Uneven Local Benefits of Renewable Energy in the U.S. West: Property Tax Policy Effects

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Introduction

New utility infrastructure is a vital issue for the rural U.S. West, a region that has vast high quality renewable energy resources. Perceived project costs and benefits influence how rural residents and local governments engage with siting and permitting processes for new wind and solar farms and proposed high voltage transmission lines. Positive economic impacts feature strongly in the anticipated benefits of new utility projects (Slattery, M. C. et. al., 2012), creating a need for clear analysis of local economic development outcomes such as new tax revenue and employment.

This paper estimates the amount and relative importance of new property tax revenue associated with renewable energy facilities in 17 rural counties in the contiguous, continental U.S. West. Most of study counties are areas with limited economic opportunities that stand to benefit from new utility infrastructure and also feature high quality renewable energy resources and/or potential for future new high voltage transmission development. The companion piece to this article titled, "County Economic Development at a Glance: A Single Measure of Opportunity," describes and maps a county-level index of economic opportunity.

Our study addresses the fact that although substantial effort has been spent on refining approaches to economic impact analysis for the benefit of promoting renewable energy development (see Reategui and Hendrickson, 2011), few (if any) studies have tackled the question of how benefits vary from place to place as a function of tax policies.

The reality is that fiscal benefits to rural communities associated with new utility infrastructure are uneven. This paper provides revenue estimates and policy analysis to explain how and why revenue impacts vary across the rural West. We hope this work will inform project developers, policymakers, and local and state officials and will encourage discussion of policy approaches that prioritize local economic benefits in attracting and supporting new electricity infrastructure.

This paper begins with brief discussion of how this study links to published research and an outline of our methods. Next, we offer the findings of potential size and scale of new property tax revenue in the study counties. What follows is a discussion of the uneven revenue benefits from new renewable energy infrastructure and possibilities for policy reform and future analysis. For the purpose of keeping the discussion clear and concise, major methodological considerations are presented in an accompanying appendix.

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According to published research, the key variable affecting the scale of local employment and income benefits from renewable energy development is the amount of local inputs such as capital, materials, and labor used in each project (see Lantz and Tegen 2008; Torgeson et. al. 2006).[2] Some states have recognized these advantages in policies that establish in-state or local labor requirements as a condition of qualification for tax credits and a few have created opportunities for community ownership of generation projects within existing Renewable Portfolio Standards. Generally speaking, however, opportunities for local investment and local supply of labor and material in large-scale renewable energy developments are limited. The hurdles for local investment in these expensive, logistically complex developments remain significant (Mazza 2008, Bolinger 2011).

As recent studies have confirmed (Slattery et. al., 2012; Mulvaney 2013), lease payments to private land owners and new tax revenue figure prominently in the anticipated local benefits of large capital-intensive projects such as electric facilities. And while much has been made by popular publications of the “windfall” offered by new renewable energy projects (Van der Voo, 2011, Druckenmiller, 2012), very little has been documented with regard to measurable economic performance impacts (Brown, 2012). Furthermore, in many rural counties in the U.S. West renewable energy development is more likely to end up on public rather than private land meaning that landowner payments have less significance than taxes as a form of local revenue. For this reason, economic impacts from areas where projects are primarily on private land are not likely to be applicable to many parts of the West. These trends in published literature indicate that evaluating the link between tax incentives and potential local revenue opportunities is a key building block for a robust assessment of renewable energy economic impacts.[3]

Methods

We selected seventeen non-metropolitan counties from eleven Western states with documented potential for utility-scale renewable energy facilities or where new interstate high voltage transmission systems have been proposed. We also targeted rural counties with low economic performance for analysis.[4] Table 2 on the following page provides some context for the economic performance and potential renewable energy or transmission development in each of the study counties.

As hypothetical examples, we considered the contribution to property tax collections of a $100 million of investment in both renewable energy generating and high voltage transmission facilities. Using generic figures, $100 million investment corresponds to about 35MW of utility-scale photovoltaic solar, roughly 50MW of wind, and about 50 miles of new, 500 kV single-circuit AC high voltage transmission (Black and Veatch 2012, Kahn et. al. 2013, Mason et. al. 2012).

[2] Ensuring the local supply of labor and materials, especially the most expensive components like solar panels or wind turbines, greatly increases the local economic benefits during the construction period. Similarly, community investment in the project returns significantly more to the local economy during the operations phase than non-local ownership.

[3] In economic impact studies, projected dollar value of new projects is often very large, particularly as a share of local tax base in areas with limited property values. Sales and use taxes associated with construction can figure prominently in calculations of local tax benefits (see Charnley et. al. 2012), but for this research, we focused exclusively local government property tax revenue as a first step in a difficult effort to analyze revenue and compare state policies.

[4] Our economic opportunity index is described in the companion paper to this article. The opportunity index considers measure of opportunity (poverty, income, earnings, education and county typology) and ranks counties relative to all counties in the West.

Table 2. Study County Attributes

	County	Wind Resources Rank (by total acreage)	Installed Utility Scale Wind	Associated QRA (Utility Interest Rank)	Federal and State Solar Energy Zone	Installed Utility Scale Solar	Proposed HVTL	Economic Performance Ranking (Quintile)	Population 2012	Total Governmental Revenue FY 2011
1	La Paz Co., AZ			AZ_WE (1)	Brenda (BLM)	100 MW	Yes	5	20,281	$25,848,789
2	Navajo Co., AZ	29	128 MW	AZ_NE (2)			Yes	4	107,094	$65,699,835
3	Inyo Co., CA			NV_WE (1)	CREZ 25 Owens Valley	510 MW		3	18,478	$62,034,612
4	Alamosa Co., CO			CO_SO (1)	Fourmile East (BLM)	100 MW		4	16,148	$27,025,847
5	Baca Co., CO	1		CO_SE (1)			Yes	5	3,751	$6,559,264
6	Owyhee Co., ID	26		ID_SW (3)			Yes	4	11,439	$6,481,168
7	Glacier Co., MT	7	189 MW	MT_NW (1)				5	13,711	$9,499,388
8	Guadalupe Co., NM	2	90 MW	NM_EA (3)		300 MW	Yes	5	4,603	$15,075,572
9	Torrance Co., NM	9	100 MW	NM_EA (3)		50 MW	Yes	4	16,021	$10,574,135
10	Esmeralda Co., NV			NV_WE (1)	Millers (BLM)			5	775	$4,080,300
11	White Pine Co., NV	69	152 MW	UT_WE (1)			Yes	4	10,098	$21,957,919
12	Union Co., OR	51	100 MW	OR_WE (4)			Yes	3	25,759	$17,453,450
13	Sherman Co., OR	49	1,057 MW	WA_SO (4)				5	1,732	$14,789,949
14	Beaver Co., UT		200 MW	UT_WE (1)	Milford Flats South (BLM); Wah Wah Valley (BLM)		Yes	4	6,501	$15,645,143
15	Millard Co., UT	27	100 MW	UT_WE (1)			Yes	5	12,659	$18,046,817
16	Klickitat Co., WA	28	1,247 MW	WA_SO (4)				4	20,699	$5,166,551
17	Platte Co., WY	16		WY_SO (2)			Yes	5	8,756	$8,298,987

Data Description and Sources. Wind Resources Rank: ranking is the county's ranking out of 152 Western counties with Class 3 or better wind resources. Installed Utility Scale Wind: Nameplate capacity in megawatts, source AWEA. Associated QRA: Qualified Resource Areas identified in the Western Governors' Associations WREZ process, quartile of measured utility interest (1=01; 2=2-3; 3=4-5; 4=6-7) as reported by Black and Veatch 2012. Federal and State Solar Energy Zone: presence of a designated area for solar energy development in the BLM's Solar PEIS or California's REZ process. Installed Utility Scale Solar: Nameplate capacity in megawatts, source SEIA. Proposed High Voltage Transmission Lines: designation of county in proposed or sited route for one or more future high voltage transmission lines. Economic Performance Ranking: value is ranking by quintile compared to all western counties, with 5th indicating lowest 20% of scores for economic opportunity, 1 the highest 20% of opportunity scores (see companion article). Population: source, U.S. Census Bureau, 2012 Population Estimates. Total Governmental Revenue FY 2011: All revenue available for governmental activities (taxes, licenses and fees, intergovernmental revenue, etc.), county Certified Audited Financial Statements.

Estimation Methods and Assumptions
In order to generate estimates of the potential revenue benefit from the hypothetical investment, we first calculated a net taxable value by seeking out all state laws and administrative rules that determine the assessed value of the $100 million investment, including standard assessment practices and applicable property tax incentives. In states where tax incentive programs are offered on a discretionary basis, we conferred with state experts to come up with an average effect of the incentive on taxable value. More details on the estimation methods are provided in the Appendix.

Second, we applied local tax rates to the net taxable value. We used the applicable tax rate for countywide services (e.g., general fund, roads, libraries, fire, but not schools, municipal, or state property tax mills or enterprise funds) in unincorporated county areas for fiscal year 2011. We chose this approach rather than an average county tax rate in order to capture an accurate tax rates in unincorporated county areas, where large-scale generation facilities are likely to locate. To restate: the revenue reported here is property tax revenue to county government. We did not include revenue to other jurisdictions, sales taxes, or impact fees.

Results: Property Tax Revenue Estimates
The following four figures show the results of this exercise in estimating revenue impacts and comparing their size and potential impact across the seventeen rural study counties.

Figure 1 charts the values of potential tax revenue associated with a $100 million investment in utility-scale renewable energy generating facilities in the study counties. The values shown are a product of Net Taxable Value and County Tax Rate (see Appendix). Figure 2 illustrates the revenue estimates shown in Figure 1 as a share of total governmental revenue in each county—essentially the scale of impact relative to existing collections. Figures 3 and 4 provide the same types of property tax estimates, but for $100 million investment in a high voltage transmission line.

The revenue estimates shown in figures 1 – 4 point to several basic observations about property tax benefits from new renewable energy and utility infrastructure in the rural U.S. West. First, the same level of initial investment generates very different amounts of property tax revenue in otherwise comparable rural counties. For generation facilities, the range is from $32,000 to close to $850,000 for the hypothetical Year 1 revenue. For transmission investments the range is from $112,000 to $871,000. When depreciation enters into calculations of taxable value, the drop in revenue can be steep. One-time spikes in valuation can create risk and challenges, especially in taxing jurisdictions where the new revenue is large relative to existing collections.

As a result, the quality of the tax opportunity is highly uneven, and bears little relationship to the economic challenges and opportunities of counties. The scale of opportunity from new utility investments is substantial for some rural counties, especially those with small tax bases and high tax rates. In other rural counties that stand to benefit significantly from new revenue based on their existing economic performance, the opportunity is negligible.

Figure 1. Estimated Potential Property Tax Revenue from $100 Million Investment in Renewable Energy Generation Facilities

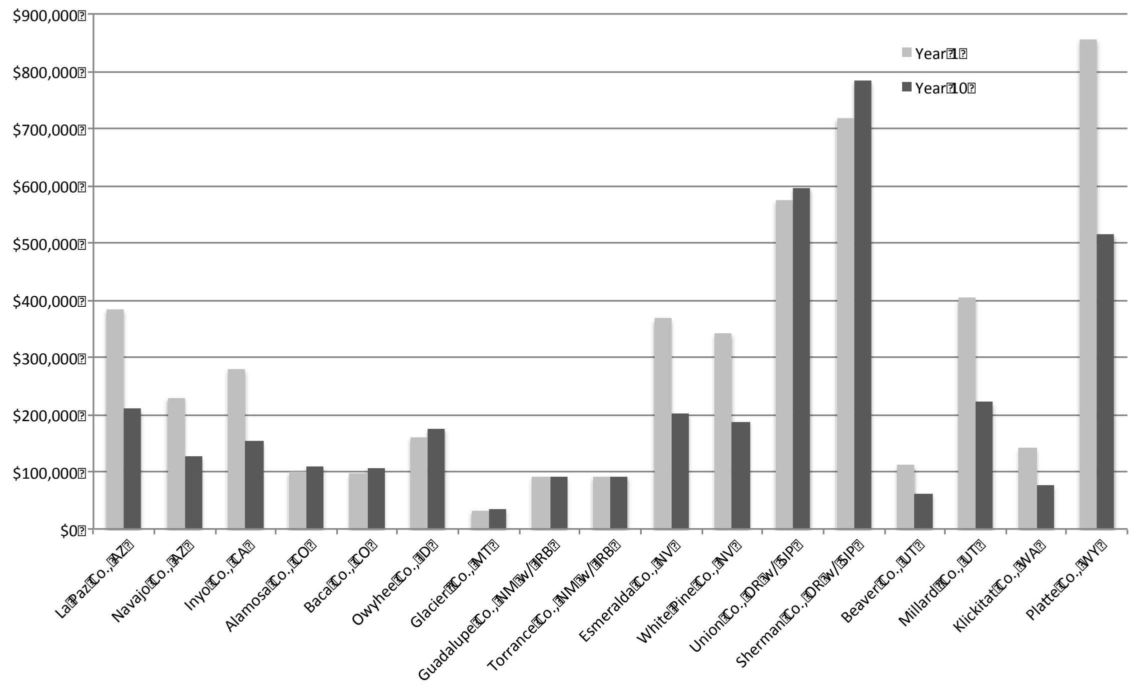


Figure 2. Potential Impact: Revenue Estimate as Share of 2011 County Governmental Funds Revenue

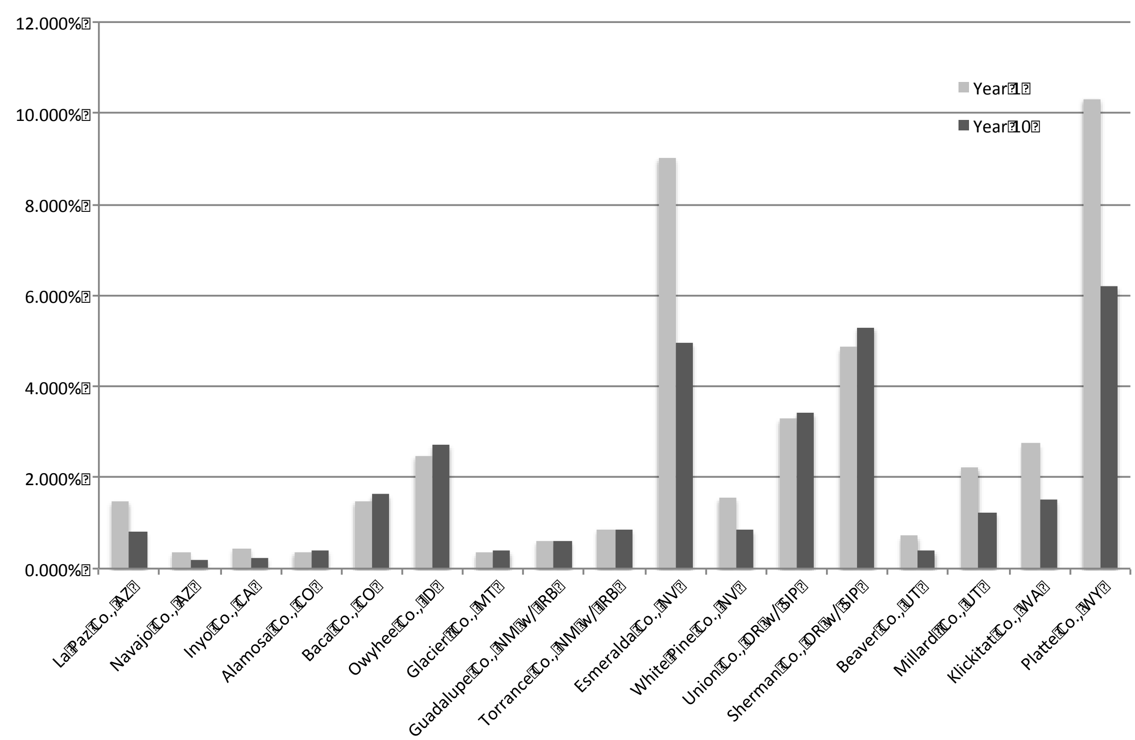


Figure 3. Estimated Potential Property Tax Revenue from $100 Million Investment in Interstate Transmission Facilities

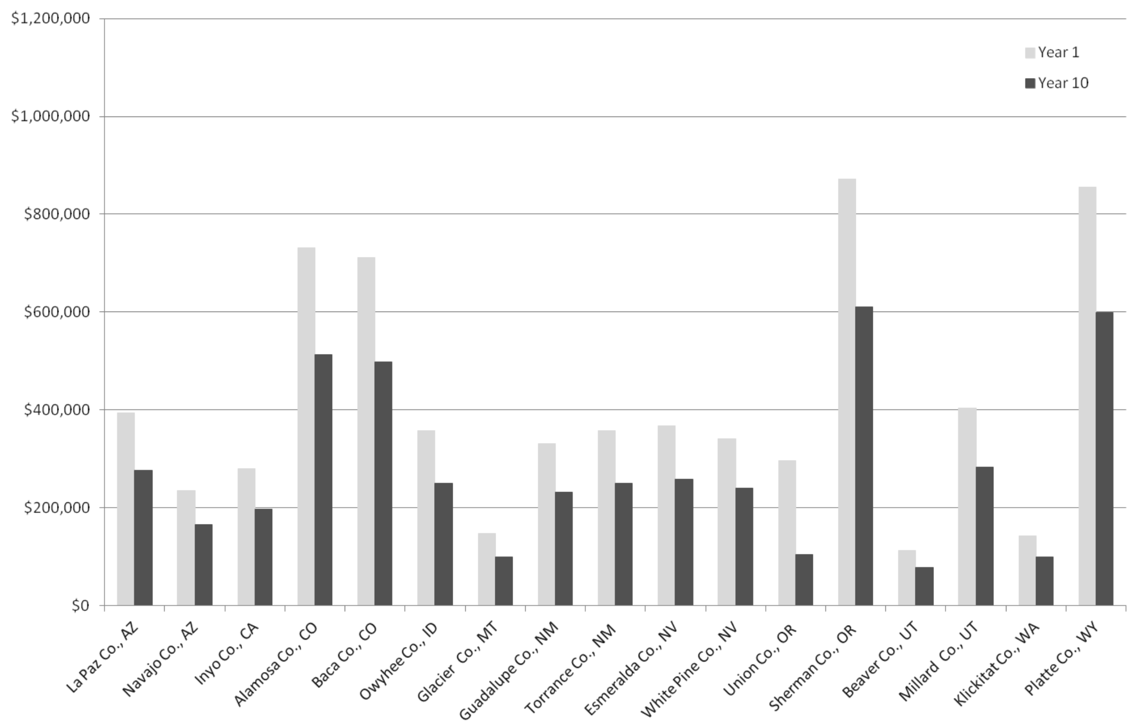
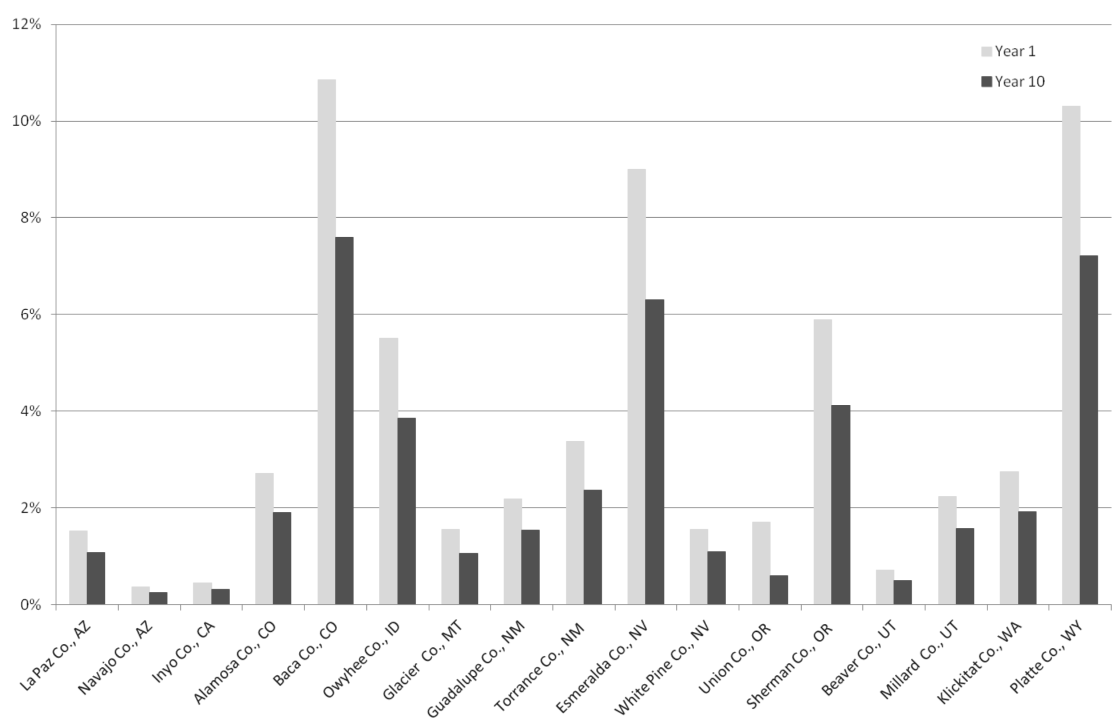


Figure 4. Potential Impact: Estimated Annual Revenue from Transmission as Share of 2011 County Governmental Funds Revenues



The explanations for these varying levels of revenue and impacts can be found in state tax incentives and rural tax rates, which are discussed in turn.

Incentives

The net taxable value of the $100 million investment in a renewable energy generating facility is affected by state approaches to appraising utility property and the available of property tax incentives. The type of impact that renewable energy property tax incentives have varies according to their design. While all but one program tends to lower potential revenue compared to non-renewable energy facilities, in some cases they provide benefits by stabilizing revenue over time.

Four states do not offer property tax incentives for renewable energy generating facilities—in other words, these states determine the value of renewable energy facilities using similar methods to any other utility properties. These are California, Utah, Washington, and Wyoming. One variation has to do with whether the state centrally appraises these properties (Washington and Wyoming) or the county conducts the appraisal (California and Utah[5]). In other states, property tax incentives are available to renewable energy facilities, though they vary in design.

Montana and Arizona offer property tax incentives that use steeply reduced assessment rates to create lower property tax burdens for renewable energy generating facilities relative to comparable fossil fuel generating facilities. Qualifying wind energy and other clean energy generating facilities are assessed at 1.5% of their value in the first year compared to 12% for non-qualifying generating facility in Montana. By year 10, the assessment ratio adjusts up to 3% of depreciated value. One potential implication of this is that fossil fuel facilities may generate more tax revenue and thus more appeal from a fiscal standpoint to rural areas.[6]

In Arizona, the assessment rate for renewable energy facilities is 20% for renewable energy facilities versus 35% for other electric generating facilities in Year 1. The benefit is more pronounced in Year 10 when renewable generating facilities are still assessed at 20% of depreciated value whereas non-renewable facilities are assessed at 100% of depreciated value.

Colorado's tax incentive for renewable energy generators aims to keep parity with non-renewable facilities. The state's assessment process reduces the taxable value of a new renewable energy facility to the comparable value of a fossil-fuel generation facility using a revenue approach. In this model, renewable energy generators are not penalized for the relatively higher capital cost of their facilities (per unit of power generated), while local governments do not receive less than they otherwise would for fossil fuel facilities. One benefit of this approach is that the revenue value is stable and can in theory increase over time.[7]

[5] Utah State Tax Commission notes that in the past the state has appraised wind facilities, but going forward the counties will conduct appraisals, assuming the properties are "stand alone," as opposed to being owned by a large utility that is centrally appraised.

[6] However, there may be opportunities for certain modern fossil fuel facilities to capture similar tax breaks according to the State Department of Revenue (Personal Communication with Steve Cleverdon, 7/1/2013).

[7] Assuming wind generators are able to negotiate for escalating rates in power purchase agreements, which is a changing dynamic in the utility market right now.

Oregon, Nevada, and New Mexico offer negotiated property tax relief through state programs modeled after conventional enterprise zones, in which a government entity forfeits property tax for a pre-determined period in order to recruit capital-intensive enterprises.

New Mexico uses an industrial bond model that eliminates property tax liability the life of the bond. The entity holding title to the property under the terms of the bond (e.g. county or municipality) can negotiate for payments in lieu of taxes that direct payments to key local entities, such as schools. Our estimate here replicates the terms of a 2009 agreement in Torrance County.[8] In Nevada, the State Energy Office Director has the authority to offer property tax relief up to 55%.

Oregon's enterprise zone initiative is one of two property tax incentives available in the state. Counties or groups of counties can designate Rural Renewable Energy Development Zones that offer property tax abatement for 3 to 5 years (enterprise zones may not include the land within designated urban growth boundaries). The designating local governments can set a cap on the amount of investment that would be tax-free (with a maximum for any one project of $250 million).

Another approach available in Oregon that is more attractive from the county point of view is the state's Strategic Investment Program (SIP). Our chart estimates reflect the application of this program. The SIP works by limiting the conventional property tax liability of large industrial projects and assessing instead formula-based payments in lieu of taxes (Community Service Fees) that can be targeted to specific local governments. The SIP approach provides several benefits: it stabilizes tax revenue for 15 years, avoiding the declines typically associated with depreciation tables. Second, the local governments (and even quasi-governmental entities like 4-H) that are party to the agreement have more flexibility in using the payments in lieu of taxes than they would with property taxes. For their part, project developers also benefit through lower tax liabilities in early years when they are typically paying off financing costs and lower expenditures overall on total taxes paid. (The state offers a helpful step-by-step analysis of the program's application).[9]

The estimate shown for Esmeralda County and White Pine County, Nevada assume that the state's property tax incentive program is used to its full extent (as has been in the case of most recent large renewable energy projects in the state, including transmission and generation facilities). The program enables the Director of the Nevada Office of Energy to offer property (and sales and use) tax abatements up to 55% of what would be due over a period of 15 years.[10]

Transmission Property Tax Abatement

In Arizona, California, Colorado, Idaho, Utah, Washington, and Wyoming there are no property tax exemptions offered to transmission projects. We assume that the challenges of applying the IRB or SIP programs to interstate transmission would preclude the use of these incentives in New Mexico and

[8] The terms of the agreement were report in 2009 Albuquerque Journal story. "NM Attracting Wind Farms; Newest One with 40-Story Turbines." Oct. 25, 2009. *Albuquerque Journal.* Under the terms of that agreement, payments would escalate slightly in Year 11 and also in Year 21.

[9] See the Strategic Investment Program website at, http://www.oregon4biz.com/The-Oregon-Advantage/Incentives/Strategic-Investment-Program/and specifically the tax treatment worksheet: http://www.oregon4biz.com/assets/docs/SIPexample.pdf. Additional information provided by Gillam County planner Susie Anderson and Sherman County Assessor Ross Turney.

[10] The abatement does not apply to the property taxes due to school districts. Data on use of incentives to date provided by Stacey Crowley, Director of Energy Office, personal communication, 6/27/2013.

Oregon, although these programs may be pursued for major transmission facilities such as substations located in a specific county.

This leaves Montana and Nevada as the states offering property tax abatement programs specifically targeting large transmission developers. In both states, the incentives target developments that facilitate renewable energy generation. The applicable Montana property tax incentives for transmission are slightly different than those available for generation, but the discount can still be substantial, in the case of a 100 percent renewable energy transmission line, the incentive decreases the assessment ratio from 12 to 1.5 percent for up to twenty years. In Nevada, the abatement can be offered on a case by case basis, up to 55 percent of all applicable property taxes. Our estimates reflect this opportunity based on the fact that the property tax abatement was recently conferred to a large transmission project. However, the project in question was intra- not inter-state project, so it is not necessarily the case than an interstate line would qualify for such a large exemption.

Rural Tax Rates

Another factor significantly shaping these estimates is the differences in tax rates from county to county. In theory tax rates reflect the demand for government services distributed across the relevant tax base. In practice, there are many factors shaping tax rates (for a full overview, see Multari, et. al. 2012). State ‘tax and expenditure’ that dictate how local governments can budget, tax, and or assess properties in order to limit property tax burdens on individuals and businesses (Mullis and Wallin 2004). The distribution of responsibilities among types of government can vary from state to state or even county to county. In addition, the geography, population, and existing economy in a county affect how much the local governments need to collect to provide appropriate services. For example, a small county with a large municipality may have low service costs, whereas a rural county with a large service area and small tax base may be more likely to tax at a higher rate. In the latter type of county, new industrial projects can have real benefits by creating an opportunity to grow the tax base and lower overall tax rates accordingly.

Figures 2 and 4 offer another level of insight into the revenue opportunities for different rural areas by charting impacts relative to existing governmental revenue. The first is, not surprisingly, that the biggest impact is in places where tax collections are relatively high and existing tax revenue is low. Platte County, Wyoming is a good example. Similarly, the smallest impact is in places where the revenue potential is low in size and compared to existing collections: for example, in Navajo County, Arizona, the $280,000 in potential revenue from a new renewable energy generating facility is more than in other counties, but it represents less than one-half of one percent of the county’s total revenue collections of nearly $66 million.

In counties with high potential from new utility property, tax and expenditure limits imposed on local governments define the actual revenue opportunity. Each of the Western states except Montana, Wyoming, and New Mexico have laws that constrain the rate of growth in property values and/or the ability for local governments to increase tax rates or collections. This research did not delve into depth into the impact of these laws, however, as a general rule most states attempt to minimize the negative impact of these laws on local revenue from new industrial projects by putting those projects in a special (“new construction”) category for the purposes of budgeting and assessment. Exceptions include Idaho and Washington state, where state laws exclude non-generating utility property from the new construction allowance, meaning that many rural tax districts are likely to forfeit a large proportion of potential revenue from new transmission projects.[11]

Tax and expenditure limits also intersect with the depreciation issue. In areas that experience large increases in assessed value thanks to new development, lowering tax rates can be an appealing or even a required next step. However, if depreciation lowers values at rates that outstrip the ability for local governments to increase mill levies in order to capture required revenue, local governments can face revenue shortfalls. We learned of one county assessor in a rural county who is conducting outreach with tax jurisdictions, including the county hospital district, to help them understand the impacts of depreciation of the county's extensive wind development on their future collections.

Conclusions and Next Steps

While property taxes are only one part of overall economic benefit of new utility projects, they have the potential to be highly influential in local reception of proposed development projects and in the actual experience of local areas that host large scale renewable energy generation and transmission facilities.

The revenue estimates generated by this research demonstrate highly uneven property tax benefits in comparable rural counties. For generation facilities, the range is from $32,000 to close to $850,000 for the hypothetical Year 1 revenue. For transmission investments the range is from $112,000 to $871,000. When depreciation enters into calculations of taxable value, the drop in revenue collections can be very steep, posing risk and challenges, especially in taxing jurisdictions where the new revenue is large relative to existing collections.

The scale of opportunity from new utility investments is substantial for some rural counties, especially those with small tax bases and high tax rates. In other rural counties that stand to benefit significantly from new revenue based on their existing economic performance, the opportunity is negligible. In this analysis, Oregon's Strategic Investment Program stands out as a potential model tax program that creates benefits for both developers and local communities.

This work also raises questions about the importance of property tax incentives. Despite the popularity of industry-specific tax incentives in local economic development strategies, the expert literature questioning the effect of these "first wave strategies" is extensive and long-standing (see Zheng and Warner 2010: 326-327). The efficacy of incentives in terms of long term fiscal and income benefits has been shown to vary significantly as a function of the opportunities presented by the type of industry and the design of incentive programs (Bartik 2005).[12] This work is a preliminary step that can support future efforts to consider the actual influence of tax incentives on location decisions by renewable energy companies. Future research should also consider actual case studies of construction projects that document rather than project actual revenue and the ways in which local communities are able to invest new revenue.

[11] Idaho Code 63-802. Washington RCW 84.55.010.

[12] The small body of research on the link between industry incentives (typically production tax rebates) and the location of fossil fuel extraction in U.S. states suggests that while the industry benefits from tax incentives, it does not base production decisions on state tax incentives.

In the rural West, the siting of new facilities on private versus public lands greatly affects the kinds of economic benefits to local areas. Rural economic opportunities are more limited when large areas of public land as opposed to private land are dedicated to renewable energy production; utility development on private lands merits an impartial, detailed analysis of specific case studies that document how these projects benefit landowners and their communities.

Appendix: Tax Estimation Details

Net Taxable Value
We assume this is a privately- or investor-owned facility, given that many federally- or municipally-owned utility properties are tax-exempt.

Most states use multiple appraisal methods to value transmission property as part of larger corporate units, but we do not have access to the detailed, proprietary data necessarily to replicate this process. So, we assume that both generation and transmission property are valued at installed capital cost less depreciation (or HCLD) in each state, except as noted below. We used recent published estimates of installed cost (Black and Veatch 2012).

We apply assessment ratios based on statute for the following partial assessment rates (applicable statute and or administrative rule noted in parentheses):

- Arizona: Renewable Energy Generation: 20% (ARS 42-14155); Transmission 19.5% (for 2012-2013), ARS 42-12001; 42-14154;
- Colorado: Transmission: 29% (CRS 39-1-104)
- Montana: Generation: 1.5% in Year 1, 3% in Year 10 (MCA 15-24-1402). Transmission: 1.5% for half the value, 12% for the other half. This is a general approximation of a circumstance in which an interstate transmission facility garners half of its firm contracts with qualified renewable energy generators. (MCA 15-6-157; and ARM 17.80.201-203 and 17.80.225)
- New Mexico: Transmission: 33% (NMRS 7-37-3)
- Nevada: Renewable Energy Generation and Transmission: 35% (NRS 361.225)
- Wyoming: Renewable Energy Generation and Transmission: (W.S. 39-39-11-101(a) (xvii) (B))

Washington State Department of Revenue provided an equalization factor for net taxable value for Klickitat County.

For depreciation rates, we used 30 years to 10 percent for transmission facilities and 20 years to 10 percent for wind facilities. It is possible the wind facilities may depreciate less quickly; reinvestment in technology upgrades will counteract some of the depreciation; as new technologies are available to improve efficiency and production.[13] Two appraisers observed that the application of federal investment tax credits had the effect of lowering the starting value of new wind projects in their states.[14] While we did not adjust our starting value accordingly we note here this possible dampening effect on net taxable value.

Exceptions to HCLD Approach:

Colorado: In essence, renewable energy generation is assessed as though it were new gas generation according to CRS. 39-1-102-1-e. We utilized DOLA's 2013 Renewable Energy Tax

[13] Scott Sampson, Washington Department of Revenue, Personal Communication, 7/7/2013.
[14] William Kowalowski, Utah State Tax Commission, Personal Communication 7/10/2103. Tony Ansolobahere, Kern County Assessor, 6/27/2013.

Factor worksheet[15] to generate an assessed value for a 50MW wind farm, using the following assumptions:

- 35% capacity factor
- $70/MWh PPA Value, based on NREL 2011 wind market report.[16]
- 1% escalation rate based on general market information suggesting escalation rates in PPAs are declining.

Idaho: Wind producers in Idaho pay a gross production tax and are exempt from property tax (Idaho Statute 63-3503B.) The production tax is 3% of gross annual earnings, apportioned to the local taxing jurisdiction. Absent access to production data, we used a sample calculated through Colorado's public worksheet to obtain an estimate of annual gross income of $10,731,000 (x .03 = 321,930).[17] To derive the share of this that would accrue to county-wide governmental revenue for this, we calculated the proportion of countywide levy to all county levies (.49) in Owyhee County and applied this to the production tax.

Wyoming: Wind farms pay a local production tax in Wyoming—in addition to state-assessed *ad valorem*. All Wind Farms generation—production tax of $1 per MWh based on annual production, MW rounded to the nearest whole, reported by company. Valued by the Department of Revenue in accordance with W.S. 39-13-102 (m) (iii). For generation facility, we assumed a 50MW facility at 30% average capacity factor, which generates an estimated 109,500MWh of energy per year. The resulting revenue is added to our generating facility property tax estimate, according to the distribution of 60/40 split between state and county that begins in the third year of production.

Estimates of revenue from interstate transmission projects are a bit less straightforward than those for generation facilities because new high voltage transmission lines are rarely standalone projects. The majority of large interstate transmission projects are owned by large public or investor-owned utilities. When states "centrally assess" these properties, all of the company's assets are considered and apportioned based on state laws. While it is not unusual to use a per mile value for assessment estimates, and even for local apportionment in some states, it should be recognized that estimated values could differ significantly from appraised values in the case of complex corporate holdings. The situation in which the estimation process used here might be best to track a real assessment would be the case of an independent merchant transmission project whose only property is the new interstate transmission line.

County Tax Rates and Revenue Comparison

In order to generate an estimate for local revenue, we attempted to isolate the tax rate that generates revenue for countywide services in each county. This is imperfect given that counties have different service responsibilities in different states and types of areas, but we hope this is the best point of comparison and one that excludes some sources of variability, such as special districts and school districts. It is important to remember that the data shown are estimates for only this property tax, not all

[15] https://dola.colorado.gov/lgis/lg_finances.jsf;jsessionid=81818815c840b015f206b081abaa
[16] http://www1.eere.energy.gov/wind/pdfs/2011_wind_technologies_market_report_slides.pdf
[17] Idaho State Tax Commission indicated this estimate is relatively consistent with their experience to date. Jerott Rudd, Personal Communication, 7/17/2013.

property taxes. In many cases, school district tax rates are equal to or exceed the tax rates for countywide services. Rates and sources are outlined in the table below.

County	2011 Tax Rate per $1	Source
La Paz Co., AZ	0.0197	Primary levy rates reported in Arizona Tax Policy Institute analysis.
Navajo Co., AZ	0.011774529	Primary levy rates reported in Arizona Tax Policy Institute analysis.
Inyo Co., CA	0.0028	Estimate. California BOE, share of total tax allocations v. city, school, other districts.
Alamosa Co., CO	0.025238	County mill levy only from DPT Annual Report
Baca Co., CO	0.024539	County mill levy only from DPT Annual Report
Owyhee Co., ID	0.003573944	Idaho State Tax Commission Budget Calculation Worksheets
Glacier Co., MT	0.0219	Montana Department of Revenue Annual Report, county wide levy.
Guadalupe Co., NM	0.01	NM County Tax Values and Rates (2011) obtained from NM Department of Finance & Administration. We used only the non-municipal, non residential values to calculate an average mill levy rate for non-residential property in unincorporated county areas.
Torrance Co., NM	0.010835	NM County Tax Values and Rates (2011) obtained from NM Department of Finance & Administration. We used only the non-municipal, non residential values to calculate an average mill levy rate for non-residential property in unincorporated county areas.
Esmeralda Co., NV	0.020995	Nevada Department of Taxation "Redbook”
White Pine Co., NV	0.01951	Nevada Department of Taxation "Redbook"
Union Co., OR	0.0029668	County Assessor
Sherman Co., OR	0.00871	County Assessor
Beaver Co., UT	0.00112	Utah State Tax Commission, Budget Rates by Entity (funds 1010 + 4090)
Millard Co., UT	0.004032	Utah State Tax Commission, Budget Rates by Entity (funds 1010 + 4090)
Klickitat Co., WA	0.00142	Washington State Auditor Office’s Local Government Financial Reporting System.
Platte Co., WY	0.074432	Wyoming Dept. of Revenue, Tax Rates by District

To estimate the relative scale of impact of the estimated tax revenue, we compare our revenue estimate to revenue reported under “total governmental funds” in each county’s Certified Audited Financial Report on the “Statement of Revenues, Expenditures, and Changes in Fund Balances. Total governmental revenue includes taxes as well as other types of funds such as intergovernmental transfers, charges for services, and licenses and fees.

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