

GENERATION AND DELIVERY

THE ECONOMIC IMPACT OF TRANSMISSION INFRASTRUCTURE IN RURAL COUNTIES



a report by TIMOTHY COLLINS, with JOHNATHAN HLADIK
and the CENTER *for* RURAL AFFAIRS

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I. EXECUTIVE SUMMARY

A clean energy transition is underway in communities across the United States creating a success story that has transformed the rural economy. Competitive prices, improved technology, and consumer preference guarantee the evolution will continue.

Transmission projects announced years ago are now beginning to come online. Combined with new wind and solar installments, these projects have become important pieces of the economic puzzle in the rural Midwest and Great Plains. While the significance of renewable energy to rural economic development is well understood, less is known about the impact of transmission development on rural economies.

New development requires a new generation of transmission infrastructure. America’s power grid was designed to carry energy from large generation stations to major population centers — not to utilize energy resources from rural areas. As renewable technologies account for a growing share of electricity generation, the development of robust transmission infrastructure must keep pace.

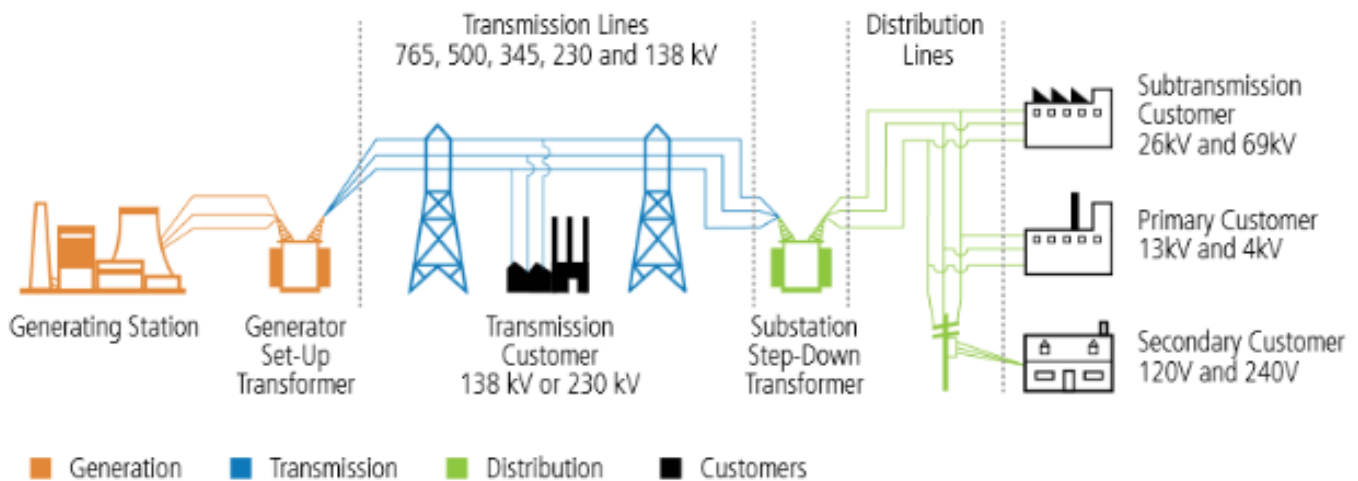
Transmission expansion spurs economic development in three phases. The first is driven by physical construction. The second takes place after the line is energized and placed into service. The third derives from taxes and fees assessed on the project.

This paper explores the third phase of transmission-driven economic development to gauge the impact on neighboring rural communities. We identified three recently constructed transmission projects in Upper Midwest and Great Plains states. For each project, we examined the state statutes that govern revenue collection and distribution and how those guidelines are implemented at the local level.

We found that considerable variation exists among states. In Minnesota, tax revenue derived from transmission infrastructure is used to offset local property taxes. In Wisconsin, environmental impact fees must be paid by transmission developers, and this revenue is used to fund community grant programs. Though transmission infrastructure in Kansas is tax-exempt for the first 10 years, a small amount of revenue is collected through taxes assessed on substations, which is then shared with county agencies.

Each approach rightfully reflects the different priorities and fiscal realities of the administering state. However, our analysis reveals that communities affected by transmission development realize significant benefits only when state law allows for most or all of this revenue to be invested locally. As these communities are on the front lines of any development, residents must have a role in determining how and when this increased revenue is put to use.

FIGURE 1. ENERGY DISTRIBUTION MODEL.



Source: Fresh Energy. St. Paul, Minnesota. <http://fresh-energy.org>.

II. INTRODUCTION

According to the U.S. Department of Energy, installed wind power capacity across the country grew from about 2,472 megawatts (mw) in 1999 to 74,819 mw in mid-2016, a 30-fold increase in 17 years.¹

Wind energy capacity has grown at different paces in seven Midwestern states. As seen in Figure 2, South Dakota's capacity began a rapid increase in 2006. In 2007, Iowa's capacity grew at its fastest rate, and the state has led the region in wind power capacity since. Minnesota was even with Iowa in 2007, but dropped to third behind Illinois in 2011, and was surpassed by Kansas in 2014.

In response to this growth in generation capacity, transmission utility firms are now investing billions of dollars in new transmission facilities. This investment has led to enhanced forecasting of supply and demand and improved overall planning. Many firms

have adopted "smart grid" technologies that rely on automation and more efficient electricity transmission. Several are beginning to develop improved ways to store electricity.² More importantly, firms are now expanding the grid to reach sparsely populated areas.

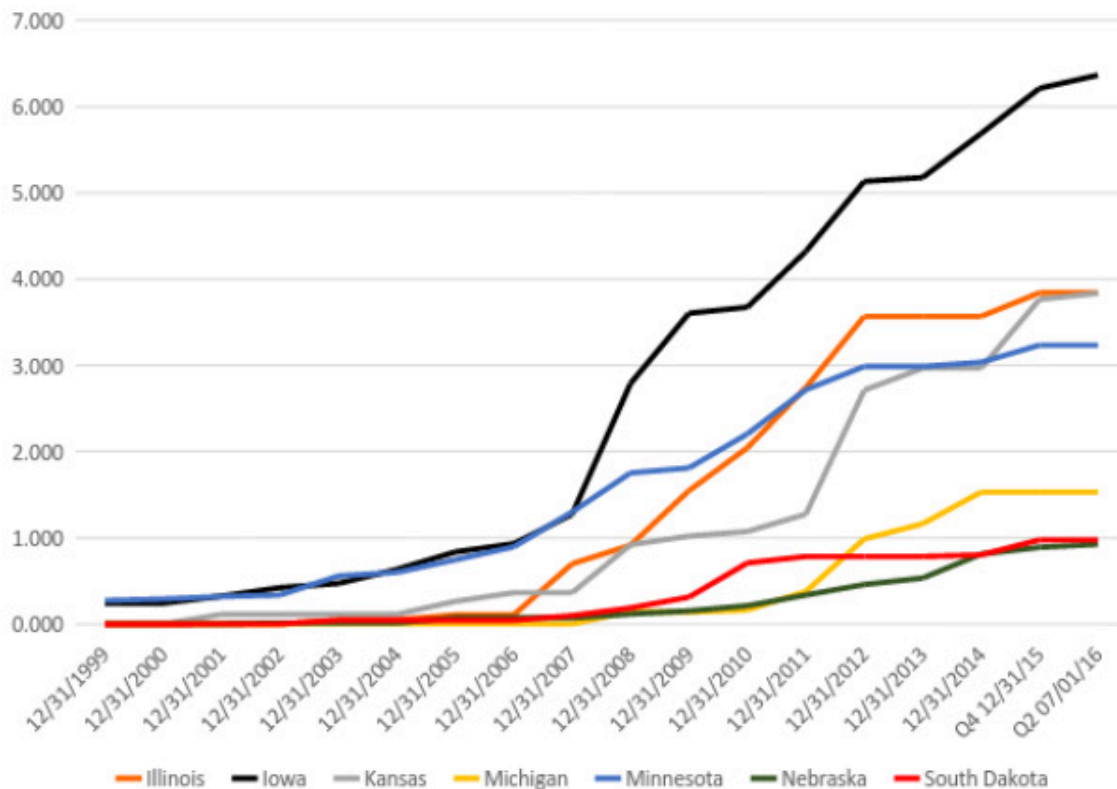
Just as wind farms and solar energy facilities are reshaping rural economies, these new transmission lines also have immediate economic impacts. Outside the construction process, much of that impact comes in the form of taxes and related fees paid by a utility to the state or local government. This report considers how that revenue is assessed, managed, and reinvested.

We use case studies to illustrate three of the options available to state and local governments seeking to maximize the economic impact of transmission development. Each case considers the amount, avail-

1 U.S. Department of Energy WindExchange. Energy Efficiency & Renewable Energy. "Installed Wind Capacity." http://apps2.eere.energy.gov/wind/windexchange/wind_installed_capacity.asp. Accessed October 2016.

2 Motyka, Marlene (Deloitte). "Trends to watch in alternative energy." <http://www.altenergymag.com/article/2016/01/trends-to-watch-in-alternative-energy/22618>. Accessed October 2016.

FIGURE 2. INSTALLED WIND POWER CAPACITY (MW), 1999 TO 2016



Source: U.S. Department of Energy. "U.S. Installed and Potential Wind Power Capacity and Generation." http://apps2.eere.energy.gov/wind/windexchange/wind_installed_capacity.asp. Accessed October 2016.

ability, and end-user of new revenue tied to transmission infrastructure development. As one might expect, considerable variations exist.

Through this assessment, we find that communities benefit least when sacrificing revenue in favor of tax incentives for the utility. Communities benefit most when project revenue is collected and used to offset local taxes or invest in local improvements. This latter approach is preferable to communities because it recognizes the unique opportunities and challenges facing affected governmental subdivisions.

Our conclusion is that the needs of front-line communities must be prioritized. New development of any type changes the nature and quality of the community, and any new revenue should be used to adjust to this new reality. However, the newest generation of transmission is only gradually coming online. Many more miles of lines are under construction or nearing completion. Much will be learned in the coming years, and these lessons will merit continued attention by all stakeholders involved.


III. CLEAN ENERGY DEVELOPMENT AND POWER LINES

Energy generation and transmission have been important parts of the nation's policy discussions since the 1920s, when the notion of "Giant Power" — centralized generation facilities that used high-voltage transmission lines to distribute energy across wide areas — first began to take hold.³ This distribution model continues to dominate today. In the last years of the 20th century, however, the electrical power grid was aging, and consisted of older, highly inefficient technology. As the 21st century began, the geography of power generation faced a new challenge: the rise of renewable energy.

In 2005, coal accounted for 51 percent of U.S. power generation. This was complemented by nuclear, 19 percent; natural gas, 18 percent; and hydropower, 7 percent. Since 2007, however, the percentage of coal used by electrical utilities declined by more than 27 percent. Today, only 30 percent of electrical power generated comes from coal, with natural gas use

3 Cooke, Morris Llewellyn. "Foreword." *Giant Power: Large Scale Electrical Development as a Social Factor*. The Annals of the American Academy of Political and Social Science. Vol. 118, March 1925. <http://www.jstor.org/stable/1016181>. Accessed Sept. 25, 2014.

now exceeding coal-fired generation.^{4,5} Meanwhile, renewable resources account for almost 15 percent of the nation's power generation. Wind energy supplies almost 6 percent of that output. Solar generation capacity is growing rapidly.^{6,7}



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Iowa was the first state to establish a renewable energy portfolio standard in 1983, though the idea was not popularized until the late 1990s. Currently, 29 states, Washington D.C., and three territories have renewable portfolio standards, while eight states and one territory have renewable energy goals. In combination with consumer preference and cost,

4 U.S. Energy Information Administration. *Electricity Data Browser*. goo.gl/wjTkmM. Accessed October 2016.

5 The Economist. "Peak coal: US coal-fired power is steadily declining." Aug. 11, 2015. <http://www.eiu.com/industry/article/1703426954/peak-coal-us-coal-fired-power-is-steadily-declining/2015-08-11>. (Subscription service.) Accessed October 2016.

6 Fleischmann, Daniel. "Renewable Energy was 16.9 Percent of US Electric Generation in the First Half of 2016." *Renewable Energy World*. Aug. 25, 2016. <http://www.renewableenergyworld.com/articles/2016/08/renewable-energy-was-16-9-percent-of-u-s-electric-generation-in-the-first-half-of-2016.html>.

7 U.S. Energy Information Administration. "Electric Power Monthly." August 2017. <https://www.eia.gov/electricity/monthly/pdf/epm.pdf>.

these state policies have helped feed demand for renewable energy.⁸

Renewable fuels have emerged as a significant source of energy for power generation. However, the existing transmission system is inadequate. Much of the infrastructure is several decades old and in need of repair. In many areas, it is ill-equipped to handle the new technologies developed to aid in load management. Further, this infrastructure is not prevalent in the remote rural regions where the most abundant renewable resources are being developed.⁹

Recognizing these challenges, Congress passed the Energy Independence and Security Act in 2007. This legislation further aided the expansion of clean, renewable energy production. Title XIII of the act heightened federal support for developing the nation's transmission system. This was achieved in part by utilizing communications technology to enhance real-time, two-way control of the distribution system, from where the power is generated to the end consumer.¹⁰

Passage of the American Recovery and Reinvestment Act of 2009, approved in the wake of the 2007 global financial collapse, led to additional progress. This legislation sought to streamline transmission development and opened the way for projects intended to demonstrate the feasibility of Smart Grid technologies and designs to update the grid. The package included \$4.5 billion in federal electric sector investment, to be matched by about \$5 billion in private funding by 2015.¹¹

The Federal Energy Regulatory Commission remained equally active, making several changes over this period.

8 Durkay, Jocelyn. "State Renewable Portfolio Standards and Goals." National Conference of State Legislatures. July 27, 2016. <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>. Accessed October 2016.

9 Hladik, Johnathan. "Connect the Dots: Transmission and Rural Communities." Center for Rural Affairs. www.cfra.org/files/Connect_the_Dots.pdf. August 2011.

10 U.S. Congress. Energy Independence and Security Act of 2007. (Public Law No: 110-140). <https://www.congress.gov/bill/110th-congress/house-bill/6/text>. Accessed October 2016.

11 U.S. Department of Energy, Office of Electricity Delivery & Energy Reliability. "ARRA (American Recovery and Reinvestment Act) Grid Modernization Investment Highlights – Fact Sheet." <http://energy.gov/oe/downloads/arra-grid-modernization-investment-highlights-fact-sheet>. Accessed October 2016.

The CapX2020 power line transmission project represents a \$1.85 billion investment in four high-voltage transmission line projects across Minnesota, North Dakota, South Dakota, and Wisconsin.

The joint venture by 11 firms created almost 800 miles of lines, the first major transmission project in the upper Midwest in 40 years.

Besides improving local service, the project was part of a plan to increase power line capacity to carry energy generated by new solar and wind projects.¹² Much of the system was energized in 2015.

The most important of these was Order No. 1000.¹³ This rule recognized the needs of a modern electric grid by requiring that state and federal public policy be considered as part of the local and regional transmission planning process; and the existence of state or federal renewable energy standards must be considered when planning and developing new infrastructure.

Changes at the federal level had a significant local impact. Investment in an expanded power grid for the Midwest in particular became a critical issue because of the vast potential for renewable energy development.¹⁴ Major transmission lines planned as part of the expansion of the Midwestern power grid required substantial investment, estimated at between \$1 million and \$2 million per mile to construct.¹⁵

12 CapX2020. "Delivering Reliable Electricity." <http://www.capx2020.com/>. Accessed October 2016.

13 Federal Energy Regulatory Commission. Order No. 1000 – Transmission Planning and Cost Allocation. <https://www.ferc.gov/industries/electric/indus-act/trans-plan.asp>. Accessed May 9, 2017.

14 Hladik, Johnathan. "Connect the Dots: Transmission and Rural Communities." Center for Rural Affairs. www.cfra.org/files/Connect_the_Dots.pdf. August 2011.

15 South Dakota Public Utilities Commission. South Dakota Wind Energy. <https://puc.sd.gov/commission/Energy/Wind/PUCWindHandout.pdf>. Accessed October 2016.

The economic impact of this investment comes in three phases. The first is the direct result of construction, including:

- Easement payments at fair market value to landowners, typically one-time, to secure the lines' right-of-way;
- Compensation to landowners for property damage during construction;
- Construction jobs, which result in local spending by workers while the lines are built;
- Supplies that might be purchased from local and area vendors; and
- Taxes that might be paid on wages, construction services, and supplies.

The second phase of economic impact comes when the lines are energized, including:

- Employment dedicated to operating and maintaining the new power line system;
- In some states, environmental impact fees might be paid before construction is completed;
- Possible compensation to landowners for damage to land as a result of repair and maintenance activities; and
- Potential opportunities for new energy-related facilities and other forms of rural economic development.^{16,17,18}

The third and final phase of economic impact comes in the form of tax revenue from new facilities. This revenue may be distributed to counties, townships, municipalities, school systems, and other governmental organizations. Distribution is governed by state law; jurisdictions within a state often have a variety of options when deciding how and when to utilize this revenue.

IV. THE CASE STUDIES

We identified recently completed transmission projects in three states to examine the third phase of economic impact. Together the cases demonstrate

16 Clean Line Energy Partners. "About Clean Line Energy." <http://www.cleanlineenergy.com/about>. Accessed October 2016.

17 Duke-American Transmission Co. "Economic impact of the Zephyr Power Transmission Project." Zephyr-Economic-impact-09-11-14-Web.pdf. Accessed October 2016.

18 CapX2020. "Understanding Easements and Rights-of-Way." http://www.capx2020.com/Images/easements_and_ROWs_05.05.2009.pdf. Accessed October 2016.

varying approaches to the use of tax revenue generated by newly built transmission infrastructure. These cases illustrate differences that result from state laws and decision-making by local and county government officials, including:

- Minnesota: the county property tax levy;
- Wisconsin: environmental impact fees; and
- Kansas: transmission line tax exemptions.

A. MINNESOTA: THE COUNTY PROPERTY TAX LEVY

Minnesota has seen continuous renewable energy development, especially wind power, since the 1990s.¹⁹ In response to the increased generation capacity in the state, as well as the need to transmit more energy to other regions in the Midwest, Minnesota has witnessed investments in approximately 500 miles of new transmission lines.

For example, the 250-mile CapX2020 Brookings County-Hampton 345 kilovolt (kV) transmission line straddles the southern part of the state from Brookings County, South Dakota, to the Hampton substation southeast of Minneapolis. The line was fully energized in March 2015. It not only serves the growing Twin Cities metro area, but also connects to new renewable generation resources in southern and western Minnesota and the Dakotas.^{20,21,22}

Lincoln County, Minnesota, is located along the Brookings County-Hampton path in southwestern Minnesota. According to the U.S. Department of

19 U.S. Department of Energy. Office of Energy Efficiency & Renewable Energy. "U.S. installed and potential wind power capacity and generation." http://apps2.eere.energy.gov/wind/windexchange/wind_installed_capacity.asp. Accessed October 2016.

20 Center for Rural Affairs. "Map of Clean Energy Transmission Projects." <http://www.cfra.org/clean-energy-transmission-map>. Accessed October 2016.

21 CapX2020. "Brookings County-Hampton 345 kV project." <http://www.capx2020.com/brookings/index.html>. Accessed September 2016.

22 Schaffer, David. "Minnesota utilities flip switch on large segment of \$2.1 billion CapX2020 transmission project." Minneapolis Star Tribune. <http://www.startribune.com/minnesota-utilities-flip-switch-on-large-segment-of-2-1-billion-capx2020-transmission-project/302495011/>. Accessed October 2016.

Agriculture County Typology, the county is completely rural, not adjacent to a metropolitan area.²³ Ivanhoe, the county seat, has a population of about 560 residents and the county's total population was estimated at 5,771 in 2015.²⁴

Wind energy is not new to Lincoln County, Minnesota. The first wind farm, with 70 towers, was built in 1993. In the late 1990s, another 112 towers were built. Since then, smaller investor groups have built towers, and the county now has 367 wind turbines, located mainly in the southwestern area.

According to state law, 80 percent of the tax revenue from the turbines goes to the county, and 20 percent goes to the townships where the turbines are located.²⁵

In Minnesota, smaller transmission lines with a capacity of 69kV or more, and related facilities and equipment are taxed at the local and state level.²⁶ In Lincoln County, however, the new tax revenue from CapX2020 will not have a direct impact on the county's overall fiscal condition. Instead, any revenue will be used to offset existing taxes.

The county board sets a total levy each year, and additions from the power line tax revenue are incorporated into the existing levy without expanding it. This enables officials to lower property tax rates to keep the overall county revenue within the levy that had been set. In other words, impacts of the new tax are secondary, based on the additional income property owners receive from reduced property taxes. In Minnesota, there is nothing in state law to pre-

23 United States Department of Agriculture. "Rural-Urban Continuum Codes. Documentation." <http://www.ers.usda.gov/data-products/rural-urban-continuum-codes/documentation.aspx>. Accessed September 2016.

24 United States Census Quick Facts. Lincoln County, Minnesota. <http://www.census.gov/quickfacts/table/PST045215/27081>. Accessed November 2016.

25 Nielson, Bruce. Lincoln County, Minnesota, Assessor. Interviewed Oct. 24, 2016.

26 Minnesota Legislature. The Office of the Revisor of Statutes. "2016 Minnesota Statutes. 273.36 Electric Light and Power Companies." <https://www.revisor.mn.gov/statutes/?id=273.36>. Accessed October 2016.

vent county boards from using the new transmission line revenue to expand their levies. In practice, however, counties have chosen not to do so. They opt instead to use the funds to reduce the overall tax burden.^{27,28,29}

Minnesota law also includes a county-level tax credit for qualifying property owners when a high voltage transmission line with a capacity of 200 kV or more runs over their land. Ten percent of the revenue from the utility property tax must be set aside to cover this expense. The amount of the credit is based partly on the length of line over the parcel and the total length of the line passing over all property in the city or township.

Properties that may be eligible include:

- Agricultural homesteads;
- Nonagricultural homesteads;
- Nonhomestead agricultural land;
- Rental residential property;
- Commercial seasonal residential recreational property; and
- Noncommercial seasonal residential recreational property.³⁰

B. WISCONSIN: ENVIRONMENTAL IMPACT FEES

Most public utility companies in Wisconsin are exempt from local property taxes. Instead, they are subject to special state taxes. Private light, heat, and power companies are subject to a state tax based on their gross revenues. The state then shares some of

27 Vierhuf, Deb. Lincoln County, Minnesota, Auditor. Interviewed Oct. 7, 2016; Nov. 14, 2016.

28 Sparks, Bill. State Program Administrator, Minnesota Department of Revenue. Interviewed Nov. 15, 2016.

29 Lincoln County, Ivanhoe, Minnesota. "Financial Statements and Supplementary Information Year Ended Dec. 31, 2015." <http://www.lincolncounty-mn.us/Departments/Auditor/Lincoln%20County%202015%20Financial%20Statements%20&%20Supplementary%20Information.pdf>. Accessed November 2016.

30 Minnesota Legislature. The Office of the Revisor of Statutes. "2016 Minnesota Statutes. Property Taxes. 273.42 Rate of tax, entry and certification, credit on payment, property tax credit. Subd. 2. Property tax credit." <https://www.revisor.mn.gov/statutes/?id=273.42>. Accessed October 2016.



the tax proceeds with municipalities and counties where the utility property is located.^{31,32}

In addition to state taxes, Wisconsin requires environmental impact fees for high-voltage transmission lines operated at 345 kV or more. The fees are distributed proportionally to the counties, towns, villages, and cities identified as affected by the power line. Half of the fee is distributed to the county and the other half is divided among the municipalities.

The fees, paid to the state's Department of Administration, include:

- An annual 0.3 percent fee based on the cost of the line; and
- A one-time 5 percent fee based on the cost of line, as determined by the Public Service Commission.

31 Wisconsin Department of Revenue. "Taxation of Public Utilities." <https://www.revenue.wi.gov/ra/utitax16.pdf>. Accessed October 2016.

32 Wisconsin Department of Administration. Department of Revenue. "Summary of Tax Exemption Devices." <https://www.revenue.wi.gov/ra/15sumrpt.pdf>. Accessed October 2016.

State law permits communities to use the distribution only for park, conservancy, wetland, or other similar environmental programs, however, the Public Service Commission may also be asked to approve a different use. If the commission is convinced that the request is in the public interest, then it must approve the request. Individual landowners may not receive proceeds from the fees.^{33,34}

The CapX2020 Hampton-Rochester-La Crosse 128-mile 345 kV transmission line project was placed into service in September 2016. Construction of the new line began in 2013. Western Wisconsin counties and municipalities affected by the new line began to receive environmental impact fees in early 2014.

CapX2020 sent a first-time \$9.28 million check in mid-November to the Wisconsin Department of

33 Wisconsin State Legislature. "Chapter 16. Department of Administration. 16.969 Fees for certain high-voltage transmission lines." <https://docs.legis.wisconsin.gov/statutes/statutes/16/VI/969/2/a>. Accessed October 2016.

34 Wisconsin Public Service Commission. "Environmental Impacts of Transmission Lines." <http://psc.wi.gov/thelibrary/publications/electric/electric10.pdf>. Accessed October 2016.

Administration (DOA). The payment included a one-time fee for three counties and an annual fee for municipalities.^{35,36,37}

The payments were significant. For example, rural Buffalo County, with its annual operating budget of \$15.6 billion and population of about 15,600, received \$2.4 million.³⁸ The county board set up a projects-based approach to spending the funds (Table 1) with a stress on conservation, sustainability, and natural resources in line with the spirit of the law. The Buffalo County Board of Supervisors had responsibility for approving projects based on referrals made by a department to the board's Home Committee. The board's Finance Committee was permitted to receive requests, pending final approval by the full county board.

As of October 2016, Buffalo County had expended about \$454,000 of the funds with matching pledges of nearly \$700,000 for projects. The largest project, with permission from the state, was to replace the aged courthouse boiler with an energy-efficient one to save taxpayers' money. Other projects included a five-year land conservation and trout stream restoration, support for low-impact forest land management, a recreation study, and a bike trail feasibility

35 CapX2020 Hampton-Rochester-La Crosse 345kV transmission line project update. <http://www.capx2020.com/lacrosse/HRL%20factsheet%20Sep%202016-r.pdf>. Accessed October 2016.

36 CapX2020 pays Environmental Impact Fee to Wisconsin counties, cities and townships. <http://www.capx2020.com/impact-fee-ws.html>. Accessed August 2016.

37 Hubbuch, Chris. "Municipalities to get windfall from CapX2020." La Crosse Tribune. Nov. 15, 2013. www.lacrossetribune.com/news/local/municipalities-to-get-windfall-from-capx/article_32cf783a-4d9b-11e3-a760-001a4bcf887a.html. Accessed October 2016.

38 In 2014, Buffalo County, Wisconsin, received \$480,601 in utility payments. In 2015, it received \$582,992. Hansen, Sonya J. Hansen. Buffalo County, Wisconsin, Administrative Coordinator. Email, Oct. 28, 2016.

study. Some of the funds have been loaned with the promise of repayment, including a Geographic Information Systems project. Two years after receiving the funds, the county had a balance of almost \$1.7 million remaining in the fund.³⁹

In neighboring Trempealeau County, environmental impact fees totaled \$1.4 million on top of a \$56.9 million budget. The county also adopted a proposal process with a formal scoring sheet (Table 3). University of Wisconsin Extension, with assistance from county officials and others, oversaw the process. The group set up a mini-grant fund with different weights depending on proximity to power line, number of people affected, public benefits, and other factors.⁴⁰

Community members proposed about 40 projects that sought \$8 million in funding. Twenty-five projects covering a wide range of activities that requested about \$2.7 million were chosen (Table 1). With \$1.4 million available, grantees accepted less money than they had requested for their projects. About three-fourths of the funds had been expended by late October 2016, and expenditures were to be completed by the end of the year. Poor weather and flooding affected some stream bank stabilization projects, and date extensions were being contemplated.

The largest project was a new education center for Trempealeau National Wildlife Refuge, located along the Mississippi River in Trempealeau and Buffalo counties. The Friends of Trempealeau Refuge received \$450 thousand to build the center as a gateway to the 6,226 acres of prairies and wetlands. The project relied heavily on local contractors and materials.

39 Hansen, Sonya J. Buffalo County, WI, Administrative Coordinator. Interviewed Oct. 27, 2016. Email, Oct. 27, 2016.

40 Malone, Patricia. University of Wisconsin Extension Professor, Community Resource Development. Interviewed Oct. 27 and 28, 2016. Email, Oct. 27, 2016.

IN TREMPLEALEAU COUNTY, WISCONSIN, COMMUNITY MEMBERS PROPOSED ABOUT 40 PROJECTS THAT SOUGHT \$8 MILLION IN FUNDING TO SPEND ENVIRONMENTAL IMPACT FEES GENERATED BY WIND DEVELOPMENT.

TABLE 1. ENVIRONMENTAL IMPACT FEES PAID TO RURAL GOVERNMENT UNITS FOR THE CAPX2020 HAMPTON-ROCHESTER-LA CROSSE TRANSMISSION PROJECT.

County/Municipality	One-time Fee	Prorated Annual Fee	Total First Payment	Ongoing Annual Fee
Buffalo County (rural)	\$2,352,858	\$0	\$2,352,858	\$0
City of Alma	\$167,637	\$11,734	\$179,371	\$20,116
City of Buffalo City	\$24,580	\$1,721	\$26,301	\$2,950
City of Belvidere	\$614,149	\$42,991	\$657,140	\$73,698
Town of Buffalo	\$598,232	\$41,876	\$640,108	\$71,788
Town of Cross	\$280,553	\$19,639	\$300,192	\$33,666
Town of Milton	\$614,113	\$42,988	\$657,101	\$73,694
Village of Cochrane	\$53,594	\$3,751	\$57,345	\$6,431
Buffalo County Totals	\$4,705,716	\$164,700	\$4,870,416	\$282,343
La Crosse County (metro)	\$723,506	\$0	\$723,506	\$0
Village of Holmen	\$100,351	\$7,025	\$107,376	\$12,042
Town of Onalaska	\$14,028	\$982	\$15,010	\$1,683
Town of Holland	\$609,127	\$42,639	\$651,766	\$73,095
La Crosse County Totals	\$1,447,012	\$50,646	\$1,497,658	\$86,820
Trempealeau County (rural)	\$1,410,162	\$0	\$1,410,162	\$0
City of Galesville	\$80,290	\$5,620	\$85,910	\$9,635
Town of Caledonia	\$115,040	\$8,053	\$123,093	\$13,805
Town of Gale	\$490,862	\$34,360	\$525,222	\$58,903
Town of Trempealeau	\$723,971	\$50,678	\$774,649	\$86,876
Trempealeau County Totals	\$2,820,325	\$98,711	\$2,919,036	\$169,219
OVERALL TOTALS	\$8,973,053	\$314,057	\$9,287,110	\$538,382

Source: U.S. Department of Energy. "U.S. installed and potential wind power capacity and generation." http://apps2.eere.energy.gov/wind/windexchange/wind_installed_capacity.asp. Accessed October 2016.

TABLE 2. BUFFALO COUNTY, WISCONSIN, STANDARDS AND DEFINITIONS FOR CONSIDERING PROJECTS USING CAPX2020 ENVIRONMENTAL IMPACT FEE FUNDING.

General Criteria
<p>Generates matching funds;</p> <ul style="list-style-type: none"> • Project is sustainable, doesn't require ongoing budget allocations; • Free standing, doesn't require ongoing county oversight or involvement; • Creates long-term benefits for the county; and • Is not a county activity usually supported by the county budget.
Categories of potential projects to be funded
<p>Conservation: Projects that improve the quality of our land, our water resources, our air. Projects that preserve or improve unique natural areas and wildlife habitat.</p>
<p>Recreation: Projects that enhance or expand the recreational opportunities in the county for both residents and visitors to participate in and enjoy.</p>
<p>Alternative Energy: Projects that assist county residents and organizations in moving away from dependence on fossil fuels and toward reducing long-term energy costs.</p>
<p>Economic Development: Projects that foster cooperation among organizations within the county in the development and carrying out of plans to enhance our local economy.</p>
<p>Infrastructure: Projects that improve or add to the public physical resources available to the residents of the county and visitors.</p>

Source: Sonya Hansen, administrative coordinator of Buffalo County, Wisconsin.

TABLE 3. TREMPEALEAU COUNTY PROPOSAL RUBRIC FOR CAPX2020 ENVIRONMENTAL IMPACT FUNDS.

CAPX2020 Proposal Rubric – Guidelines and scoring scale.		
Criteria	Scale Max score: 100 points	Comments
1. Only Trempealeau County citizens, organizations, or communities are eligible to apply.	0 or 5 or 10	Score is zero if there is no Trempealeau County connection. Score is 5 if project is in Trempealeau County but is being facilitated by a regional or national organization. Score is 10 if it fully meets criteria.
2. As stipulated in state statute 16.969, projects will receive greater weight if they target parks, wetlands, conservancy, or other environmental programs.	1 to 20	Projects that impact the natural environment will be given higher scores than those that impact the built environment. For example, a prairie restoration would score higher than a shelter at a ball park.
3. Projects will be weighted by location, favoring communities most impacted by CAPX2020.	0 or 5 or 10	Projects completely within the towns of Dodge, Caledonia, Trempealeau, Gale, Village of Trempealeau, or City of Galesville will be scored 10. Projects that impact the target area and other parts of the county will score 5. If the project is completely outside of the target area, it will receive a zero.
4. Projects must have public benefit – they cannot be a private property improvement.	1 to 20	Refer to the definition provided.
5. Projects that maximize public access/availability will receive greater weight.	1 to 10	The greater the population that can use the proposed project or the more frequently the project provides benefit, the higher the score.
6. Projects with matching funds or in-kind donations (labor, supplies, etc.) will receive greater weight.	1 to 20	This includes any additional funds from grants, donations, taxpayer dollars, or other financial sources. It also includes in-kind donations of material AND time of volunteers.
7. Projects must follow financial and reporting guidelines and have reasonable plan for implementation.	1 to 10	This measure includes the requirement to spend funds by Dec. 31, 2015, to be audited, and to provide financial records. Evaluate by looking at plan, feasibility, and any indication of past experience meeting deadlines or requirements.

Source: Patricia Malone, University of Wisconsin Extension Professor, Community Resource Development, Trempealeau County, Wisconsin.

TABLE 4. TREMPEALEAU COUNTY PROJECTS APPROVED USING CAPX2020 ENVIRONMENTAL IMPACT FUNDS.

Group	Requested	Approved	Purpose
Friends of Trempealeau Refuge	\$500,000	\$450,000	Build educational center
Village of Trempealeau	\$39,900	\$36,000	Support archaeological dig, provide interpretive signs
Village of Trempealeau	\$200,000	\$100,000	Buy land for a park
Trempealeau, County Tourism Council	\$20,000	\$20,000	Welcome signs and kiosks
Trempealeau Trails Bike Association	\$40,000	\$30,000	Signage for bike routes
Trout Unlimited	\$45,000	\$45,000	Stream improvements, access
Trempealeau County Longbeards	\$24,500	\$24,500	Demonstration sites for habitat restoration, educational field days, handicapped hunting facility (blind)
Galesville Volunteer Trout Club	\$25,960	\$25,960	Trout breeding pond improvement and access to fishing
Village of Strum	\$35,122	\$35,122	Built a youth park
Ettrick Rod & Gun	\$65,000	\$45,000	Stream bank improvement
Trempealeau Trails Bike Association	\$62,500	\$30,000	Bike route signage
Trempealeau Youth Sports	\$104,805	\$20,000	Handicap accessible playground equipment
Reception Park Improvement Committee	\$53,171	\$50,000	Park improvements and erosion control
Garden of Eden Preservation Society	\$1,400	\$1,400	Renovate gardens on main historic home property
Trempealeau Elementary School	\$20,000	\$10,000	Earth Day programming and aquaculture facility
Village of Ettrick	\$430,000	\$230,000	Stream bank improvements in village and park, trail development
Garden of Eden Preservation Society	\$40,350	\$25,000	Foundation repair on historic home
Associated Snowmobile Clubs	\$61,500	\$43,500	Bridge replacement changed to funds to groom snowmobile trails
Village of Ettrick	\$150,000	\$25,000	Campground in park
Gales-Ettrick-Trempealeau Middle School	\$10,000	\$10,000	Landscaping
Galesville Lions Club	\$5,000	\$5,000	Trail improvements
Independence Lions Club	\$3,585	\$700	Tree planting in park
Ag Society - Fairgrounds	--	\$32,000	Public address system and camping
Whitehall Park Improvements Phases 1 and 2	\$364,990	\$42,000	Campground renovation
Trempealeau County Parks	\$410,000	\$73,000	Improvements to campground shelter facility
TOTALS	\$2,712,084	\$1,409,182	

Source: Patricia Malone, University of Wisconsin Extension Professor, Community Resource Development, Trempealeau County, Wisconsin.

C. KANSAS: TRANSMISSION LINE TAX EXEMPTIONS

The 345 kV Kansas Electric Transmission Authority (KETA) power line runs from Spearville, Kansas, to Axtell, Nebraska. Planned by the now-defunct KETA, the project runs approximately 225 miles; 174 miles of line are in Kansas and 51 miles are in Nebraska. It was completed by the Sunflower Electric Power Corporation, Midwest Energy, and the Nebraska Public Power District. ITC Great Plains built two segments in Kansas, while Nebraska Public Power District built the Nebraska portion. The system was fully energized in December 2012.^{41,42}

Ellis County, Kansas, is one of nine counties in the state crossed by KETA. Ellis County is located in central Kansas on Interstate 70. It is a rural county with about 29,000 residents. Hays, the county seat,

has a population of about 20,500 residents, making it a micropolitan county, rural, with a regional urban presence.⁴³

In Kansas, public utilities are treated separately from other property for tax appraisals. While other property is appraised locally, the state appraises public utility property. Under this system, all transmission lines, poles, and transformers receive a 10-year property tax exemption. The exemption for the KETA transmission project began in 2011.

Other related transmission facilities, such as substations, are subject to property tax. Utility property is assessed and apportioned to local taxing districts by the Kansas Division of Property Valuation. The state collects a small share of the utilities tax for higher education, while the remainder goes to the county.⁴⁴

The 32 miles of KETA transmission line cross six tax units in Ellis County. When the county government's budget is developed for a particular year, tax payments are divided among various governmental units and entities. These include the county govern-

41 Center for Rural Affairs. "Kansas Electric Transmission Authority (KETA) Project." <http://www.cfra.org/spearville-axtell>. Accessed October 2016.

42 ITC Great Plains. "ITC Great Plains Energizes Phase II of KETA Transmission Line." <http://www.itc-holdings.com/itc/newsroom/2012/12/13/itc-great-plains-energizes-phase-ii-of-keta-transmission-line-526>. Accessed October 2016.

43 United States Department of Agriculture. "Rural-Urban Continuum Codes. Documentation." <http://www.ers.usda.gov/data-products/rural-urban-continuum-codes/documentation.aspx>. Accessed September 2016.

44 Suelter, Kevin. Manager, Kansas Public Utilities Section. Interviewed Sept. 23, 2016.

TABLE 5. PAYMENTS TO TAX UNITS FOR POWER TRANSMISSION-RELATED FACILITIES IN ELLIS COUNTY, KANSAS, 2013 TO 2015.

Tax Unit/Year	2013	2014	2015
Ellis Township USD 489	\$773.94	\$728.00	\$950.66
Catherine Township USD 270	\$2,398.74	\$2,302.26	\$2,983.16
Buckeye Township USD 270	\$640.60	\$614.88	\$797.62
Buckeye Township USD 489	\$269,825.74	\$253,280.66	\$331,065.42
Lookout Township USD 489	\$3,404.38	\$3,202.46	\$4,181.30
Big Creek Township USD 489	\$5,057.88	\$4,758.20	\$6,212.76
TOTALS	\$282,101.28	\$264,886.46	\$346,190.92

Source: Ellis County, Kansas, Appraiser. ITC Real Estate Tax Statements.

FIGURE 3. 2015 COPY OF ELLIS COUNTY REAL ESTATE TAX STATEMENT FOR ITC GREAT PLAINS, BUCKEYE TOWNSHIP USD 480 TAX UNIT.

ELLIS COUNTY REAL ESTATE TAX STATEMENT

2015 Date: 9/19/2017

Statement #: 2000099 CAMA #: Levy: 92.92600 Tax Unit: 63 - BUCKEYE TOWNSHIP USD 489

Parcel #: 5930 Property Address: Deed Name:

State Assessed Utilities

TAX SUMMARY

First Half Tax:	165,532.71
Second Half Tax:	165,532.71
Total Tax:	331,065.42

Owner ID #: ITCG00001
 Owner Name: ITC GREAT PLAINS
 Owner Address: ATTN: JOSEPH ROBACH TAX MANAGER
 27175 ENERGY WAY
 NOVI, MI - 48377-3639

MAKE CHECKS PAYABLE TO:
 ELLIS COUNTY TREASURER
 PO BOX 520
 HAYS, KS - 67601
 785-628-9465

PROPERTY DESCRIPTION						
Subdivision:	Block:	Lots:	Section:	Township:	Range:	
Legal:	Total Acres:				Ag Acres:	
PROPERTY CLASS	ASSD RATE	PRIOR YEAR	CURRENT YEAR	VALUE CHANGE	% CHANGE	CURRENT TAX
UE UTILITY- ELECTRIC	100.0	2,810,451	3,562,678	752,227	26.	331,065.42
THE FIRST \$2,300 IN RESIDENTIAL ASSESSED VALUE IS EXEMPT FROM THE STATEWIDE USD GENERAL FUND MILL LEVY.						Grand Total: 331,065.42

SPECIAL ASSESSMENTS / NRA			

MILL LEVIES	PRIOR YEAR	CURRENT YEAR	% CHANGE
State	1.500000	1.500000	0.00
County	34.284000	36.675000	6.97
Fire District	2.291000	2.884000	25.88
Library	1.794000	2.162000	20.51
School District	30.118000	29.464000	-2.17
School District - General	20.000000	20.000000	0.00
Township	0.134000	0.241000	79.85
Grand Total:	90.12100	92.92600	3.11

TAX	PRIOR YEAR	CURRENT YEAR	\$ CHANGE	% CHANGE
State	4,215.68	5,344.02	1,128.34	26.77
County	96,353.50	130,661.21	34,307.71	35.61
Fire District	6,438.74	10,274.76	3,836.02	59.58
Library	5,041.95	7,702.51	2,660.56	52.77
School District	84,645.17	104,970.75	20,325.58	24.01
School District - General	56,209.02	71,253.56	15,044.54	26.77
Township	376.60	858.61	482.00	127.99
Grand Total:	253,280.66	331,065.42	77,784.76	30.71

REVENUE FROM PROPERTY TAX LEVIES	PRIOR YEAR	CURRENT YEAR	\$ CHANGE	% CHANGE
State	48,258.06	39,981.40	-8,276.66	-17.15
County	1,103,168.27	977,183.32	-125,984.95	-11.42
Fire District	73,683.28	76,784.55	3,101.27	4.21
Library	57,711.17	57,556.91	-154.27	-0.27
School District	968,955.62	785,437.22	-183,518.40	-18.94
School District - General	633,801.57	523,311.63	-110,489.93	-17.43
Township	4,316.81	6,407.39	2,090.58	48.43
SPECIAL ASSESSMENTS	0.00	0.00	0.00	0.00
Grand Total:	2,889,894.78	2,466,662.42	-423,232.36	-14.65

IF TAXES ARE NOT PAID BY THE DUE DATE, INTEREST PER ANNUM IS CHARGED.

Source: Ellis County, Kansas, Appraiser.

ment general fund, the fire district, the library, the school districts, the school district general fund, and the township where the property is located.

Table 5 shows property taxes paid from 2013 to 2015 by ITC Great Plains. Most amounts are relatively small. The exception is Buckeye Township USD 489, where the utility owns a substation. (Figure 3 shows a typical real estate tax statement for ITC's transmission facilities in the tax unit for 2015.)

Table 6 focuses on the Buckeye Township USD 489 tax unit. In almost every case, the revenue from ITC's related facilities and equipment more than tripled between 2012, when the KETA line and related facilities were still under construction — and its first full year of operation in 2013. Note also that ITC-derived tax revenue for various government units tended to increase in the next few years. Total tax revenue for the unit jumped between 2012 and 2013, but tapered off between 2013 and 2015.

TABLE 6. DISTRIBUTION OF ITC TAX REVENUE IN BUCKEYE TOWNSHIP USD 489, ELLIS COUNTY, KANSAS, 2012 TO 2015.

ITC Tax Revenue					
Buckeye Twp USD 489	2012	2013	2014	2015	% change 2012-2013
State	\$1,077.08	\$4,498.70	\$4,215.68	\$5,344.02	317.68%
County	\$25,526.75	\$102,666.21	\$96,353.50	\$130,661.21	302.19%
Fire District	\$1,530.89	\$6,901.00	\$6,438.74	\$10,274.76	350.78%
Library	\$1,260.90	\$5,074.53	\$5,041.95	\$7,702.51	302.45%
School District	\$21,616.96	\$90,309.81	\$84,645.17	\$104,970.75	317.77%
School District - General	\$14,361.04	\$59,982.60	\$56,209.02	\$71,253.56	317.68%
Township	\$124.94	\$392.89	\$376.60	\$858.61	214.46%
TOTAL ITC TAX REVENUE	\$65,498.56	\$269,825.74	\$253,280.66	\$331,065.42	311.96%
Property Tax Revenue					
Buckeye Twp USD 489	2012	2013	2014	2015	% change 2012-2013
State	\$30,315.94	\$48,628.61	\$48,258.06	\$39,981.40	60.41%
County	\$718,743.39	\$1,109,793.13	\$1,103,168.27	\$977,183.32	54.41%
Fire District	\$42,954.79	\$74,594.34	\$73,683.28	\$76,784.55	73.66%
Library	\$35,466.21	\$54,840.20	\$57,711.17	\$57,556.91	54.63%
School District	\$608,861.82	\$976,376.43	\$968,955.62	\$785,437.22	60.36%
School District - General	\$395,281.29	\$638,685.79	\$633,801.57	\$523,311.63	61.58%
Township	\$3,522.42	\$4,255.72	\$4,316.81	\$6,407.39	20.82%
TOTAL ITC TAX REVENUE	\$1,835,145.86	\$2,907,174.22	\$2,889,894.78	\$2,466,662.42	58.42%

Source: Ellis County, Kansas, Appraiser. ITC Real Estate Tax Statements.

TABLE 7. KETA'S PERCENTAGE OF ELLIS COUNTY, KANSAS, AD VALOREM TAXES AND TOTAL REVENUE SOURCES.

General Fund Sources	Actual 2013	Actual 2014	Budget Est. 2015
Ad Valorem Taxes	\$14,147,366	\$14,048,052	\$14,227,546
KETA Percent of Ad Valorem Taxes	0.019940198	0.018855743	0.024332441
Total Revenue Sources	\$20,848,844	\$21,751,880	\$21,805,151
KETA Percent of Total Revenue Sources	0.013530788	0.012177635	0.015876566

Source: Ellis County, Kansas, Appraiser, ITC Real Estate Tax Statements; Ellis County, Kansas, budget documents. <http://www.ellisco.net/DocumentCenter/>. Accessed October 2016.

Revenues from new utility facilities that are not tax exempt are problematic for public school districts in Kansas. In 1992, the state legislated a uniform mill levy for school districts. In a few cases, this levy provided all or most of the funds schools needed to operate, while in other places, especially rural communities, the funds raised by the levy became a credit toward the district's budget. The state then made up the difference.

Several years ago, the state began to collect the funds from the local levy to reappropriate to the districts. This redirection of funds was administrative and made no difference to the district's overall funding. However, the addition of new property did not allow local districts to spend any more because property tax growth is capped; additional tax revenues derived from power lines or any other new development do not expand the school's general fund. This additional property makes the school district wealthier, so it might receive less state aid.

Two years ago, the state implemented a block grant system that freezes each entity's basic budget amount. Local tax options provide some breathing room for school districts to expand their general fund budgets; these are funded from sources other than property taxes.⁴⁵

Table 7 shows KETA's percentage of total ad valorem (property) taxes and total county revenue sources. The utility tax revenue from the KETA project represented about 2 percent of the county's property taxes in 2013, 1.8 percent in 2014, and an estimated 2.5 percent in 2015. The KETA property

tax represented less than 1.5 percent of total county revenue sources during the three budget years.

Through this approach, property taxes on utilities offer a supplement to the Ellis County General Fund. The county also produces more oil than any other county in the state, creating an additional source of tax revenue for the area. In the past, counties and cities have been able to take advantage of additional revenue from new developments, but the ability to capture that growth was to be capped in January 2017, as a result of legislative action in Topeka.⁴⁶

VII. CONCLUSION

The growth of renewable energy has altered every facet of the power sector. A modern and robust delivery system will be needed as the transition to wind and solar generation continues. Improvement and expansion of the electric grid will bring investment dollars and economic activity to the rural communities most closely affected. Community stakeholders must be empowered to determine how this influx is managed.

The economic impact of transmission development takes place in three phases. The final phase, which includes revenue from the taxes and fees that result from grid expansion, is governed by state statute. The three states analyzed here manage this in a way that meets their unique fiscal needs.

45 Mark Tallman, Assistant Executive Director for Advocacy, Kansas Association of School Boards. Interviewed Oct. 28, 2016. E-mail, Oct. 31, 2016.

46 Phillip Smith-Hanes, Ellis County, Kansas, Administrator. Interviewed Nov. 1, 2016.

- Minnesota assesses a property tax on transmission infrastructure. Under state law, counties are technically permitted to increase the local property tax levy by the amount collected. In practice, however, the revenue is used to lower taxes for all property owners in the jurisdiction.
- Much of the revenue generated by transmission developers in Wisconsin comes in the form of environmental impact fees. Though viewed negatively by stakeholders, this approach is successful because it offers affected communities an opportunity to determine how the revenue will be used. The mini-grants that result have lasting impacts.
- In Kansas, transmission infrastructure is exempt from property taxes for the first 10 years of operation. Historically, counties and cities in Kansas have been able to take advantage of any additional revenue from new substations. However, the ability to capture that growth was capped in January 2017.

All states are not equal. As our examples reflect, there is considerable variation in the flow of rev-

enues from power lines. Current property tax laws, which tend to limit revenue and budget growth, constrain some counties' ability to take advantage of revenue from new development. Other states leave it to the counties' discretion on how to apply the revenue to their budgets.

States that provide utility tax incentives to encourage construction miss an ideal opportunity to invest in rural communities. Conversely, those that grant community stakeholders the power to decide how and where new revenue is used maximize benefit to affected residents. This decision-making power allows neighbors to embrace and encourage future economic development.

Local communities are on the forefront of any transmission project. Because of this, any revenue derived should be invested back in those communities. Residents' unique needs must be prioritized. Policymakers should ensure local governments are in a position to receive tax revenue and should provide citizen stakeholders an opportunity to determine how the revenue is utilized.

ABOUT THE CENTER FOR RURAL AFFAIRS

Established in 1973, the Center for Rural Affairs is a private, nonprofit organization with a mission to establish strong rural communities, social and economic justice, environmental stewardship, and genuine opportunity for all while engaging people in decisions that affect the quality of their lives and the future of their communities.