
- Meaningful state grant programs directed to community wind projects
- Loan sources and loan guarantees directed to community wind projects
- State-funded production payments, grant programs, loan programs, or loan guarantees
- Allocation of Clean Energy Fund and/or Clean Energy Development Authority resources to community wind projects
- Standardized interconnection, permitting, and/or power purchase agreements ("PPA")
- Possibly, tying any further RPS expansion to community development (possibly, by providing additional credits for certain community-based projects)
- Implementation of additional local and PUC rules that encourage community wind project development
- Expanding transmission and transmission capacity

Community wind projects are being pursued in Colorado. But so far, none have been developed. And absent new, targeted policy, community wind project development will remain at a disadvantage.

4) Issues not discussed, but that readers should keep in mind

The wind business is extraordinary. US capacity grew 47% in 2007. This newness coupled with this growth, along with a growing concern over climate and energy resources, are driving creativity in the forms of new policy, financing mechanisms, and development tools. Particularly given the limited focus of this paper, we cannot cover all of these. Nevertheless, we believe some of these policies and tools warrant reference and consideration, even though they do not (at least not now) fit the purpose of this paper, which is to help identify possible enhancements that may facilitate tax-credit-driven community wind projects in Colorado.[i]

[5] *See e.g.* http://www.powerauthority.on.ca/sop/.
[6] *See* www.flaginc.com for an evaluation of existing state credit programs.

PART B -- DEVELOPMENT

Community wind project enhancements can only be considered in the context of a project's development. As some readers may not be familiar with the project development process, we devote a portion of this paper to a general, cursory explanation of the development process, with a focus on basic development steps that relate to the discussion later in this paper.

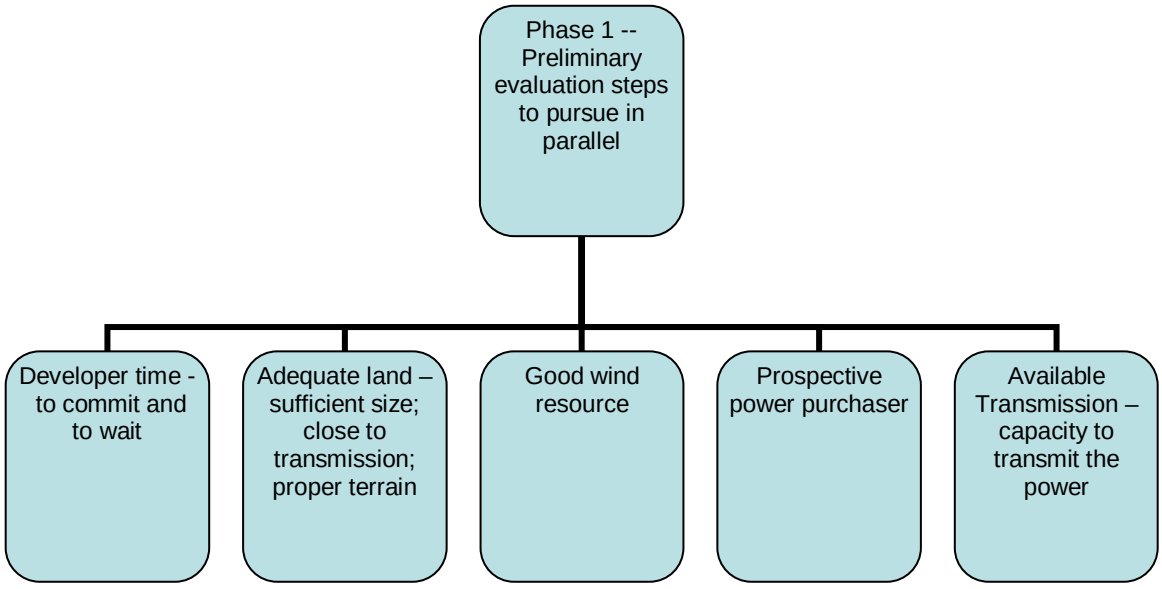
We have broken down the development process in to three phases.

Phase 1 sets out preliminary evaluation requirements that should be satisfied before truly embarking on community wind project development.

Phase 2 sets out basic community wind project foundation requirements – entity formation and securing land rights.

Phase 3 sets out basic community wind project development steps.

1) Phase 1 -- Preliminary analysis – requirements to be assessed in parallel



Not every project conceived will or even can be developed. Of those conceived and pursued, probably less than 15%[7] are actually developed. And considering the cost of simply trying to develop a project (likely upwards of $100,000.00 and up to $3,000,000.00, or more), development cannot be pursued without first confirming the basic, preliminary requirements: of a) time; b) land; c) wind; d) a purchaser for the power; and, e) transmission.

[7] This percentage is based on anecdotal information obtained in discussions with developers in preparing this paper. This figure is also based in part on projects developed or now in the development process, of which there are many. As more projects are developed, this figure may increase. Also, this figure could increase significantly for community wind projects in Colorado if the right policy is in place.

These Phase 1 steps should be pursued in parallel. And, the developer should be able to complete them in a short amount of time and at little cost. Moving forward before completing these steps should be reconsidered, as the failure of any one of these requirements during development will defeat the project.

a) Time

Wind projects require considerable time – time to wait and time to commit to the project. While a project conceivably could be developed and constructed in one year, realistically it could take five or more years to complete. Foremost, anyone considering a community wind project should not embark on this process unless prepared to commit a significant amount of time.

b) Land

Every wind project requires land. As a rule of thumb, consider that one section (640 acres) may accommodate six MW[8]. With existing technology, this would mean about 16 MW. But not every section of ground is suitable for wind project development. Topography, distance from transmission, encumbrances (such as conservation or other easements), or soil conditions may prevent development. Community wind project development cannot be pursued without first ensuring suitable land is available for development.

c) Wind

Only wind projects with a good wind resource attract investors and secure PPAs. Formal wind assessment should not be undertaken before confirming the four preliminary requirements. To preliminarily evaluate the potential of the wind resource, the developer can look to a variety of wind data resources, such as: airport data; data from other projects (to the extent publicly available); and, wind maps.[9] Developers may also secure a preliminary assessment (for a fee) from a meteorologist or other consultant or from companies like WindLogics[10], which provides wind resource modeling.

d) Purchaser

A power purchaser is also essential. Before undertaking any development, the developer must confirm the existence of a prospective purchaser (whether utility, co-operative, or end-user) that is willing and able to buy the power intended for production at a price that will make the project work.

e) Transmission

The ability to get the power to the purchaser is the final, critical point in the preliminary assessment. Building or upgrading transmission is expensive. The developer must confirm the land proposed for

[8] The recently-completed 300 MW Babcock and Brown / BP Alternative Energy Cedar Creek wind project in northern Colorado occupies about 32,000 acres, or roughly one MW per 100 acres. While a significantly greater number of MW per section may be possible in connection with a smaller project, we suggest developers plan as though their project will occupy more land, rather than less, in order to retain the flexibility to develop a larger project and/or engage a large developer, as may be necessary, and as discussed later in this paper.

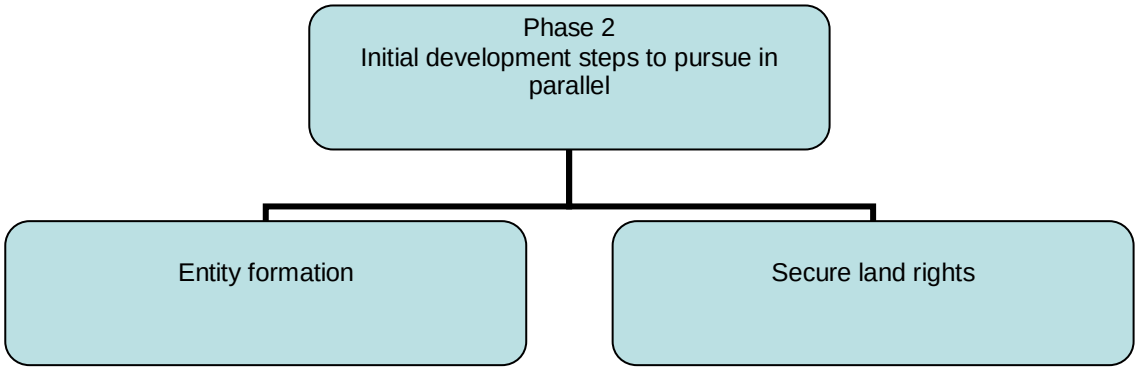
[9] *See e.g.* http://www.eere.energy.gov/windandhydro/windpoweringamerica/maps_template.asp?stateab=CO ; http://www.rmao.com/wtpp/Sb100/colorado_psco_ncf_by_county.pdf ; http://www.rmao.com/wtpp/Sb100/colorado_psco_top_50_percent_ncf_by_county.pdf ; and, http://rredc.nrel.gov/wind/pubs/atlas/atlas_index.html

[10] *See* http://www.windlogics.com/

development is close to transmission with capacity. Having to build miles of transmission or substantially upgrade existing transmission can defeat a community project.

One other point to note concerning transmission is that in Colorado the actual presence of transmission may not be essential to now moving forward. Plans are in place for expanding Colorado's transmission. In connection with 2007 Senate Bill 100, renewable energy resource zones are being identified. Following this process is advised, and development within these zones is worth considering.[11]

2) Phase 2 – Initial development steps



If the developer's Phase 1 preliminary analysis shows good development potential, the developer should begin the Phase 2 initial development steps. These consist of: a) entity formation; and, b) securing land rights. The developer should be able to complete these steps, particularly the entity work, relatively quickly and inexpensively. Of these steps, securing land rights is the most important to enabling development or pursuing opportunities with other developers, as described later in this paper.

a) Entity formation

i) The LLC, generally

Development should be pursued through an entity, likely a limited liability company ("LLC"). LLCs are a common entity type and are the most common form of entity used in developing wind projects.

Generally, the LLC provides the same liability protection to its owners as does a corporation, along with the tax treatment of a partnership (i.e. flow-through taxation). It is also flexible and generally less cumbersome.

The LLC typically consists of a single governing document and an operating agreement, which is much like a contract, instead of articles, bylaws, and shareholder agreements.

Ownership of the LLC is in the form of membership interests or units, as opposed to shares of stock. Upon formation, the membership units are owned by the developer or developer group that

[11] *See* http://www.rmao.com/wtpp/SB100.html

formed the entity. Usually, the initial membership units are allocated based on capital or other contributions, such as land, time, or other resources.

Like with the sale of stock of a corporation, membership units (initial or additional) in the LLC may be sold. This may be essential to raise needed capital. Therefore, at the outset, the members should agree on operating agreement terms that will allow them or the entity to sell or create additional membership units. There are various tools for, and used in, doing this, such as authorizing different classes of membership units or authorizing issuance of additional membership units (which will likely create dilution issues).[12]

ii) The "flip" structure

The LLC's simpler structure and operation make it well-suited for project finance using the "flip" structure.

There are several finance structures for wind projects, each with various possible permutations.[13] Most of these, especially for community wind projects, involve some form of a flip structure. The flip structure is designed to allow a project to take advantage of the significant economic benefits that flow from the PTC.[14]

At its simplest level, under a flip structure, ownership during the tax-credit period rests with a party that has sufficient tax liability to take advantage of the PTC benefits. Once the tax-credit period expires, ownership flips to the local developer.

The party (owner) receiving the PTC benefits typically finances the project, as well, and is known as the tax-credit or tax-equity investor. The tax-credit investor will commit considerable equity to the project's cost (between 40-100%) and may also arrange the project's debt.

To fully take advantage of the PTC benefits, the tax-credit investor will own all or nearly all of the project entity's membership units during the 10-year PTC tax-credit period. Because of this ownership, all of the revenue from the project will belong to the tax-credit investor, as well.

The tax-credit investor will require a certain, minimum IRR for a certain period of time (likely, a minimum equal to the 10-year tax-credit period) before the flip occurs. The tax-credit investor's IRR requirement will vary depending on a number of factors, such as the amount of equity it contributes, the risk associated with its investment, and the amount of debt used to finance the project. (Agreeing to the IRR requirement is a critical piece of the developer's negotiations with the tax-credit investor.) Theoretically, once the project has returned amounts to the tax-credit investor sufficient to satisfy its IRR requirement[15], ownership will flip to the developer.[16]

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[12] Regardless of the ways the members choose to enable the LLC to raise money, the sale of membership units will implicate securities issues, and therefore consultation with a securities lawyer is essential.

[13] *See Wind Project Financing Structures: A review & Comparative Analysis* http://eetd.lbl.gov/ea/emp/reports/63434.pdf.

[14] *See* 26 USC §45 et seq. On October 19, 2007, the IRS issued Revenue Procedure 2007-65, which sets out safe harbor provisions for the allocation of PTC benefits.

[15] The result(s) of a project's failure to return the tax-credit investor's minimum IRR requirement could have any number of effects, as would be determined by the parties' negotiated terms. These effects could include: a) an extended ownership period for the tax-credit investor; b) the tax-credit investor retaining some or a greater ownership after the flip; c) penalties to the developer; and/or, d) a buyout requirement for the developer.

[16] A tax-credit investor may insist on additional requirements, such as those outlined in footnote 15. Because every deal is different, and some better than others, developers should consider opportunities with a number of potential tax-credit investors.

Notably, a tax-credit investor may require that the project be developed through its own or a new LLC. This would require the developer to transfer its LLC's assets (i.e. the project) to this new LLC, and the flip would occur within this new LLC. Notwithstanding this potential requirement, the developer still should proceed with development through its own entity.

b) Land

If necessary (that is, if the developer is not developing on his own land), the developer must secure land rights.

The developer should have by this time identified property with a good wind resource sufficient to accommodate the intended project(s) and the landowner(s) willing to commit this land. The developer should then confirm the absence of any encumbrances (e.g. other easements) or permitting restrictions (e.g. airport restrictions) that may prohibit development. Presuming no such obstacles, the developer should secure the land rights necessary to proceed.

Land agreements for wind projects are unique. Non-wind land agreements cannot be effectively tailored to a wind project.

Generally, there are three forms of agreements a developer may consider. Each extends different rights and will have different associated costs.

Historically, some developers moved forward with simpler documents called meteorological tower ("met tower") or cooperation agreements. Generally, these agreements give the developer limited, exclusive rights to asses the property for development potential. These agreements also often require the landowner commit the property to an option or lease agreement if requested by the developer. Because these agreements extend limited rights, they generally require smaller landowner payments. This may be important if the project has limited resources. And because they do not include all of the terms of an option or lease, they can take less time (and cost less money) to negotiate.

Lease (or easement) options are more complex and more expensive. But they also extend greater rights. An option will give the developer the exclusive right to develop a wind project on the property after exercise of the option. Options usually include the form of lease (or easement), and as a result will take more time (and cost more money) to negotiate. Also, options typically include annual fees. In Colorado, these fees were low historically (maybe as little as $500.00 per year regardless of the size of the property committed), if paid at all. Currently, there is a greater demand for developable land in Colorado. As a result option fees have risen, in some cases considerably.

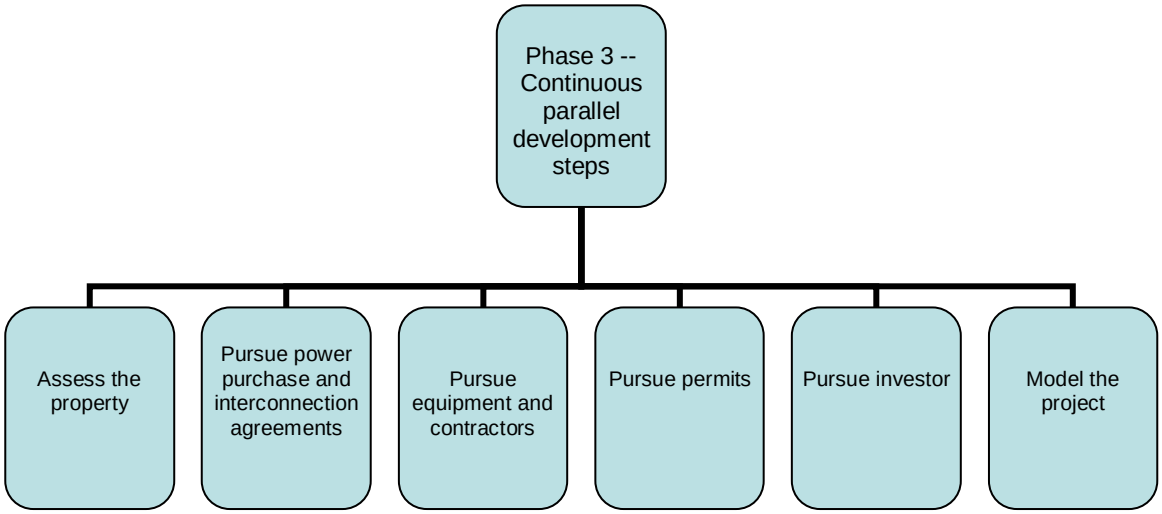
Due to time or cost constraints, a developer may choose to proceed initially with a cooperation agreement and then move on to an option or lease. Either way, a lease ultimately will be necessary.

Wind leases are complicated, comprehensive documents. This is necessary considering the multi-million dollar investment required for any wind project. The terms are considerable. Option terms (with extensions) range from two to 12 years. Lease terms (with extensions) range from 25 to 90 years, if not longer. Complex finance-related provisions are essential as are broad, comprehensive, and exclusive easements and other provisions.

Lease compensation can take a number of forms. Typically, leases include royalties equal to a small percentage (historically at least in the three percent range) of the gross revenue paid the

developer under the PPA. Leases may also include: a minimum annual payment (in lieu of a royalty); a one-time signing bonus; transmission-related payments; one-time payments for each turbine installed; payments for permanent or temporary installations related to the project (e.g. concrete batch plans or operations buildings or substations); crop-loss payments; or, any other compensation mechanism the developer and landowner may agree to.

3) Phase 3 – Continuous, parallel development steps



Once land has been committed, the developer can begin Phase 3 of the development process. Generally, this involves: a) assessing the property; b) pursuing a PPA and interconnection and related agreements; c) pursuing equipment and contractors; d) permitting; e) pursuing an investor; and, f) continuously modeling the project.

Of these steps, the assessments (especially the wind assessment) are the most important to enabling the developer to attract a development partner as described below, if this becomes necessary or desirable. This does not mean a developer should forego the other assessments or development steps. Each step adds value.[17] The more the developer accomplishes the more attractive the project to a prospective partner and the greater the developer's negotiating position.

There is much more to wind project development than is set out below, and there are more comprehensive development resources available. It is recommended that anyone considering a community wind project consult these resources, such as the *Farmers' Guide to Wind Energy: Legal Issues in Farming the Wind* June 2007.[18] This is one of the most comprehensive resources available. Windustry also offers more comprehensive resources.[19]

[17] As part of a 2005 survey prepared for the American Wind Energy Association, Anthony Advisors presented the relative percentage values of completing different wind project development phases. This is set out at http://www.aadvisors.com/aweaposter.pdf and should be reviewed.
[18] *See* http://www.flaginc.org/topics/pubs/index.php.
[19] *See* www.windustry.org

a) Assess the property

Wind project development requires a number of assessments, such as wind, archaeological, avian (bird), environmental, soil, transmission, and wildlife assessments. The developer should retain experts to perform or help with each of these assessments.

i) Wind assessment

Generally, wind is assessed with measuring equipment called anemometers (aka “met towers”). Anemometers are mounted on large towers, typically, at least, 50 meters tall. The data from the anemometers is collected, correlated, and interpreted. The interpreted results are referred to in percentages as capacity factors, generally meaning how regularly the project will produce valuable power. The higher the capacity factors the better. As little as a few percentage points difference may decide the viability of a project. As such, anemometers must be strategically sited and the results professionally interpreted. The purchase and installation of one anemometer and the professional interpretation of the data for one year may cost between $25,000.00 to $35,000.00. Resources, like USDA programs, may be available to offset some of these costs.

As stated above, the wind assessment is the most important assessment step. The wind resource, as identified by the assessment, will determine how much power the project will produce for sale, and thus the potential project revenues, as well as suitable turbines. Also, the wind assessment is (and is itself the basis of) the most important information a developer can provide a potential project partner, if that becomes necessary.

ii) Transmission study

Good wind is irrelevant if the power cannot be transmitted to the purchaser. A project’s transmission potential is evaluated in a transmission study, which evaluates the existing transmission, possible transmission upgrades necessary, interconnection and switching requirements, and the associated costs. As with the wind assessment, the transmission study should be professionally performed. The cost of this study can vary widely ranging from a few thousand dollars for a basic, limited study up to several hundred thousand dollars.

b) Pursue a PPA and interconnection and related agreements

There are limited buyers for wind power produced in Colorado – Xcel, Colorado Springs Utilities, a rural electric cooperative, Tri-State, or, possibly, a large, rural electricity consumer with an appetite for wind power. A developer must work continuously with applicable, prospective purchasers to evaluate their needs and appetite, and then, as applicable, bid the project in response to a request for proposal. Simultaneously, the developer should pursue interconnection opportunities. Securing these pieces will greatly further the potential for attracting an investor (or a development partner, if necessary).

c) Pursue equipment (i.e. turbines) and contractors

International and national demand for wind power is at its highest ever, with most turbine supply directed to large projects being developed by well-financed (i.e. less risky) developers. Therefore,

turbines[20] are in short supply, particularly for small projects. And turbines that are available are priced at a premium. Further, securing turbines may require payment of a significant deposit (20% or more). All of these factors work against small projects.

Presently, there may be little opportunity to secure equipment from the large turbine manufacturers, such as Gamesa, General Electric, Mitsubishi, and Vestas. This does not mean these manufacturers will not supply a small project. Their turbines may fall out of larger developments. Or, there may be opportunities to secure these turbines if a number of small projects can be aggregated. Or, these turbines may be available in connection with small projects developed as piggy-back developments with large projects,[21] as discussed below.

No matter the situation, a developer should continuously pursue turbines from all realistic sources.[22] This means also looking to smaller turbine manufacturers, such as AAER, Clipper, DeWind, EWT, Nordex, Nordic, RePower, Siemens/Bonus, Suzlon, and others.[23] There may be drawbacks to working with smaller manufacturers. Their machines may not be "proven" to the necessary satisfaction of a financier. Their ability to timely deliver may be questionable. Or, they may not have (or may be perceived to not have) the financial strength to back their warranties.

One other equipment option is to consider smaller turbines, such as 500 kilowatt ("kW") to 1 MW machines, or refurbished turbines. The trend over the past several years has been for turbines to increase in size, meaning greater energy production and greater revenue. Most turbines now are in the 1 to 2 MW size range, with sizes increasing. Due to a strong international market, these turbines are in great demand and sell at premium prices. Economies of scale associated with large projects may drive down prices, but these economies may not be possible with smaller community wind projects. Smaller turbines, like the EnerTech[24] 600 kW exist, as do refurbished turbines, and, as discussed below, their use may enable more favorable economics and development options.[25]

Like with equipment, contractors may be in short supply. While some of this work can be done locally, investors may require experienced EPC (engineering, procurement, and construction), BOP (balance of plant), and O&M (operations and maintenance) contractors. Developers should early on explore relationships with required contractors.

d) Pursue permits

A project may implicate a number of permit requirements (e.g. FAA, local, and state), which should be confirmed and timely satisfied. As with all development steps, working with experts is recommended. And starting this process (or at least identifying the permitting requirements) early is recommended.

[20] Turbines typically are sold with the generator and nacelle, rotor (blades), and tower. Other elements, like lights and lifts, may be separately sold by the manufacturer. Delivery, foundations, and installation are also sold separately, usually by third parties.
[21] We discuss both of these concepts further below.
[22] This means those turbine manufacturers that have not definitively refused to supply equipment to a project and those whose turbines are suited to project, as determined by the project specifics (e.g. wind resource).
[23] Working with a turbine broker, such as Energy Brokers, may be an option. Note that Hackstaff Gessler has a professional relationship with Energy Brokers.
[24] *See* www.enertechwind.com.
[25] Notably, use of refurbished equipment may implicate depreciation issues that should be considered.

e) Pursue investor

Unless the developer can self-finance a project (and/or take advantage of the PTC benefits), an investor is necessary. The necessity of an investor compels familiarization with possible investment structures. At the outset, the developer should become familiar with these options. Common structures employed to date are set out in the recent *Wind Project Financing Structures: A review & Comparative Analysis*.[26] This is a comprehensive resource and should be reviewed before starting a project.

The developer also should begin to identify prospective investors, determine what they require, and determine what they can deliver (e.g. debt, equity, and, possibly, equipment, management, and project aggregation).[27]

f) Model the project

A project will require sound economics. The developer should model the project's economics early and should adjust this model as the economics change and for various project options. This is an invaluable exercise. Templates are available from a number of public resources.[28]

4) Phase IV – Project execution

If the project elements are favorable, a purchaser is identified, and interconnection and transmission are possible, then the project requirements set forth in Phase III above should be finalized and the project developed.

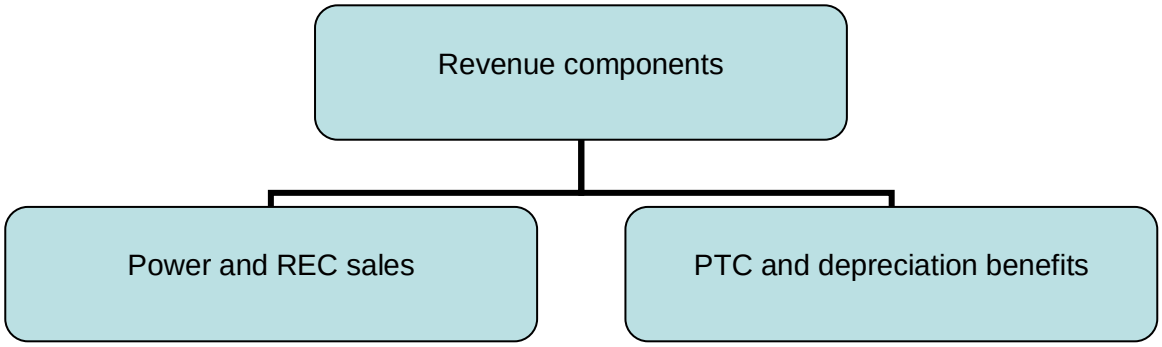
PART C – REVENUE COMPONENTS AND ENHANCEMENTS (FUNDS OR OPTIONS THAT MAY ENHANCE PROJECT ECONOMICS)

A project's potential depends on its economics. The question is whether the revenue will support all of the associated costs.

This section identifies and generally explains basic project revenue components (electricity and RECs sales and PTC benefits). Understanding these basic revenue components is important to understanding possible project enhancements. This section also identifies enhancements and mechanisms that may be employed to enhance a project.[29] How these enhancements and mechanisms may benefit a project is set out in Part F.

[26] *See* http://eetd.lbl.gov/ea/emp/reports/63434.pdf.
[27] It seems as though new investors enter the market every month. We have here identified a few investors to consider.
[28] *See e.g.* http://eetd.lbl.gov/ea/emp/reports/63434.pdf p.61; http://analysis.nrel.gov/windfinance/default.asp.
[29] This is not a complete list. Options not listed may exist, and other options may become available. Enhancements may be oversubscribed, eliminated, or denied a project (e.g. USDA programs or anemometer loan programs). And one enhancement may preclude another (e.g. PTC double-dipping prohibition). Further, any one enhancement or even a group of enhancements may not be sufficient to enable a project.

1) General revenue components



The principal revenue components of a wind project are electricity and REC sales and PTC benefits.

Electricity and REC sales are the simpler revenue component – the turbines in the project generate electricity and RECs, which are sold to a power purchaser (typically under a PPA). This revenue is used to satisfy the project costs.

PTC benefits are (somewhat) more complicated.

The PTC was originally enacted as part of the Energy Policy Act of 1992. Since, it has expired several times, but has continuously been in effect since 2004 and is now in effect through the end of 2008.

At its most basic level, the PTC provides the project owner a tax credit of about two cents per kilowatt hour of electricity sold. Also (and even though not formally a part of the PTC), accelerated depreciation is available.[30] In all, the PTC may make up more than one-half of a project's economics.

While there are many other features of the PTC, for purposes of this paper, we note two significant features: non-transferability and "double-dipping" limitations.

PTC benefits are not transferable. Only a project owner with sufficient tax liability may take advantage of PTC benefits. This feature led to the implementation of the flip structure. Also, PTC benefits are subject to proportional reduction based on other incentives the project receives. Generally, receipt of incentives that apply to project construction and equipment costs will implicate double-dipping provisions, resulting in a reduction in PTC benefits.[31]

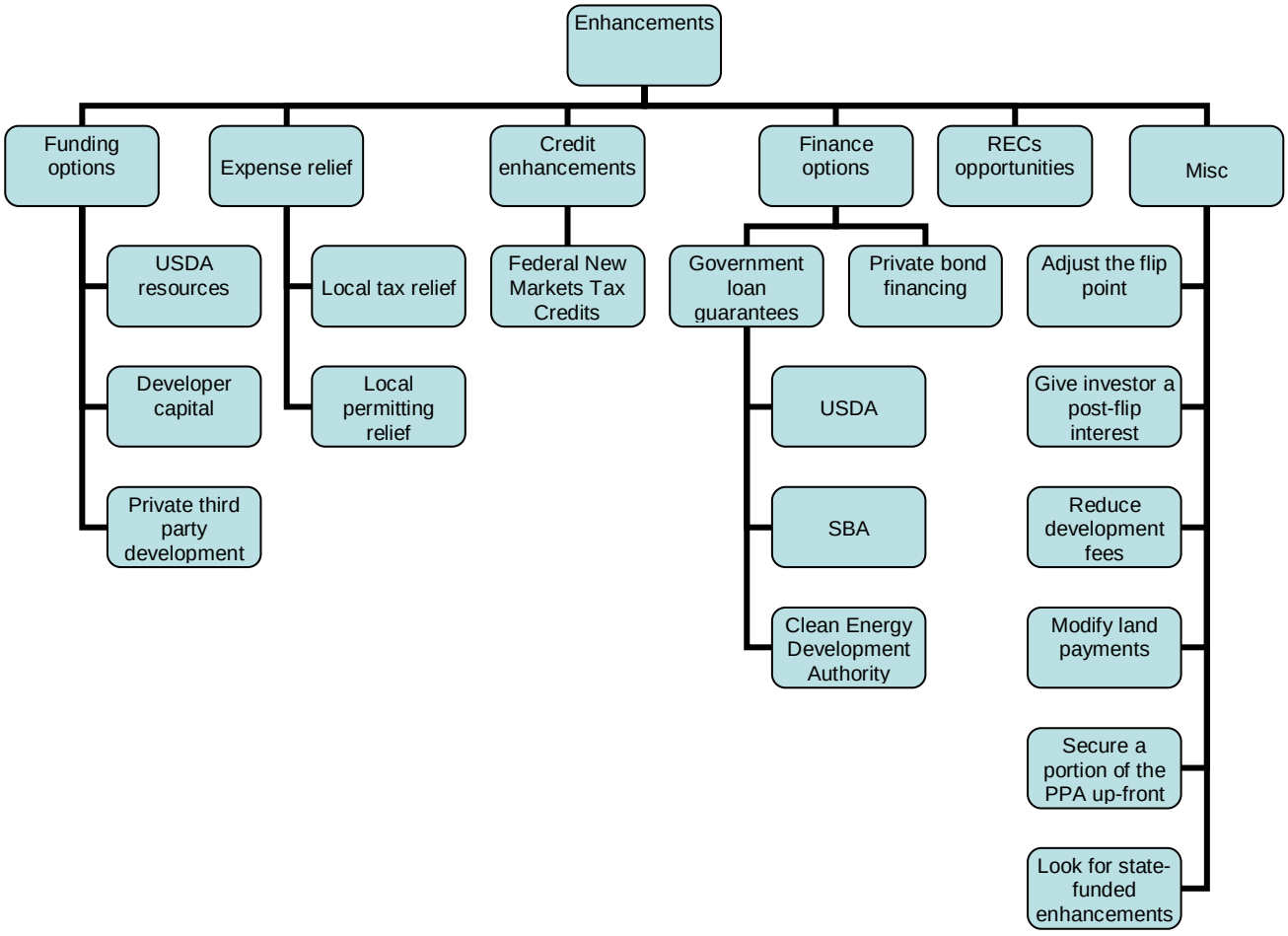
Even though the PTC is set to expire at the end of 2008, many suspect extension. The PTC has bipartisan support. The wind industry has increasing lobbying clout. And, there is heightened focus

[30] *See* 26 USC § 168 and 26 USC § 48(a)(3)(A). Under the modified accelerated cost-recovery system ("MACRS"), a project owner can recover investments through accelerated depreciation deductions. For wind assets, the applicable property class recovery period is five years.

[31] *See* http://eetd.lbl.gov/EA/EMP/reports/61076.pdf and http://eetd.lbl.gov/EA/EMP/reports/51465.pdf. As of the date of this paper, we are not aware of any IRS (or USDA, as would apply in connection with USDA grants) guidance on this issue.

on climate and renewable energy. Accordingly, it may be safe to begin a project notwithstanding the reality of a possible PTC lapse.[32]

2) Project enhancements



a) USDA Value-Added grant program; USDA 9006 grants; USDA 9006 loan guarantees

There are a considerable number of programs that may enhance a community wind project's viability. Two of the most common are administered by the USDA.

The USDA Value-Added grant program was authorized as part of the 2002 Farm Bill and may provide funding for various aspects of a wind project.[33] To date, projects have received amounts ranging from a few thousand to several hundred thousand dollars for wind feasibility studies, working capital in connection with wind projects, and operating expenses for wind projects.

[32] Moreover, non-extension of the PTC may not eliminate development opportunities. Energy demand, particularly for renewable energy, remains high, and non-extension would not affect Colorado's RPS. And, even without a PTC, wind still may be the most cost-effective renewable resource.
[33] *See* http://www.rurdev.usda.gov/rbs/coops/vadg.htm

The USDA 9006 program also was enacted as part of the 2002 Farm Bill and provides grants for renewable energy projects. Amounts received may be applied to a number of activities, including, assessments, permitting costs, feasibility studies, business plans, and construction. Loan guarantees also may be available.

A number of more comprehensive resources with information on these USDA programs, including application information, are available and should be explored when evaluating these programs,[34] especially considering the potential adverse effect such programs' funds could have on PTC benefits and thus also on tax-equity investment. Also, the developer should work with the rural energy coordinator at the applicable state USDA office.[35]

b) Possible, other ways to enhance a project

Given the relative absence of Colorado (and, for that matter, federal) policy in support of community wind project development, community wind developers in Colorado must act and think creatively. And they must be flexible – able to adapt their developments to changes in economic, equipment, and policy circumstances. Developers may need to commit more to projects than is required in other states, such as cash, personal guarantees, collateral, … and other things of value that will limit tax-credit investor risk and drive down project costs. All of these activities have a single goal – minimizing project costs in order to limit the power purchase price required to enable a project and maximize investor return. In this section, we identify additional enhancements that have been employed and/or considered in connection with community wind project developments.

i) Developer capital, debt

The more capital a developer can bring to a project, the greater the project's potential. This capital will reduce the amount of equity (and possibly also debt) the project entity must secure, possibly creating stronger project economics. The developer may provide these funds on its own, raise this money within the community,[36] and/or borrow the money from a local lender (which will require collateralization). The important point is that even if the capital the developer provides is debt, if it does not have rights (particularly not priority rights) relative to the project, it will increase overall project economics.

Notably, Small Business Administration ("SBA") programs have been used in connection with some wind projects.[37] Generally, SBA programs facilitate long-term, fixed-rate financing by providing certain guarantees to businesses that meet certain criteria and contribute certain amounts to project equity. Developers considering SBA options should contact the local SBA office directly.[38] And as with the USDA programs, developers should be sure the program being considered will not interfere with potential tax-credit investment.[39]

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[34] *See e.g.* *http://www.windustry.org/value-added-producer-grant-program* and *http://www.rurdev.usda.gov/co/pdf/9006GuarLoanLnderHanbk.pdf*. Notably, application of these programs to project capital or construction costs will implicate the double-dipping provisions of the PTC. Careful structuring of applications is therefore recommended.

[35] *See* http://www.rurdev.usda.gov/rbs/farmbill/contacts.html.

[36] Notably, raising money within (or outside) the community will likely raise securities issues, requiring the involvement of a securities lawyer.

[37] *See, generally*, http://www.sba.gov/services/financialassistance/index.html.

[38] *See* http://www.sba.gov/localresources/district/co/index.html

[39] A note regarding debt. Overall, as debt may be less expensive than equity, debt financing may reduce project costs. However, there is a tipping point at which too much debt (or debt with too many rights in favor of the debt provider relative to the requirements of the tax-credit investor) will pose too great a risk to an investor and may drive up an investor's IRR requirement. Involving multiple prospective investors in evaluating all equity, debt, and combined equity and debt options may be necessary.

ii) Tax relief

Wind projects are subject to various taxes and fees. These impose liability on, and thus add additional cost to, the project.[40] But, some of this liability may be negotiable, potentially reducing project costs.[41]

For property located in Enterprise Zones (maps are available identifying these zones[42]), local governments, at their discretion, may provide tax credits or incentive payments[43] related to the increase in taxes for qualifying new businesses.[44] These credits may equal an amount up to the increased tax attributable to the new business.[45] However, given the important tax benefit to the community associated with the presence of a wind project, complete relief is not likely; the County will certainly expect to derive some revenue from the project. Because the county has much discretion in negotiating these arrangements, developers may want to consider arrangements by which assessments are reduced early in the project's life, and possibly increase later, such as when the tax-credit investor's requirements have been satisfied.

Also, and unless disallowed by the local jurisdiction, permit fees and use taxes may be negotiated and payment may be made in lieu of these fees. Payments in lieu of such fees have been used in connection with projects both within and outside Colorado. These arrangements should be considered, as well.

Developers should early on determine the County's authority and willingness to negotiate the various taxes and fees associated with the proposed project.[46] But, it may be advisable to hold off on negotiating any arrangements before formalizing arrangements with a tax-credit investor, or, as applicable, project partner that may have more experience in negotiating these arrangements.

iii) New Markets Tax Credits

NMTCs may provide an additional tax-credit enhancement to a community wind project.[47] Begun in 2002, the NMTC program may permit a tax-credit investor to receive a tax-credit (possibly, in addition to PTC benefits[48]) when making an investment in a Certified Development Entity ("CDE") that has received NMTC allocations and that are used in connection with the type of project proposed and in a geographic area that meets certain income requirements.[49] As NMTCs are issued only to CDEs, and as NMTCs can only be used for purposes within the scope of the CDEs granted NMTC application, the participation of a CDE with sufficient allocated NMTCs authorized

[40] In the case of the recent Florida Power & Light development in Logan County, Colorado, the average annual tax liability per turbine equals about $5200.00. While every Colorado county will have different assessments and every project will use different machines, based on this figure, the annual tax liability for a 10 MW community wind project would total $52,000.00.
[41] Notably, in 2006, Colorado adopted new legislation related to determining the assessed value of wind projects placed in service after January 1, 2006. An explanation of this methodology is available at http://www.dola.state.co.us/dpt/state_assessed/docs/2007%20Cost%20Threshold%20memo.pdf
[42] A map of Colorado Enterprise Zones is available at http://www.state.co.us/oed/enterprise-zone/enterprise-zones-map.cfm
[43] These are sometimes called Business Incentive Agreements or BIAs.
[44] Qualifying new businesses are defined at CRS 39-22-508.2.
[45] Temporal and percentage limits apply in the case of projects outside Enterprise Zones. These limits are set out at http://www.colorado.gov/cs/Satellite?c=Page&childpagename=OEDIT%2FOEDITLayout&cid=1167928184552&p=1167928184552&pagename=OEDITWrapper
[46] A developer may want to contact the Colorado Department of Local Affairs. http://www.dola.state.co.us/dpt/index.htm
[47] *See* http://www.windustry.org/new-market-tax-credits and http://www.amcref.com/.
[48] We are not aware of any formal pronouncement from the IRS concerning a project's use of both PTCs and NMTCs.
[49] Anyone interested in the potential application of NMTCs should consult an NMTC firm to confirm the geographic area in question qualifies for NMTCs.

for use in connection with the proposed type of project are essential. In a best-case-scenario, New Markets credits may provide credits equal to 39% of total project costs, although credits equaling this amount are not likely. The availability of NMTCs should be explored with an NMTC fund, such as that operated by Rebirth Capital.[50]

iv) Bond financing

Bond financing has received considerable attention and has been employed in connection with large wind projects.[51] Bond financing is a means of longer term, and thus lower cost, debt, which will in turn reduce project costs. As the debt term is longer, the bond financier may require a longer PPA with a credit-worthy purchaser and may also require a position senior to that of the tax-credit investor (which may in turn compel the tax-credit investor to require a greater IRR).[52] To our knowledge, there has been limited consideration and application of bond financing in connection with community wind projects.[53] But, we have heard more projects are being considered, and therefore bond financing should be explored.

v) Miscellaneous project economic enhancement ideas

A number of small sources of economic benefit may be available. Contacting the Governor's Energy Office and the Economic Development Office are recommended. Some of the small enhancements that may be available include the following:

- Job training tax credits
- Enterprise Zone investment tax credits
- Enterprise Zone new jobs tax credits
- Enhanced Rural Enterprise Zone jobs tax credits
- Anemometer loan programs
- Local (county) enhancements also should be explored
- Clean Energy Fund and Clean Energy Development Authority programs should be followed and pursued, as applicable

Various project features or aspects may present opportunities to enhance economics. Also, various enhancements have been considered and/or applied outside Colorado and/or may later be options in Colorado. Some of these options to consider and watch for include the following:

- Pushing back the flip point may increase overall tax-credit investor return, and potentially reduce early tax-credit investor requirements (i.e. IRR)
- Giving the tax-credit investor a continuing interest after the flip (possibly, subject to a purchase option) also may be an option for compelling a tax-credit investor to reduce its IRR requirement
- Identify a tax-credit investor motivated by the project and not just by IRR (a local investor with a tie to the community may offer better terms than a "Wall Street" investor, for instance)

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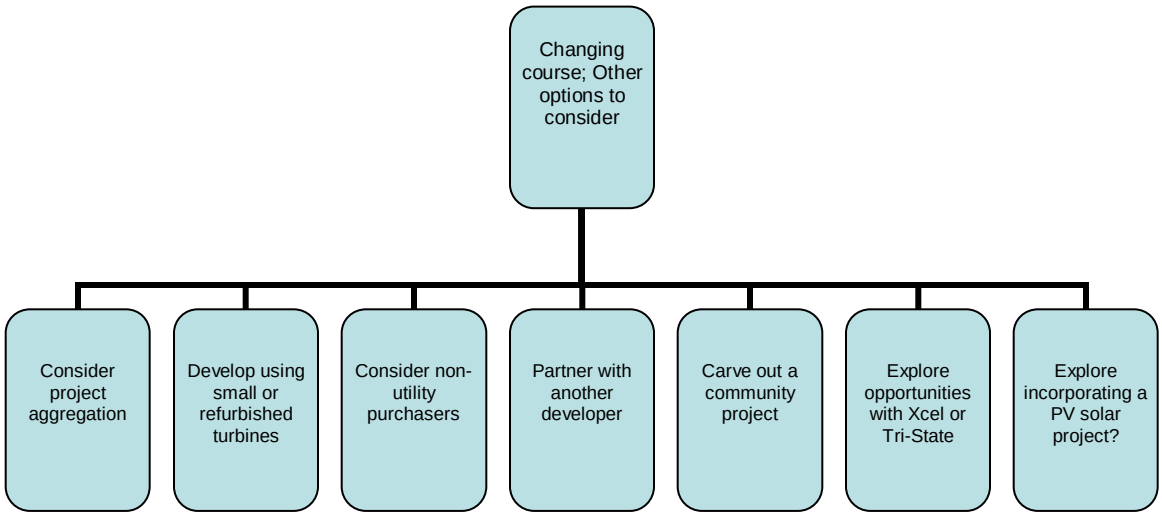
[50] *See* http://www.amcref.com/.
[51] *See e.g.* *http://www.fplenergy.com/news/contents/05020.shtml*
[52] Developers interested in pursuing bond financing opportunities should contact George K. Baum & Associates of Denver or Davidson Companies, which also has a Denver office.
[53] Utility concern (and interest in owning wind projects) over the imputed debt associated with long-term PPAs may work against bond financing opportunities. A portion of the Lamar Power and Light project mentioned above was financed through bond financing, which was facilitated by Kirkpatrick Ellis of Denver (now Davidson Companies, which is referenced in the resource list below).

- Give the tax-credit investor additional value (e.g. project naming rights), creating additional revenue opportunities and/or reducing tax-credit investor requirements (or, separately market and sell the project's naming rights)
- Reduce development fees, or earn development fees late in the project's life
- Structure land payments to minimize early project costs, possibly by giving landowners a greater return later or maybe project equity or a share of development fees
- Secure some amount of the PPA up-front[54]
- Look for opportunities from Colorado's new Clean Energy Fund[55]
- Look for opportunities from Colorado's Clean Energy Development Authority[56]
- Look for local enhancement opportunities
- Watch for equipment leasing opportunities[57]

PART D – CHANGING COURSE; OTHER OPTIONS TO CONSIDER



The wind industry is dynamic. Projects must be developed with this in mind, meaning they must be flexible – able to adapt to changing circumstances, including the potential the developer cannot develop the project on his own.

The possibility that a developer will not be able to complete the planned project is real, particularly considering the lack of meaningful Federal and Colorado policy supporting community wind projects, equipment shortages, the greater cost of community wind project development, and a

[54] *See e.g.* http://eetd.lbl.gov/ea/emp/reports/63434.pdf.
[55] The Clean Energy Fund was created pursuant to SB 07-246. It allows the Governor's Energy Office to distribute funds designed, in part, to assist in advancing renewable energy development in Colorado. The fund uses revenue from the Limited Gaming Fund that would have otherwise been transferred to the General Revenue Fund and does not include sunset provisions. It is expected that $9.5 million will be transferred to the Clean Energy Fund in 2007-2008. While it appears the funds transferred in 2007-2008 have been accounted for, presumably, future amounts could be allocated, or sought, for enhancing community wind projects.
[56] The Clean Energy Development authority was created pursuant to HB 07-1150. Its purpose, in part, is to increase the use of clean energy by financing projects, including projects that will produce clean energy. The Authority can assist with financing through the issuance of bonds, guaranties, loans, and any other financing agreements. HB 1150 does not allocate funds to the Authority or specify a source for Authority funds. Nevertheless, options with the Authority should be considered given the Authority's purpose.
[57] In preparing this paper, we heard of equipment (i.e. turbine) lease opportunities. When available, these should be explored given the potential for reducing capital costs, which is important in enabling a project.

lesser investor interest in what some perceive to be more risky community wind projects. But, any one or more of these circumstances should not be cause to abandon a project. Rather, the solution may be to change direction – move from developing the project alone to aggregating or selling the project or partnering with a large developer, for instance.

1) Project aggregation

As explained above, wind projects benefit from economies of scale. It costs less per MW to develop a larger project. Therefore, if a project's economics do not work, one solution may be to aggregate the project with other projects. This may allow the project to realize greater economies of scale. Risk reduction may also be attainable, possibly reducing the cost of debt financing and/or the tax-credit investor's return requirement, depending on the nature of the aggregation and developers' willingness to share the risks from their projects. The level of complexity will increase with project aggregation. Nevertheless, aggregation may be a necessary option. Project aggregation around small turbines is particularly noteworthy.

2) Development around small or refurbished turbines

Development using small turbines[58] may present good opportunities for Colorado.

Large turbines are in short supply, and for a variety of additional reasons may be hard to source for community wind projects. Also, large turbines mean greater development costs. Large turbines mean larger, multiple-piece towers and longer blades, all of which cost more to transport. Large turbines require more substantial foundations, which cost more to pour. Large turbines require larger cranes, which cost more to mobilize and lease. And larger projects typically developed using large turbines necessarily require greater infrastructure and related capacity upgrades. Development using small turbines, particularly if aggregated in multiple, small projects, may allow the developer(s) to avoid some of these costs.

Small or refurbished turbines cost less to buy, transport, and install, and, maybe also, maintain. Further, small projects including no more than a few small turbines may not require all of the infrastructure and capacity upgrades that are certainly necessary with larger projects. (In fact, as an additional benefit, development using small turbines may allow for siting on transmission with limited, additional capacity.) Overall, these savings could be significant.

To capture additional economic benefit, the developer (or a number of developers) could aggregate several of these projects. Aggregation may reduce engineering and equipment costs, for instance. Aggregation also may be necessary for financing purposes.

Presumably, even projects built with small turbines will require the added economics provided by the PTC. Tax-credit investors, however, may have difficulty financing smaller projects; transaction costs alone may make it impossible to finance even a strong, small project. Aggregation of small projects using small turbines could increase the overall investment opportunity. Aggregation also would allow the tax-credit investor to spread transaction costs, and the addition of more turbines in different projects would reduce overall risk, possibly driving down the tax-credit investor's IRR requirement.

[58] For purposes of this paper, small turbines refer to machines in the 500 kW to 1 MW size range.

This model is not perfect. (No model is.) There are only a few sources for small or refurbished turbines. Small turbines are built on smaller towers and usually have shorter blades (and a smaller "swept area"), meaning smaller net capacity factors, and thus reduced, overall economics. And refurbished turbines may come with limited or no warranties, which may not be acceptable to investors. Nevertheless, weighing these (and other) limitations against the benefits of projects built with small or refurbished turbines may yield real development opportunities.

3) Non-utility purchasers

Usually, wind project development means projects built for the purpose of selling wholesale power on to the grid. But, this is not the only development model. Projects can be developed around large power purchasers, like pumping stations or industrial facilities. These businesses could take the place of the utility and themselves enter power purchase agreements with the developer, possibly for a more substantial power purchase price.

The number of opportunities with non-utility purchasers is likely limited. There is little large industry in Eastern Colorado. Where a potential customer exists, there may not be an adequate wind resource. The purchaser must be economically sound and strong in order to satisfy the tax-credit investor's risk tolerance. And, the purchaser must be able to blend wind power and its associated intermittency with its operations. These (and other) obstacles may be insurmountable. Nevertheless, it may be worthwhile to explore such opportunities.[59] In addition to a possibly-greater power purchase price, development around an end-user of the power also may enable meaningful opportunities to sell RECs.

Generally in Colorado, purchasers of wind-produced electricity bundle (purchase, or require) the RECs with the power purchase. Therefore, RECs do not usually offer an additional revenue source. But, if a project is developed in connection with a power purchase by an end-user, then there may be an opportunity to separately sell the RECs from that sale.[60] Such RECs could be sold on the spot market or pursuant to contract, either way, providing an additional revenue source. RECs contracts also can be structured to provide development capital in connection with a pre-purchase of the project's anticipated RECs,[61] providing much needed up-front capital.[62]

4) Partner with another developer

Bringing in an experienced partner (i.e. another developer) is another option. A number of smaller (relatively) developers have the experience, and maybe also resources (e.g. turbines), needed to develop a community wind project. Some of these developers include: Citizens Energy; Edison Mission Group; Element Markets; J.W. Prairie; and, John Deere.

Any of the large developers also may be a viable option. And, given Xcel's stated intent to own wind assets,[63] as well as Tri-State's, they also should be considered as a potential partner.

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[59] A related idea is for the end-user to itself purchase and integrate wind equipment. Under current law, this use would not qualify for PTC benefits. But, the economics may work, if, for instance, the end-user's energy costs are high and inexpensive (possibly, refurbished) equipment is available. This type and size project also may be well-suited for local debt financing. And, grant funds (such as USDA funds) also may be available.

[60] Also, RECs may be available for separate sale if produced in connection with a merchant wind plant if, and maybe when, merchant plants become an option in Colorado, which is another development to watch for.

[61] Native Energy offers a program of this type. *See* http://www.nativeenergy.com/.

[62] In actuality, such transactions usually involve payment for the RECs once the project is completed.

[63] *See* http://uk.reuters.com/article/oilRpt/idUKN0833082320071008.

The structure of the relationship with a partner can take any of a variety of forms, such as: a straight sale; a joint development agreement; a sale subject to the developer's retaining most or all of the post-flip interest; and, a piggy-back. The number of options available (and thus, also, the number of potential partners) will depend on the project's strength, value, and flexibility, the partner's requirements, and the developer's creativity.

Partners should be evaluated considering their: experience; resources (human, financial, and equipment)[64]; relationship with the prospective power purchaser; other (potentially competing) projects within and outside Colorado; the type of relationship they are willing to consider with the developer; and, their requirements. A particular focus of this evaluation should be on what the partner requires (a partner may have its own IRR requirement, for instance) and what it will allow the developer to retain, such as what interest the partner will flip to the developer after expiration of the tax-credit period and what conditions may attach to this.

5) Carve-out a community wind project (piggy-back options)

Another option to evaluate, particularly with large developer partners, is a carve-out (or piggy-back) project reserved in connection with the transfer of a larger project.[65]

A carve-out is a small portion of a larger project reserved for separate development. Necessarily, the viability of this option depends on the size of the project transferred to the large developer. Community developers should presume a large developer wants projects with development potential in excess of 50 MW, with the greater the potential size the better. Further, high-quality wind and proximity to transmission may determine the potential for engaging a large developer. And, the farther along the project (e.g. permitting, interconnection, power purchase agreement, …) the more attractive the project and thus the greater the resultant negotiating position. For these reasons, and given the potential need to engage another developer (whether in connection with a carve out opportunity or otherwise), larger projects should be developed, and extra care should be taken in assessing and developing the site.

Presuming the large developer is in fact interested in the large project and willing to carve-out a portion for community development, the smaller project may benefit from the more favorable economics associated with the larger project. Further, provision of equipment to and/or arranging for investors for the carve-out project could be made a condition of the transfer of the larger project. In the end, by partnering with a large developer, the community developer may be able to greatly reduce the cost of his project and at the same time significantly increase its development potential.

Regardless of the partnership structure pursued, the relationship should be built considering the PUC's rules regarding renewable energy development, which include a stated focus of promoting development of rural economies.[66] By encouraging a large developer, for instance, to carve-out a small community wind project, the large developer actually may further its own development potential by satisfying the interests of the PUC.

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[64] Confirming a smaller developer's ability to satisfy a turbine downpayment requirement (up to 20% of the turbine cost) is particularly important.
[65] As mentioned above, a small project was built in conjunction with the 162 MW Colorado Green project in Lamar, Colorado. http://www.ci.lamar.co.us/lightpower/Wind%20Energy.html
[66] *See* 4 CR 723-3 § 3651 http://www.dora.state.co.us/PUC/rules/723-3.pdf

6) Taking advantage of Xcel's[67] stated intent to own wind projects

Xcel, Colorado's largest utility and biggest prospective customer for wind power, has made known its intent to own wind projects that supply its power (and developers should presume a similar intent on the part of Tri-State). Ownership will allow Xcel to avoid the imputed debt associated with a long-term PPA, which affects its credit rating.

What all of this means in terms of how and when Xcel will participate in Colorado wind developments beyond just purchasing power is murky, except that it is clear that Xcel is a potential project owner and thus also a potential project purchaser and/or partner, and maybe a competitor.

At one level, Xcel's stated intent to own wind projects is inconsistent with the idea of community ownership. Community interests and Xcel cannot own the same project. Thus, at first blush, a relationship with Xcel would tend to suggest that community interests could have no ownership in a project developed with or for Xcel. At the same time, Xcel's intent may be an opportunity, considering that the imputed debt from a community wind project would be less than that associated with a large project and considering the PUC's new focus on rural economic development around renewable energy.

The PUC has clearly expressed its intent to encourage rural economic development around renewable energy development.[68] Carve outs seem to be one option. Xcel could serve as the large developer, developing the project and taking the power, for its own use. At the same time, Xcel could carve out one or more projects for more traditional tax-credit investor development, with the community interests to own the community wind project(s) after expiration of the tax credit period.

A somewhat related option may be to extend purchase rights in the project to Xcel,[69] giving Xcel certain ability to avoid imputed debt. Extending a sale option to Xcel (or, for that matter, Tri-State) may be an opportunity to demand an additional up-front payment that will help offset initial capital costs.

Exactly how community wind developers and Xcel will best interact remains to be seen. For now, it is simply important that community wind developers recognize Xcel's intent and from there begin to determine the best option(s) for development considering that intent.

7) Incorporate solar?

While not as well-recognized for community development opportunities, the PV industry[70] presents legitimate opportunities, including opportunities for marrying wind and PV projects. And incorporating a solar project may enhance a community wind project's development potential (or provide a distinct although related development and ownership opportunity).

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[67] We focus here on Xcel's stated intent because it has publicly stated it intends to own wind projects. We presume a possible similar intent on the part of any prospective power purchaser; however, a purchaser's ability to economically own wind assets will depend on those projects' ability to take advantage of the PTC.

[68] *See e.g.* 4 CCR 723-3 § 3651 ("It is the policy of this State to encourage local ownership of renewable energy generation facilities to improve the financial stability of rural communities.") and 4 CCR 723-3 § 3654(g)("For purposes of compliance with the renewable energy standard, each kilowatt-hour of eligible energy generated from a community-based project shall be counted as 1.5 kilowatt-hours of eligible energy.")

[69] Similar sale options may be appropriate to consider and/or pursue in connection with potential Tri-State opportunities.

[70] Note the distinction between PV solar and concentrated solar (or solar thermal). While concentrated solar offers the potential for firm power at a lower cost, the overall capital requirements are greater, and there is a significant water requirement that many sites may not be able to meet. If significant water (in excess of 20,000 gallons per day) is available, then concentrated solar may be another option to consider.

The PV industry is robust. Driven by mandates (like Colorado's RPS), improved equipment efficiency, decreasing equipment costs, and increasing energy costs, the industry has grown at a rate of about 30% per year for the past 10 years. At the same time, US applications (ranging from 500 kilowatts ("kW") to 8 MW) have moved to fields, including in Colorado,[71] demonstrating legitimate economic opportunities for rural, field-mounted PV projects.

Like wind, solar projects are driven by tax credits and accelerated depreciation. But, the federal solar credit is different. It is an investment tax credit ("ITC") (roughly equal to 30% of the solar project's costs) taken in the first year of the project's life.[72] The additional economic value comes from the accelerated depreciation and the electricity and REC sales.

Also like wind projects, PV projects require proximate transmission with capacity, and a purchaser – two features that may be in place if a wind project is in place.

In terms of the solar resource and siting, Colorado is regarded as having 300 sunny days per year[73] -- generally making for a good solar resource, although some sites certainly will be better than others.[74] Depending on PV module efficiency, each installed MW will require between three to 7 acres of flat, not-shaded ground.

The marriage of wind and solar projects becomes more interesting when considering the nature of the resources, the presumed relative sizes of the two projects, and the infrastructure that would be developed in connection with the wind project.

Generally, electricity production from wind in Colorado is best during the fall and winter, when there is less sun and thus less potential for PV-produced electricity. Wind production is less in the summer, when the days are longer (and demand is also greatest) and thus the potential for PV-produced electricity is greatest.

Given recognized economics, economies of scale, and development trends, a community wind project will tend to be larger, rather than smaller. PV projects do not experience the same economies of scale. Therefore, there is not the same incentive as with wind to increase project size. A PV project developed in connection with a wind project could be considerably smaller, possibly in the 250 kW to 3 MW range.

The associated wind project presumably would supply most of the transmission-related infrastructure needed for the PV project, or the transmission-related infrastructure costs for the PV project could be significantly less given the infrastructure supplied by the wind project.[75] Moreover, given the inverse peak production periods for each of the projects, capacity upgrades may not be necessary. In all, the infrastructure developed in connection with the wind project may significantly reduce the infrastructure costs that would otherwise be required for the PV project.

From an overall development and operations standpoint, PV has advantages over wind. PV equipment warranties are more standardized (and usually not at an additional cost) and for a

[71] *See. e.g. http://www.sunedison.com/images/press/042307-alamosagbreaking.pdf;*
[72] Field-mounted PV projects may cost in the range of $6.00 to $8.00 per watt (or $6 million to $8 million per MW).
[73] Certainly, experts should be consulted.
[74] If pursuing a solar development, consultants should be retained, in part to evaluate the solar resource.
[75] In the case of a pure hybrid wind and solar system, much of the electricity generated by the PV system may be used to serve the ancillary load of the wind project.

longer, standard term, usually in the 10 to 20 year range. Wind warranties are expensive, not standardized, and usually for terms of less than 5 years. And PV systems usually have no moving parts, meaning an expected life greater than that of wind equipment.

PV operations and maintenance is simpler. If the PV modules are fixed (i.e. no tracking equipment), there are no moving parts, meaning less in maintenance and operations costs and in terms of a required operating reserve. Repair will not require crane mobilization, which can be an extraordinary cost associated with a wind project. The panels themselves are relatively small and light and can be carried by hand. The longer warranties (as compared to those given with wind equipment) for the mounting system, modules, and inverters should also mean less cost to maintain the PV project.

Purchasers of PV-produced electricity exist, as demonstrated by Xcel's purchase of the power from the 8 MW SunEdison Alamosa project. Presumably, under 2007 HB 1281, additional Xcel purchases are possible, as are opportunities with Tri-State and the REAs, especially considering the enhanced REC-value available.[76] And, as PV costs come down,[77] the cost of electricity increases, and especially if transmission is built out in connection with wind projects, more field-mounted rural PV opportunities may exist.

Rural, field-mounted PV projects are legitimate. And, the addition of a field-mounted PV project to a wind project may enhance a wind project: it could mitigate economic risk, driving down the investor's IRR requirement or allowing for more favorable loan terms; it could provide an additional revenue stream (particularly, the early recapture of certain project costs through the ITC)[78], which may also mitigate risk and allow for the related benefits; it could provide another project with which to share certain infrastructure and operations and maintenance costs (or, the PV project can simply benefit from the infrastructure developed in connection with the wind project, driving down the cost of the PV project, and making it a more valuable development); and, in the case of an REA PPA, it could potentially provide three times the REC value,[79] making for a more attractive overall, integrated project.

Also, the addition of a PV project could give the developer an additional tool with which to structure broader deals with an investor or with the power purchaser (whether a utility or end-user). For instance, if Xcel or Tri-State requires ultimate ownership of community wind projects from which they purchase power, ownership of an added PV project could be retained by the local developer with the power to be sold pursuant to a PPA. Moreover, enhanced REC value would make the power from the PV project more valuable, and conceivably therefore justify a greater power purchase price.

Whether the marriage of community wind and PV can work is ultimately left to the developer's creativity and resourcefulness. And even though we are not aware of such a marriage (and even though the idea of community PV is significantly different from the topic of this paper) there appear to be legitimate reasons to explore this potential in Colorado.

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[76] *See* 4 CCR 723-3 § 3654(e)("For purposes of compliance with the renewable energy standard specified in rules 3654(b) and (c), for cooperative electric association QRUs and municipal QRUs, each kilowatt-hour of eligible energy generated from solar electric generation technology shall be counted as 3.0 kilowatt-hours of eligible energy, provided that the solar electric generation technology commenced producing electricity prior to July 1, 2015.")

[77] Increased module efficiency and the development of additional module plants may help to significantly reduce PV costs.

[78] Notably, developing a project that takes advantage of the PTC and the solar ITC may implicate double-dipping issues. Careful tax and legal planning is essential.

[79] *See* 4 CCR 723-3 § 3654(e).

PART E – SAMPLE PROJECTS; EMPLOYING SOME OF THE CONCEPTS ABOVE

Employing some of the concepts above may facilitate a project.

Below, we have listed Sample Projects employing some of these concepts and showing how changes in project features and economics may affect a project's return, and thus its viability.[80]

As the project's return is critical to the project's development potential, the Sample Projects focus on that return and adjustments that increase it most significantly.[81] As such, some of the enhancements above are not referenced below. Nevertheless, all enhancements should be considered as one or more of them may decide the viability of a project.

All of the Sample Projects include the following features:

- An average 2% annual increase in energy sales price[82]
- A 35% tax rate
- 2% inflation
- 5-year accelerated depreciation
- A 10-year PTC beginning at $20.00 per MW hour ("MWh") and increasing 1.5% per year

Changes to each Sample Project are in bold.

[80] Not all features may be compatible or available in connection with any one project.
[81] The Sample Projects do not consider a number of other factors, such as the return to the local owner or developer and debt-service coverage ratios.
[82] PPAs may be structured differently, depending on project and/or purchaser requirements.

Sample Project 1 is the template upon which each of the other Sample Projects is based. Sample Project 1 includes presumed standard project costs, economics, and features, the sale of power to a utility, and RECs bundled with the power price. The result is a not-viable project.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	36%	NA
Turnkey construction cost	2200	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%[83]	Of gross revenue
Power sale price	45[84]	$/MWh
RECs	0	NA
Percent of project debt financed	50%	NA
Loan interest rate	8%	NA
Loan term	15	Years
Results		
Capital costs	22,000	$1000
Loan amount	11,000	$1000
Equity investment	11,000	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	31,536	MWh
First year revenue	1419	$1000
IRR[85]	**1%**	NA

[83] 3% of the projects revenue is a minimum standard starting land lease rate in Colorado.
[84] For purposes of this paper, only, we presume this is the minimum price necessary for a community wind project. Higher prices may in fact be necessary or appropriate, and purchasers may require a lower price.
[85] This is an after-tax, leveraged IRR.

Sample Project 2 shows the importance of increased net capacity factors, and thus, of first confirming a strong wind resource. Although still not viable, the size of the increased return is significant and demonstrates the extreme importance of development in the best possible area.[86] Notably, using this model, each additional percentage point increase to the net capacity factor increases the return by about one percentage point.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	**38%**	NA
Turnkey construction cost	2200	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	45	$/MWh
RECs	0	NA
Percent of project debt financed	50%	NA
Loan interest rate	8%	NA
Loan term	15	Years
Results		
Capital costs	22,000	$1000
Loan amount	11,000	$1000
Equity investment	11,000	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	**33,288**	MWh
First year revenue	**1498**	$1000
IRR	**3%**	NA

[86] Notably, turbine improvements also may yield effective, similar increases. Therefore, developers should watch for such improvements.

Sample Project 3 shows the value of decreased capital costs, such as may be available in the case of a piggy-back project, an aggregated project, a project using smaller or refurbished equipment, or a project including a sale option (with the option sale price being applied to offset capital costs). Sample Project 3 also includes the increased net capacity factors included in Sample Project 2. A 10% reduction in capital costs doubled the return shown in Sample Project 2.

Notably, we have not included a reduction in operations and maintenance costs; however, we note that a 10% reduction in these costs, which is conceivable such as in the case of a piggy-back project in which the large developer provided operations and maintenance at its cost, would improve the return by an additional percentage point. Also, combining a number of the enhancements above (e.g. tax relief and reduced land payments) may reduce operations and maintenance costs and thus also increase the return.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	**38%**	NA
Turnkey construction cost	**1980**	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	45	$/MWh
RECs	0	NA
Percent of project debt financed	50%	NA
Loan interest rate	8%	NA
Loan term	15	Years
Results		
Capital costs	**19,800**	$1000
Loan amount	**9900**	$1000
Equity investment	**9900**	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	**33,288**	MWh
First year revenue	**1498**	$1000
IRR	**6%**	NA

Sample Project 4 shows the value of better loan terms, such as may be available in connection with a guaranteed loan or aggregated project. Sample Project 4 adds to Sample Project 3 a one point reduction in the interest rate, which increases the return by one percentage point.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	**38%**	NA
Turnkey construction cost	**1980**	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	45	$/MWh
RECs	0	NA
Percent of project debt financed	50%	NA
Loan interest rate	**7%**	NA
Loan term	15	Years
Results		
Capital costs	**19,800**	$1000
Loan amount	**9900**	$1000
Equity investment	**9900**	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	**33,288**	MWh
First year revenue	**1498**	$1000
IRR	**7%**	NA

Sample Project 5 shows the potential value of increasing the amount of project debt. Sample Project 5 increases the debt amount in Sample Project 4 to 65%.[87] The result is an additional one percentage point added to the return.

Feature	Unit	Value
Project size	10	MW
Net capacity factor	**38%**	NA
Turnkey construction cost	**1980**	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	45	$/MWh
RECs	0	NA
Percent of project debt financed	**65%**	NA
Loan interest rate	**7%**	NA
Loan term	15	Years
Results		
Capital costs	**19,800**	$1000
Loan amount	**12,870**	$1000
Equity investment	**6930**	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	**33,288**	MWh
First year revenue	**1498**	$1000
IRR	**8%**	NA

[87] Increasing the amount of debt to this level may result in unacceptable debt-service coverage ratios, necessitating an increased reserve or other lender protection, such as guarantees, or the amount of debt may compel the lender to require terms not acceptable to the equity investor.

Sample Project 6 shows the potential value of longer-term debt financing (e.g. bond financing) by changing the 15-year loan term to 20 years.[88] All of the other features of Sample Project 5 are present in Sample Project 6.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	**38%**	NA
Turnkey construction cost	**1980**	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	45	$/MWh
RECs	0	NA
Percent of project debt financed	**65%**	NA
Loan interest rate	**7%**	NA
Loan term	20	Years
Results		
Capital costs	**19,800**	$1000
Loan amount	**12,870**	$1000
Equity investment	**6930**	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	**33,288**	MWh
First year revenue	**1498**	$1000
IRR	**12%**	NA

[88] This longer term also may be inconsistent with extending project purchase opportunities to the power purchaser or may be unacceptable to the tax-credit investor.

Sample Project 7 shows the potential value of eliminating land lease fees, as may be possible if the project is developed on the developer's land or if the developer negotiates non-standard arrangements with the landowner, such as participation in project ownership and the realization of revenue after the flip, as opposed to a lease royalty. The result of eliminating land lease fees is a one point increase in return.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	**38%**	NA
Turnkey construction cost	**1980**	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	**0%**	Of gross revenue
Power sale price	45	$/MWh
RECs	0	NA
Percent of project debt financed	**65%**	NA
Loan interest rate	**7%**	NA
Loan term	20	Years
Results		
Capital costs	**19,800**	$1000
Loan amount	**12,870**	$1000
Equity investment	**6930**	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	**33,288**	MWh
First year revenue	**1498**	$1000
IRR	**13%**	NA

Sample Project 8 shows a potential development around the sale of power to an end user. The sale price for the power is increased by approximately 10%, to $50 per MWh. Because the power is sold to an end user, the RECs are available for sale, and we have presumed a RECs sale price of $5 per MWh.[89] The increased sale price for the power and additional revenue from the RECs sale increases overall revenue and return, even in the case of lower net capacity factors (greater net capacity factors would markedly improve the return) and higher construction costs. One other option to consider relative to a RECs sale is a presale of the RECs, which could effectively reduce capital costs, although eliminating future RECs sale revenue.

Notably, sale of power to an end-user is not the only conceivable way by which the sale price may be increased. Meaningful net-metering and/or a feed-in tariff may enable opportunities for community wind projects to realize such greater economics. Also, a greater price for the power sold may be available if the power purchaser (e.g. Xcel or Tri-State) is extended purchase rights in the project. However, bear in mind that selling power to Xcel or Tri-State will almost certainly eliminate the potential to separately sell the RECs and therefore the elimination of this revenue source must be considered.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	36%	NA
Turnkey construction cost	2200	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	**50**	$/MWh
RECs	**5**	$/MWh
Percent of project debt financed	50%	NA
Loan interest rate	8%	NA
Loan term	15	Years
Results		
Capital costs	22,000	$1000
Loan amount	11,000	$1000
Equity investment	11,000	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	31,536	MWh
First year revenue	**1735**	$/MWh
IRR	**5%**	NA

[89] Depending on market conditions and evolving state and federal policy, a lesser or greater price may be available.

Sample Project 9 adds a 10% capital cost reduction to Sample Project 8, as may be available in the case of a piggy-back project, project using smaller or refurbished equipment, or extension of a sale option to the end-user. The result is a significantly-improved return.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	36%	NA
Turnkey construction cost	1980	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	**50**	$/MWh
RECs	**5**	$/MWh
Percent of project debt financed	50%	NA
Loan interest rate	8%	NA
Loan term	15	Years
Results		
Capital costs	**19,800**	$1000
Loan amount	**9900**	$1000
Equity investment	**9900**	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	31,536	MWh
First year revenue	**1735**	$/MWh
IRR	**8%**	NA

Sample Project 10 changes Sample Project 9 by decreasing the loan interest rate by one point to 7%. The result is a one percent increase in return over Sample Project 9.

Feature	**Unit**	**Value**
Project size	10	MW
Net capacity factor	36%	NA
Turnkey construction cost	1980	$1000
First year operations and maintenance costs	52	$1000
Land lease costs	3%	Of gross revenue
Power sale price	**50**	$/MWh
RECs	**5**	$/MWh
Percent of project debt financed	50%	NA
Loan interest rate	**7%**	NA
Loan term	15	Years
Results		
Capital costs	**19,800**	$1000
Loan amount	**9900**	$1000
Equity investment	**9900**	$1000
First year operations and maintenance costs	520	$1000
Annual energy production	31,536	MWh
First year revenue	**1735**	$/MWh
IRR	**9%**	NA

PART F -- RESOURCES

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[i] Some of the policies and tools to watch are:

- CREBs (Clean Renewable Energy Bonds). CREBs are tax credit bonds created under the Energy Policy Act of 2005. The holder is given a tax credit in lieu of interest on the bond. CREBs are allocated annually to certain applicants (e.g. public utilities and electric co-ops), with the smallest projects having the highest priority. Due to this policy, CREBs are not now a good fit for community wind projects, any one of which will likely have a minimum capitalization requirement of $4 million (based on per megawatt costs to develop a large, community wind project). Potentially, CREBs could provide a good source of tax-credits for utility co-ops, for instance, that cannot themselves take advantage of production tax credit.
- Equipment leasing mechanisms. Two sources we spoke to in preparing this document mentioned the prospect of equipment (e.g. turbines) leasing mechanisms. Conceivably, this would reduce initial capital costs, potentially allowing for stronger project economics in the project's early life.
- Colorado House Bill HB 07-1228 (now Colo. Rev. Stat. 40-2-109.5) required the Colorado Public Utilities Commission (PUC) to consider a renewable energy credit program similar to Colorado's current renewable energy standard (codified in Colo. Rev. Stat. 40-2-124). PUC 07M-230E is the commission's statement on how they plan on reviewing and considering the viability of a credit program based on recommendations by Colorado energy generators. A final decision by the PUC has not yet been reached.
- US Senate Bill 07-672. SB 672 would allow tax-exempt private purpose bond financing for qualified, locally-owned wind projects (under 40 MW with at least 49% local ownership), while still allowing for use of 50% of the production tax credit and accelerated depreciation.
- US Department of Agriculture 9006 program expansion. The possible creation of a USDA 9006 direct loan program could make available additional financing sources, and possibly less expensive financing.
- Merchant power opportunities. Merchant power plants (i.e. electricity producers operating without a conventional power purchase agreement and selling power on the spot market), including wind plants, have been built. While there is greater risk in developing and operating a project without a contract for the sale of power, the economics of a merchant wind plant could be substantially greater, including the ability to separately sell the project's RECs. Presently, Colorado's transmission likely is not set up to enable a merchant plant; however, opportunities may arise.