



GRIDLOCK

**A Policy Analysis on Siting and Coordination
of Interstate Transmission Line Development
in the Upper Midwest**

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I. EXECUTIVE SUMMARY

The electric power grid in the Upper Midwest requires additional capacity across the region in order to relieve grid congestion and improve reliability. To solve this problem, the Midwest Independent System Operator (MISO) has planned 17 high voltage transmission line projects that have been designated as high priority and are denoted as Multi Value Projects (MVPs). As transmission developers and state agencies begin to process the applications to site and build these projects, there is potential public opposition and a lack of interstate coordination. To help ensure that the goals and needs of the entire region are met, this report seeks to provide insight on transmission line siting and coordination across states.

This report develops and evaluates policy recommendations that the member states of MISO may consider to harmonize coordination and the administrative processes across the region. It focuses on the Upper Midwest portion of the MISO region, where the greatest concentration of renewable generation is projected, and the most extensive collection of MVP plans have been developed. A comparative analysis of stakeholders, siting procedures and precedents, and coordination standards, both with the public and across state lines is analyzed for Illinois, Iowa, Minnesota, North Dakota, South Dakota and Wisconsin. The comparative nature of the findings serves to better understand the power and interest dynamics without discounting the individual and existing conditions that exist in each state. Interviews with managers and advisors within regulatory and administrative agencies, non-profits, and local government helped to understand the strengths and weaknesses of existing transmission line procedures and convey public opposition. The interviews, industry reports and scholarly articles were used to develop feasible policy recommendations that could be applied at different scales. Examples of processes that have failed and succeeded are highlighted throughout the report, helping to focus policy options. Given the varying context of each state, policy options were established in three tiers based on where and how they would be implemented – at the local, state, or regional level. Final recommendations aim to modify status quo siting coordination at the developer, state, and regional levels, resulting in more constructed capacity in the Upper Midwest.

II. INTRODUCTION

The Midwest Independent System Operator service area needs additional transmission line capacity to improve reliability and relieve line congestion. While MISO has approved 17 MVPs across its service area, transmission line siting approvals risk being slowed by technical findings, public disapproval, and siting processes outlined in state statutes. For the projects to be effective, the lines need to be sited and the additional capacity constructed.

The intent of this report is to identify ways to facilitate the siting of MISO's MVP projects. Because transmission capacity across the MISO region is not adequate to meet loads, nor extensive enough to meet state renewable energy policies, there is a need to improve existing infrastructure. MVPs are projects identified as having regional added value by simultaneously increasing reliability, access to renewable energy, competition in the market, and as a result, assisting states in meeting their Renewable Portfolio Standards.

What do successful siting practices for the next generation of transmission look like?

1. *Successful interstate siting practices* allow needed projects to be constructed within a predictable time frame while incurring anticipated costs, and consider regional needs and opportunities for interregional efficiencies.^a
2. *Successful interstate coordination practices* are those, which legitimize the concerns of affected parties and incorporate greater decision-making transparency.

Siting processes and coordination practices in Illinois, Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin – the Upper Midwest – are analyzed throughout this report. Although there are challenges to be faced across the entire MISO region when improving siting and coordination practices, many of the trends present across the region are well represented by this six state subsection, such as tensions between wind energy exporting and importing states, bottleneck areas, and precedents of local opposition to transmission line siting.

^a Successful siting is often defined referenced by utility commissions as having a “balanced interests outcome” because there are so many stakeholders and tensions at play. The CAPX 2020 project (particularly Alma to La Crosse, WI) is a helpful example of these dynamics at play.

Figure 1. Map of MISO Multi Value Projects (MVPs) and Wind Generating Potential¹

This map shows all 17 of the approved MVP projects across the MISO region and the locational marginal pricing (LMP) in dollars per MWh based on an LMP map from July 2011.² Only fourteen of these lines pass through of the Upper Midwest states and were studied for this report. Pricing differences across the region explain the regional value to be gained in the market efficiency for consumers and producers as access to areas with optimal wind generation increases.

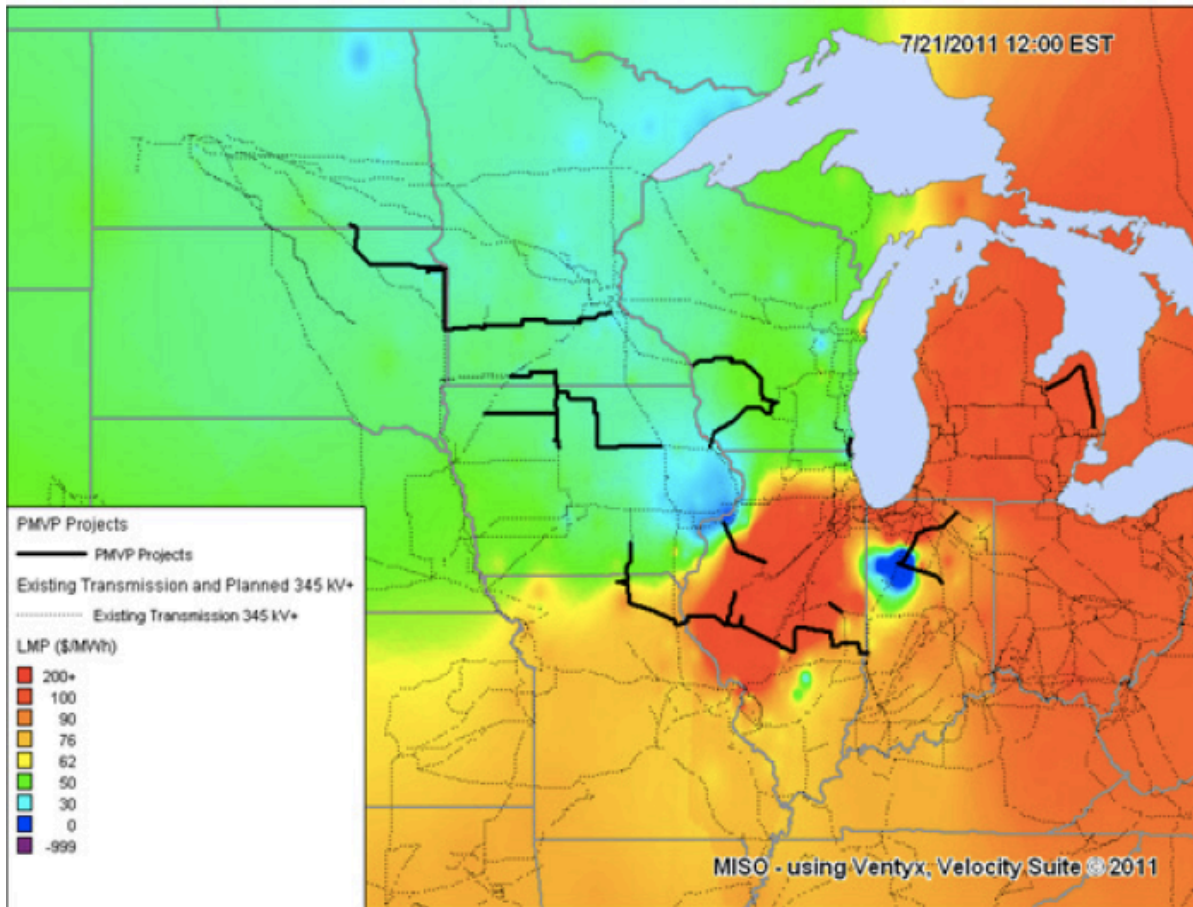


Table 1. Project List – All Current or Future Projects Researched for this Report^{3 4 5}

All the projects that were researched for this project that are currently undergoing planning, siting or construction. All projects are either MVP lines or lines that connect MVP lines, with the exception of the Rock Island Clean Line. Some additional projects were researched for historical context. These lines are by and large 345 kV lines, with some exceptions where short distances of 161 kV lines are planned and where existing low voltage lines are being upgraded to 345 kV.

Project Name	State(s)	Anticipated In Service Year	Designation(s)	Cost (\$ millions)	Cost / mile (\$ millions)	Approx.Line Miles
1. Rock Island Clean Line	IL	2016	-	\$1,700	\$3.40	500
2. St. Cloud - Fargo	MN	2015	CapX	\$750	\$3.57	210
3. Brookings - TCs	SD, MN	2015	MVP	\$695	\$1.92	362
4. Lakefield & Sheldon - Burnt	MN, IA	2015/2016	MVP	\$506	\$1.63	310
5. Winco - Hazleton	IA	2015	MVP	\$480	\$1.27	378
6. Palmyra Tap - Pawnee	MO, IL	2017	MVP	\$392	\$3.38	116
7. La Crosse - N. Madison	WI	2018	MVP	\$390	\$2.48	157
8. Dubuque - Cardinal	IA, WI	2020	MVP	\$324	\$2.35	138
7. Pleasant Prairie - Zion	WI, IL	2019	MVP	\$26	\$4.91	5.3
8. Pana - Sugar Creek	IL	2019	MVP	\$284	\$2.56	111
9. Ellendale - Big Stone	ND, SD	2019	MVP	\$261	\$1.80	145
10. Rochester-La Crosse	MN, WI	2015	CapX & MVP	224	\$1.57	143
11. Fargo - Oak Grove	IL	2018	MVP	\$193	\$1.75	110
12. Big Stone - Brookings	SD	2017	MVP	\$191	\$2.77	69
13. Adair - Ottumwa	IA, MO	2017	MVP	\$152	\$1.73	88
14. Sidney - Rising	IL	2016	MVP	\$90	\$3.33	27
15. Pawnee - Pana	IL	2018	MVP	\$88	\$2.51	35
16. Monticello - St. Cloud	MN	In service	CapX	\$80	\$2.86	28

* Costs in 2011 dollars

MISSING FROM THE ABOVE LIST IS THE ALMA – LA CROSSE LINE. It is NOT MVP.

Currently MISO has approved 17 MVP projects, 14 of which run through some portion of the Upper Midwest. These 17 projects are the most efficient way to meet state Renewable Portfolio Standards (see *Figure 1*), add needed capacity⁶ and address a variety of operational line constraints identified by the North American Energy Reliability Corporation (NERC).⁷ However, as has been noted, siting and coordination barriers could prevent these lines from being constructed.⁸

For transmission development projects to move from planning to construction, they must all complete the siting approval process (see *Figure 2*). As siting authority resides at the state and local level (local authority only occurs in Iowa),^b process duration, predictability, and technical rigor vary greatly from state to state. Transmission line developers navigate processes somewhat blindly, making assured construction questionable. A large portion of this report and analysis is spent comparing state and local siting logistics and coordination to interstate coordination.

^b The Federal Power Act, 16 U.S.C §§ 791 et seq.

Figure 2. General Scope of Siting Processes

The *siting process* has multiple components and varies from state to state, but in general it is the process that occurs between planning and construction and involves approvals and permitting. The beginning of siting is not always easy to define. Pre-application coordination and information gathering will take anywhere from one to five years, depending on the state, before a project application can even be submitted.⁹



Since the MVPs have not yet been built, not only is it necessary to study other transmission line projects, it is important to understand the social, cultural, political, and economic dynamics in each state. As trends in energy generation become more regional, but siting authority remains local, there is a need for more effective and transparent siting practices across the region. To do this, existing siting practices, historical precedents for siting and coordination, stakeholder interests, methods of communication, litigation concerns, and energy policies across the region all need to be considered.

III. BACKGROUND AND POLICY WINDOW

The Emerging Models of Regional Planning and Cost Allocation

Out of a need to fix the discriminatory way in which grid infrastructure and access to power was being developed, the Federal Energy Regulatory Commission (FERC) released Order 890 in February of 2007. Under the Federal Power Act (FPA), FERC has the authority to delegate any area it has jurisdiction over to a group of states. This Order broadly requested that transmission planning be addressed on a regional level and set out the principles under which such planning should be carried out.¹⁰ FERC detailed this request further when it released Order 1000 in June 2010 and required all transmission providers to participate in planning at the regional level. The Order also required planning to consider state and Federal energy policy needs while also setting out methods for cost allocation and trans-regional transmission organization coordination.¹¹

In 2001 MISO became the nation's first formally recognized Regional Transmission Organization (RTO) under FERC^c. MISO has been one of the most unified and innovative RTOs/ISOs in the nation. Overseen by a board of voting members that have a variety of interests^d, the establishing of MISO has changed the rules of the game. State level siting used to be appropriate for locally minded developers and state level planning. Regional planning requires state siting to bridge larger coordination gaps.¹² As a planning and operating organization, MISO does not see itself involved in siting and thus there is no forum for regional siting considerations.¹³

Chicago is not part of MISO: By definition, MISO can only take into consideration the load needs of the customers within its own region. According to FERC Order 1000, MISO and other RTOs should coordinate with their neighboring ISO and RTO organizations to find shared efficiencies that could bring shared benefits and reliability, but the planning of regional infrastructure does not take into consideration the load and capacity needs of regions outside their jurisdiction. Although the MISO region has changed numerous times since its inception, it is worth noting that the greater Chicago area is not and has not been a part of MISO. Although MISO does consider how reliability in the Chicago area would be affected by their planning, the actual load needs of the area have not been a factor in planning transmission lines across the region, a common misperception.¹⁴

Under FERC regulations, regional transmission organizations have the authority to set tariffs within their own region above and beyond Federal tariffs, pending FERC approval.¹⁵ Once approved, a tariff, such as the one used to finance MVP developments, will be administered through FERC, but for the use of the ISO/RTO region. Although all high voltage lines need to be proposed to MISO before development, the incentive for developers is that projects could gain MVP status and access regional cost allocation. Earning the MVP distinction allows a projects access to regional cost allocation where 80% is paid for by MISO ratepayers via the tariff and

^c MISO is generally responsible for various portions of transmission operation and regional planning, including analyzing and reporting on cost allocation strategies.

^d All members fall into one of the following nine categories: 1) Transmission owners, 2) Independent power producers and exempt wholesale generators, 3) Power markets and brokers, 4) Municipals, cooperatives, and transmission dependent utilities, 5) Public consumer advocates, 6) State regulatory authorities, 7) Environmental/other advocates, 8) Eligible end use customers, 9) Coordinating members

20% is paid for by the transmission company, costs which are passed on to customers in local service areas.¹⁶ In total, all MVP projects will cost \$6.4 billion, of which \$5.18 billion have been approved.¹⁷

Planning now occurs at the regional level and siting at the state level, but a large responsibility is still expected of the transmission developer. Developers and utilities are most familiar with procedures when expanded or retrofitted transmission is needed and they must only apply for siting approval of such development. It is common for transmission utility service to extend only within the bounds of one state or just over state lines. As developers construct lines, a proportion of the costs will be passed on to local ratepayers through service area cost sharing. Although cost sharing fees are usually nominal, the area over which shared operation and maintenance costs are spread can vary greatly by state.^e How a developer is viewed by the public, their experience in the field, and how service areas are established are just some of the dynamics that affect a developer's ability to get siting approved. The coordination that may be required to complete successful siting is subject to gaps that may exist either on the governmental or developer side.

Bottlenecks in the MISO Grid: The piecemeal fashion of transmission line planning and development before MISO led to the existence of *bottlenecks*. These are areas where current grid infrastructure is inadequate and generated electricity is prevented from reaching load centers, resulting in wasteful energy generation and even the constructing of unnecessary generation facilities. *Bottlenecks* are particularly problematic in southwestern Wisconsin and eastern Iowa, where population density is low and attention to natural conservation is particularly high.

The Effects of Deregulation: Deregulation did not change these elements of transmission development, as utility companies in deregulated states had even more incentive to develop in cost-effective ways.¹⁸ As not all states adopted deregulation, a new layer of complexity was added to the already fragmented method of development. Deregulation did not introduce any new reasons for more holistic planning, but instead increased competition and uncertainty in the market^a. Although deregulation was considered widely in the Midwest, only one state in the Upper Midwest, Illinois, became deregulated, a continued source of energy policy disparity among Upper Midwest states.

Public Vested Interest

Electricity customers across the MISO region have a vested interest in transmission line development. On December 16, 2010 FERC issued Order ER10-1791 approving the MISO tariff that attaches a per kWh fee to ratepayer bills for the purpose of MVP cost recovery. The tariff is financing the regionally shared portion of MVP lines, 80% of the project cost.¹⁹ On average this will cost ratepayers \$0.21 to \$0.25 per MWh, which is roughly what an average family consumes each month.²⁰ An aggregate of \$5.18 billion dollars of cost will be distributed across the MISO region's 40 million customers.²¹ However, it is the non-distributed costs, such as disturbance of

^e Transmission developer costs are divided into two main parts 1) capital costs, which includes initial investment money for construction of lines and 2) operations and maintenance costs, which includes most other costs, such as surveillance of lines, pre-application/pre-certification costs, and public participation costs. O&M costs are all passed on to ratepayers as increased rates or as fees tacked on to base rates.

natural beauty, unwanted harm to property value, and perceived health effects,²² that are most controversial. The challenge with addressing these costs is that mechanisms to offset them do not exist, either because the issues of boundaries and ownership cannot be defined or because the mechanisms simply have not yet been developed.

It is estimated that for every million dollars invested in transmission line development regionally, \$0.2 to \$2.9 million of local investment are created beyond this; this is an increase of \$1.1 to \$9.2 billion of local investment across the MISO region. Injecting this money locally will create 17,000 to 39,800 local jobs, both temporary and full-time.²³ The increase in transmission line capacity that would occur due to approved MVP lines is so significant that it would counter the need to build more fossil fuel generation capacity. Not only will this save ratepayers money in the short-term, it will help to make the cost of energy more predictable as the fossil fuels are subject to increases, while wind has zero fuel cost.²⁴

Beyond minimizing the trend of increasing utility rates, the environmental benefits are substantial. Increased transmission line capacity would stop wind electricity generation from being curtailed, as it has been in Iowa for a number of years. Although transmission lines may not be a desirable ornament on the landscape, and some environmental groups continue to improperly associate transmission lines with dirty power generation,²⁵ developing the proposed MVP lines would serve to avoid the generation of 8 to 18 million tons of carbon.²⁶

The range of potential benefits is wide, but in all scenarios studied the benefits and avoided costs associated with regional transmission line development significantly outweigh the costs.²⁷ For this reason it is important that these approved lines can actually be sited and constructed so that the benefits can be realized. The approval of MVP and other interstate transmission lines over the next eight years (the anticipated window of time until all MVP lines are in service) will profoundly affect the region's ability to cut unneeded capital and environmental costs in the mid-term and long-term.

The Urgency to Act – A Policy Window

The need to find more reliable and stable means of siting transmission lines across the region is urgent. The current regulatory environment and slow economic recovery have revealed vulnerabilities in the MISO region's ability to get planned lines sited and built. In 2003 the combination of operator error and a technical system failure caused the two-day blackout that plagued eight states and parts of Canada. This catastrophic event was costly and symbolic, catalyzing regulatory changes around transmission planning and reliability. This event resulted in action being taken at the Federal level with the Energy Policy Act of 2005.²⁸ Today, similar action, whether at the Federal or state level, needs to be taken to address the siting and coordination gap that exists between regional planning and local siting.²⁹

Not only is greater success in regional siting and coordination a pragmatic solution for a modern society that is concerned with growing both regionally and locally, but it is also an idea that has been prompted by the Federal government agenda. The Obama administration has continued to reinforce the planning and siting of high voltage transmission lines across the country, highlighting their importance in integrating renewable energies into the grid.³⁰ While there has

been discussion of Federal siting authority being established for over ten years,³¹ regulators are working to further this agenda by developing a number of environmental standards that would greatly affect electricity generation in the US. One recently passed, and three regulations under consideration by the EPA,^f have combined effects that are well understood, but create uncertainty in when compliance will be required.³² Air quality regulations may require a number of coal-fired and oil-fired plants to be shutdown all at the same time³³, although it is far more likely for shutdown negotiations to take place over an extended period of time. Within the MISO region alone, 61 GW may need to be retrofitted or replaced with a cost to utilities of approximately \$31 billion.³⁴

Beyond Federal level regulation, the Upper Midwest has the most stringent Renewable Portfolio Standards in the country. Standards range from a 10% voluntary standard in South Dakota to a combined 25% / 30% standard in Minnesota (see Figure 3). While in place, the standards do not lay out detailed plans as to how targets will be met. Successful transmission line development is one of the primary tools available to policy makers when it comes to making these requirements feasible.

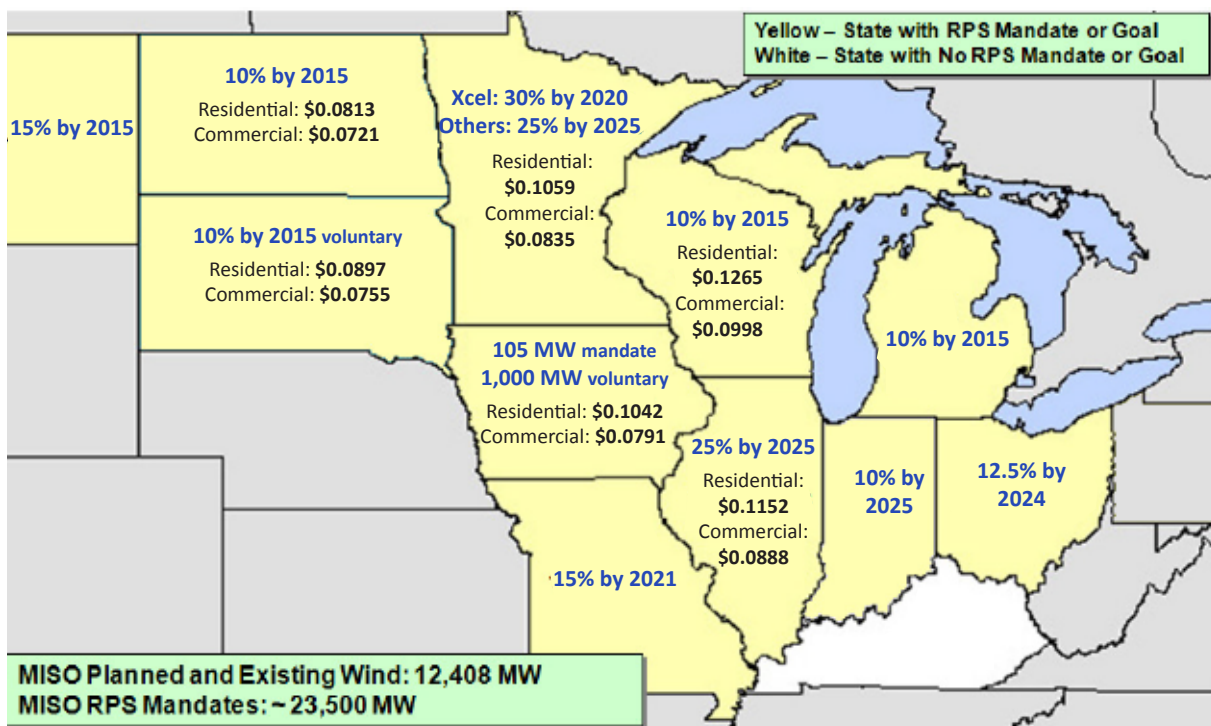


Figure 3. Renewable Portfolio Standards Within the MISO Region³⁵

Every state in the Upper Midwest has some portfolio standard. South Dakota's is only a voluntary standard, while the other five states are all mandatory. Iowa, South Dakota, and North Dakota have already exceeded their requirements. Wisconsin has not yet met their standard, but is expected to meet the 2015 deadline comfortably.

^f Finalized the rule in November 2011: Maximum Achievable Control Technology (MACT); Still under consideration are the Cooling Water Intake Structures (CWIS), Clean Air Transport Rule that regulates the long-range transport of sulfur dioxide and nitrogen dioxide, and Coal Combustion Residuals (CCR) standards, referred to as *Subtitle D*.

The recent economic climate has made Americans more interested in creating a stable future for themselves and future generations. Because of unpredictable public policy and economic growth, long term planning is necessary for trimming both short term and long term costs.³⁶ The combination of these technical and policy demands may be the environment necessary for finding a feasible path forward for easing interstate transmission line siting.

Energy and Policy Context of Upper Midwest States

Opportunities for economic development, the cost of electricity, and renewable energy policies are huge drivers for transmission line development. To analyze individual state siting practices and the concerns of the stakeholders in each state, the existing contexts need to be understood. This section will provide the energy and policy snapshots for each of the Upper Midwest states to characterize the tensions at play.

Based on renewable energy production in each state and the combination of load demand and Renewable Portfolio Standards in other states, there are two functional perspectives that cut across the six states. These two perspectives are useful for comparing all six states for purposes of discussion and analysis.

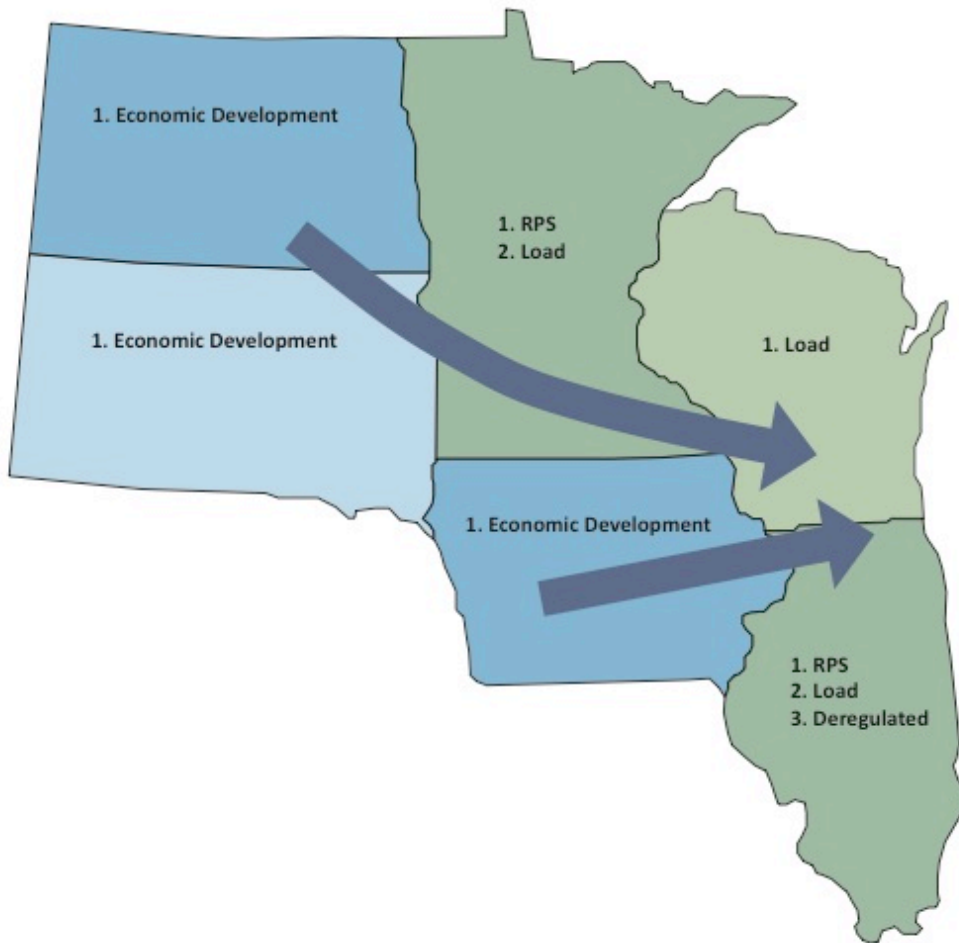
- 1. Renewable Energy Export mentality:** Iowa, North Dakota, and South Dakota
States with substantial potential for wind generation development

- 2. Renewable Energy Import mentality:** Illinois, Minnesota, and Wisconsin
States with load needs or renewable energy policies that attract renewable energy import

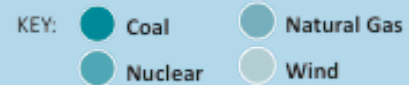
Figure 4. Divergence of Motivations for Transmission Line Development in the Upper Midwest

The Dakotas and Iowa have large wind generation potential which provides large economic development drive for transmission line development. Both Minnesota and Illinois have substantial incentives through state RPSs and general load demands that motivate transmission development. Wisconsin and Iowa are seen as the two states with the largest bottleneck problems, as there is a misalignment between incentives and needs that stifles regional sharing of resources. In total, each Upper Midwest state generally takes on a mentality as a renewable energy *importer* or *exporter*.

- Renewable Energy Exporting State - Highly Motivated
- Renewable Energy Exporting State - Moderately Motivated
- Renewable Energy Importing State - Highly Motivated
- Renewable Energy Importing State - Moderately Motivated



Renewable Energy Exporters



IOWA - Regulated

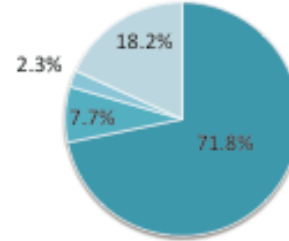
RPS: Mandated 105 MW - IOUs
Voluntary 1000 MW - IOUs

Iowa is the second largest generator of wind power in the country. The RPS includes a relatively narrow array of renewable technologies to meet its requirements. MidAmerican Energy has been largely responsible for taking advantage of state tax credits and developing wind generation beyond state needs. They are charged with the majority of the RPS requirements.

General		Wind:	
MWh Generated	MWh Consumed	Capacity	Generation
57,508,721	45,445,269	3,352 MW	7,421 GWh
	21.0%	% of Total 23%	% of Total 14.3%

The rest of the state is served by a large network of cooperative utilities. Currently, during peak wind generation, power may be curtailed due to insufficient transmission capacity. This has caused wind farm development to halt and because this is such a large source of economic development, this is a loss in revenue and potential jobs (DSIRE.org).

Electricity Generation Source Distribution



NORTH DAKOTA - Regulated

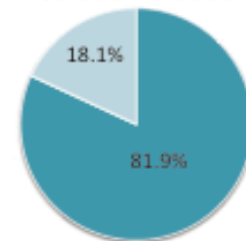
RPS: Mandated 10% - 2015
Voluntary 5000 MW - 2020

North Dakota alone has the potential to produce enough wind energy to meet a quarter of the energy demand in the United States. Between its coal, natural gas, and growing wind industry, North Dakota exports 4,500 MW of electricity while only consuming 2,000 MW in peak seasons. Like Iowa, North Dakota wind development faces obstruction due to insufficient

General		Wind:	
MWh Generated	MWh Consumed	Capacity	Generation
34,739,542	12,956,263	1,423 MW	4,096 GWh
	62.7%	% of Total 23%	% of Total 11.8%

transmission line capacity. The RPS can be satisfied by a moderately large array of renewable technologies. North Dakota has fewer transmission line owners and utility companies than the other exporter states making service areas larger and distributed over a larger number of people (AWAE.org) (DSIRE.org).

Electricity Generation Source Distribution



SOUTH DAKOTA - Regulated

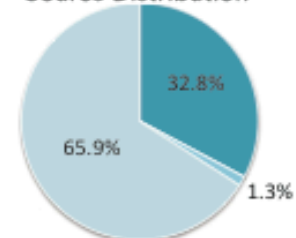
RPS: Voluntary 10%
2015 goal

The state has adopted a voluntary RPS that includes energy produced by wind, solar, biomass, geothermal, hydroelectric generation, and the use of energy conservation measures. South Dakota is the fifth smallest consumer of electricity in the country. Despite this and a voluntary RPS standard, the state is already consuming 25% renewable energy and expected to con-

General		Wind:	
MWh Generated	MWh Consumed	Capacity	Generation
10,049,636	11,356,149	629 MW	1,372 GWh
	-13.0%	% of Total 17.3%	% of Total 13.6%

sume 40% by 2020. Beyond Federal incentives, the state also provides additional loan and rebate opportunities for wind developers as the demand for renewable energy from other Midwestern states increases (DSIRE.org) (EIA).

Electricity Generation Source Distribution



Renewable Energy Importers



ILLINOIS - Deregulated

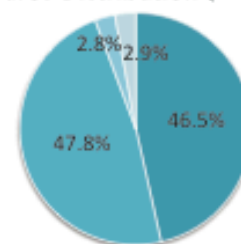
RPS: Mandated 25%
2025 Deadline

The requirement for implementing the state RPS is different between IOUs and ARES. For Exelon and Ameren, 75% of that power must be from wind, with the remaining quarter being solar. For ARES, the wind requirement is 60% of sales. ARES is also subject to a mandate requiring that 50% of their RPS obligation be met through Renewable Energy Credit

General		Wind: Capacity		Generation	
MWh Generated	201,351,872	MW	1,596	GWh	2,820
MWh Consumed	144,760,674	% of Total	3.6%	% of Total	1.5%
Relative Difference	28.1%				

(REC) purchases to the state – known as Alternative Compliance Payments (ACPs). These ACPs feed into the state’s Renewable Resources Fund. The remaining 50% of the RPS can come by buying more ACPs, buying more REC, procurement agreements, or through their own generation portfolio. The RPS does not apply to electric cooperatives (Loomis, 2011).

Electricity Generation Source Distribution (MWh)



MINNESOTA - Regulated

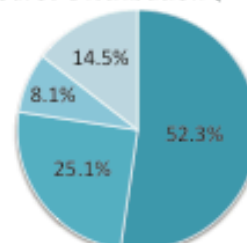
RPS: Mandated (all) 25% - 2025
Mandated Xcel 30% - 2020

Although they have become a top five state for wind production, Minnesota is still a renewable energy importer. Its Renewable energy standard is two fold. First, the state requires that all utilities provide 25% of their energy by 2025. However, Xcel Energy, which has significant political and economic ties to the state, is held to a higher standard, at 30% by 2020. The RPS al-

General		Wind: Capacity		Generation	
MWh Generated	53,670,227	MW	2,009	GWh	4,792
MWh Consumed	67,799,706	% of Total	13.7%	% of Total	8.9%
Relative Difference	-26.3%				

lows for a diverse number of renewable technologies: including: solar, solar thermal, landfill gas, wind, biomass, hydroelectric, municipal waste, hydrogen, and anaerobic digestion Minnesota does not have other natural resources such as coal or natural gas that it can lean on for power generation fuel (DSIRE.org) (fresh-energy.org).

Electricity Generation Source Distribution (MWh)



WISCONSIN - Regulated

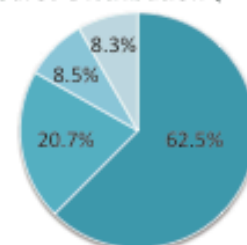
RPS: Mandated 10%
2015 Deadline

Set in 1999, the WI RPS is one of the most accepting of various renewable generation technologies in the Upper Midwest. The standard does allow for purchase of renewables through RECs allotted upon renewable generation in other states. Utilities are allowed to petition for a one year extension if the RPS is not achieved. The state has a small amount of wind potential,

General		Wind: Capacity		Generation	
MWh Generated	64,314,067	MW	449	GWh	1,088
MWh Consumed	68,752,417	% of Total	2.5%	% of Total	1.7%
Relative Difference	-6.9%				

mostly in eastcentral WI with a very limited amount of current capacity. Currently, WI has two wind generation developments under construction. Wisconsin is already very close to meeting it’s soon to expire RPS. Considering the current political climate in the state, what comes next for renewable energy standards is unclear (DSIRE.org) (wiwindinfo.net).

Electricity Generation Source Distribution (MWh)



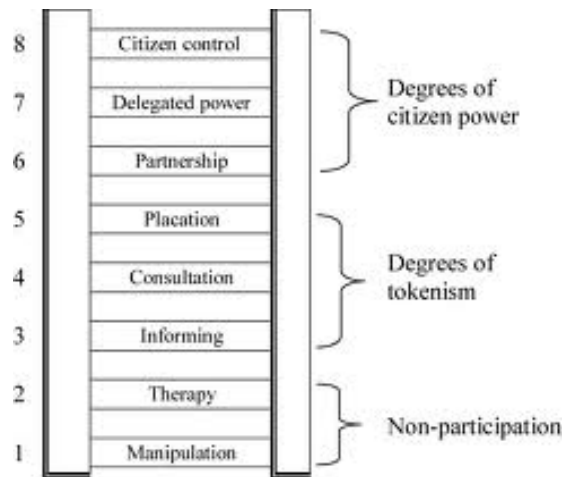
Generation and Capacity Information Source: EIA 2012 (2010 data)

IV. METHODOLOGY

Research

A combination of interviews, literature review, industry reports, and review of state statutes and administrative codes were used to gather information for this report. Both the research and analysis portion of the process were iterative, as findings helped to inform succeeding rounds of research and analysis. Relevant academic literature helped inform the scope of the project and the nature of the research questions developed for information gathering, interviews, and analysis. Particularly helpful to understanding existing siting coordination was the employing of personal interviews. Twenty five state regulators, MISO representatives, transmission line developers, citizen and environmental advocates and local government employees were interviewed to gather a rich cross-section of perspectives. Scholarly articles provided insights on frameworks for understanding the information being gathered as well as to highlight the importance of issues overtime. In particular, Sherry Arnstein's "ladder of citizen participation" helped provide a framework for our stakeholder analysis.³⁷ The "ladder" contains 3 basic levels: Non-participation, Tokenism and Citizen Power. Descriptions about specific rungs are given throughout this report in reference to various state and regional engagement procedures.

Figure 5. Arnstein's Ladder of Citizen Participation



Analysis

As research continued, a series of analyses were completed to elicit legitimate barriers, challenges, and concerns. To compare the states in this study, first a state-by-state SWOT analysis was employed.³⁸ This method was chosen because it is able to tease out the relative strengths and weaknesses between states and allows for examination of state permitting "best practices" as well as problematic practices. SWOT has been used a number of times to analyze energy development issues and is seen as a helpful tool for comparing multiple scenarios.³⁹ An analysis comparing technical aspects of state siting processes was also completed to provide a comprehensive look at regional disparities. This comparison highlighted the challenges that would exist in harmonizing siting processes across the region. Using Arnstien's ladder as a framework, and using existing literature to evaluate personal interviews, the stakeholder

analysis outlines the interest and power of influence that each stakeholder group maintains. How and where they are able to engage in the transmission line development process is important. It furthers the goal of the paper to better align regional planning with siting practices that are not well adjusted to fit both local needs and regional planning strategies and the stakeholder analysis helps to highlight potential problem areas.

The SWOT analysis, comparative siting process analysis, and stakeholder analysis all helped to inform a mapping of regional tensions. This created a complex overlay of information both at the local, state, and regional level. The final analysis framework highlights themes that were true across all of these analyses and provides a summarizing basis for outlining policy options and evaluation criteria.[§]

[§] Further discussion of the processes used to define the evaluation criteria and how policy options were critiqued will be discussed in *Section X. Criteria and Evaluation*.

V. SITING PROCESSES AND PRACTICES

What Defines the Siting Process Across the Upper Midwest

The siting process consists of three phases: approving/certifying of *need*, approval of *route*, and other permitting (*Figure 2* displays the most common order for these three phases). In general, determination of the *need* for a project is the first step in the approval process once a project application has been submitted to the relevant agency. What defines *need* is highly variable and somewhat contentious across the region.^h Some states look only at individual ratepayer fairness and economic development requirements,⁴⁰ while others use a broader definition, focusing on a combination of individual and regional energy policy and economic value.⁴¹

Untested Processes: There has been ten times the number of miles of natural gas pipeline constructed in the last ten years as there have been transmission lines built. It is hard to argue that current siting practices are sufficient, when they have not been tested rigorously since before 2000.⁴²

Approval of a project *route* is the second element to siting. Where and when route approval begins and ends, however, varies from state to state and project to project. Route approval includes decisions about both *corridor* and *route*, often times expressed in the project application through a combination of *preferred* and *alternative* route proposals. These may be approved separately, as they are in North Dakota, or jointly, as each of the other five states do. Impact to habitat, cultural values, public health and safety, impact on the natural environment, preservation of natural or historic beauty, land-based economies, property values, availability of existing right of ways, and ease of land acquisition are the main considerations in approving a route.ⁱ

The length and content of the *routing approval process* is variable because the determination of *need*, *route* approval, and requirement of additional permits often overlap.^j Complexity and built-in flexibility make any state process difficult to capture in an accurate universal model.^k The fact that developers who have been navigating state processes for over 25 years without a uniform approach to transmission line siting characterizes process complexity and points to a need for more transparency and harmonization.⁴³

Differences for IOUs, MUNIs, and COOPs: For 345 kV lines and higher, all varieties of transmission line developers must complete the same requirements during the siting process. They are all held to the same standards by the deciding authorities, but may have additional burdens and incentives based on the source of their funding. Cooperatives receive Federal funding from the Rural Utility Service (RUS) and thus subject their project applications to review at the Federal level, even when Federal lands are not affected.^a

^h This was very evident during the three hours of testimony given by Wisconsin and Minnesota residents at the Rochester to La Crosse Line hearing in Centerville, WI on March 13, 2012.

ⁱ Minnesota Rules 7850.4000 and 7840.4100

^j Permitting will be discussed throughout the report with less detail given around those needed at the local level. Developers describe these as relatively quick and cheap to acquire and do not consider them to be barriers to development. (Thompson, 2012) and (Fennessy, 2012)

^k See Figures 6a-6f for hypothetical timelines

Siting Process Characteristics by State

Each state has a primary authority that is responsible for ultimate authorization of the *need*, *route*, or some sort of combined approval. *Table 2* lays out all of the approvals and permits that are needed within each state by title, the agency under which they are required, and whether or not they are required universally by all high voltage transmission line projects. In most states (IL, WI, SD, MN and ND) local permits are preempted by the state level approvals/permits. Despite this, a minimal number of county level permits need to be acquired for coordination purposes. Federal EIS reviews are generally conducted when Federal funding is involved, such as with USDA RUS loans.⁴⁴ Although the time taken for the EPA or FWS to complete Federal environmental impact assessment can be long and highly unpredictable, these details are outside the scope of this report.

The number of agencies involved in the siting process is largely based on land use within a state and the level to which compensation mechanisms for property owners have been developed. An agency is involved when it owns land itself, like DOT agencies,⁴⁵ or because it is an area expert with the responsibility of arbitrating between stakeholder concerns.⁴⁶ Agencies playing the role of arbiter may not be needed if proper mechanisms for financial incentive are in place. Illinois is a prime example of a multi-agency process, as they and Minnesota have more state agencies involved at the state level than any other Upper Midwest state. While an agency may share advising responsibilities to support the primary approval authority(s), they may also be an interested party and intervene in the process and oppose a particular proposed route.⁴⁷

The duration of time required for a siting process is a complex issue that is a product of the number of agencies involved as well as the extensiveness of the application. Once the application has been submitted, states with less rigorous applications generally take less time to approve. Conversely, when more agencies are involved in the process, coordination and sequencing of obligations adds to the process duration. However, often times siting process challenges can be shifted to the pre-application portion of the process, not easing or shortening the process, but instead just shifting developer burdens to an earlier point in the process. Some states have very consciously developed parallel processes where agencies run the course of the process together until the final permit is approved while others employ a sequential approach. *Figure 8* summarize the timing of individual state processes at a conceptual level while *Figures 6a-6f* provide hypothetical timelines for transmission line development projects in each state.

Timing is a sensitive topic because project approval is often difficult to anticipate and delay means financial risk of holding investment money and potentially lost revenue. In addition to developers, the timeliness of project approval should also be of concern to ratepayers, who ultimately pay for the work necessary to get the projects approved.⁴⁸ Another aspect to consider is how developers, such as cooperatives, that fund their projects using Federal financing, will be subjected to additional Federal environmental impact assessment processes which will take more time. This adds a layer of complexity and slows the process beyond the time frames of individual states.⁴⁹

Table 2. Taxonomy of State Siting Process Characteristics

There is a distinction to be drawn between the different terminologies that each state uses to label its permits and/or approvals. There are those states that require a CPCN, which is the *Certificate of Public Convenience and Necessity* in Wisconsin, Iowa, and North Dakota. In Illinois this permit is very similar, but is called a *Certificate of Public Convenience and Need*. Minnesota’s need approval is called a *Certificate of Need*, driving specifically at the state’s load and energy policy needs and less about public concern, which they focus on more in their routing permits. South Dakota is the only state that does not require need to be determined. They see this as the role of the developer and instead require four *burdens of proof* around public health, safety, and welfare.

Processes Characteristics	States					
	IL	IA	MN	ND	SD	WI
Approvals/Certifications:						
Commission determination of <i>Need</i>	ˆCPCN	ˆCPCN	CON	ˆCPCN		ˆCPCN
Commission <i>Route</i> Approval	✓	✓	✓	✓	ˆCPCN	✓
Commission <i>Corridor</i> Approval				✓		
Acquiring of Eminent Domain	✓	✓	✓	na	✓	✓
Simultaneous Filing (<i>Need & Route</i>)	✓	✓	✓	✓		✓
Law Review (ALJ)	✓	✓	✓			■
AIMA* or equivalent	✓					
State approvals/permits preempt local permits	✓		✓	✓	✓	✓
Local authority in determining need or route		■	■			
Relative Approval Cost	\$\$\$	\$	\$\$	\$	\$	\$\$
Hearings:						
Public Hearings on <i>Need</i> (open to public) OR Public Hearings on <i>Need</i> (public participation)				✓		
Public Hearings on <i>Route</i> (open to public) OR Public Hearings on <i>Route</i> (public participation)		✓	✓	✓	✓	
Alternatively: Public Hearings for <i>Need & Route</i> together (open to public)	✓					✓
Permitting:						
State agencies requiring <i>permits</i> approval:						
Dept. of Ag (when crossing ag land)	✓		■			✓
Dept. of Transportation	✓	✓	✓	✓	✓	✓
Dept. of Natural Resources	✓	■	■			✓
Environmental Agency	■		✓			
Historical Society	✓	✓	✓		■	■
Timing and Statutes:						
Scope of definition of <i>Need</i>	State + reliability	State & Regional consideration	State & Regional consideration	State & Regional consideration	(not required)	State + reliability
Statutes outline need for interstate coordination			✓	✓		
Statute defined process time limit for Utility Commission's Approval	12 mo	12 mo	12 mo	6 mo	12 mo	12 mo
Statute includes "if not" clause for unmet deadlines	-			✓		✓
Statute reference:	220 ILCS 8-406, 503, 509, 510 & 15-401	IA Code Ch. 478 & 199 IAC Ch. 11	§216B.2425 & .24; Rules 7829.2500, 7848 & 7849; §116C.51-.69; Rules 4400 & 1405	ND Century Code Ch. 49-22 (The Siting Act)	SDCL Ch. 49-41B & 34A-9	196.491 (WI Power Plant Siting Act)
Anticipated Process Duration (upon submittal of application for CPCN/CON to construction initiation - does not include local permits that may be needed)	24 mo*	12 mo*	24-36 mo**	18 mo**	6-12 mo**	13 mo*

Key:	
In statute	*
By practice	**
Always =	✓
Sometimes =	■
CON/CPCN =	Approval title
Low cost	\$
Moderate Cost	\$\$
High Cost	\$\$\$

Note: the above taxonomy is completed based on high-voltage transmission lines, such as 345 and 765 kV.

* AIMA is an Agricultural Impact Mitigation Agreement

Figures 6a-6f. Hypothetical Siting Process Timelines by State

Each hypothetical timeline is modeled after a combination of time requirements outlined in state statutes or administrative code. In most cases, strict time limitations are not provided in written law, in which case time frames were modeled according to common practice – information gleaned from interviews.

RENEWABLE ENERGY IMPORTING STATES

Figure 6a. Illinois

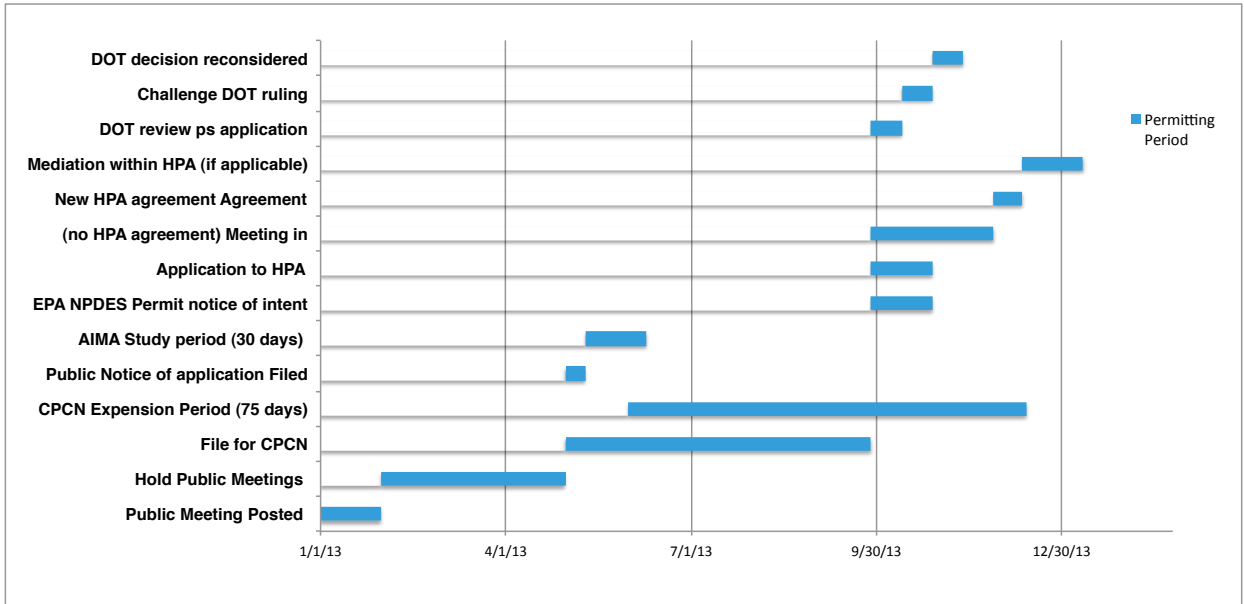


Figure 6b. Minnesota

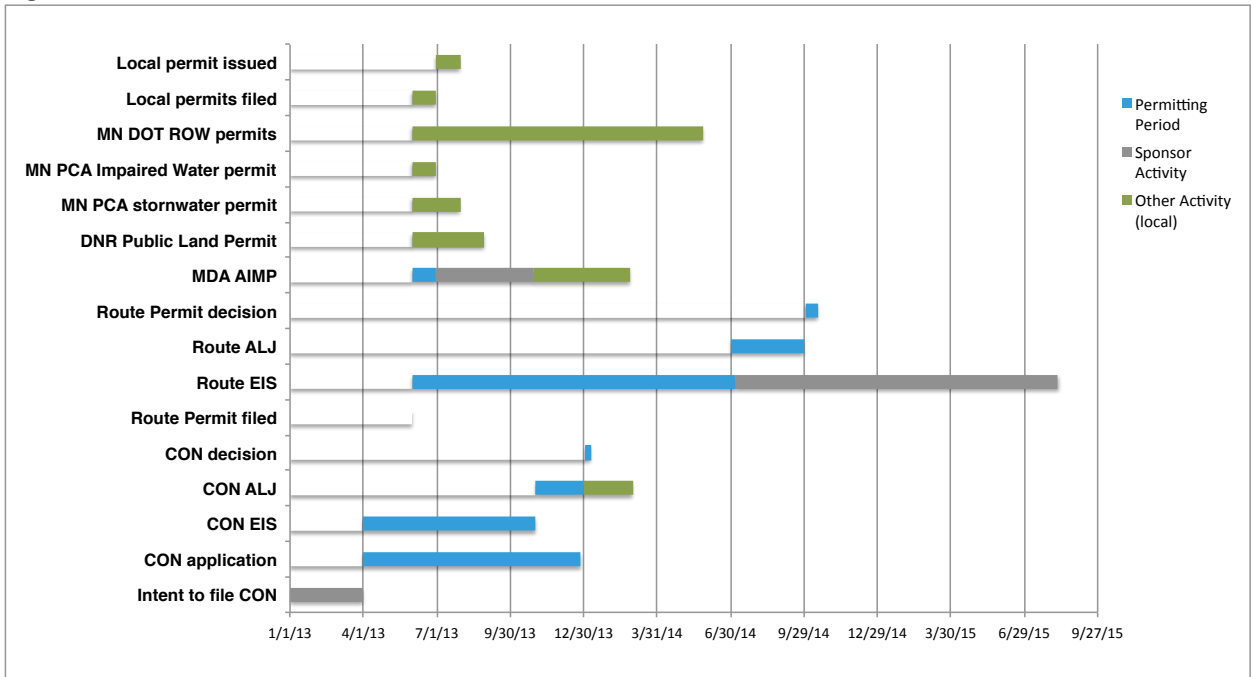
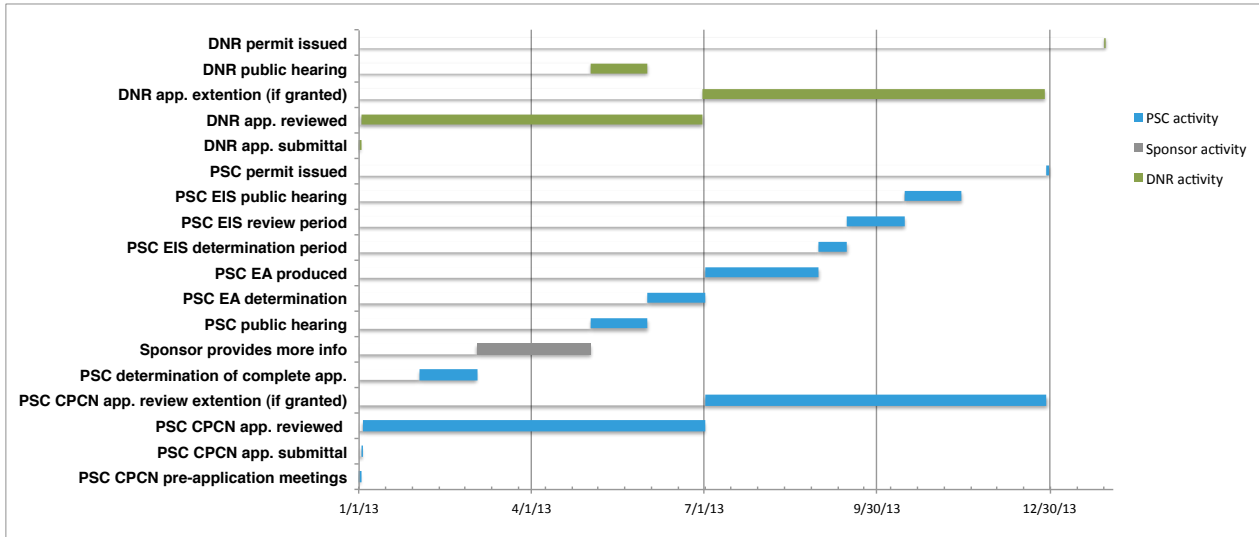


Figure 6c. Wisconsin



RENEWABLE ENERGY EXPORTING STATES:

Figure 6d. Iowa

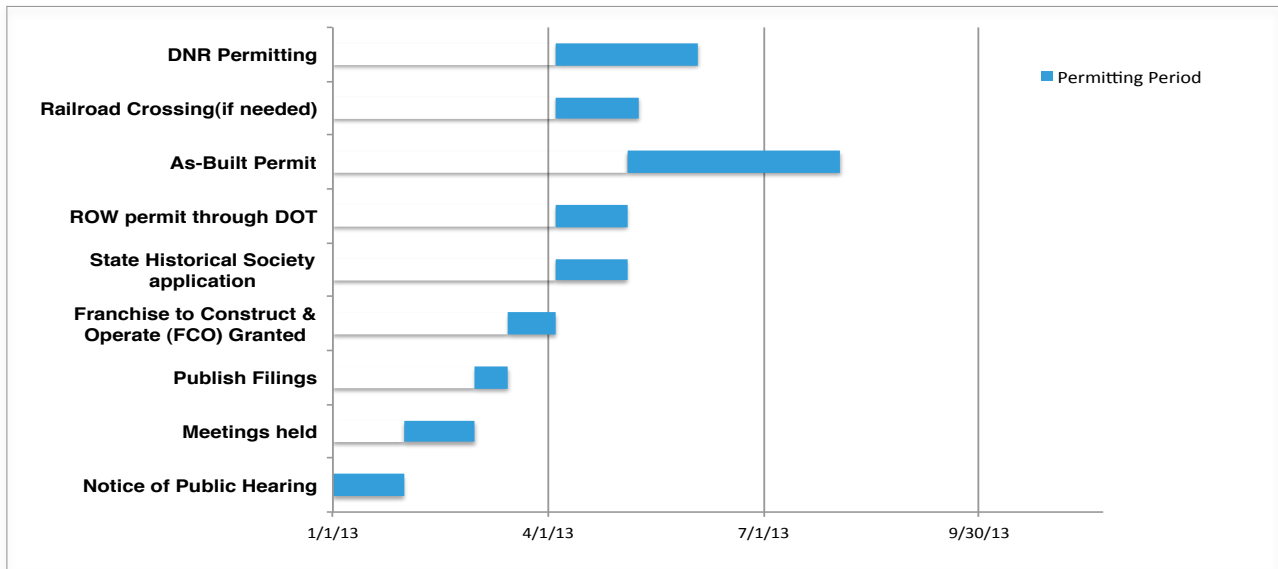


Figure 6e. North Dakota

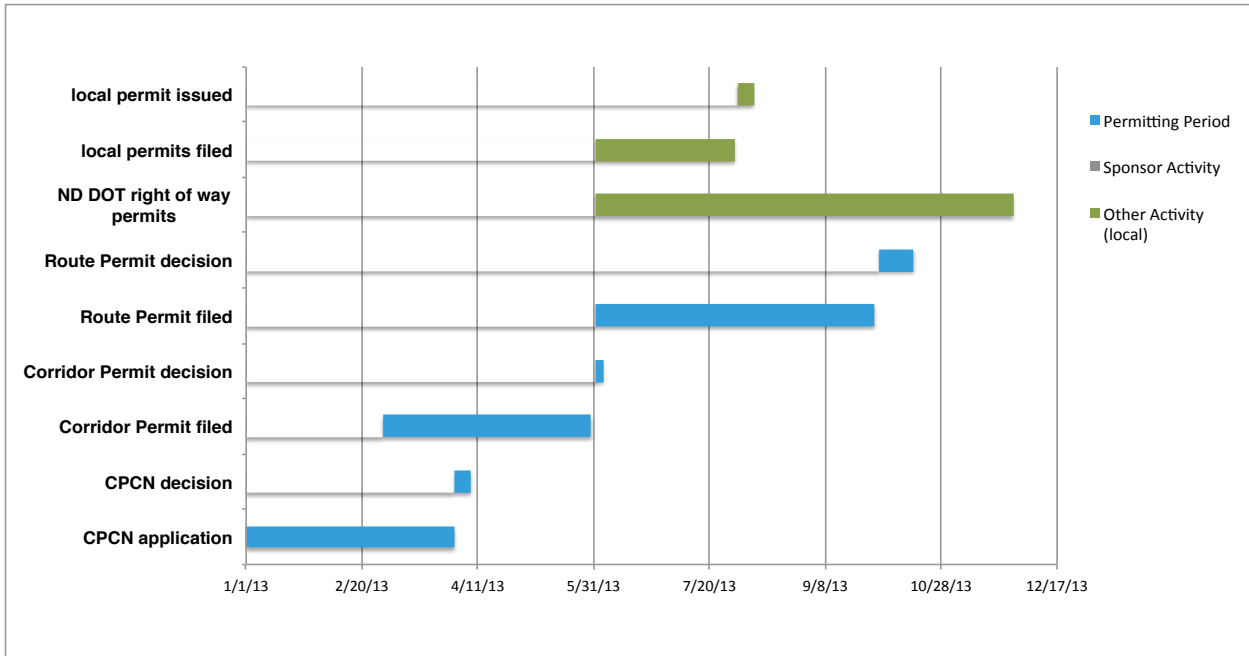
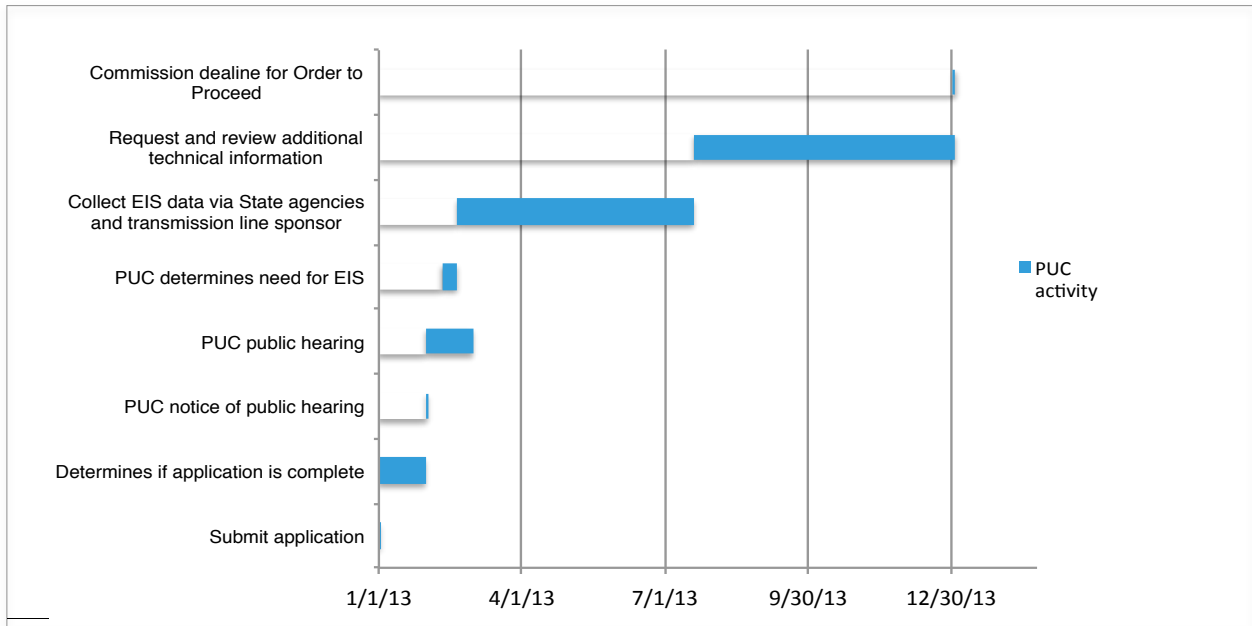


Figure 6f. South Dakota



Processes in Practice – Local Authority and Public Engagement

LOCAL AUTHORITY

Local concerns are expressed to the public and authorized agencies via advocacy, public notice and hearings or through local siting authorities, when jurisdiction over these decisions is distributed more locally. In Minnesota and Iowa, unlike the other Upper Midwest states, the Utility Commission's authority does not always preempt local authority (see *Table 2*). In Iowa, transmission line developers are required to get approval from each municipality through which a line is proposed.⁵⁰ Although the Iowa Utility Board (IUB) may advise the developer in this process, it is up to the developer to coordinate with these local authorities and acquire the approvals. Minnesota statute requires the developer to identify each county affected by a proposed route before applying for the *route* permit.¹ If a county rejects the developer's application, the developer can still acquire the *route* permit, which overrules local permits. However, if the local authority wishes to challenge a PUC ruling, discrepancies can be heard by the ALJ during the Law Review.⁵¹ In Minnesota the Utility Commission can ultimately overrule the local authorities. The option to overrule local authorities is not available in Iowa, as the Iowa Utilities Board has no authority to issue permits at the municipal level.

All four other states do not have any local siting authority; all state level approvals preempt all local land use regulations, with the possible exception of some special permits that may be required. These are usually limited to Right of Way (ROW) permits from the county highway departments, Floodplain Development Permits (when FEMA flood zones are affected), erosion control permits, wetland permits, and potentially Conditional Use Permits (CUPs), especially when substations are involved. Although these permits are required, they are not seen as a burden by developers. They are often free or minimal in cost and only take a maximum of six weeks for the most extensive permits, such as the CUPs.^{52 53}

PUBLIC ENGAGEMENT

Within the borders of each state, there are similarities in how the public is engaged. However, the level of engagement depends on both the official procedures, and who implements those procedures (state or local authorities). The sequence of a developer's local interaction determines their responsibility to the public in the overall transmission siting process.

Public Engagement within Renewable Energy Exporter States

In South Dakota, there has been historically very little public objection to transmission line projects, and public hearings are poorly attended.⁵⁴ Because the population is sparse and the state electricity loads are low, it has been relatively easy to site regionally planned lines at the local level. Historically, the largest opposing groups have been individual landowners, or NIMBYs. The South Dakota siting process does require that a public hearing is held. The PUC provides advanced notice of these hearings to all jurisdictions along the proposed route, with directions on how to engage in the process, however these events are not a focus of the siting process as attendance may be as few as five or six individuals total.

¹ MN Rule 1248

The public engagement process in Iowa is triggered before the Franchise to Construct and Operate (FCO) is issued. During this time meetings are held in each county within the right of way. During meetings there is dialogue between the line developers and the affected landowners as well as interested members of the general public. If there is obvious public opposition or contention, the proposal for the line must be modified as best possible to incorporate public input and reduce negative impacts identified at the meeting. In Iowa, public concerns inform the FCO process and is representative of a higher rung on Arnstein's ladder of citizen participation, as discussed earlier.⁵⁵

In North Dakota, the point of public debate takes place after the CPCN has been approved. In addition to acquiring the CPCN there are two additional siting permits that are required prior to construction. The first is the Certificate of Corridor Compatibility, which sets the route corridor. It must be 10% of the route length, or 6 miles, whichever is smaller.⁵⁶ After this is approved, a hearing must be held in each county containing a portion of the proposed corridor. The North Dakota PSC has three months to issue a permit if the corridor is "compatible" with the localities involved. Following that, they have six months to approve a specific route to be designated in the Route Permit.⁵⁷ These backstop times will automatically approve the permits requiring the PSC to act quickly once the application has been submitted. To facilitate this, developers are encouraged to hold public information meetings with local parties throughout the process to mitigate any objections during the hearings, although are not obligated. The North Dakota Transmission Authority (NDTA) plays an important role here. Its authority in the design of a project to meet state needs can cause delay if the developer does not procure a legitimate amount of public input to facilitate its construction.

Whether different access points directly equates to more local inclusion in the permitting process is beyond the scope of this paper. However, North Dakota's planning perspective is driven by economic development, which provides some insight as to why the public is not engaged when the CPCN is approved. An official public hearing is only held by request during the CPCN approval process. In addition, if the NDTA decides that a line needs to be built, the project is exempt from obtaining the CPCN. In this instance, the state is inflexible to public concern and is instead filtered through the developer. Early discussion with the public is conducted by developers, and the state may informally monitor and assist them through the NDTA. Since the state works more closely with the developers at this point, it is unclear how much public inclusion exists, as opposed to general acquiescence. Developers are apt to hold early public information hearings, but the final approval still comes from the PSC.⁵⁸ However, unlike NIMBYs, their interests' typically support the *need* for additional transmission. Although the CPCN is flexible to route specifications, the Arnstein literature is relevant again - in some respect, the decision to build has already been made. After *need* has been established, the public technically has less opportunity to derail a project completely as the discussion shifts to *where* transmission lines should be sited, as opposed to whether they *need* to be constructed.

Another change is threatening local inclusion in North Dakota. The corridor width, officially set at 10% of the proposed route length, is subject to change by the PSC who has begun to exercise this authority regularly. Recently the law was changed^m so that corridor routes could be used as

^m North Dakota Century Code 49-22

approved right of ways for multiple lines to be built in. To keep this from getting out of control, the PSC started downsizing corridors. Incidentally, this came before local parties had a chance to analyze them, taking away considerable siting options for the final route.⁵⁹ Indirectly, the state's attempt to promote easier transmission siting has resulted in diminished public inclusion.

Balancing Incentives: Landowner incentives are not in the right place leaving agency policy motivations steering the conversation instead of market incentives.⁶⁰

Public Engagement within Renewable Energy *Importer* States

In the interest of local governing bodies the Minnesota PUC is required to consider the laws, policies, and rules of local authorities when reviewing an application for need and route.ⁿ There are two designated points for local input. After a potential developer has given a notice of their intent to file an application, the PUC sends out notification to local officials, property owners, and any other interested party who has requested to be on the “general list” maintained by the Commission.^o Developers are also encouraged to begin local interaction at this point to gage possible pitfalls and start building their case for transmission *need*. The CON review has its own EIS and administrative law judge (ALJ) independent of the *route* permit during which public hearings are required.^p After the approval of a CON, there is also space for local input during public hearings for local siting permits (a requirement of the route permit). Fortunately, in Minnesota, the corridor that a CON approves is one and a quarter miles wide, so that it can be adjusted to local concerns or developments if need be.⁶¹ Once the *need* requirement has been approved, local debate is focused on *where* the lines will go, as opposed to whether they *should* be built. As an alternative, route approval can be delegated to local authorities, if the applicant chooses. If they are successful in acquiring all the local permits, the PUC does not need to approve a route permit.⁶²

The focus on public input in MN, via multiple hearings for both *need* and *route*, is symbolized by the “partnership” rung on Arnstein’s ladder of citizen participation. It enables citizen’s to negotiate and engage in tradeoffs with traditional power holders, namely permitting authorities and investor owned utilities (IOUs).⁶³ In addition, renewable energy advocates have stepped up their participation for CapX2020 and MVP lines, creating more balance between beneficiaries and locally affected groups. In some cases, renewable energy advocates such as Fresh Energy have even swayed some environmental groups to change their position on transmission line *need*.^q

Public engagement processes in Illinois are far different as they tend to be about sharing information rather than actual “participation.” Although public meetings are statutorily required in every county within the proposed right of way, there is no mechanism to ensure that citizen input is incorporated into the final plan. In some cases there is no need for public comment - such as construction within DOT right of way. The most collaborative engagement process occurs

ⁿ MN Rule 7850

^o MN Rules 7850.4000 and 7840.4100

^p MN Rule 7850

^q See Section IV. *Power & Interest Dynamics: A Stakeholder Analysis*

during the Agricultural Impacts Mitigation Agreement (AIMA), in which a line developer enters into an iterative dialogue with affected farmers and the Department of Agriculture.⁶⁴ These talks discuss various options to avoid impacts to important farmlands, and ultimately create a working “contract” between the applicant and affected farmers. While farmers can reject the AIMA (and negotiate something more stringent), having a concrete document such as this reduces conflict throughout the siting and construction process. The early dialogue between landowners, the Department of Agriculture, and the developer teases out many of the concerns landowners might have, allowing construction to proceed smoothly with limited contention.⁶⁵ Minnesota’s Agricultural Impact Mitigation Impact Plan (AIMP) offers some of the same landowner coordination opportunities that the AIMA does, but does not act as a baseline agreement. The overall objective of the MN AIMP is to identify measures the utilities will take to mitigate, repair or provide compensation for impacts from 345 kV projects on Minnesota agricultural lands. Here the primary difference from other states is that landowners are able to collectively negotiate a set of standards. This makes their negotiating power stronger, and the developers more interested in resident satisfaction earlier in the process.⁶⁶ This allows for the negotiation of mitigated actions with individual landowners, but does not begin with a collective set of standards like the Illinois AIMA. The mitigating actions are subject to change by landowners or tenants, provided such changes are negotiated with, and acceptable to, the utilities.⁶⁷

Public opposition to siting has been stronger in Wisconsin than any other Upper Midwest state. Wisconsin is known for its natural beauty and a large portion of its economy depends on recreational tourism. Along the southwestern boarder of the state is the oldest and one of the largest scenic easements in the country, including over 600 parcels. This byway is colloquially referred to as the “Great River Road”.⁶⁸ Crossing this scenic easement byway with public service corridors has brought particular opposition as the easement regulates various types of development. Under Wisconsin state statute, existing utility, highway, and recreational trail corridors are prioritized as sites for transmission line siting. However, within this requirement there is no exemption for scenic easements. Beyond issues of land use, residents continue to bring up concerns at public hearings about the perceived health risks for those living near high voltage transmission lines. People have also raised concerns about line developments negatively affecting the value of private property.⁶⁹

One technique that the Wisconsin DNR and PSC use when engaging the public is a “job fair” style public meeting where members of the public can come and move from station to station to learn about issues that are most interesting to them. This provides more than just an opportunity to hear about what is being proposed or to hear other people’s concerns, but to learn on an individual basis.⁷⁰ This method is looked to as being helpful and appropriate for residents in Wisconsin, although there is still a deficiency in appropriate outlets for resident to express all of their concerns at the right time or place.

Process in Practice - Transmission Developer and State Authority Coordination

The type of coordination that occurs between state agencies and transmission line developers varies depending on how many agencies participate in siting, how long the siting process takes (either according to statute or in practice), how extensive process application requirements are, and the amount of interest the state has in the construction of the project. All of these

characteristics influence how developers and agencies interact throughout the process. While each codified process is a reflection of a state's attitude around transmission line development, how the processes gets used and coordinated by the involved agencies and developers is as or more important.

Striking an effective balance between regional needs and local interests is key to successful cooperation between developers and states. In states with a stronger regulatory perspective^r, interaction between states and developers are often designed to serve the public and economic development simultaneously. For example, Minnesota has set mandatory goals for utility companies to improve energy efficiency through Conservation Improvement Programs (CIP). In doing so, the state has cut consumer prices and the need to build additional electricity generation plants.⁷¹ These efficiency standards have been embraced by utility companies and have created additional local jobs to ensure they are met.

Minnesota's Conservation Improvement Programs (CIP):

Conservation Improvement Programs (CIPs) are mandated by the state.^s Minnesota's Next Generation Energy Act of 2007 (NGEA) revised the CIP statute to set an annual energy savings goal for all electric and gas utilities beginning in 2010. The energy savings goal is equal to 1.5% of the utility's annual retail energy sales in Minnesota, averaged over the most recent three-year period and weather-normalized. All electric and natural gas utilities in Minnesota develop their own conservation improvement plan. CIPs provide financial incentives in the form of rebates and, in some cases, grants and financing programs to help offset the cost of upgrades.

The NGEA further established the potential for electric utilities to count the savings that result from qualified improvements to its generation, **transmission, or distribution infrastructure**, or conservation measures in its own facilities toward the 1.5 percent savings goal, once plans are in place to achieve at least 1 percent savings through conservation improvements. Utilities must file their CIP plans with the energy division at least every three years. Utilities report their actual CIP spending and savings achieved on an annual basis.

The most successful communication processes play out when there is a balance between local input, and state and regional needs. This comes from a thorough siting process with significant citizen participation, or when a state is itself proactive in the development of lines. As an example of the latter, the North Dakota PSC can order changes to a public transmission line that is inadequate or insufficient⁷² to local needs. In theory, this authority could be used to advance a regional project if adequate "infrastructure investments" were deemed necessary on a line that crosses into a neighboring state.⁷³ This would create a link between state agency counterparts, and give them a reason to work together on transmission line development that comprises local concerns.⁷⁴ Because the NDTA works closely with both state agencies and developers, they are able to serve as an early mediator, facilitating negotiations to find the appropriate balance borne

^r See Section VII. *Regional and Interstate Coordination and Communication: Discussion of Interstate Coordination*

^s Minnesota Statutes 216B.241

from their economic interests. This includes guiding developers and other stakeholders through the process to avoid potential local pitfalls.

Minnesota has both a detailed permitting process and the authority to order transmission line design changes. Once the CON has been approved, the Department of Commerce (DOC) takes an active role in guiding the developer through the steps needed to acquire a *route* permit. During the Environmental Impact Statement (EIS) review the DOC and other state agencies are required to provide feedback to the PSC in areas relevant to their expertise. Specifically, the DOC tracks these interactions, public notices, hearings, and responses from local landowners.⁷⁵ In contrast, South Dakota puts an onus more on the transmission developer to provide the necessary information to satisfy the requirements of the EIS. There is less support from state agencies as they assume that the developer is the expert on project *need* and *route* and expect developers to inform the PSC about potential project impacts.⁷⁶ The siting process in South Dakota is conducive to this hands-off approach as the PUC is not required to determine *need* during the CPCN approval process. Notably, South Dakota has only sited one 345 kV line to date, and thus has not had great occasion to be more involved in gathering information and improving lines of communication between the developer and PUC. At the same time, the state DOT tends to own a smaller percentage of land than other state DOTs, which potentially increases the amount of communication that must occur between landowners and the developer.⁷⁷

VI. REGIONAL AND INTERSTATE COORDINATION AND COMMUNICATION

Channels for Interstate Coordination

Legally, all states in this study have a level of authority to communicate with their neighboring states when issuing permits for transmission line siting. However, the level of involvement that is *required* by states varies.⁷⁸ For instance, MN statute^t states that “if a route is proposed in two or more states, the MN PUC shall attempt to reach agreement prior to designating a route”.⁷⁹ Even though this is some of the clearest statutory direction of all six states, the level of effort required in this “attempt” at regional discussion is open-ended. There is no law stating that the PUC *must* reach an agreement nor are there resources designated to do so. Incomplete official protocol allows for coordination to be organic and reactive to the regulatory designs and environments in each state. Because they have less external influence and fewer time constraints, this flexibility may benefit interaction between intrastate agencies. However, as a result, siting across borders is often ill-timed and uncoordinated. Further, different states have different economic and political motives or established bureaucratic frameworks. Because of this, they are either compelled to lead interstate discussion or are limited in their capacity and urgency to take collaborative action. These conditions naturally dominate a state’s approach to regional siting, and when they don’t align, coordination loses priority.

There are also differences in some local communication sequences that, while appropriate for the development of siting plans within a state individually, can make coordination difficult for interstate projects. This section outlines these different processes and begins to show the gaps and barriers in the different permitting structures. This discussion will attempt to expose state level assumptions about who is responsible for initiating certain process steps (states or developers), leading to why some states might be in a better position to enter regional coordination discussion than others.

DISCUSSION OF INTERSTATE COORDINATION

The Upper Midwest Transmission Development Initiative (UMTDI) identified two general perspectives which characterize the way states approach state to state communication:⁸⁰

1. The *proprietary, economic development* perspective, in which states have begun to take a more proactive role to regional coordination
2. The *independent regulatory commission* perspective

States derive these perspectives from economic necessity and their assumption of responsibility for transmission line development. In this second approach, states are more concerned with oversight and public input in their permitting processes, but leave the majority of interstate planning and coordination to the IOUs. These perspectives correlate closely with the renewable energy *exporter / importer* perspectives that were outlined previously. With the exception of Iowa, renewable energy exporting states gravitate toward the first model, while renewable energy importing states stick to the second perspective. Yet, recent need for additional energy

^t MN §216E.02 Sec. 3

has forced some states, notably Minnesota, to be more regionally engaged in practice, even though they have not established comprehensive legal responsibility for interstate participation.^u

The best examples of states that employ the proprietary approach are the Dakotas, which have each designated an authoritative body to identify transmission needs. These organizations have the responsibility to engage with neighboring states when these needs exceed what can be accomplished within state boundaries. As previously stated, North Dakota has an enormous capacity for wind generation and exportation. To help unlock these resources, the state created the North Dakota Transmission Authority through the North Dakota Industrial Commission in 2005.⁸¹ The purpose of this board is to identify state transmission needs and participate in discussions with regional transmission organizations and other states. If local entities are not filling an identified need these agencies are also authorized to construct transmission facilities themselves, through state issued bonds. If the North Dakota Transmission Authority identifies an area in need of transmission line development (for any type of energy production), they publish a notice describing the need for a transmission project. To ensure public participation and access, local entities have 180 days to respond with intent to build the line instead.⁸² This also ensures communication from the state to the public as other local concerns are also sought. However, even if an IOU files to build the line and satisfy the need, the NDTA can act as a state correspondent for a developer before they begin the permitting process with the North Dakota PSC.⁸³ In this role, the NDTA may follow a company's public information campaigns and identify points where the siting process will benefit from early interstate coordination.

Theoretically, South Dakota's Energy Infrastructure Authority (SDEIA) has the same purpose, but it has not retained the institutional capacity necessary to interact with other states; even the extent of their responsibility is less clear. Within the South Dakota PUC, there is currently little need for formal coordination between state agencies during the siting process. Since the need for intrastate coordination amongst agencies is low, the SDEIA has little interaction with the process. In turn, most gaps in communication are left to the developer rather than the SDEIA or PUC.⁸⁴

Unfortunately, state permitting processes are not typically aligned. This forces a developer to address public concerns of route development in neighboring states at different times. Sometimes this gap can be years apart. When determining plausible routes for siting, this can be problematic. After a route is approved in one state, new land developments or public concerns might surface in a neighboring state during the lapsed time, bringing the original connection site into question.

Illinois transmission development is certainly market driven as the state has ensured IOUs will have a more impactful political voice by empowering a robust restructured market⁸⁵. Because state influence has been minimized, the statutory language is rather unclear about when regional interests may be considered. Complicating this further, Illinois lies within two RTOs

^u See Table 3. Statutes & Rules for Interstate Coordination by State

(MISO and PJM) and that the Chicago area is governed differently from the rest of the state resulting in different criteria for assessing a variety of permits.

Table 3. Statutes & Rules for Interstate Coordination by State

State	Statute / Rule	Language	Level of Interaction	Practiced (?)	Effective (?)
IL	n/a	Unavailable	-	-	-
IA	Iowa Code 476.2(3)	The Iowa Utility Board has the authority to intervene in any proceedings before other federal or state bodies if it would adversely affect public utility costs in the state.	Formal	No	No
MN	MN Stat. 216B.19	The MN PUC has the authority to “cooperate with similar commissions from other states” in joint hearings.	Informal	No	No
	MN Stat. 216	The MN PUC shall attempt to reach agreement with affected states on the entry and exit points prior to designating a route.	Formal	No	No
	MN Stat. 216E.02	The MN PUC has express authority to enter into interstate compacts, but <i>only</i> for siting and routing purposes.	Compacts	No	No
ND	ND Century Code 49-22-14.1	“Allows and encourages the commission to cooperate with any department, agency of any state or the federal government for any purpose relating to the energy facility siting act.”	Compact	No	No
	ND Century Code. Ch. 17-05	“Participate in and join regional transmission organizations”	Formal	Yes	Yes
	ND Century Code Ch. 17-05	“The NDTA shall coordinate its plans for transmission facilities with regional organizations having transmission planning responsibilities for the project area.”	Informal	Yes	No
SD	SDCL 1-161-33	The authority (SDEIA) may enter into intergovernmental agreements with any government agency.	Compacts	No	No
WI	WI Statute 196.494 (5)	The state may enter into an interstate compact if the compact includes: a) Compliance with each state’s environmental and siting standards for transmission facilities b) A regional need determination for transmission facilities c) A mechanism for resolving conflicts between the states	Compact	No	No
	Wi Statute 196.02(1)	The PSCW has the authority to coordinate with other state commissions or jurisdictional agencies regarding large region-wide transmission projects	Informal	No	No

Several differences exist between the states that have taken the independent regulatory perspective. Wisconsin state agency experts expressed how the linear nature of interstate siting leaves states that have shorter processes and thus, later application submissions, in the dark. After millions of dollars of project lines have been approved in adjacent states, the possibility for a state to say “no” to the continuation of a line through their jurisdiction is not a very responsible decision, even if there are disputes on the technical *need* for the project. Officially, the Wisconsin Governor’s Office has the authority to intervene in the planning processes of other states when such plans cross into other state jurisdictions.⁸⁶ The intervening authority, however, does not officially translate to other Wisconsin state agencies that might have the capacity to carry out an “intervention,” leaving the means to regionally interact undefined. The reality is that there is no formal language in state statute or code that requires the PSCW to communicate with neighboring states on the siting of interstate transmission lines. According to a PSCW expert and veteran, there is not even any informal or cultural practice of communicating with neighboring state agencies about such issues. “Border crossings make siting more complex, but it does not change the (in-state) process.”⁸⁷

The Minnesota PUC has the authority to enter into the proceedings of neighboring states to facilitate interstate communication, but since it is not mandatory, the state has discretion. Unlike North Dakota, whose energy landscape is driven by exportation needs, Minnesota generally leaves the coordination of interstate lines to applicants, primarily using its authority to ensure local and state coordination during the Environmental Impact Statement.⁸⁸ Facilitating this discussion benefits intrastate siting, especially by engaging local stakeholders, but neighboring state authorities claim that it hinders the development of interregional plans. Since the local engagement process is more inclusive and participation has been historically high, a project crossing into Minnesota is in danger of slowing down considerably.⁸⁹ It is unusual, but if an applicant were to “opt” to seek siting approval from local jurisdictions, a state *route* permit is not required. Under this scenario, local authorities have even less capacity and legal responsibility to work with neighboring states compared to state agencies.⁹⁰

Minnesota and Wisconsin statutes, which allude to regional coordination, do not have any implementation strategies. This gap is preceded by an early disconnect that plagues all six states. Unfortunately, not a single state in this study has the authority to enter into “high level” state *agreements* regarding the *need* for lines.⁹¹ Even if the Wisconsin Governor’s office were to enact its authority and “intervene” in another state’s proceedings, it is not defined how states could proceed from that point. Without this initial agreement of *need*, any interstate discussion is focused on technical discussion of plans in place, and does not facilitate long term regional plans for siting. Instead, transmission line siting is determined only by a state’s permit sequence and local input.

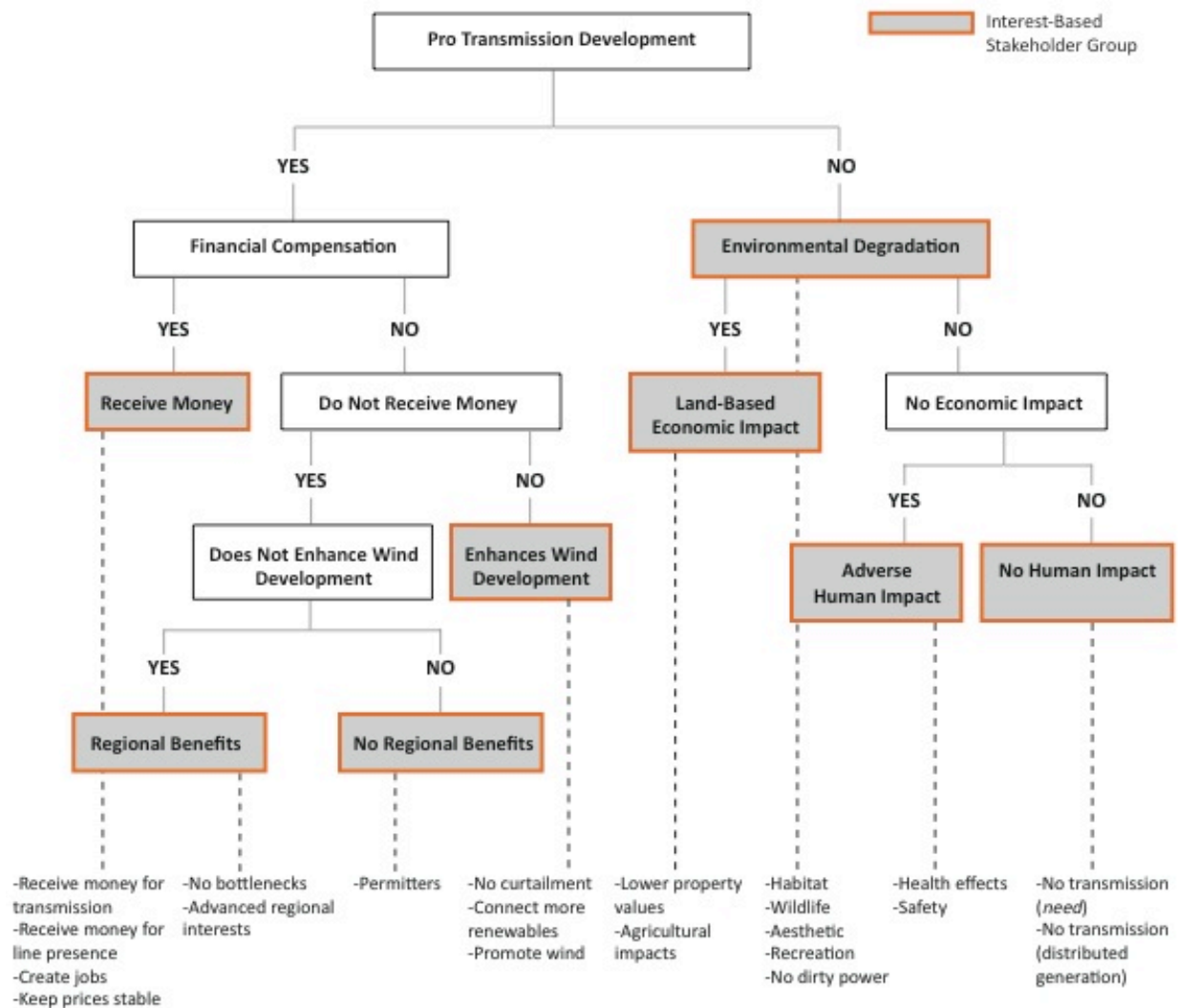
In terms of renewable *importers* and *exporters*, Iowa appears to be the outlier in its interstate approach. In Iowa, it is unclear whether regional interests may be taken into account, but given the high demand for wind power (and Iowa’s prime position to provide it), market demand for more transmission can likely be a strong driver of public *need*. The challenge in Iowa is that decision-making is sometimes delegated to rural authorities resulting in less involved state authority. This allows for a heavier weighting of parochial interests in place of more regional consideration.

VII. POWER AND INTEREST DYNAMICS: A STAKEHOLDER ISSUE ANALYSIS

To allow for comparison of stakeholders across the Upper Midwest, stakeholders were divided into eight different categories. The following categories represent the range of positions and interests of stakeholders: financial beneficiary, enhanced wind delivery, regional benefits, permitters, environmental degradation, land-based economies, adverse human impact, and no transmission. These categories fall into either being in favor or against transmission development. This is not to say that all stakeholders are equally for or against particular projects. Some are fervent champions and others merely concerned. More thorough descriptions of specific stakeholders can be found in Appendix A.

Figure 7. Decision Diagram for Determining Stakeholder Interests

At the bottom of the diagram are the stakeholders or interests that result based on these “Yes” “No” scenarios.



Pro Transmission Interests

FINANCIAL BENEFICIARY

Money for Transmission Development: The MISO tariff allows transmission developers to build MVP lines significantly more cheaply than usual. Therefore many utilities have become active in lobbying for lines to get built.

Compensation for Line Siting: This refers to landowners, and in some cases, local government (such as counties). These stakeholders receive payments for the presence of transmission lines crossing their property or within their jurisdiction. These payments can be powerful motivators for stakeholders to favor transmission development.

Jobs: Many stakeholders promote the economic benefits of new lines. Some see transmission as creating jobs directly, such as during construction, or creating jobs indirectly through manufacturing, installing, and maintaining of wind turbines. Another layer to this group is that reliable connections to electricity serve as the life-blood of all commercial activity, and thus are desirable to a broad spectrum of business owners.

Price Stability: One benefit of more transmission line capacity is that it allows existing power to be used more efficiently. This can prevent the need to build new power stations. Generally expanded transmission means more overall price stability. The Citizen Utility Board of Wisconsin and Iowa Office of Consumer Advocacy have both expressed interest in expanding transmission.

ENHANCED WIND DELIVERY

No Curtailment: This is most evident in Iowa, where wind development has outstripped transmission development. This has led to a situation in which wind power is curtailed.

Connecting Renewables: Large energy companies with facilities and interests across the region, such as Iberdrola Renewables or Horizon have wind farms in several states with plans to expand operations. New transmission makes sure these resources are integrated onto the grid.

Promoting Wind: Many promoters are connected to the state, such as the Illinois Wind Working Group, and others represent collaborative partnerships between the private sector, government, and educational institutions such as the Iowa Alliance for Wind Innovation and Novel Development. Wind promoters also discuss the possibility of more wind development possibly creating local industries for manufacturing and maintenance of turbines.

REGIONAL BENEFITS

No Bottlenecks: The MISO grid has numerous bottlenecks, but the regional poster child for bottlenecks is southwest Wisconsin. New transmission capacity would allow electricity to flow more efficiently across the grid and eliminate wasteful generation.

Advance Regional Interests: MISO has conducted extensive planning in the area of transmission development. MVP represents the highest end-result product of this careful planning. These projects have been designated MVP because of their broad regional benefits. Thus their construction advances regional plans that have been developing for over a decade.

PERMITTERS

Across all six states there are significant differences in the number of state agencies involved in permitting processes as well as variability in the nature of their involvement in the process. In some instances their work is largely procedural, such as requirements for DOT permits for use of highway right of way. In other cases agencies are very actively involved in the permitting process, such as the respective utility commissions of each state. In these cases the agencies involved have more discretion in granting permits, and it is these types of agencies that can halt projects by not granting certificates of need, not approving route plans, or denying other key permits relating to the environment. Aside from state level permitting authorities, there are also Federal agencies. These can include the Forest Service, Environmental Protection Agency, Fish and Wildlife Service, and the Army Corps of Engineers, among others.

Anti Transmission Interests

ENVIRONMENTAL DEGRADATION

Habitat: These stakeholders are concerned about impacts to habitat, such as the fragmentation that occurs when corridors must be carved from forests to make way for transmission lines.

Wildlife: Some groups, such as the Iowa chapter of the Sierra Club, have concerns over the effects of transmission lines on bird populations. Others note that major flyways crisscross the area and transmission towers could degrade them.

Aesthetic: Many people complain about the aesthetic costs of transmission lines running across pristine landscapes. These stakeholders have at times said they would rather pay the extra money to bury lines than incur the aesthetic costs of having the lines visible on the landscape.

Recreation: Recreational users of different lands, such as hikers or campers, feel their experience of nature is degraded by the presence of transmission lines. This may even be felt by those that do not use the lands recreationally, but enjoy knowing that they can if they so desire.

No Dirty Power: These stakeholders worry that new lines will become highways for new coal or other “dirty” power to be moved around the grid. They reject the development of lines because they have no guarantee that lines will only carry renewable energy.

LAND-BASED ECONOMIES

Lower Property Values: These are landowners with lines sited on their land or proximate to their land. They worry that transmission lines will diminish their property value.

Agricultural Impacts: Farmers worry about effects on their land, such as crop damage during construction and maintenance, damage to tiling, removing prime lands from production to accommodate transmission towers, and other concerns.

ADVERSE HUMAN IMPACTS

Health Effects: There are numerous concerns about potential health effects associated with living proximate to a transmission line. There is a lack of definitive research about the long term effects of living near powerful electro-magnetic fields. Evidence in general is inconclusive,

however the effects are anticipated to be no greater than exposure to other waves humans encounter on a regular basis (microwaves and radio waves).

Safety: At times various stakeholders express concern over tower designs, questioning their safety in the event of collapse or other damage. They may also question whether lines are capable of withstanding severe weather.

NO TRANSMISSION

Need: Groups like No CapX 2020 are not convinced of the need for new transmission lines. Typically these groups are vocal opponents whose attitudes are not easily changed.

Distributed Generation: These groups advocate against transmission because they believe distributed generation and energy efficiency programs can alleviate line congestion and provide for future electricity needs.

Discussion of the Scope of Stakeholder Interests

As is clearly indicated, stakeholders' interests are highly variable. But beyond the differences in their interests are also differences in the scope of these interests. Some groups have very parochial scopes, such as the land-based economies and adverse human impact groups. Their primary concerns are how transmission lines will affect them personally at the local level.

Other groups have larger scopes of interest focusing on larger geographies within a state or the state as a whole. Various ratepayer advocacy organizations trying to maintain low retail electricity costs for consumers may fall into this category. Others, like local chapters of the Sierra Club, tend to focus on sub-state regions. This is particularly evident in Wisconsin, as the local chapter of the Sierra Club there has been fighting against the Badger-Coulee line (La Crosse to northern Dane County) because of concerns over scenic and recreational impact within the region and potential environmental degradation. But of course, not all environmental groups are against transmission. One of the great successes of the CapX 2020 project is that some environmental groups, traditionally opposed to transmission lines, have become cheerleaders for the project. Once their concerns that lines would carry dirty coal energy had been alleviated, they significantly warmed up to the projects.

Finally, other groups have much larger, multi-state scopes of interests. This is generally evident for the regional benefits and enhanced wind delivery groups. Several large wind developers operate wind farms in numerous states with plans to expand generation. However, their plans have been curtailed due to insufficient transmission infrastructure. Another group with regional interests is OMS, which acts a regional communication and oversight body across MISO member states.

Bridging Gaps Between Stakeholders and the Process

Clearly there are diverse stakeholder interests for transmission development. Not only do their interests vary, but their means of engaging in the transmission development process vary. Some have multiple avenues for making their interests known (e.g. utilities), whereas others have to

work hard to see their concerns addressed (e.g. local farmers). This imbalance generates a gap in stakeholder engagement, as different groups have different levels of power to influence the development process.

People who are locally affected often perceive the costs of LULUs (locally undesirable land uses) as very high. This leads to high levels of motivation to challenge projects. Simultaneously, the beneficiaries of such projects often fail to voice their support, leading to the over-emphasis of negative impacts. This creates a gap in the balanced consideration of different stakeholder needs. Research about NIMBY attitudes has also shown that much of the opposition is a direct result of insufficient avenues for meaningful participation. Oftentimes decisions about LULUs are made without consultation of locally affected people. Thus, decisions become thrust upon individuals. Were there earlier engagement to discuss alternatives and educate about benefits of projects, locally affected people might react differently to final siting decisions.⁹²

This style of public engagement, informing locally affected people once a decision has been made, reflects one of the lowest rungs on Arnstein's influential "ladder of citizen participation." Sharing information with the public allows authorities to appear that they are engaging the public. However, the flow of information is a one way street, focusing on information going from authorities to the public. Arnstein also notes that this approach may intentionally skew the information shared to the public. At times they may overemphasize technical details and jargon as a means of deliberately confusing relevant stakeholders to dilute their opposition.⁹³

One way to mitigate this may be to employ the *advocacy planning* paradigm introduced by Davidoff, arguing that all voices need to present at the negotiating table. This means actively identifying voices or interests that are absent from the table, identifying their values and preferences, and then advocating on their behalf. This way, even if relevant stakeholders are not present or are underrepresented they can still have a meaningful place in the discussion.⁹⁴ For example, if farmers are noted to have limited points of access to decision-making processes, someone either tries to motivate them to become more active in voicing their interests or else someone takes on the responsibility of making sure decisions are made with a deliberate consideration of farmers' interests.

Table 4. Summary of Stakeholder Groups

Stakeholders		
Group	Interest	Specific Stakeholder Example
Financial Beneficiary	Direct economic gains from new transmission	<i>IOUs and transmission companies can construct cheap transmission lines</i>
Enhanced Wind Delivery	Delivery wind energy to customers	<i>Wind on the Wires wants to bring more wind power to market</i>
Regional Benefits	Implement plans and reduce bottlenecks	<i>MISO wants to build its planned MVP lines</i>
Permitters	Agencies wants to follow proper procedures	<i>PUCs determine need and route</i>
Environmental Degradation	Concerns over negative environmental impacts	<i>The Iowa chapter of the Sierra Club is concerned about impacts on birds</i>
Land-based Economies	Concerns over property values and cropland	<i>Farmers worry about damage to crops or tiling</i>
Adverse Human Impacts	Concerns about health and safety	<i>People worry about health effects of living near a transmission line</i>
No Transmission	Not convinced of need, favor alternatives	<i>The Wisconsin Chapter of the Sierra Club favors distributed generation over transmission lines</i>

Stakeholder Category	Scope of Interest		
	Local	State	Region
Financial Beneficiary			
Enhanced Wind Delivery			
Regional Benefits			
Permitters			
Environmental Degradation			
Land-based Economies			
Adverse Human Impacts			
No Transmission			

Table 5a. Stakeholder Scope of Interest

This table summarizes the level at which each stakeholder’s interests are manifested. Many interests may be manifested at more than one level of government or organization.

Stakeholder Category	Point of Entry		
	Planning	Need	Route
Financial Beneficiary			
Enhanced Wind Delivery			
Regional Benefits			
Permitters			
Environmental Degradation			
Land-based Economies			
Adverse Human Impacts			
No Transmission			

Table 5b. Stakeholder Point of Entry

This table summarizes the point in the siting process in which a stakeholder group is most likely to get involved.

Case Study 1 – Brookings, SD to Twin Cities metro area, MN

A model of project approval and the evolution of needed coordination



The Brookings County-Hampton project will help meet projected electric growth in southern and western Minnesota and the growing areas south of the Twin Cities metro area. This is particularly true in Scott and Dakota counties, where population has more than doubled since the last major transmission upgrade. Great River Energy and Xcel Energy proposed to construct and operate a 345 kV transmission line, approximately 237 miles long, beginning at the state's western border near Hendricks, Minnesota, and ending south of the Twin Cities metro area near Hampton, Minnesota. The proposed project is one of four projects proposed as part of the CapX2020 Transmission Initiative.

The applicants proposed two possible routes for the transmission line, a preferred and an alternative. The proposal also includes the construction of four new substations and the expansion of four existing substations. The applicants proposed using single structure steel poles which would require a 150-foot right-of-way for the majority of the route. The application required preparation of an Environmental Impact Statement (EIS).

The Minnesota Public Utilities Commission (PUC) accepted the route permit application as complete on January 29, 2009. At that time they also authorized the Office of Energy Security (OES) to develop a structure and charge for an advisory task force(s) and referred the route permit application to the Office of Administrative Hearings for conduct of the contested case hearing.

Two geographically-based advisory task forces (ATFs) were established by the OES, the Lake Marion to Hampton ATF and the Minnesota River Crossings to New Prague ATF to assist in developing the scope of the EIS. In addition, 12 informational meetings held in nine locations and a comment period provided the public with an opportunity to review the scope of the EIS. The EIS scoping decision was issued on June 30, 2009, identifying 21 route alignment alternatives and 51 route segment alternatives for evaluation.⁹⁵

The Draft EIS was issued October 20, 2009. The OES held 10 public meetings in six locations on the Draft EIS and accepted written comments on the Draft EIS until November 30, 2009. The Final EIS was issued January 26, 2010. The Draft EIS and Final EIS serve as the complete EIS for the proposed project.

Administrative Law Judge, Richard C. Luis presided over 17 public hearings in eight different locations from November 30 to December 28, 2009, and evidentiary hearings from December 15 to 18, 2009. The Commission met on July 13 and 15, 2010, to hear oral arguments and consider the matter of the *route* permit for the proposed project. The Commission approved the *route* permit for the line with the exception of the portion of the project between the Cedar Mountain and Helena substations. This section was remanded to the ALJ for additional hearings. Judge Luis presided over additional hearings in October, 2010, concerning Section 4. His Findings of Fact, Conclusions, and Recommendation were issued on December 22, 2010. On March 1, 2011, the Commission granted a Route Permit for the remanded portion of the project.

In South Dakota, the process has moved much more quickly due to the relatively minor requirements needed there for siting. The *facility permit* was filed for on November 22, 2010 and approved on June 14, 2011 having met the four *burdens of proof* required by the state. That same month, the line was granted conditional MVP status by MISO. Official MVP status was voted on and approved later that year in December. Being the first 345 kV line proposed in South Dakota made it a priority, as it will provide much needed wind energy from an exporting state to a major metropolitan area, the Twin Cities.

The Brookings Line provides some good examples of informal interstate coordination between state agencies, in particular, the Department of Transportation in both states. Originally, the Minnesota DOT was concerned about the design of the lines being built. To them the safety of the pole designs was in question because they were being built so close to state highways. While both the *route* permit and the *facility permit* were being considered, MNDOT reached out to the South Dakota DOT about their concern over the safety of the pole design. According to an interview with a South Dakota official, it was unusual for someone from Minnesota to reach out like they did, and in effect, ask the South Dakota DOT to carefully consider the project before approving based on these safety concerns. After discussing the matter with the applicants, South Dakota decided to move forward with their approval of the line. Xcel explained that the poles were designed to collapse on themselves in the event of structural failure, steering clear of the highways. Despite Minnesota's concerns and appeal to delay the project, South Dakota officials responded that there was no official channel for the states to work together on a strategy to oppose the line, and that Minnesota would have to proceed on their own if they so desired.

This case study indicates a need for legally defined interstate communication channels. Because of the size of the project, extraordinary concerns affected decision makers on both sides of the border. Without an established mechanism and obligation to communicate, this example shows how states become isolated in their individual tracks, able to disregard each other's concerns. DOT officials in Minnesota felt the issue was important enough to contact the South Dakota DOT, showing that a need to coordinate does in fact exist. Upon having the needed conversations with the transmission line developer, South Dakota, primarily concerned with the project moving

forward, as it was the first 345 kV line to be proposed there, deferred the request made by Minnesota and put an end to the conversation.

Being an energy exporter, South Dakota's need to build the transmission line to export wind energy far outweighed the need to advocate on behalf of another state's concerns. Although no structural problems may actually have existed, other negative consequences to the relationship and future coordination may now exist because the discrepancy had no legal outlet. While in the end, the result of the line and its construction would most likely have turned out the same, an official channel for communication would help avoid unresolved conflicts like this, and make for better working conditions now and in the future.

Case Study 2 – Twin Cities to La Crosse Project: Wisconsin focus

An example of misaligned timing and insufficient compensation mechanisms



The proposed Alma to La Crosse, Wisconsin transmission line is part of a larger transmission project referred to as the Hampton (MN) to La, Crosse (WI) line. This 345-kilovolt transmission line would be owned and developed by Xcel Energy on the Minnesota side and by three applicants on the Wisconsin side: Dairyland Power Cooperative, Northern States Power Company-Wisconsin (NSPW) – an Xcel subsidiary – and Wisconsin Public Power Inc. There have been multiple challenges with this line in reference to its siting on the Wisconsin side of the project and challenges around coordination on both sides of the border. This case study

highlights some of these challenges and helps to point out some of the barriers that are symptomatic to interstate projects in the Upper Midwest, particularly those projects crossing through western Wisconsin. This is pointed out not to single out any specific state or set of states as being problematic, but to show the disparity in harmony that exists from state to state.

As required by Wisconsin state statute,^v all transmission line projects must be submitted with a minimum of two routes, one of which can be distinguished as the *preferred route*. This project was submitted to the PSCW with three major route options: 1) the Q1-Highway 35 Route, which runs mostly along US Highway 35 and passes through the Black River bottomlands and the Upper Mississippi River National Wildlife and Fish Refuge (the Van Loon Wildlife Area), 2) the Q1-Galesville Route, which runs along numerous existing 161 kV corridors and avoids the Black River bottomlands and the Van Loon Wildlife Area, and 3) the Arcadia Route, which covers the most miles of the three routes, avoids the Black River bottomlands and the Van Loon Wildlife Area, as well as the Great River Road National Scenic Byway (GRRNSB). Each of these primary routes has optional segment deviations that compile a total of nine routes. Depending on the chosen route, the project would cost between \$195 million and \$224 million to construct, costs which would be divided amongst the ratepayers of all three applicants.⁹⁶ Virtually all segments suggested run along existing 161 and 69 kV transmission line corridors. The line would terminate at the Briggs Road Substation, which is not yet built, but planned for just southwest of Holmen, a village of 9,005 residents in La Crosse County.⁹⁷

It is the job of the PSCW and its Commissioners to gather technical evidence and hear the concerns of the public and use this information as the basis for their decision in granting the CPCN. Despite this there is great onus on the Commission to approve the line since Minnesota would be housing over 70% of the line miles and has already approved a CON. *Table 6* highlights the friction felt by the unsynchronized interstate decision-making, particularly for the residents affected by the proposed development in western Wisconsin. The PSCW is also forced to make a decision that could negatively affect direct economic growth and development in southeastern Minnesota after development has already been promised. Ultimately, misaligned project approvals create economic uncertainty for Xcel and the other project applicants/developers, which can result in increased project costs and rates for electricity consumers.

Having application submittals take place at the same time would allow residents and states as a whole to feel that they are able to make decisions about need and route following their statutory language instead of the political and economic pressures of neighboring states. Submitting the application to the Minnesota PUC before the PSCW was done because the line will be carrying electricity from the west to the east and thus the development of the line will naturally move from west to east. However, the applicant also may have submitted their application in Minnesota first because their statutes do not include a default approval clause that automatically approves the preferred route after 360 days like Wisconsin statutes do. Thus, the Minnesota process can be a little more unpredictable, and Xcel Energy was building in additional time for this reason. Either way, this project is a perfect example of the importance of timing because it affects a number of things, including how NIMBY concerns can be addressed, ratepayer prices via

^v Wis. Stat § 196.025(2m)(c)

the cost sharing of the newly developed lines, and the utility company itself and its need to meet load demand and regulatory requirements.

Table 6. Comparative Timeline for the Hampton to La Crosse Project⁹⁸

Minnesota Application		Wisconsin Application	
	Timeline:		Timeline:
CON Application filed	August 16, 2007	CPCN Application filed	January 3, 2011
CON Granted	May 22, 2009	Application ruled complete	June 9, 2011
Route Permit App. filed	January 19, 2010	Draft EIS issued	November, 2011
Draft EIS	March 21, 2011	Final EIS issued	January, 2012
Final EIS	August 31, 2011	EIW Commenting period ends	March 7, 2012
		Technical Hearings	March 5-7, 2012
AJL Recommendations	February 8, 2012	Public Hearings	March 13-14, 2012
Anticip. Route Permit decision	June 1, 2012	PSCW decision deadline	June 4, 2012
Total Days Taken:	1751		518

In 1936 Wisconsin started the first major state conservation easement program in the country by buying land along the Mississippi waterway. One of the main goals of the easement program was to promote the public interest in protecting private lands.⁹⁹ WisDOT has gone as far as to be an *intervener* in this project, communicating to the PSCW that it would not find the GRRNSB route permissible. Although WisDOT does not have the authority to approve such routes, it is their legal responsibility under Federal law to protect scenic easements along the Great River Road¹⁰⁰ Although WisDOT intervening on this application does not directly slow down the approval process for the CPCN because the PSCW is still bound by its 360-day deadline, allowing the applicants to invest time in proposing a route along a scenic easement corridor and the public the opportunity to react to such a route has created additional project friction. The public has reacted strongly to this route¹⁰¹, which has contributed to the negative media attention and potentially to the public perception that additional transmission development in the area is unnecessary.

Another important dynamic is that the project has presented a route that requires the Federal Fish and Wildlife Service (FWS) to become involved. The project was planned to cross the Mississippi River between Kellogg, MN and Alma, WI so that it could connect to a 208 MW coal power plant located in Alma adjacent to the river.¹⁰² Because of the natural sensitivity of

The Right of Way width needed for the 345 kV lines is almost always 150 feet wide, except in landscapes where longer spans are needed, such as over the Mississippi River and the coulee hill region in La Crosse County. In these areas, ROW widths would be up to 280 feet (Fennessy, 2012).

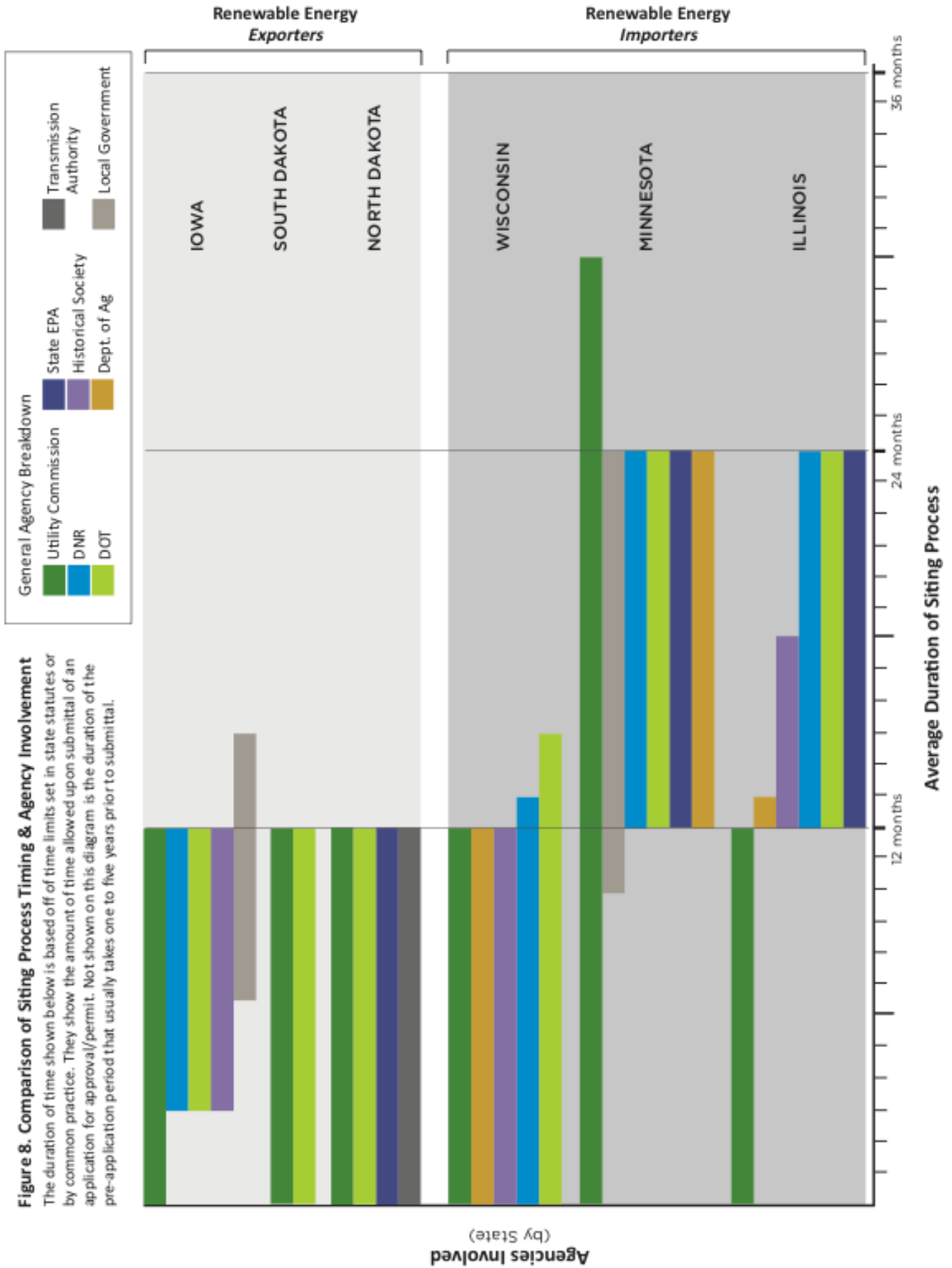
these lands, the FWS has chosen to complete their own Environmental Impact Statement. The final draft of the EIS has not yet been completed and has raised temporal and administrative capacity concerns similar to past complaints that the requirement to conduct EISs at state and

Federal levels, in multiple states, is duplicative.¹⁰³ Some argue that this is a way to prevent the approval process from being slowed down beyond the deadlines set by the state authority. Since state level EIS requirements for in Minnesota and Wisconsin are more comprehensive than Federal level EIS requirements, there is the opportunity to optimize the use of this knowledge to satisfy one shared EIS.

A final challenge presented by this project is the fact that it was not selected by MISO as a Multi-Value Project. This has been a contentious issue, particularly because it is connecting two lines (Brookings – Twin Cities and North La Crosse – North Madison) that have been designated as MVPs and thus are receiving 100% of its funding via regional tariffs proposed by MISO, lowering the costs that will be shared by ratepayers at the local level. Arguments by the public have repeatedly cited that projected growth shows the La Crosse area not needing this additional capacity until after 2030.¹⁰⁴ The applicants have demonstrated through contingency studies that if even one component of the existing low-voltage transmission system were to fail, that the projected growth in the La Crosse and Winona area would not be able to be supported reliably.¹⁰⁵ Although this is true, there are obviously regional benefits that are being gained by the development of this project. Although the largest opposition to this project has been from private landowners that claim that they would rather pay significantly higher rate fees to have the line travel further or be buried, regional cost sharing could have helped to represent the need for the project more accurately. The nature of the *need* is both local and regional. Determining both the need and the route for this project have been a challenge as residents and some environmental groups try to argue that the need that is being advertised to the local public is not the real need that is being fulfilled. The dynamics at play here demonstrate the importance of how *need* is defined within a state. The nature of this definition and its level of transparency convey a message to the public about what is important to consider when making this decision.

As noted by CapX project spokesman Tim Carlsgaard, the 40 miles line between Alma and Holmen, WI have been subject to more public involvement than the rest of the 700 miles of proposed lines segments (approximately only 125 miles of which would be constructed¹⁰⁶) combined.¹⁰⁷ To this point, western Wisconsin residents have a history of being involved in transmission line development and often to opposing it mainly over concern of the negative effects on land values and to health risks related to electro-magnetic fields. Most of the main issues outlined have the potential to affect public opinion on project line development. However, at the core of this example is the NIMBY sentiment that is largely representative of the public opposition seen in Wisconsin.

Figure 8. Comparison of Siting Process Timing & Agency Involvement
 The duration of time shown below is based off of time limits set in state statutes or by common practice. They show the amount of time allowed upon submittal of an application for approval/permit. Not shown on this diagram is the duration of the pre-application period that usually takes one to five years prior to submittal.



VIII. ANALYSIS OF CURRENT STATE PROCESSES AND COORDINATION PRACTICE

Based on the SWOT analysis comparing state siting processes and practices and the mapping of tensions present in each state, a number of themes surfaced as barriers to successful siting and coordination practices. A variety of scholarly articles have discussed most of these issues in some capacity. The following areas of focus surfaced and are discussed analytically below to understand how and what solutions may arise. See *Figure 9* for an inventory of tensions across the Upper Midwest States. Highlights from the SWOT Analysis can be found in Appendix D.

All barriers to siting MVP lines, or even other high-voltage, single state transmission lines, revolve around issues of coordination. These issues breakdown into three themes:

- 1. Process Complexity:** defined by three dimensions inherent in individual siting process
 - Quantity of agencies involved in siting
 - Duration of time and level of predictability
 - Extensiveness of application components (such as rigor and quantity of EISs)

- 2. Definition of Need:** definitions are disparate and overall do not take a regional approach which poorly aligns with MISO planning jurisdiction and FERC orders

- 3. Siting Motivators:** varying state energy policy goals and RPS expiration dates exacerbate transmission grid bottlenecks in the MISO region

Each theme alone creates barriers and together they compound to deter regulators and developers from adhering to regional plans. A brief analytical discussion of these themes will clarify what policy options may be appropriate.

Process Complexity

The complexity of siting processes can maybe best be described by assimilating them to a three-dimensional object that has each of the following axes: number of agencies, duration of time needed, and extensiveness of siting application requirements. The process as a whole has been molded by historical precedents resulting from stakeholder dynamics to exist as it does today. As one dimension is pressured, such as constraining the process time frame, the process will “bulge” in another direction, such as *extensiveness* or rigor. Wisconsin is a perfect example to give context to this concept. Wisconsin’s EIS requirements became far more extensive when the process was restructured in 2003¹⁰⁸ and confined to the 360 day time limit. Understanding that each state’s process is subject to bulging as one dimension is altered will inform what recommendations are made to individual states to create a more harmonious region. A snapshot of dimensions (1) and (2) can be seen across all six states in *Figure 8*. Although extensiveness is not represented here, Wisconsin is reported as the most burdensome to developers; Minnesota also has very rigorous demands.

There may be a potential benefit to leaving state siting processes as they are. Changing individual state processes will require developers to adapt to processes with which they have gained at least some familiarity. Beyond adjusting each process to have more similarly shaped

dimensions, coping mechanisms could be best practices, agreements, or institutions that can flexibly alter any one or all of these areas over time.¹⁰⁹

Defining Need

How *need* for new transmission line development is defined has been a pervasive theme in the discussion of siting. Although no states exclude consideration of regional *need* while making siting decisions, statutory language in each state varies, with little to no deliberate inclusion of regional considerations. Statutory language for regional need is typically similar to Illinois', which outlines the following requirements for proposed transmission projects:^w

- a. *Provides adequate, reliable, and efficient service to its customers or that it will promote the development of an effectively competitive electricity market that operates effectively^x, is equitable to all customers, and is the least cost means of satisfying those objectives*
- b. *The utility is capable of efficiently managing and supervising the construction process and has taken sufficient action to ensure adequate and efficient construction and supervision thereof*
- c. *That the utility is capable of financing the proposed construction without significant adverse financial consequences for the utility or its customers.*

Considering the vague definition of “customers” in statutes, Commissioner discretion plays a large role in interpreting need.^y Recently the Wisconsin Commission completed their final decision for the Pleasant Prairie to Zion MVP line – the first of four in Wisconsin. Commissioner comments contained within the affirmative *Final Decision* (the granting of the CPCN) are symbolic as they request that other MVP reviewing Commissions interpret *need* in the same way that they have.¹¹⁰ One industry leader, who works for one of the most conservative siting Utility Commissions in the MISO region, understands these comments as a call for a new precedent.¹¹¹ The Commission has approved this line, in part, for benefits that will be felt by customers outside the boundaries of Wisconsin. There is no forum for siting concerns such as these to be heard. The Commission’s additional commentary beyond the decision was the best way that they could communicate to other state siting authorities that they expect other decisions to be made on the same grounds as they did, that of a broader, more regional interpretation of need. The comments showed the careful balance that the Commission sought between local concerns, technical realities, and the evolving definition of *need*. Some sort of regional oversight, be it through a unified and deliberately regional definition of *need* or through a binding organization, would help provide accountability to defend the sense of responsibility and concerns of each state’s future Commission decisions.

Public and Policy Motivations

Motivation for transmission development is lacking in two ways:

^w 220 ILCS 5/8-406 Ch. 111 2/3, par. 8-406 (b)

^x The importance of an “effectively competitive electricity market” is emphasized in the Illinois statute more than in other state being that it is a deregulated market.

^y A panel of three Commissioners in each state makes the final decision on approving or certifying a siting application.

1. Public perceptions and landowner incentives
2. Synergized state renewable energy policy.

A history of mediocre public engagement and unauthentic attention to local concerns on the part of state agencies and developers has been detrimental to getting projects sited. The environmental benefits from and economic development need for reliable transmission should be better communicated to the public. This is particularly true of the MVP projects, which have a better portfolio of benefits to share. *By state* ad campaigns aimed at doing just this could help change public perception and reduce local opposition that slows development in some parts of the region. Additionally, affected landowners at the local level are among the most outspoken opposition to line development. There are many examples of residents building coalitions comprised of organizations with an array concerns,^z but who support the same outcomes. Addressing property owners concerns more effectively would help to alleviate much of the local opposition.¹¹² Although in most Upper Midwest states these local level concerns may not jeopardize project approval, they do add to the overall political sentiment around transmission line development, good or bad. These concerns can filter into political debates and litigation, which may be reflected in state level policy and legislation. The second barrier to properly directed motivation for transmission development is tied directly to this.

Considering the rich wind resources in Iowa and the Dakotas and their unprecedented low cost of electricity,¹¹³ Illinois' restructured electricity market and Minnesota's RPS attract renewable electricity generated by these states. Minnesota and Illinois have the highest RPSs in the Upper Midwest, which both expire in 2025. As both the Twin Cities metro area and numerous urban areas in Illinois grow (excluding Chicago), not only is the need for additional electricity expanding, but also for renewable power. The infrastructural weakness that prevents these renewable importing and exporting states from enjoying more shared benefits is the bottlenecked southwestern part of Wisconsin and eastern Iowa.

Wisconsin does not have the same motivation as the other *renewable energy importer* states as their wind potential is moderate to low and their nearly fulfilled 10% RPS is set to expire in 2015. Without updating and raising the RPS bar, the pressure to alleviate its regional transmission bottlenecks will be less likely to exist.¹¹⁴ In this instance, new infrastructure could be born from the Renewable Portfolio Standards. RPSs will drive the incentive for importation of renewable energy from the western states where the market alone is not yet able to do so.^{aa} Since Wisconsinites already feel they are having to pay for transmission line development that they are not benefiting from,¹¹⁵ such legislation would have to be carefully framed. Further incentives for in-state renewable resources would be seen as an economic development opportunity and this helps build local support for a reauthorized RPS. Additionally, like transmission line developers, wind developers would likely need the backing of renewable energy policy as they face local opposition to siting. In general, the MISO region has an interest in seeing Wisconsin

^z *No CapX 2020* and Citizens Energy Task Force are two examples of resident coalitions that work within their communities and with other conservation organizations to build project opposition.

^{aa} Although Wisconsin's RPS allows for tradable Renewable Energy Credits (RECs) to be used to meet the standard, making the need for physical grid infrastructure less necessary since the need can be met through the market.

increase its RPS. Stronger regional advocacy for such change could have meaningful impact in getting interstate transmission lines constructed.

In sum, these three themes highlight the primary symptoms of the policy problem. To improve regional siting practices and construct net benefit transmission projects, such as the MISO MVP lines, these symptoms need to be treated. Policy options should take into consideration these themes as well as their applicability in each state.

Regional Policy Gaps and Ambiguous State Responsibility

Applicability, as we describe it, has two separate determinants for policy options that encourage regional participation by states. There are the legal requirements, described earlier.^{bb} Equally as important though, are the economic and environmental drivers that put states in a better or worse position to sustain regional cooperation. Rarely do states have the personnel or latitude to focus on regional planning, especially when it conflicts with intrastate responsibilities. States are generally resigned to working on transmission issues in their independent jurisdictions, unless economic necessity motivates them to engage with other states. In North Dakota, the need to export electricity has grown exponentially in the last decade, and they have the political will to build their energy industry. Iowa also has a robust electricity supply. However, like North Dakota, they are discouraged by surrounding states that are less motivated to import than they are to export.

Of the importing states, Minnesota has taken the largest steps towards recognizing regional *need*. With their high RPS, they are prone to discussion about interstate transmission lines. Recently, this has offset their traditionally extensive application process, and changes in the attitudes of environmental groups and economic developers have garnered support for energy importation. Unfortunately, the same cannot be said for Wisconsin. The state still faces significant local opposition and a hostile political climate. At the behest of local interests, this dynamic has kept Wisconsin from moving quickly to address regional *need*. Without a certain level of commitment from all states involved, dismissal of regional discussion by one state can have isolating effects. When a state that is as geographically important to regional transmission as Wisconsin retracts, other states lose momentum and revert to the status quo.

Several regional entities have been constructed over the last five plus years to facilitate regional transmission planning, but none have had the resources or legal framework to sustain. In spite of this, collaborative progress has been made on establishing mechanisms that make it easier for states to educate the public and bridge the gap between local and regional interests. As discussed earlier, the Upper Midwest Transmission Development Initiative identified legal channels and scenarios where states interaction would be legally justified.¹¹⁶ This was an important step in showcasing the legitimate legal channels for interstate work, and it gave states the legal grounds to begin negotiating regional interests with local stakeholders. In addition, FERC order 1000 gave support to individual state interests in its planning requirement stating

^{bb} See *Section VI. Regional and Interstate Coordination and Communication*

that, “Local and regional transmission planning processes must consider transmission needs driven by public policy requirements established by state or federal laws or regulations.”¹¹⁷ With this, the basis for states to work closer on regional projects has been established.

However, the failure of states to move forward signals their propensity to remain loyal to local and political interests. Constrained by these barriers, policy makers remain reactive to public demands and are without a forum to engage opposing stakeholders or make their regional interests a priority. Advocacy groups like the Great Plains Institute and Fresh Energy have made strides in building consensus for added regional transmission, but states have yet to act conclusively in coordinating regional plans.

In a 2011 report to the Midwest Governor’s Association (MGA), MISO outlined a planning objective to develop transmission system scenario models and make them available to state and federal energy policy makers to provide context and inform the choices they face.¹¹⁸ In doing so, MISO aptly acknowledged the importance of a balanced energy development approach that would only call for the most necessary transmission line construction. They stated that, “The low cost approach to wind generation siting, when both generation and transmission capital costs are considered, is a combination of local and regional generation locations.” If states were to interpret this planning during public engagement proceedings, it could help close the divide with local stakeholders, especially those opposed to transmission. By assuming this responsibility, states could be a bridge, not a barrier. Their involvement as a third party with independent regional authority could alleviate long held fears that unchecked transmission will end up dominating the local landscape. As this divide in between local and regional interests finds better balance, states will be more encouraged to coordinate on interstate projects without the fear of public backlash.

Lessons from Current Regional Organizations

A few brief examples show how states can alleviate public concern and sustain regional interaction. As stated, states have varying motivation based on economic need for cooperation and their available resources. The Southern States Energy Board (SSEB) is a state compact created to encourage the development, conservation, and responsible use of energy and energy related facilities, installations, and products as part of a balanced economy and healthy environment.¹¹⁹ The SSEB budget is comprised of funds from member states based on population ratio and relative average per capita income of their inhabitants.¹²⁰ Under a similar scenario MISO states that are less inclined to engage in interstate projects would be able to enjoy economic benefits without incurring the costs of states with more robust economies. Such benefits might include significant state job growth. The financing of such an operation may also be of interest to local stakeholders in multiple states who are concerned that a regional group financed by energy developers will favor their interests. To promote local engagement further, the SSEB educates state and local personnel about health issues that local stakeholder groups often associate with additional transmission line construction including:

1. Energy, environment, and applications of energy, environmental, and related concerns to industry, medicine, or education or the promotion or regulation thereof.
2. The formulation or administration of measures designed to promote safety in any matter related to the development, use or disposal of energy and energy-related materials, products, installations, or wastes.¹²¹

Despite its advantages, state compacts are not the only option that has merit if states are looking for mutual accountability during the oversight of interstate transmission projects. Through the SSEB compact, attempts to coordinate state laws and procedures seek to strike a balance between conformity for regional coordination and “special circumstances which may justify variations to meet local conditions.”¹²² However, state law can be difficult to change, and different barriers exist for interstate projects compared to those within a state’s borders. Laws designed to facilitate interstate coordination might cause problems for states working independently, and vice versa.

During the formation of the Organization of MISO States (OMS), the idea of “regional state committees” was born from the need for the coordinated siting review of new lines and a group of state policy makers to advise MISO in regard to proposed multi-state projects.¹²³ The discussion acknowledged that decision authority remained with states, but suggested it could be combined in the context of regional planning, siting, and reliability. Also, the Energy Policy Act of 2005 authorizes multi-state entities to address reliability and transmission siting if broad membership is reached within an interconnection.¹²⁴ In doing so, EAct 2005 can reassign jurisdiction held by FERC to regional entities, such as the FERC authority to form Federal State Joint Boards to address regional projects. If this authority were to be reassigned with the formation of a multi-state entity, then states would be able to define the scope of the boards and be protected from federal priorities dominating the agenda.¹²⁵

The combined effort of the OMS has produced agreements and pleadings that reflect the strength and weaknesses of each state. In doing so, multi-state documents have presented a “more complete analysis, show more balance, and reflect a broader regional perspective.”¹²⁶ Originally, the OMS opted not to claim authority, but instead to earn it. Indeed they have. During its existence, the OMS has successfully pleaded to FERC for deference of federal authority on at least one occasion.¹²⁷ Having demonstrated its regional expertise and coordinating ability, OMS, or a similar entity, seems primed to lead Federal State Joint Boards on an ad hoc basis when interstate projects are proposed. State legislation, thus, would only need to approve participation in such agreements instead of attempting the laborious and impractical process of conforming different laws and regulations to a “one size fits all” model for intra and interstate projects that are hardly the same.

Figure 9. Inventory of Tensions with in and across States

Iowa	North Dakota	South Dakota	Illinois	Minnesota	Wisconsin
POLICY TENSIONS Regulated	POLICY TENSIONS Regulated	POLICY TENSIONS Regulated	POLICY TENSIONS Regulated	POLICY TENSIONS Regulated	POLICY TENSIONS Regulated
Have already met RPS	Have met RPS	Low RPS that is already exceeded	Stringent RPS with extended time frame	Stringent RPS with extended time frame	Low RPS that is soon to expire, but has nearly been met
Wind generation and development is curtailed	Have broadened their definition of Need	Agency institutional capacity is minimal	Currently little to no wind or other renewable electricity generation capacity	Moderate amount of wind potential to still capitalize on	Low to moderate wind potential that still has some development opportunity
More wind potential	Providing aligned incentives to landowners and developers/ratepayers	Very high wind potential	Low wind potential	Slight broadening of definition of Need	Only three transmission line owners resulting in very few service areas
Slightly broadened definition of Need		Incentives to landowners not well aligned with wind potential	State split by two RTOs	Long siting process	
Easy and cheap siting process		A very large number of transmission line owners resulting in very small service areas	Narrow definition of Need		Rigorous siting process with history of stalled transmission line projects
Most transmission line development is revitalization of existing lines (ROW already partially acquired)		Simple and cheap siting process	Complex siting process		
FINANCIAL TENSIONS Moderate cost sharing	FINANCIAL TENSIONS PSC has the authority to issue bonding for transmission line development	FINANCIAL TENSIONS Lowest electricity rates in the nation	FINANCIAL TENSIONS State agency dedicated to price stability (elect. rates)	FINANCIAL TENSIONS Saturated utility market (Xcel a large player)	FINANCIAL TENSIONS Current electricity rates are low
Incentives for wind developers		Wind developers making it difficult for other developers to enter the market	Utility industry hard to break into	Moderately sized service areas and cost-sharing	
2 major IOUs and many utility cooperatives result in moderate service areas and cost-sharing	Moderate amount of transmission line owners		Moderate to low number of transmission line owners result for utilities and ratepayers and those for landowners	Imbalance between incentives those for landowners	
	Incentives and resources drawing in outside investment/investors				
LEGAL TENSIONS Fear of litigation risk if siting practices are altered	LEGAL TENSIONS Fear of litigation risk if siting practices are altered	LEGAL TENSIONS Fear of litigation risk if siting practices are altered	LEGAL TENSIONS Fear of litigation risk if siting practices are altered	LEGAL TENSIONS Fear of litigation risk if siting practices are altered	LEGAL TENSIONS Fear of litigation risk if siting practices are altered
ECONOMIC DEVELOPMENT TENSIONS Marketing of permanent jobs from wind generation development	ECONOMIC DEVELOPMENT TENSIONS Rich mix of natural resources for electricity generation	ECONOMIC DEVELOPMENT TENSIONS Opportunity for permanent jobs in wind generation	ECONOMIC DEVELOPMENT TENSIONS Potential for selling imported MISO electricity to PJM for a profit	ECONOMIC DEVELOPMENT TENSIONS Multiple vertically integrated utilities that have greater planning and financial capability	ECONOMIC DEVELOPMENT TENSIONS Wisconsin does not have a great need for additional electricity internally
Renewable Energy Exporters	Renewable Energy Exporters	Renewable Energy Importers	Renewable Energy Importers	Renewable Energy Importers	Renewable Energy Importers
					Increasing access to incentives for wind developers
					Land use controversial

IX. POLICY OPTIONS

Status quo siting practices are insufficient for ensuring that needed transmission lines are constructed. The previous discussions have highlighted the lack of statute and administrative code harmonization and absence of deliberate interstate siting coordination. Although incongruous timing of siting approvals for interstate projects may create affective institutional pressure on final decisions, this can create uncertainty and doubt around the legitimacy of each state's process. There is currently no affective mechanism to bridge the coordination gap between local concerns, state authority, and regional *need*. Each of the following policy options is meant to offer solutions to one or more barriers presented in this report. They are grouped into three sections based on the complexity of the option.

First Tier Policy Options: These options are considered low hanging fruit. They may be recommended in unison, on their own, or in combination with other policy recommendations.

Option 1A. Spread of Best Practices within the electric utility industry

Practices for getting lines sited and built vary from developer to developer. Some follow only minimal requirements whereas others set higher standards for engaging residents. Widespread adoption of the industry's best practices could potentially speed up the siting process while also reducing contention, opposition, or litigation. A prime example is the maps used to show a project's route and route alternatives. Frequently all potential routes are published on one map; this can frighten the residents not familiar with how routes and alternatives are prosed. Timely release of the maps is also important, so not to mislead the public.

It is also important that developers treat landowners fairly when they need to cross private land. Making sure to offer fair, market-rate prices that adequately reflect the loss of land also aid in creating good will surrounding a project, as well as the developer. Therefore developers should be thoughtful about the kinds of compensation they offer for easements, whether lump sums, lease payments, rents, or other forms of compensation. Another method for this is creating baseline agreements with all farmers or landowners in general. This could act as a contract spelling out developer procedures for towers type, payments for damaged land, clean up after construction, plans for maintenance, contingency plans in the event a tower collapses, and other relevant information. Negotiations with individual landowners can thus start here and help save the developer time.

Another best practice may include engaging stakeholder groups earlier and more often than is currently practiced. Especially where local authority is preempted, developer engagement is often the most effective place to voice concerns. Increasing developer-resident communication and trust will help to instill a more positive view of transmission development and infrastructure.¹²⁸ Early and thorough public education can go a long way in gaining acceptance, momentum, and even enthusiasm surrounding a project. Public engagement design could be improved to gather more meaningful public input as well as find more legitimate ways of distilling and using the input. If a developer engages early they have the opportunity to address head-on unexpected community concerns, usually saving time and money on the back end. Tools for accomplishing this include dedicated websites or hotlines to call with questions. Also, holding

multiple meetings means more people have more opportunities to voice their opinions and learn about the project.

Other forms of education and marketing, such as publishing press releases in local papers, writing op-ed pieces, or using other forms of media to enhance awareness, knowledge, and discussion of proposed projects could be mandated by states at various stages of the transmission development process. Developers could also consider partnering with interested non-profits to hold events or meetings to discuss project plans. The goal should be to include a diverse spectrum of stakeholders to understand the multitude of viewpoints surrounding any given project.

The most effective best practices would likely be those that are adopted by developers on a state-by-state basis. In some cases adding regulations onto the developer may be the optimal way to encourage more outreach and engagement, whereas in other cases it may be more appropriate for a government entity to act as that information broker. Either way, there will need to be mechanisms to incentive industry buy-in as best practices today are siloed as a means of protecting of competitive advantage.

Option 1B. Financial incentive – Alternative compensation mechanisms to landowners

A frequent concern surrounding property easements needed for development is reduced property values potentially resulting from transmission line siting. It is common practice for developers to pay property owners about 70% of market value for the use of their land via easement.¹²⁹ Although property owners would receive this compensation up front, future depleted property values are not factored in. To mitigate this potential effect, transmission developers would offer a discounted rate for electricity on a baseline quantity of electricity consumed (so not to encourage additional consumption of electricity). Since evaluating the effects on property values, while properly controlling for confounding factors, is challenging, this landowner policy would take a proactive approach and incentive landowners for the use of their property. This would serve to reduce NIMBY-ism and provide fair compensation where there currently is not. Such a compensation regime should be tied to the land, not the property owner. As lands shift ownership through various transactions it is important to maintain the reduced rate so that both current and future landowners receive fair compensation for lines present on their property. Although few people may be interested in purchasing land with a transmission easement, knowing that there is a rate reduction attached to the land may aid in making its purchase more desirable.

An alternative compensation mechanism could be providing a payment feedback cycle whereby property owners would apply to have their land value reassessed at incremental periods, such as every five to ten years. If a decrease in value is found, and that the decrease, relative to other similar properties, is disproportionately correlated with the presence of a transmission line, the property owner would be eligible for additional payment to fairly cover the lost value. Again, the mechanism would be linked to the land, not the landowner. Both of these compensation mechanisms offer property owners incentives for negotiating easements and would reduce help contribute to a negative public perception of transmission development. Either one of these methods could potentially be funded under the cost allocation model as well by applying for a new regional tariff that would fund the incentives needed for individual land owners.

Option 1C. Adoption of a Property Owner Impact Mitigation Agreement (POIMA)

Property owners are a primary component to those that opposed transmission development and contribute to local and state perception of transmission lines. These groups frequently exercise their right to organize around their concerns putting public pressure on Utility Commission decisions. As most states do not give authority to local government in the siting process, there is often an imbalance in local and regional interests. Especially as Federal policy drives transmission further down the road of thinking regionally, finding ways to balance these interests and values is important, and mechanisms used to legitimize local concerns require improvement.

One way of doing this is by empowering landowners with tools and knowledge that help them understand rights and expectations that they have when coming to the negotiation table with developers. When land needs to be acquired via easement, a Property Owner Impact Mitigation Agreement (POIMA) will provide a baseline contract between landowners and developers. This is similar to Illinois' Agricultural Impact Mitigation Agreement (AIMA), which has helped legitimize landowner interests by incentivizing early engagement, consequently making negotiations with landowners, on average, smoother and faster.¹³⁰ Applying this lesson learned to all landowners across the region will help give greater power to local interests.

A POIMA should be drafted early in the siting process as soon as *need* has been determined. Once developed, the agreement will encourage developers to communicate with individual landowners early and diffuse concerns that could grow into larger local opposition. The agreement would be drafted jointly by the developer and appropriate state agency (possibly the Department of Commerce) on a per project basis, allowing for document flexibility over time. Any associated costs with the development of a POIMA would be footed by the developer, and ultimately passed on to rate payers. If affected property changes hands, the new property owner(s) would have the opportunity to renegotiate the details of the agreement with the developer. The use of this tool would be codified in state statutes or in an agency's administrative laws so to make it a deliberate part of the siting process.

Second Tier Policy Options: These options are geared towards making incremental changes in one or more states at a time. Specific policies are studied based on the barriers that were raised throughout research and that individually, or in aggregate, will help harmonize state and interstate siting approval processes.

Option 2A. Increased Use of Temporal Backstops and Interstate Points of Contact

Currently, no two states have the same process timeline. Some state processes are not problematic to coordinate, as they are faster and have fewer application requirements. However, other processes can take more time and require more information from applicants. This leads to high levels of uncertainty in regulatory processes. *Backstops* are a way to contain the duration of each state process so that developers can navigate them most effectively during interstate project siting. Of course not all states can be expected to adopt the flexibility and speed that exists in South Dakota's process, but incorporating backstop language in the administrative codes of each utility commission, and potentially other agencies, could offer baseline opportunities for interstate coordination. Temporal backstops with default approvals for all certifications and permits would create predictable timelines that developers and state agencies could rely on and

thus coordinate. State agencies would not be burdened with coordinating application submittals across multiple states, but would provide developers with the opportunity to plan parallel approval dates, or public hearing dates, depending on their interest.

Backstop language would increase predictability, but increased coordination will help realize the benefits of the predictability. Sequential decision-making across states is seen by local stakeholders as having the potential power of preemptive influence over in-state decisions, and thus, local concerns and needs. The increased predictability of each process would better legitimize local interests, as approvals could be decided simultaneously. Developers and other stakeholder groups would be most interested in coordinating submittals, public hearings, and final approvals. These points of entry are where resources and interests could be shared across stakeholder groups and states. Additional administrative code language would inject increased interstate and stakeholder coordination in multi-state projects by requiring utility commissions to coordinate as one or more of these process events transpire. This would offer at least one point of contact between states where information could be shared, interests and concerns voiced, and communication around expanded, ad hoc coordination could be desired or needed. This policy options allows each state to retain many of the individual characteristics of its existing conditions, but would help to align interstate processes at pivotal points helping to build a more collaborative environment for agencies across states.

Option 2B. Exemption for *Scenic Easements (WI)*

Wisconsin has a history of conflicting bureaucratic interests that have resulted in projects getting stuck between CPCN approval and the permitting of the *route* and construction, which require approval by the DNR and DOT. The economic and political interests of these agencies have pitted themselves against each other, due to the conflicting statutory requirements these agencies have. This conflict also results from discrepancies in state and Federal law. As mentioned earlier, it is the duty of the DOT to protect state scenic easements. In contrast, state statute requires consideration of existing ROW corridors before new, or *green*, routes for transmission lines. Asking two state agencies to enforce contrasting rules is counterproductive and produces the pressure needed to take advantage of caveats in the siting process. One of these caveats is the need for the DNR to *permit* the route, beyond the PSCW's need and route *certification*. The double approval, with no "if not" clause placed on the DNR, leaves room for gaming the process. Conflicting agency interests provide incentives for these cleavages to be taken advantage of in a way that will stagnate siting approval. These issues continue to arise and action needs to be taken to better align these interagency dynamics so that disputes do not prevent or slow future project approvals.¹³¹

Option 2C. Reauthorizing a stronger Renewable Portfolio Standards (WI)

Successful siting of transmission lines is challenged by administrative process and coordination issues, but unified economic motivation across the Upper Midwest is also a large issue. All three of the exporting states have economic development incentives to distribute their energy to states with demanding load centers. Most of the energy development potential that is being planned and developed in these exporting states right now is renewable energy. Illinois and Minnesota both have robust RPSs that will not expire until 2025 and are a magnet for this renewable energy. Wisconsin is the exception to the rule, having nearly met their soon-to-expire (2015) RPS of 10% renewable energy. Not only are they the only importing states to lack this motivation, but they

also host the largest area of transmission congestion and prevent needed regional transmission capacity, reliability, economic, and environmental goals. Regional stakeholders have an interest in advocating for a new, more stringent RPS in Wisconsin, and potentially other MISO member states in the future. A new standard with an expiration aligned with other regional neighbors would provide the coordinated energy policy needed to justify state and regional *need*. Michigan has had difficulty siting transmission line development as well, as their RPS calls for in-state renewable electricity generation. A repercussion of this has been Michigan's struggle with high electricity prices, because they are not gaining the regional cost efficiencies through shared generation.

Stronger and more similar RPS across the region, particularly in Wisconsin, would have the incentive to push transmission line projects through the siting process, bringing needed renewable energy to their markets and alleviating regional bottlenecks. Of course, an increased RPS would not ease the complexity of the siting process in Wisconsin. However, the increased pressure to develop more transmission capacity to bring wind energy to Wisconsin from across the region could aid in creating interest and pressure to approve needed transmission projects.

Third Tier Policy Options: These options make suggestions around coordination and harmonization through regional consensus. Each option presents different ways of implementing similar outcomes, but does so by exercising varying levels of legal and financial authority.

Option 3A. Harmonize state statutes

As noted throughout this report, there is considerable variability across states in determining *need, routes*, and the number of additional permitting agencies involved in siting, the duration of the process, and extensiveness of the application requirements. One option to improve the interstate siting process is to harmonize statutory language governing timing, need, and route, among things. Harmonizing state statutes and administrative documents could include adopting new statutes, modifying existing statute language, and/or creating new administrative agency initiatives, such as an integrated resource program (IRP), to align with other states in the Upper Midwest. It is acknowledged that siting statutes will remain significantly different, but if each state adopts similar statutory language for different parts of the permitting and approval process, there would likely be more communication and coordination in siting decisions.

This is different from policy 2A because this moves beyond just timing at the insular state level. Instead, this policy includes recommendations that states adopt more uniform language regarding need, route, and timing across the region. This could be administered by states either individually changing their statutes or by joining into a regional compact with clear language about what aspects of state code will be harmonized and to what degree.

Option 3B. Clearinghouse

Using existing channels for legal action, the OMS or State Joint Boards could oversee a forum and clearinghouse for interstate siting and coordination practices. Such a clearinghouse could act as an interstate information depository to improve communication and coordination. Ensuring that all states involved in a project have up to date information about new developments may ensure that projects unwind more smoothly. There is also opportunity for states to enter into

agreements on a case by case basis to adopt joint determinations of need or coordinate the timing of their permitting and approval processes. The clearinghouse could act as an intermediary for developers. As noted throughout this report, the policies governing transmission lines are highly variable. A clearinghouse could help the developer navigate these processes smoothly and successfully. It is important to note that participation in such a clearinghouse would be voluntary, and states could choose to coordinate at levels they feel appropriate for different projects. This allows them to maintain their own autonomy and authority. But in the event that they choose not to coordinate voluntarily, the clearinghouse would still be available to the developer to help explain complicated state processes and act as a vehicle to share information with various state agencies as a project develops. The clearinghouse could also act as a project marketer. If it identifies transmission corridors that are not receiving developer interest (i.e. NIETCs), the clearinghouse could market the projects to developers to try to meet transmission needs within the region. The clearinghouse would be seated by representatives from the state authorities deciding need or other relevant agencies, to be agreed to by the states. It could be funded similarly to OMS, which receives money from MISO for its operations.

Option 3C. Creation of Regional Transmission Siting and Coordination Authority (RTSCA)

North Dakota and South Dakota both have transmission authorities designed to identify the states' transmission needs and communicate regionally to meet those needs. These agencies have been more or less successful in working across state lines because of the amount of economic proprietorship the states employ. Increasingly, states are becoming more involved in facilitating their transmission needs due to growing economic demand and exportation possibilities. A regional body that performs these same functions, as agreed to by the member states, would be in an even better position to identify and coordinate transmission needs and development. In addition, if states can be persuaded to assign some siting or need authority to a regional body, it could significantly streamline the current fragmented process. Determination of need and corridors can account for the most significant amount of sunk time associated with permitting and approval. A one-stop-shop approach to these determinations could significantly improve the speed of these determinations. After need and alternative corridors have been identified, additional permitting would be completed by the state. Such authority would be limited to interstate projects, and could do as little as keep states accountable to protocol for timing or coordination. In this case, decision-making would remain with the states, while the parameters in which to do so are defined by the regional authority. The body, similar to the NDTA, would also have the ability to leverage financial resources to help move projects forward. Also, as mentioned in the above policy option, this body could act as a transmission marketing agency to promote development within corridors identified as having high regional priority.

X. CRITERIA AND EVALUATION

In order to evaluate which of the presented policy alternatives is preferable given a certain set of state or sub-regional dynamics, five evaluation criteria were created. William Dunn, a policy analysis scholar discusses specifically the importance of highlighting predictability, feasibility, and equity in an evaluation. As experts on the issues at hand, these criteria seek to balance stakeholder interests and values so that the most fair, effective, and feasible *policy issue* solutions are presented.¹³² The deliberate coordination and regional consideration criterion seeks to evaluate the root of the policy problem – the need to bridge the coordination gap between local authority and regional planning. Evaluating the durability of all policy options is also important, since transmission line projects have long siting and construction timelines. The below criteria allow the policy options not only to be compared relative to each other, but also relative to the status quo. The balance of values embedded in each criterion was tested during preliminary evaluations and refined to give equal weight to all relevant concerns. Further care was taken to properly identify the intent of each criterion and clearly define the boundaries of each so that interests would not be over or under represented. Further discussion of application of the criteria will follow.

Characterization of each coordination criterion

- 1. Inclusive and Transparent:** fosters communication methods that increase interstate transparency between agencies, developers, and stakeholders and does not diminish inclusion of existing stakeholders.
- 2. Predictability:** processes or practices that produce more predictable time horizons and financial investment scenarios for utility companies or transmission line developers, particularly for interstate projects.
- 3. Feasibility:** the likelihood that the policy option would be accepted and implemented considering the financial, legal, and political challenges.
- 4. Deliberate coordination & regional consideration:** the degree to which a policy option will help to produce coordination practices formalized within a state or the region.
- 5. Resiliency:** how adaptable, sustainable, and effective a policy will be over an extended period of time considering the growing complexity of regulation/policy and environmental concerns.

The following discusses the relative feasibility of implementing policies for both renewable energy importer and exporter states. Also included are discussions of the tradeoffs associated with each policy. Stakeholder groups were categorized as either winners or losers for each policy. These determinations were made by considering the values and scopes of interest of each stakeholder category as they relate to how specific policies would align with their interests. Once these additional points of discussion were identified, they informed the way evaluation criteria were applied to the policy options to establish overall policy effectiveness.

Evaluation Considerations

Each policy option was evaluated using the criteria defined in the previous section to indicate the degree to which regional coordination could be improved. A scale of 1-6 was used to rate each policy alternative in its ability to meet each criteria individually. This allowed the evaluation to point out which policy options would be most appropriate as final recommendations. Additionally, the policy options that receive the highest evaluation scores will be compared against one another for compatibility; if a policy were recommended to one set of states, would they be able to provide complementary outcomes that might work well with a policy recommended to another set of states. Lastly, as noted above, Tier 1 and Tier 2 policy options are delineated within the evaluation to look at the likelihood that a more complex policy option that may be better at solving siting and coordination gaps than a more basic one. Conversely, adopting both a Tier 1 and Tier 2 may act in tandem to provide the best environmental for solving transmission development gaps.

A second evaluation was also completed to assess the impact of each policy option on each of the stakeholder areas of interest. The team considered which stakeholder interests were improved or diluted, or those that were not changed as a way to understand the impact of modified siting practices. A combination of rankings from both evaluations was used to determine which policy options would be most appropriate for recommendation. The coordination evaluation scores were averaged to look at the best policy options as well as those that were most favored by exporting states in comparison to those most favored by importing states. Large gaps in acceptance and feasibility between these two state types were considered when selecting final recommendations.

Evaluation

FIRST TIER POLICY OPTIONS

Option 1A. Spread of Best Practices Within the Electric Utility Industry

1A
IMPROVED Financial Beneficiaries Enhanced Wind Development Regional Benefits Environmental Degredation Adverse Human Impact
Status Quo Land Based Economy Permitters No Transmission
DILUTED

Stakeholder Evaluation: Environmental Degradation and Adverse Human Impacts would be more pleased under this scenario compared to the status quo because there would be more ways for them to engage in the process and have their interests heard Enhanced Wind Delivery, Regional Benefits, and Financial Beneficiaries would see value from additional education and marketing as to why lines are necessary.

Importer/Exporter Feasibility: Currently exporting states do not engage in nearly the same amount of stakeholder engagement as importers. Their primary interest is getting transmission built, and increased public involvement could slow or even derail that process. Importing states, conversely, would likely support this policy because they already engage in higher levels of stakeholder participation, so increasing those efforts may be seen as beneficial.

Tradeoffs: To engage all relevant stakeholders developers will have to spend a lot more time and money to get a project built. However, best practices help build trust between developers and local stakeholders. This good will can improve the prospects for future projects to move along with little contention. Individual utilities may see adoption of best practices as more palatable than increased state regulation because it allows the utility to retain more autonomy as opposed to having particular processes forced upon them. There may be positive externalities associated with this policy such as increased safety, retention of prime farmland, or maintaining property values because everyone’s needs are being addressed.

1B
<p style="text-align: center;">IMPROVED</p> <p>Enhanced Wind Development Regional Benefits Land Based Economy</p>
<p style="text-align: center;">Status Quo</p> <p>Financial Beneficiaries Permitters</p>
<p style="text-align: center;">DILUTED</p> <p>Environmental Degredation Adverse Human Impact No Transmission</p>

Option 1B. Financial Incentive – Alternative Compensation Mechanisms to Landowners

Stakeholder Evaluation: Land-based Economies would benefit from alternative compensation because it helps mitigate losses associated with transmission lines. Regional Beneficiaries and Enhanced Wind Delivery would also value this policy because it makes line construction more likely versus the status quo. Environmental Degradation and Adverse Human Impacts would be opposed to this policy. It does nothing to meet their needs, and in fact, if it were successful in easing transmission siting, more lines would get built which would exacerbate their existing concerns. No transmission would also be opposed for similar reasons: the policy would ease new transmission construction.

Importer/Exporter Feasibility: There would not be a significant difference between this policy’s feasibility across importer versus exporter states. To a certain degree importers may favor this more simply because they are more densely populated and thus this could improve the siting process. Exporters would likely be happy with this policy as well because it allows them to export their energy more easily.

Tradeoffs: For a developer, this type of policy could present an additional financial burden to siting new transmission infrastructure. However, its potential to ease the siting process may mitigate this. This policy may also improve relations with local groups because they are receiving compensation. At the same time simply providing financial compensation to landowners may delegitimize some of their concerns. If they are receiving payment they may be less likely to voice concerns over environmental or human health issues.

Option 1C. Adoption of a Property Owner Impact Mitigation Agreement (POIMA)

Stakeholder Evaluation: Land-based Economies would benefit because of increased dialogue and efforts to mitigate land impacts. This can also be said of Environmental Degradation. Regional Benefits would see transmission lines built more easily, which advances their regional goals. Permitters may be opposed because such a policy requires new responsibilities for implementing agencies, which may lack needed institutional capacity or funding.

1C
<p>IMPROVED Regional Benefits Environmental Degredation Land Based Economy</p>
<p>Status Quo Financial Beneficiaries Enhanced Wind Development Adverse Human Impact No Transmission</p>
<p>DILUTED Permitters</p>

Importer/Exporter Feasibility: Export states may have less interest in adopting this type of policy. They are less densely populated and in some cases are generally more “pro-transmission,” making a POIMA somewhat unnecessary. However, exporters may still have an interest in adopting this. Given that importer states are more densely populated means there may be more interest in adopting this policy. They also tend to have more robust institutional capacity, making policy adoption easier.

Tradeoffs: This policy ensures landowners’ concerns are addressed early, which may aid in reducing NIMBY kinds of opposition. This also means that other groups that typically oppose transmission have fewer allies when rallying against new transmission. This may also help smooth the siting process and create goodwill between developers and public. The largest potential problem is that some kind of state agency will need to administer

this policy. In some states providing the funding and capacity to administer this policy may be difficult.

SECOND TIER POLICY OPTIONS

Option 2A. Increased Use of Temporal Backstops and Interstate Points of Contact

2A
<p>IMPROVED Financial Beneficiaries Enhanced Wind Development Regional Benefits</p>
<p>Status Quo Environmental Degredation Land Based Economy Adverse Human Impact Permitters No Transmission</p>
<p>DILUTED</p>

Stakeholder Evaluation: Financial Beneficiaries, Enhanced Wind Delivery, and Regional Benefits would favor this because it hastens approval processes and improves certainty of approval of lines, leading to easier and faster construction. Permitting authorities may oppose this policy because it sets arbitrary time horizons for approval, which may curtail their ability to accurately assess all relevant information before issuing a decision. It may also require them to hire to people or shift agency resources to accommodate backstop timing.

Importer/Exporter Feasibility: Generally, importer states’ processes take longer and are more complex. This may create a lot of institutional inertia to maintain the status quo rather than adopt processes that speed up approvals. Exporting states would benefit from the adoption of this policy because it allows them to develop their renewable energy and build

transmission for it faster. If importer states adopted this policy exporter states would also win because the interstate timing bottleneck occurs in importing states.

Tradeoffs: This policy improves predictability and transparency, but it may dilute agency autonomy. Agencies may lose flexibility to more carefully understand particular issues when they have to meet a backstop deadline. Similarly, when agencies work together there is a potential for their areas of interests to be diluted to allow for better cooperation.

2B
IMPROVED
Financial Beneficiaries Environmental Degredation Permitters
Status Quo
Enhanced Wind Development Regional Benefits Land Based Economy Adverse Human Impact No Transmission
DILUTED

Option 2B. Exemption for Scenic Easements (WI)

Stakeholder Evaluation: Financial Beneficiaries will see decreased costs from the status quo. Environmental Degradation will appreciate the exemption of scenic easements. Permitting authorities will benefit from less room for bureaucratic infighting (scenic easements) and less complicated information to review when making a decision.

Importer/Exporter Feasibility: Because this is such a state specific policy it is not possible to characterize its feasibility between importers and exporters. All the above criteria were applied solely for Wisconsin.

Tradeoffs: Scenic easement exemptions will clarify where transmission can be built and align with the Federal DOT goals for protecting scenic routes. This would decrease public opposition in some cases and would not have significant impacts on availability of route alternatives, as the marginal impact of scenic roads being removed from consideration is small.

2C
IMPROVED
Enhanced Wind Development Regional Benefits
Status Quo
Environmental Degredation Adverse Human Impact Permitters No Transmission
DILUTED
Financial Beneficiaries Land Based Economy

Option 2C. Reauthorizing Stronger Renewable Portfolio Standards (WI)

Stakeholder Evaluation: Enhanced Wind Delivery will benefit will allow operations to expand and a higher RPS will necessarily drive the transmission needed to carry wind energy. Regional groups will see their projects advance because their added value becomes clearer to Wisconsinites. Financial Beneficiaries will see new and high upfront costs associated with adding more renewable energy to their generation portfolios, causing short term price spikes for retail electricity. Land-based Economies would see more transmission sited and probably more wind turbines, both of which have negative impacts on property.

Importer/Exporter Feasibility: This would improve the ability to move energy through a congested part of the region, which helps everyone. Exporting states would certain back a higher RPS in Wisconsin as it increases the amount of energy they can sell. It may also allow for additional investments in wind and transmission development, which improves the economy of exporting states. Importing states, however, would be less favorable to this policy. It increases competition to access renewable energy, potentially driving up costs in the short term.

Tradeoffs: This policy allows more transmission lines to be built, which reduces congestion and improves reliability. It would also catalyze additional wind development across the region to meet the new RPS standard. Local layers of government may favor a stronger RPS because they receive fees from the development of wind turbines. However, it is likely this would increase energy costs, at least in the short term, which would be unpopular with rate payers. It would also increase the cost of doing business for utilities as they have to spend large sums of capital to meet RPS deadlines.

THIRD TIER POLICY OPTIONS

Option 3A. Harmonize State Statutes

3A
<p>IMPROVED Financial Beneficiaries Regional Benefits Land Based Economy</p>
<p>Status Quo Enhanced Wind Development Environmental Degredation Adverse Human Impact</p>
<p>DILUTED Permitters No Transmission</p>

Stakeholder Evaluation: Financial Beneficiaries and Regional Benefits would both appreciate the added predictability this policy would create. Land-based Economies may also experience benefits because concurrent timing across states would allow landowners to organize collectively to share resources and lobby to make sure their interests are incorporated into final siting and design decisions. Permitters would have to learn new processes and may have to follow shortened time horizons that make performing their jobs more difficult. No Transmission will be particularly opposed if language surrounding need is harmonized because they often define need in a very localized way. Regional findings of need are the antithesis to No Transmission’s definition of need.

Importer/Exporter Feasibility: Exporting states would likely be more in favor of this policy than importing states. Their processes are already much faster than importing states, and they would likely stand to benefit from neighboring states adopting similar processes because it would mean they could export more of their energy. Importing states may be less interested in adopting this policy. Their processes take longer and there may be entrenched political interests that keep legislators from implementing this policy.

Tradeoffs: There may be flexibility with this policy in that exporters could harmonize in one way and importers another. This way there is only one regulatory seam a developer needs to cross and could make harmonization more palatable across the region, where practices and timelines can be so different. Again, implementing this policy may be difficult as it requires states to give up some autonomy, which they are unlikely to do. The design of harmonization could have significant effects on timing, required amounts of institutional capacity, and definitions of what constitutes need for a project.

3B
<p>IMPROVED Financial Beneficiaries Regional Benefits Environmental Degredation Land Based Economy Permitters</p>
<p>Status Quo Enhanced Wind Development Adverse Human Impact No Transmission</p>
<p>DILUTED</p>

Option 3B. Clearinghouse

Stakeholder Evaluation: Environmental Degradation and Land-based Economies will both appreciate a centralized place to gather information or lobby for their interests. Permitters will benefit from the regional forum because it facilitates communication, collaboration, and coordination and voluntary basis. Financial Beneficiaries and Regional Benefits will both see increased ease of transmission development.

Importer/Exporter Feasibility: There may be inertia preventing the adoption of this policy, and questions over funding streams could be contentious between importing versus exporting states. But generally all states would stand to benefit from such a policy as it greatly facilitates finding solutions to interstate transmission projects.

Tradeoffs: States maintain their authority under clearing house, as it would not be a decision-making body. However, the level of interest and involvement by states to participate in a clearing house could change over time; if certain states are less active it starts to delegitimize the body because some relevant parties may be absent.

3C
IMPROVED Financial Beneficiaries Enhanced Wind Development Regional Benefits
Status Quo Adverse Human Impact Permitters
DILUTED Environmental Degredation Land Based Economy No Transmission

Option 3C. Creation of Regional Transmission Siting and Coordination Authority (RTSCA)

Stakeholder Evaluation: Financial Beneficiaries will see improvement in coordination of transmission development. They will also benefit from the financial resources available to a regional siting authority. Regional Benefits and Enhanced Wind Delivery experience similar improvements from the status quo. Environmental Degradation and Land-based Economies will both experience declines in satisfaction from the status quo as a regional siting authority inherently would prioritize regional vs. local interests. No transmission will also be strongly opposed because of the broad regional definitions of need such an authority would possess.

Importer/Exporter Feasibility: Exporting states would be more interested in this as it allows for a higher probability of moving their renewable energy resources across lines. However, this policy involves significant loss of authority by member states, to which they would likely not agree.

Tradeoffs: A regional body has a lot of potential to move projects forward and streamline processes and timelines across states. It would also help ensure that regional needs are not trumped by parochial interests. However, this approach also means that important local interests would not be considered, which could lead to significant litigation over the authority’s decisions.

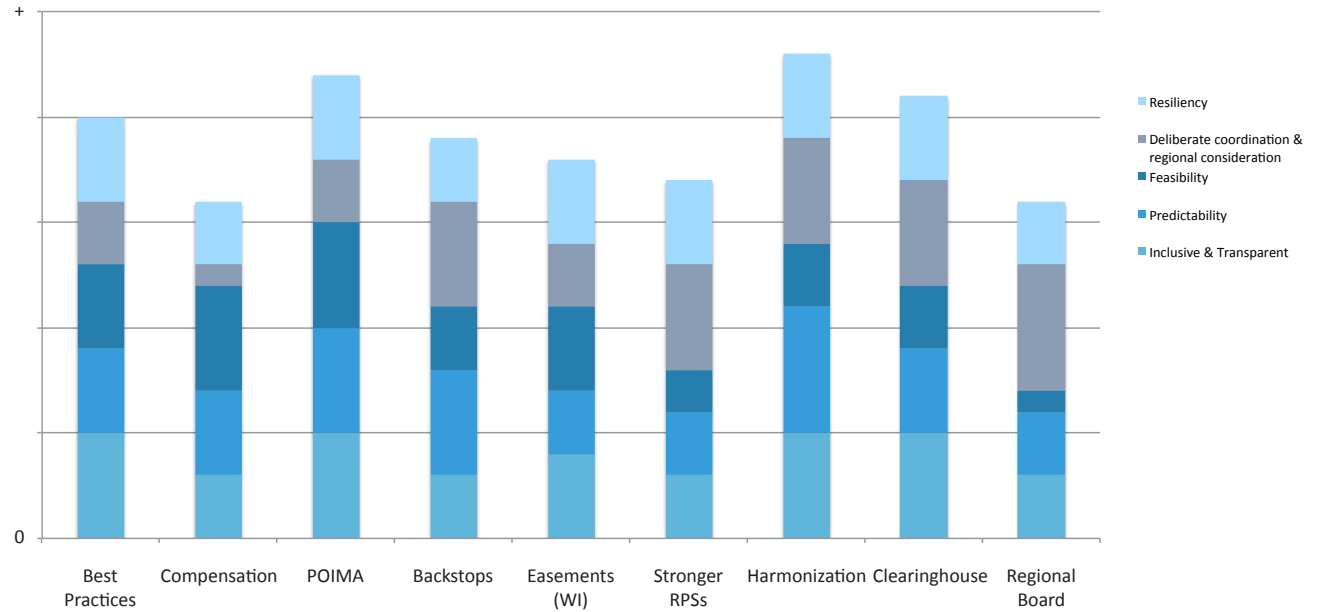
Table 7. Policy Options Evaluation Matrix

The matrix summarizes the above discussion of individual evaluation criteria by putting a value to each criteria. Values 1-6 represent the degree to which each criteria was improved compared to the status quo. For this reason, the status quo was not evaluated.

Evaluation Criteria	Policy Options								
	Tier 1			Tier 2			Tier 3		
	1A	1B	1C	2A	2B	2C	3A	3B	3C
	Developer adopted Best Practices	Landowner compensation	Adoption of POIMA (all states)	Increased use of temporal backstops & interstate point of contact (all)	Scenic Easement exemption in corridor siting (WI)	Renewed RPSs (Particularly WI)	Partial Harmonization of state statutes or via compact	Clearinghouse	Create Board of Regional Siting & Coordination
1 Inclusive & Transparent	5	3	5	3	4	3	5	5	3
2 Predictability	4	4	5	5	3	3	6	4	3
3 Feasibility	4	5	5	3	4	2	3	3	1
4 Deliberate coordination & regional consideration	3	1	3	5	3	5	5	5	6
5 Resiliency	4	3	4	3	4	4	4	4	3

Figure 10. Chart of Evaluated Policy Options

Below is a visual summary of the policy evaluation expressing the extent to which a policy option was responsive to any given evaluation criteria.



XI. POLICY RECOMMENDATIONS AND CONCLUSION

Policy Recommendations

There are clear benefits associated with all of the above policy recommendation. Examining the aggregate scores of the evaluated policies along with consideration of other themes prominent in the analysis, five policies were selected for recommendation.

- Spread of Best Practices within the Electric Utility Industry
- Adoption of a Property Owner Impact Mitigation Agreement (POIMA)
- Increased Use of Temporal Backstops and Interstate Points of Contact
- Exemption for Scenic Easements (WI)
- Clearinghouse

These policies represent the best ways to improve regional siting of transmission lines and thus transmission line capacity. The evaluation criteria were used to determine the relative extent to which coordination could be improved while both positive and negative impact of transmission line siting was evaluated by acknowledging where stakeholder interests lay. These recommendations were selected as they ranked high in both the areas of increased coordination and reduced impact. With the exception of the Clearinghouse policy option, these recommendations indicate the highest degree of feasibility, predictability, inclusiveness, the most, and are most flexible to changing regulatory and political environments. Although the Clearinghouse did not stand out in this portion of the evaluation above the other Tier Three policy options, when evaluated for stakeholder impact, it was the only regional coordination option to not outright dilute any stakeholder interests.

The first two recommendations represent the low-hanging fruit policy options and largely address the ways the public and other interest groups are treated during the process. Taking steps to adopt these policies would likely not involve high levels of political contention and represent significant leaps forward in treating stakeholder concerns as legitimate, providing good information to people so they can make informed decisions, and generate good will between transmission developers and the public, which aids with future projects. Alternative compensation mechanisms was not chosen as a strong policy because it is less clear and transparent and does not have the wider reaching benefits associated with the these two selected policies. Further, some of the benefits associated with alternative compensation mechanisms could likely be achieved through the adoption of best practices and POIMAs. Both of these allow for legitimate channels for interested parties to make their voices known and increase dialogue between the developer and affected people. Alternative compensation mechanisms do not offer these kinds of benefits.

Temporal Backstops and Scenic Easement Exemptions scored well and also have the highest potential to ease contentious siting practices. Backstop authority creates more predictability for developers and allows for greater coordination across states than the status quo. Removing scenic easements from route consideration would also ease siting in Wisconsin. Wisconsin has one of the most rigorous and contentious siting processes in the region, and the consideration of

scenic easements for transmission projects has proven to be a major point of conflict. Removing these easements would decrease opposition to projects and allow developers to move through the process more easily.

The Clearinghouse did not score as well as Harmonization of state statutes, but there are significant tradeoffs between these two policies. They both offer strong benefits for regional coordination and enhance predictability of state approval processes. However, statute harmonization is achieved in an insular way, and while states would have similar statutory language about need, route, and/or time, states would still be acting individually. One of the major gaps identified in the analysis was the lack of a legitimate regional authority to oversee interstate communication and coordination. For this reason, the Clearinghouse was selected as the superior policy option because it provides that regional body for information sharing and coordination. It also serves as a body to potentially administer other policy options, such as 2A and 3A. It also allows more flexibility than statute harmonization while at the same time offering something more concrete. The degree of statute harmonization is uncertain – it could be merely timing issues or perhaps route and need issues. But it is unclear the degree to which states would be willing to harmonize on all these issues in a meaningful way. The clearinghouse allows states to do this on an “as needed” basis. States can choose to retain their individual processes, or may choose to work more collaboratively when there is more interest in a project.

Future Applications and Further Research

MISO has been a role model for regional transmission line planning. The region has the opportunity to implement feasible policies and practices that not only could increase needed transmission capacity in the Midwest, but also provide feedback to other RTOs/ISOs around the country. No other regional planning organization is as prepared to implement new siting practices as MISO, but many the futures of many RTOs hold similar challenges.¹³³ The U.S. needs a leader on these issues since reliability, capacity needs, and sharing of renewable resources will only become more urgent. If regional coordination cannot be successful, states may lose their authority to Federal rulings.

Another area for future study would be to explore interstate dynamics throughout the entire MISO footprint, as opposed to just the six states within this study. Even just in these six states there is significant variability in the complexity of developing new transmission lines. Surely expanding the focus out further would demonstrate even great levels of variability and complexity. Indeed, an examination of the entire MISO service area could leave to significantly different conclusions about appropriate policies to adopt; gaps present within the six states examined here may not very different from the gaps that exist across the whole footprint.

Finally, this analysis largely focused on states themselves. Greater consideration of the role of FERC and other relevant Federal agencies could have altered the analysis and conclusions reached in this study. Therefore, a prime area for further study would be ways in which the states and Federal government interact, where the communication gaps are and what avenues are available for coordination.

A starting point for this would be a current Regional Transmission Line Siting State Compact being drafted by the Council of State Governments (CSG) and the Eastern Interconnection Planning Collaborative (EIPC). Such an agreement would be national in scope, but utilized more on a regional basis. It aims to improve siting efficiency through common applications and pre-determined timelines. It is envisioned that the agreement would be triggered on an ad hoc basis, pertaining only to states that are both members and impacted by the proposed line.¹³⁴ This compact comprises several of the recommendations we have outlined in this study, and would be a good vehicle to translate our findings to a larger area.

APPENDIX A: Individual Stakeholder Snapshots

Wisconsin Citizens Utility Board: a non-profit that advocates on behalf of the rate payers of Wisconsin and is funded by donation and PSCW “intervener compensation” applied for on per project basis. They are generally in support of proposed transmission line development in Wisconsin and in the development of renewable energy in Wisconsin and the Midwest (WCUB Personal Interview, March 22, 2012).

Citizen’s Energy Task Force: a group of self-organized western Wisconsin residents opposing the development of transmission line projects, specifically the Alma to La Crosse line. They have gathered over 1,300 hundred signatures in protest to the development and have brought their concerns before the Commission at multiple public hearings.

Wisconsin Wetlands Association: the oldest wetland advocacy organization in the state and a historical opposer of transmission development projects that might negatively affect local water habitats. Most commonly they have brought their concerns forward to the WI DNR and PSCW.

South Dakota farmers/landowners: farmers and landowners are the most common public opposition to transmission development in South Dakota. (don’t know if you want to group these together for all states or but in the body somewhere into the “coordination” section.)

Wisconsin scenic easements landowners: landowners along *scenic easements* in Wisconsin often oppose transmission line development projects as they are subject to additional costs of developing on their own land to satisfy the requirements of the easements, while are also subject to proposed transmission routes, which contradict many of the intentions of the scenic easement requirements.

American Transmission Company: Formed in 2001 as the nation’s first multi-state transmission only utility, the company is headquartered in Pewaukee, WI with 535 employees and services eastern Wisconsin, most of Michigan’s Upper Peninsula, and small parts of Illinois and Minnesota. Twenty nine equity holders own the company, including a number of cities as well as Wisconsin Power & Light Company and WPPI Energy. The company is worth \$3.1 billion in total assets and holds 9,440 circuit miles of transmission lines that carry over 12,000 MW of electricity at peak demand. ATC is the applicant for the following projects: pleasant Prairie to Zion, La Cross to Northern Madison (Badger Coulee).

Dairyland Power Cooperative: Formed in 1941, it is the second largest owner of transmission lines by area in Wisconsin. Headquartered in La Crosse, it also services small portions of Iowa, Illinois and Minnesota. The cooperative is worth \$1.32 billion, employees 611 people, holds 3,156 miles of transmission lines, and has the capacity to carry 916 MW of electricity during peak demand. They are co-applicants with Xcel/NSP and WI Public Power Co. on the Rochester to La Crosse line.

Sierra Club (WI): local chapters, specifically the Coulee Region Group, oppose transmission line development because they see the lines harming the scenic beauty of the region, potentially endangering animal habitats, and see the development as an avenue for none renewable energy

to be distributed more easily. They advocate for localized renewable energy development as a solution.

Wisconsin Industrial Energy Group (WIEG): a manufacturing industry association that history has both supported cost sharing and opposed having to absorb any portion of the costs for transmission line development while also being aware that their productivity is reliant on infrastructures ability to growing industry loads.

International Brotherhood of Electric Workers (IBEW): local union chapters are sometimes involved as supporters, especially when transmission construction is expected to be contracted locally.

CLEAN Wisconsin: the most active environmental nonprofit organization to support many of the transmission development projects that will help import clean energy from out of state as well as help distribute future instate renewable generation development.

RENEW Wisconsin: an advocacy organization that promotes economically and environmentally sustainable energy policies and by and large has been a supporter of transmission line development, especially when in combination with other interstate renewable development.

NoCAPX 2020: a citizen advocacy group opposing the development of transmission lines in southwestern Wisconsin where it has been particularly active in the Rochester to La Crosse project. General opposition stems from a NIMBY perspective and private property devaluation concerns.

WI League of Municipalities: all but 13 villages and cities in the state belong to the League which provides legal research for municipal officials and employees and legislative services via research and lobbying. The League has on a few occasions advocated on behalf of municipalities that see harm resulting in the development of transmission lines.

WI Counties Association (WCA): intended to keep Counties up to date on local issues while serving and representing the interests of Counties and their residents at both the state and federal level, including issues around public works projects.

WI Towns Association: a voluntary nonprofit that supports local control of government and protects the interest of towns through legislative lobbying efforts, educational programs and the provision of legal information. They have advocated for and against local interests in opposition of transmission line development.

Public Service Commission of Wisconsin (PSCW): the agency which holds the authority and expertise to determine the need and final route for transmission projects, which is granted when the Commissioners approve the Certificate of Public Convenience and Necessity (CPCN). The agency also has the unique authority to intervene in other states proceedings for siting in special circumstances.

Wisconsin Department of Transportation (WisDOT): the department responsible for advising the PSCW on the constructability of proposed transmission routes and for approving access permits for construction after the CPCN is approved. The DOT sometimes acts as an *intervener* to some filings, such as the CapX 2020 Rochester to La Crosse.

Wisconsin Department of Natural Resources: the department that advises the PSCW on proposed routes concerning environmental and economic impact. State statutes are written to have the PSCW and WDNR work in parallel for approval of the CPCN and then necessary WDNR permits.

Wisconsin Department of Agriculture, Trade, and Consumer Protection: the agency that is responsible for completing the Agricultural Impact Statement and helping determine way to minimize impacts on agricultural lands when eminent domain may be exercised or when the PSCW determines it necessary for a specific filing.

Midwest Governors Association: has been a source of support for interstate transmission development and coordination and helped to advocating and educating policy makers across the region about the benefits of this cooperation.

City of Fergus Falls: officially opposed to the Fargo – St. Cloud - Monticello project

MN local landowners: especially in the South East Region of the state, there has been a constant fight to keep transmission lines from ending up on people's property. Despite assurances of reimbursement and a participatory process, few landowners seem keen on the idea. Occasionally, landowners have not been contacted, giving fodder to the opposition.

Xcel Energy: Xcel is a major energy provider based in the Minnesota, but with operations also in North Dakota, South Dakota & Wisconsin. Northern States Power (NSP) is a wholly owned subsidiary of Xcel. They employ 12,000 people across the country and own 87,754 kV of transmission lines. Project manager Fargo -St. Cloud line, Monticello -St. Cloud project, co-applicant Hampton-Rochester-Lacrosse; co-applicant Bemidji-Grand Rapids, Brookings-Hampton.

Great River Energy: GRE is an electricity cooperative that is owned and operated by the members it serves, providing wholesale electric service to 28 distribution cooperatives in Minnesota and Wisconsin. Those member cooperatives distribute electricity to more than 645,000 member consumers - or about 1.7 million people. They are a major advocate for social responsibility and transmission lines to support the use of renewable energy, specifically wind. Significant ties to the MGA and other previous collaborative bodies. Project manager for Capx2020 Brookings County-Hampton project; co-applicant Fargo-St. Cloud line, Bemidji-Grand Rapids

Otter Tail Power Co: A Electricity provider servicing 129,300 customers in Minnesota, North Dakota and South Dakota. Project manager for Capx2020 Bemidji - Grand Rapids line; co-applicant Fargo-St. Cloud, Brookings-Hampton

Minnesota Power: An electricity provider serving 144,000 customers in Northeast Minnesota and Northern Wisconsin. Co-applicant for Capx2020 Fargo-St Cloud line; Bemidji-Grand Rapids line

Rochester Public Utilities: RPU, a division of the City of Rochester, MN, is the largest municipal utility in the state of Minnesota. RPU serves 48,000 electric customers and 36,000 water customers. As a municipal utility, RPU returns funds back to the city of Rochester each year in the form of "in lieu of tax payments." Co-applicant for Capx2020 Hampton-La Crosse line.

State of North Dakota: Significant energy exportation interests; Can publicly finance projects

Upper Midwest Transmission Coalition: five state consortium who came together to create the Upper Midwest Transmission Development Initiative

Midwest Renewable Energy Association: Based in Wisconsin, this non-profit has ties to ATC and Dairyland Coop and interest in the Hampton to La Crosse line. They focus in educating the public about the benefits of renewable energy through "energy fairs".

Minnesota Electric Transmission Planning Website: a resource put forth by transmission companies, providing information and support for MN transmission developers.

Rural Utility Service (USDA financing): Minnkota Power Coop is seeking financing through this Federal body for the Bemidji - Grand Rapids project.

ND Alliance for Renewable Energy: Non-profit that provides public education on renewable energy. One of its stated goals is to, "Protect the wind rights and other interests of landowners and the commercial rights of project developers and owners."

North Dakota Transmission Authority: Since its inception the Authority's mission has been to facilitate the development of transmission infrastructure in North Dakota. The Authority was established to serve as a catalyst for new investment in transmission by facilitating, financing, developing and/or acquiring transmission to accommodate new lignite and wind energy development.

ND Chamber of Commerce: Backing more transmission lines to export energy, but for coal and wind. Also, they are the co-plaintiff of a lawsuit against Minnesota and its law barring additional coal energy from being exported to MN. North Dakota claims only the Federal government can regulate the interstate transmission of electricity. They also support further deregulation of the energy market, and tax incentives for development of energy production facilities and transmission infrastructure.

ND Association of Rural Electric Coops: the trade association for the states 16 distribution co-ops and five Generation and Transmission co-ops in North Dakota. It was incorporated in 1958 and is located in Mandan, N.D. Today, NDAREC (also commonly referred to as Statewide) works with the state's network of electric cooperatives to provide a complete package of quality services in communications, government relations, safety training, professional development and economic development.

ND Farmers Union: voted in favor of a greater portion of farm bill funding should be devoted to renewable energy initiatives, such as wind development.

Fresh Energy: major advocate for transmission lines to support further development of renewable energy, specifically wind.

Upper Midwest Transmission Development Initiative: study done by officials from MN, WI, IA, ND & SD on potential transmission projects that require interstate cooperation; highlights on streamlining permitting process and legal action channels.

Wind on Wires (WOW): Based in MN, it is a key regional partner of the American Wind Energy Association who regularly intervenes in state Certificate of Need proceedings for new transmission lines to support wind and participate in a number of other regulatory matters. In addition, staff and consultants provide education on technical and regulatory issues to a wide variety of stakeholders, from farmer/landowners to developers to government offices.

Democratic NPL Party: The Dem-NPL supports policies that will lead to the expansion of North Dakota's energy transmission capabilities. Also supports the development and funding of wind and solar energy projects in such a way that our local communities can derive economic benefit from these projects, and the establishment of renewable portfolio standards.

North Dakota Transmission Authority: Identifies transmission needs in the state, and offers a platform for the local and regional discussion about how to fill those needs.

Natural Resource Defense Council: National organization that has been advocating for regional development of ND's wind resources. Website states, "America's dependence on fossil fuels threatens our national security and is a major contributor to global warming and toxic air pollution. By investing in renewable energy sources such as the sun, wind and biomass, we can help solve the energy and climate crises."

Institute for Local Self Reliance: recognized potential value in CapX, but warns against the expansion of coal energy as a result. Their website states that "All of this renewable energy should and could be generated inside Minnesota, thereby keeping substantial economic benefits right here rather than sending them off to other states."

Citizen's Energy Task Force: opposes large transmission lines, and provides a voice for landowners who are also opposed and feel marginalized in the process.

Illinois Power Agency: This agency is tasked with procuring all energy for small commercial and residential customers of Ameren and ComEd. They use a competitive bidding process to acquire energy contracts for power supplies. They are additionally tasked with ensuring that state RPS mandates are met through contracting process and also have some authority to develop generation and cogeneration facilities that are financed through the Illinois Finance Authority.^{cc}

^{cc} *Illinois Power Agency*. 2012. <http://www2.illinois.gov/ipa/Pages/default.aspx> (accessed April 16, 2012).

Iowa Sierra Club: The Iowa Sierra Club is in favor of clean energy development and is aware of the necessity to increase transmission capacity to facilitate the movement of that energy. However, are concerned about negative effects on migratory birds, waterfowl habitat, and public land. They favor mitigation efforts in the route siting process but emphasize that “killing as few birds as possible” is not true mitigation.^{dd}

Ameren: Ameren is a major IOU providing power throughout parts of the MISO footprint in Illinois. They stand to benefit from the construction of new transmission lines.^{ee}

MidAmerican Energy: This is Iowa’s largest IOU, with service operations in Iowa, Illinois, and South Dakota. Approximately 20% of their energy portfolio comes from wind energy. They would stand to gain from new transmission, as much wind power in Iowa is curtailed and development of new wind resources frequently requires new transmission Infrastructure.^{ff}

ITC Holdings: ITC is the largest independent electricity transmission company in the United States. Its operations include portions of Michigan, Iowa, Minnesota, Illinois, Missouri and Kansas. ITC currently has seven projects in progress in its Midwest division.^{gg}

Alliant Energy: This IOUs has operations in Iowa, Wisconsin, and Minnesota and provides both electricity and natural gas. It has nearly 1,200 MW of wind generation currently in service.^{hh}

Illinois Wind Working Group: This organization is a member of the DOE’s Wind Powering America effort. The group is housed at Illinois State University’s Center for Renewable Energy. It is tasked with supporting the renewable energy major at ISU, providing information about renewable energy to the public, and conducting applied research about renewable energy to promote the development of wind power in the state. It has a particular focus on development in rural Illinois.¹³⁵

Iowa Alliance for Wind Innovation and Novel Development: This group is empower to engage in efforts to promote the State of Iowa in attracting and growing the wind energy sector. They do this through research, training, testing of new designs, and developing policies to aid in wind energy demand. They also work to form partnerships across educational institutions, the private sector, the state and Federal government, and communities across Iowa.¹³⁶

Clipper Windpower: This is a wind turbine manufacturer with a significant present in Iowa, both in terms of the manufacturing jobs available but also because a number of large wind farms have been built using Clipper turbines.¹³⁷

^{dd} Iowa Sierra Club. "Iowa's Energy Future: Transmission Lines in Iowa." *Sierra Club Iowa Chapter*. <http://iowa.sierraclub.org/Energy/Transmission.pdf> (accessed March 9, 2012).

^{ee} Ameren. *Ameren Illinois*. 2012. <http://www.ameren.com/sites/aiu/pages/home.aspx> (accessed March 23, 2012).

^{ff} MidAmerican Energy Holdings Company. *MidAmerican Energy*. 2012. <http://www.midamericanenergy.com/> (accessed April 16, 2012).

^{gg} ITC Holdings Corp. *ITC*. 2011. <http://www.itc-holdings.com/> (accessed April 16, 2012).

^{hh} Alliant Energy Corp. *Alliant Energy*. 2011. <http://www.alliantenergy.com/index.htm> (accessed April 7, 2012).

Illinois Sierra Club: The Illinois Sierra Club is in favor expanding access to renewable energy as a way to combat climate change, reduce pollution, and promote the clean energy industry within the state.¹³⁸

Iowa Office of Energy Independence: This state agency runs numerous programs to promote energy efficiency, biofuels, renewable energy, and economic development surrounding these areas. They also leverage private investments using their \$100 million Iowa Power Fund, which so far has leveraged over \$600 million for research, development, early stage commercialization, and education.¹³⁹

Regional Wind Developers: Iberdrola Renewables is a Spanish company with a significant presence in the United States, ranked as the second largest wind operator in the country. They both own and operate significant generation capacity, with over 1,100 MW in the MISO footprint alone.¹⁴⁰ Horizon Wind Energy is a Texas based company which develops, constructs, and operate throughout north America. Its current holdings in Minnesota, Iowa, and Illinois provide almost 1,300 MW of power. The company has plans to expand into Wisconsin in the future.¹⁴¹

APPENDIX B: Siting Process Narratives - By State

Illinois

The state is not geographically well suited to produce the large amounts of wind power that will be required under its RPS. Therefore to achieve its RPS mandates, the state will need to add transmission capacity to bring out of state renewable energy to market. Six agencies are involved in the permitting process in Illinois. The primary permit authority is the Illinois Commerce Commission, which grants a Certificate of Public Convenience and Need before construction can take place. In most cases other state permitting processes cannot proceed until a CPCN has been granted. For lines crossing into Illinois from other states, the determination of need for the CPCN may be more contentious than other states as Illinois typically only considers the need of its own state residents, making projects with regional benefits more difficult to push through. The CPCN process is long and expensive – the application alone costs \$100,000. If the CPCN is granted, a developer can also expect to have thousands of dollars to affected counties for every mile of transmission infrastructure built. This leads to serious upfront costs. Other permits needed before construction include an NPDES permit for a construction activity disturbing at least one acre of land, which is filed with the IL EPA. Any plan to use IL DOT highway right of way also requires a permit. Several permits may be necessary from the IL DNR if the transmission line will cross wetlands, floodplains, public lands, or areas containing endangered species. Permits from the Illinois Historic Preservation Agency may also be necessary if construction will occur proximate to historic areas or archaeologically significant areas. Construction may commence without an Agriculture Impact Mitigation Agreement (AIMA) from the Department of Agriculture, but usually results in poor outcomes, and it is highly recommended to engage in this process prior to construction. The AIMA essentially acts as a contract between the utility and affected landowners, ensuring minimal impacts to prime soil, and guarantees of compensation for damaged crops, and repair of any damaged tiling. It serves as a baseline agreement between property owners and the utility so that all parties know what they can expect from one another. It means the developer does not need to negotiate individually with every single property owner, saving valuable time and money. But in the event a landowner has concerns not included in the AIMA or wants treatment above and beyond the AIMA, they may enter into dialogue with the developer to see their interests met. In totality, the process to collect all the necessary permits to begin construction can take up to two years and cost hundreds of thousands of dollars.

Iowa

To build new transmission lines, an applicant will have to get permits from four state agencies as well as permits from any railroad companies whose right of way they want to use. The Iowa Utilities Board, housed within the Department of Commerce, issues a permit granting a franchise to construct and operate. IUB requires early consultation with affected landowners along the right of way to ensure adequate information is presented to affected parties. A public meeting must be held in every county affected by the proposed line. After this information is presented, the public can comment on the project and make suggestions, such as altering the right of way; these changes are then incorporated in the final application sent to the IUB. The process is relatively simple compared to some other states and can move ahead very quickly if there is no public opposition. It can be even faster if the developer is not requesting use of eminent domain. When determining the route, the IUB also gives preferential treatment to routes that use existing

infrastructure corridors, as opposed to Greenfield siting. This typically includes highway and road ROW, existing transmission line ROW, or railroad ROW. An applicant will also need to apply with the DNR when right of way within a floodplain or wetland is needed. This will be jointly filed with the US Army Corps of Engineers. In the event that construction activity disturbs at least one acre of land, the applicant will need to file a National Pollutant Discharge Elimination System permit with the DNR as well. The DNR also oversees administration of the Endangered Species Act. Thus if a line may have impacts to threatened or endangered species, the DNR will step in. An applicant will further need to file with the State Historical Society of Iowa to do a Cultural and Historic Resources Review. At times this part of the permitting process can significantly slow down a project's momentum in the event that important historical or cultural resources are found to be impacted by the line. Finally an applicant will need to file with the DOT when asking permission to build on or cross DOT roads. A similar process unfolds if an applicant wishes to use or cross railroad right of way, in which case they must contact the railroad to notify them of the intent to construct. One thing that makes Iowa unique is that compared to other states it has virtually no public land. To a certain extent this makes siting decisions easier as public lands usually carry strict protections or plans to site lines through them draw high levels of public interest (and at times, outrage). The lack of public land in Iowa is, to a certain extent, a blessing for transmission developers. Iowa also offers benefits to developers because they are more willing to consider regional interests in their determination of need.

North Dakota

While the PUC is the deciding body on permitting, the ND Department of Commerce, and in particular, the Office of Renewable Energy and Energy Efficiency is the contact agency for siting applicants. In addition, the state created the North Dakota Transmission Authority (NDTA) in 2005 to facilitate the development of North Dakota's Transmission infrastructure. The NDTA outlines the regional planning, outreach, and statutory bodies whose work could help to expand the transmission and export capacity of ND.¹⁴² To provide up to date information and support for state legislators, the Authority participates in the actions of regional committees, such as the Upper Midwest Transmission Development Initiative.

There are 3 permits that need to be approved by the ND Public Services Commission before construction on a transmission line can begin. The first is the Certificate of Public Convenience and Necessity. Following this, two route permits, which can be filed jointly, need to be approved; the Certificate of Corridor Compatibility and a Route Permit.

Before filing for approval, an applicant must provide the Public Service Commission with letter of intent to file, after which the PSC has one year to respond. This is generally for the scheduling purposes of PSC, and gives them room to handle the abundance of new energy projects in North Dakota.¹⁴³ The letter of intent must contain a description of the size and type of facility, and the area to be served; a map of the study area for the proposed site or corridor; the anticipated construction and operation schedule; and an estimate of the total cost of construction.¹⁴⁴ The PSC has the ability to move this time up if requested and it is found to be necessary. An example of this might be when the North Dakota Transmission Authority identifies a transmission need for a particular area of energy development. During the waiting period, an applicant is free to contact other local and state permitting authorities, and begin planning the best routes for their purposes, but they cannot start construction. After the letter of intent has been acknowledged

by the commission, the application must be filed by the applicant, and contain all information required by North Dakota Century Code chapter 49-22 and North Dakota Administrative Code chapter 69-06-04 and chapter 69-06-05. An applicant can file for the corridor certificate and the route permit jointly. However, according to North Dakota officials, if an applicant anticipates local opposition, it can be helpful to acquire the corridor certificate before attempting to site the specific route in the corridor.¹⁴⁵ This is what the separate permitting process is designed for- before the route permit can be approved, an applicant must obtain all local permits, but this is not necessary for the corridor certificate. After the commission determines that the application is complete, the commission serves a notice of filing of the application on various state agencies, local government officials, legislators, and others. The commission then holds a public hearing in the county or counties where the project is located. If a project is located in more than one county, the commission may hold a consolidated hearing in one county.¹⁴⁶ In the end, the PSC can overrule any local opposition, but this is undesirable. Route permits may supersede local land use, zoning or building regulations if the PSC finds the regulations are unreasonably restrictive in view of existing technology, factors of cost or economics, needs of consumers.ⁱⁱ After the public hearing is held, the designation must be made no later than six months after the filing of a completed application for a certificate of site compatibility or no later than three months after the filing of a completed application for a certificate of corridor compatibility.^{jj}

North Dakota officials have stated that the most frequent type of local opposition is concerned with the impact on local roads. However, the corridor certificate creates a lane six miles wide, so an applicant has lots of room to work with when outlining alternative routes.¹⁴⁷

Minnesota

The CapX2020 Group 1 projects include three proposed 345 kV transmission lines and a proposed 230 kV line. It is the largest development of new transmission in the upper Midwest in 30 years. The projects are projected to cost nearly \$2 billion and cover a distance of more than 700 miles. The new infrastructure will provide a foundation for the region's projected electricity growth as well as connect into renewable energy sources in southern and western Minnesota and the Dakotas, making the state the foundation of the CapX projects.¹⁴⁸

Minnesota utilities are regulated, and all approval authority for the construction of new transmission lines officially falls with the PUC. Research has shown that prior to application, several points in the process address local concerns, landowners, other state agencies and municipal authorities. A 1 ¼ mile bandwidth is allotted for the construction route, making it adjustable to local input and deliberation until the final stages of construction.

The application review for approval of the Certificate of Need (CON) in Minnesota typically takes about 12 months after the official submission, but applicants are required to notify the PUC of its intentions well ahead of time. For instance, with the North Dakota - St. Cloud Project CapX2020 line, the commission was notified in February 2007 of the intention to file, even though the official submission did not take place until August 2008.¹⁴⁹ This was to check for exemptions to the approval process, and so the applicants could prepare their submission throughout the

ⁱⁱ North Dakota Administrative Code chapter 69-06-04 and chapter 69-06-05

^{jj} Ibid.

affected area. If it is accepted, the applicant then has fifteen days to print a notice in the official publications of all cities and counties where the line is proposed. Once submitted, the CON includes an Environmental Impact Statement (EIS), and Administrative Law Review (ALR). The route permit contains a separate EIS and ALJ, and if the timing is right, these can be combined with those of the CON, but it is not common practice.¹⁵⁰ The Route EIS analyzes how a transmission line will affect landowners, the environment, other planned infrastructure development projects, counties and municipalities. Any local siting permits (CUP's, ROW's) must be gathered for this, and local input is also gathered at this time. Prior to the line construction, all of these permits must be in place. This siting process generally takes longer, as it requires the action of several state agencies and stakeholders. Again, in the case of the Fargo line, the route permit was submitted in October 2009, and approved June 2011.¹⁵¹

The permitting process in Minnesota covers is follows a regulatory perspective, and takes both need and siting factors into consideration. The Certificate of Need (CON) is in place to ensure that the transmission line is necessary for to support energy demand within the state, and applies to lines over 100 kV. Historically, the state's Conservation Improvement Program (CIP) has helped to curtail this need¹⁵², but with the high RPS standard now set, and a Capx2020 study finding that the state's energy needs will be increasing significantly in the next decade¹⁵³, there has been a renewed emphasis on transmission lines with higher capacity. In addition, to meet the RPS, Minnesota will have to import more renewable energy than it can produce, hence approval of the Fargo - St. Cloud CapX2020 line.

South Dakota

Since the South Dakota Public Utility Commission (PUC) came to exist in 1976 it has not required "need" to be determined in order for a transmission line to be sited. The SD PUC is a one-stop shop authority for completing all approval and permitting necessary for siting projects of any size. The PUC is not charged with the task of approving the need or the route of a proposed project. The PUC sees these tasks as being best completed by those with the most expertise, the transmission developers, and thus asks the applicant to provide four burdens of proof: that the proposed route 1) complies with the law, 2) does not produce serious injury to society or the environment, 3) that it does not impair the health, safety, or welfare of the citizens, and 4) that it does not interfere with the existing or planned order of development in an unduly way.

Like other states, the pre-application process between the transmission line developer and the PUC will often last one to five years. Once the application has been submitted, state statutes require that the process take no longer than 12 months, and will default to an approval by the Commission if it extends beyond this deadline^{kk} In practice the PUC is able to complete its approval easily within the 12 months provided. The PUC Commissioners may call on other state agencies for expertise in reviewing an application; however this is not the standard practice. It is most common for all information needed for completing the Environmental Review (ER) or EIS, if deemed necessary, to be provided directly by the applicant or by the PUC staff. In instances where other expertise is needed, the DOT, the Department of Water and Natural Resources, and

^{kk} SD CL 49.41B.24

the Historical Society, are the only agencies that they would call upon. The agency believes that those with the greatest expertise should be in charge of siting transmission lines, and thus the PUC places greater responsibility on the developer/applicant in providing information and determining routes.¹⁵⁴

After the PUC grants its *order* of approval for siting a given project, additional permits at the state and local level may be required. Although it is not common for there to be permits that are required before the PUC makes its order of approval for a project, the norms of approving a project could allow for a *conditional* order of approval to be granted – the order would become effective upon receiving previously needed permits.¹⁵⁵ Current state statutes do not outline any requirements for interstate coordination for transmission lines that will be crossing state boundaries. However, a utility or transmission company can apply to delay the approval process in SD if a neighboring state’s process is taking longer than expected. This could be helpful in aligning final border crossing points by allowing one state to make decisions based on the other states decisions, but this still leaves a gap in formal coordination between two neighboring states.

Wisconsin

In Wisconsin transmission line developers begin the siting process informally anywhere from one to five years in advance of submitting their application to the state authority. In the case of Wisconsin, there are two agencies that are involved in siting a transmission line: the Public Service Commission (PSC), which approves the Certificate of Public Convenience and Need as well as the specific route. The Department of Natural Resources (DNR), which permits the route once it has been approved of by the PSC. The pre-application meetings that precede the submittal of the siting application are a time for the developer to understand what these two agencies, as well as the Department of Transportation and in some instances the Department of Agriculture, Trade, and Consumer Protection, are looking for. There is great emphasis put on this unofficial part of the process. Although this stage is not outlined in state statutes or codes, the quality of communication between parties is pivotal because once the project’s application has been submitted, the PSC has a definitive number of days to complete their decision, otherwise the project will default to an approved status.¹¹

Under Wis. Stat. § 1.12(6) utility lines are required to recommend suitable routes for a proposed line based first on a prioritized list of existing conditions. If a suitable route cannot be found along the first type of corridor, the secondary and tertiary corridor types must be looked at for site-ability.

Prioritization of Corridor Types in Wisconsin (Wis. Stat. § 1.12(6)):

1. Existing utility corridors (natural gas, electric, water lines, etc.)
2. Railroads and highways
3. Recreational trails
4. New corridors

¹¹ Wis. Stat. § 196.491(3).

If none of these corridor types work for the project, only then can a route along a *green* corridor (one with no pre-existing infrastructure) be proposed. Although the focus of this report is on the siting approval portion of the process, the procedures and stakeholders involved in the permitting portion of the process are relevant in understanding some of the cultural expectations and barriers in the state siting processes.

Within the approval portion of the siting process, it is important to understand the main components that impact the Public Service Commission's decision to approve. We use the term "approval" to describe this portion of the process, which contains two parts: 1) the *Certificate of Public Convenience and Need* (CPCN) and 2) the *routing approval*, which concerns the relative placement, environmental concerns, and constructability of a given project. The PSC holds sole authority in the state for approving both the CPCN and the Route. The DNR serves a major role in advising the PSC Commissioners in assessing the routes proposed in the application, but the PSC is the expert in routing and will make the ultimate decision on the route siting. This being said, once the PSC has approved both of these components, the DNR will have exactly 30 additional days to issue their route permit. The issuing of this permit is separate from the PSC's approval of the CPCN and route, however it is required. It is the responsibility of the DNR to communicate to the PSC which routes it would find *permissible* throughout the process so that they can and will grant a permit for the approved route after it has been approved by the commission.

Looking more in detail at the approval process, the following is an accounting of the necessary and common steps and their time requirements. Once the application is submitted to the PSC, the agency will have 360 days to make a decision about its approval (Wis. Stat. § 196.491). State statutes say that the PSC will have 180 days with an optional extension of an additional 180 days, but according to personal interviews, in high-voltage projects or projects spanning long distances, the 180-day extension is always taken. The first 30 days of this period is used to check the application for completeness. This is a critical step because all parties want the application to be as complete as possible since lack of evidence makes the job of the Commission more difficult and potentially less accurate while decreases the likelihood of approval for the applicant. Within this 30-day period, it is common for the PSC to have to request additional information from the transmission company. During this request periods, the 360-day count down stops until the requested information has been provided. The project application is required to present more than one route option, including a designated preferred route. The PSC may make a final route selection by choosing either route or a combination of proposed routes and routes chosen by the PSC and or the public.

Once the application is complete the PSC will begin to gather evidence to assess both the *public convenience, need*, and the *routing*. To look at both of these the PSC is required by state law to facilitate 1) technical sessions and 2) public sessions. By law the PSC is required to make its decisions based on evidence presented during these hearings (Personal Interview, PSC). Wrapped within the technical session is the acquiring of information from advising agencies, such as the DNR, as well as from parties with *intervener status*. Issues and concerns around constructability, effects on the environment and economic impact are all considered under the *technical* channel of evidence gathering. This information will be gathered by way of live testimony before the Commissioners or through formal documents such as the Environmental Assessment (EA) or the Environmental Impact Statement (EIS). The DNR is also required by state law to hold a technical

hearing to gather evidence about the “permissibility” of proposed routes, but often the DNR and PSC hold these hearings together.

In short the Wisconsin PSC holds the transmission line project applicant responsible for providing a large portion of the evidence needed to understand why the CPCN should be approved. Other state agencies might be called on to provide information that will go into the EA or EIS, especially the DNR. Beyond this, it is only other *intervening parties* that will have the ability to produce reports and information that will be accepted as evidence on the record as a part of the technical sessions. Upon request from an existing party with intervener status, the PSC may provide *Intervener Compensation* to conduct research or gather public input about an issue that is argued to be missing from the technical record (PSC docket records).

Once the PSC has granted the CPCN, the DNR will have 30 days to permit the route. However, this time frame is less rigid than the PSC as statutes and codes do not include an “if not” clause outlining what will happen if the DNR is tardy in issuing this permit. Although this could appear as a gap for project slow down, utility specialists within the DNR said that communication with the transmission line applicant at this point in time is usually quite frequent and that they work cooperatively to get the permit to the transmission line applicant as soon as possible so that the permit will not be responsible for holding up construction

Statutes only require that one public hearing be held, but more may be held, especially for larger, longer projects, where more people over a long distance may have an interest in attending. By law the PSC is required to give the public notice of receiving an application for a CPCN, when an EA is being prepared for a specific application, when it has been determined that preparation of an EIS beyond the EA is required, and when public hearings are to take place. Public hearing notices must be issued within no less than 30 days of hearing date and are distributed widely to legislators and public libraries in the affected areas as well as local newspapers and on the PSC website. This is the same amount of time that the public has to make public comments on the PSC website on a case-by-case basis, as it pertains to the CPCN or the EIS. Although there may be a number of other “scoping meetings” (Personal Interview, PSC) that occur across the state to discuss and hear evidence about local concerns, these meetings hold no direct authority to approve or disapprove a process. Local municipalities often draft a *resolution* that summarizes the group concerns. Although this may not affect the decision of the Commission to approve the CPCN, it may contain citizen preferences as to how transmission lines are designed or built. These concerns may affect what types of permits the transmission line company will have to receive, as well as the costs of the lines, if they were to be built in an alternative fashion.

APPENDIX C: Personal Interview Questions

Structuring of Interviews

Public employees, executive directors, project managers, and communication coordinators from state agencies, transmission line companies, utility companies, regional organizations, local officials, non-profits, and residents were interviewed in the process of gathering information for this report. A total of 32 interviews (25 interviewees) were conducted, most of which took place over the phone, while somewhere held in person. Because there is such a diversity of stakeholders involved in the siting and coordination of transmission line development, one set of standard questions was not appropriate for all interviews. However, a standard set of five questions were asked during each interview. Knowledge gathered through interviews informed succeeding interviews and research.

Standard Questions:

1. What works well about the siting processes in your state? Are there any common hang-ups or procedures that slow down the processes unnecessarily?
2. If the state RPS were to change, how would this change the internal state dynamics around transmission line development?
3. Are there gaps in the ways the public is engaged in the process as it moves from regional planning to local siting and development?
4. From your perspective, do you see one of the following mechanisms for interstate coordination being more successful than another: joint steering committee, interstate compact, harmonization of state statutes? Do you have recommendations for other solutions?
5. What other stakeholders do you see as being relevant to siting in your state or in the region? (A list of stakeholders was provided to them and they were asked to make additions along with reasoning.)

Figure 9. Interviews: Listed Alphabetically by State and Organization

Organization	State	Position	Interviewee	Date	Interviewer
1 Department of Transportation	IA	-	Bryan Bradley	03/09/12	Erik Sowers
2 Iowa Utilities Board	IA	-	Jim Sundermeyer	04/22/12	Erik Sowers
3 Department of Agriculture	IL	-	Terry Savko	03/15/12	Erik Sowers
4 MISO	MISO	Manager of Regulatory Studies	JT Smith	03/26/12	Megan Hoye
5 Great River Energy	MN	Vice President of Transmission	Will Kaul	05/10/12	Chet Bodin
6 MN Department of Commerce	MN	Public Advisor	Ray Kirsch	02/17/12	Chet Bodin
MN Department of Commerce	MN	Public Advisor	Ray Kirsch	03/07/12	Chet Bodin
MN Department of Commerce	MN	Public Advisor	Ray Kirsch	05/04/12	Chet Bodin
7 MN Department of Natural Resources	MN	-	<i>anonymous</i>	03/07/12	Chet Bodin
8 MN Public Service Commission	MN	Energy Facilities Permitting Analyst	Tricia DeBleeckere	02/17/12	Chet Bodin
MN Public Service Commission	MN	Energy Facilities Permitting Analyst	Tricia DeBleeckere	03/07/12	Chet Bodin
MN Public Service Commission	MN	Energy Facilities Permitting Analyst	Tricia DeBleeckere	05/10/12	Chet Bodin
9 Xcel Energy	MN	Director of Regional Transmissoin Development	Prity Patel	05/11/12	Chet Bodin
10 ND Industrial Commission	ND	Executive Director	Karline Fine	03/21/12	Chet Bodin
11 ND Public Service Commission	ND	Public Utility Analyst	Jerry Lein	03/17/12	Chet Bodin
ND Public Service Commission	ND	Public Utility Analyst	Jerry Lein	04/24/12	Chet Bodin
ND Public Service Commission	ND	Public Utility Analyst	Jerry Lein	05/10/12	Chet Bodin
12 ND Transmission Authority	ND	Executive Director	Sandy Tabor	05/02/12	Chet Bodin
13 Public Utility Commission	SD	Commission Advisor	Greg Rislov	03/05/12	Megan Hoye
14 Dept. of Transportation	SD	-	<i>anonymous</i>	04/13/12	Megan Hoye
15 Minnehaha County (Sioux Falls)	SD	Director of Planning	Scott Anderson	05/04/12	Megan Hoye
16 SD Renewable Energy Association	SD	Energy Analyst	Steven Wegman	05/03/12	Megan Hoye
17 American Transmission Co.	WI	-	<i>anonymous</i>	04/13/12	Megan Hoye
18 American Transmission Co.	WI	Director of ROW	Kurt Childs	04/16/12	Megan Hoye
19 Citizens Utility Board of WI	WI	Executive Director	Charlie Higley	03/22/12	Megan Hoye
20 Dairyland Power Cooperative	WI	Director of Transmission Regulations	Chuck Thompson	05/02/12	Megan Hoye
21 Dane County	WI	County Zoning Administrator	Roger Lane	05/04/12	Megan Hoye
22 Dept. of Natural Resources	WI	Directo, Office of Energy and Environmental Analysis	Dave Siebert	03/05/12	Megan Hoye
23 Dept. of Transportation	WI	ROW Accomodations & Permits Engineer	Robert Fasick	03/20/12	Megan Hoye
24 Public Service Commission	WI	Chief Engineer, Gas and Energy Division	Scot Cullen	02/21/12	Megan Hoye
Public Service Commission	WI	Chief Engineer, Gas and Energy Division	Scot Cullen	03/27/12	Megan Hoye
25 PSCW Public Hearing (Centerville)	WI	na	na	03/14/12	Megan Hoye

Figure 10. Interviews: Listed Alphabetically by Interviewee

Organization	State	Position	Interviewee	Date	Interviewer
1 MN Department of Natural Resour	MN	-	<i>anonymous</i>	03/07/12	Chet Bodin
2 Dept. of Transportation	SD	-	<i>anonymous</i>	04/13/12	Megan Hoyer
3 American Transmission Co.	WI	-	<i>anonymous</i>	04/13/12	Megan Hoyer
4 Derpartment of Transportation	IA	-	Bryan Bradley	03/09/12	Erik Sowers
5 Citizens Utility Board of WI	WI	Executive Director	Charlie Higley	03/22/12	Megan Hoyer
6 Dairyland Power Cooperative	WI	Director of Transmission Regulations	Chuck Thompson	05/02/12	Megan Hoyer
7 Dept. of Natural Resources	WI	Directo, Office of Energy and Environmental Analysis	Dave Siebert	03/05/12	Megan Hoyer
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14 <i>PSCW Public Hearing (Centerville)</i>	WI	na	na	03/14/12	Megan Hoyer
15 Xcel Energy	MN	Director of Regional Transmissoin Development	Prity Patel	05/11/12	Chet Bodin
16 MN Department of Commerce	MN	Public Advisor	Ray Kirsch	02/17/12	Chet Bodin
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24 MN Public Service Commission	MN	Energy Facilities Permitting Analyst	Tricia DeBleekere	02/17/12	Chet Bodin
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MN Public Service Commission	MN	Energy Facilities Permitting Analyst	Tricia DeBleekere	05/10/12	Chet Bodin
25 Great River Energy	MN	Vice President of Transmission	Will Kaul	05/10/12	Chet Bodin

Appendix D. SWOT Analysis Highlights

SWOT Analysis	Illinois	Iowa	Minnesota	North Dakota	South Dakota	Wisconsin
Parties generally viewed by stakeholders within the state as the expert in siting and understanding transmission	Transmission companies	Transmission companies	all involved agencies & applicants	Public Utility Commission & Transmission Authority	Transmission companies	Public Utility Commission
Strengths	<p>SPEED & SEQUENCE: Eminent Domain can be acquired by the applicant simultaneously to the approval process for the CPCN</p> <p>NEED: Authority for determining need is housed in one state agency</p> <p>AUTHORITY: There is an office specifically dedicated to energy development (The Office of Energy Independence)</p> <p>PRECEDENT OF INTERSTATE COORDINATION: Participated in UM/TDI</p>	<p>PROCESS NAVIGATION: The Department of Commerce works closely with applicants to help guide them through the siting process that involves many state agencies</p>	<p>NEED: Determination of need for a transmission line is left to the experts (the Transmission Authority)</p> <p>Framework and responsibility is outlined by the Transmission Authority</p> <p>OUTREACH: Public hearings are held at optimal times; after the general route has already been determined and during the siting process</p> <p>PRECEDENT OF INTERSTATE COORDINATION: Participated in UM/TDI</p>	<p>NEED: Determination of need for a transmission line is left to the experts (the Transmission Authority)</p> <p>Framework and responsibility is outlined by the Transmission Authority</p> <p>OUTREACH: Public hearings are held at optimal times; after the general route has already been determined and during the siting process</p> <p>PRECEDENT OF INTERSTATE COORDINATION: Participated in UM/TDI</p>	<p>SPEED & SEQUENCE: The PUC is the sole holder of siting approval authority, creating a "one-stop" shop for applicants</p> <p>OUTREACH: "Job Fair" style public meeting held by DNR and PSC to inform public based on their specific interest or need</p> <p>BENEFIT/COST: Broad cost-sharing within the state because only three transmission companies</p> <p>PRECEDENT OF INTERSTATE COORDINATION: Participated in UM/TDI</p>	<p>SPEED & SEQUENCE: Parallel CPCN process between PSC and DNR written into statutes, creates harmonization across state agencies</p> <p>OUTREACH: "Job Fair" style public meeting held by DNR and PSC to inform public based on their specific interest or need</p> <p>BENEFIT/COST: Broad cost-sharing within the state because only three transmission companies</p> <p>PRECEDENT OF INTERSTATE COORDINATION: Participated in UM/TDI</p>
Weaknesses	<p>PROCESS NAVIGATION: The permitting and siting approval process is fragmented making process less transparent and putting more onus on the transmission line developer</p>	<p>SPEED & SEQUENCE: Application process can be lengthy (longer than neighboring states)</p> <p>COORDINATION: No authority to have interstate communication regarding</p>	<p>STATUTE GAP: Some instances do not clearly define who the developer of a project will be, which can less than optimal for businesses the state is interacting with</p>	<p>STATUTE GAP: Does not exclude scenic easements from prioritized corridors outline in state statutes</p>		
Opportunity	<p>BENEFIT/COST: There are current laws that help broaden the tax base for those countries that house transmission facilities and lines</p>	<p>NEED: Have adopted broader language for what officially constitutes need</p>	<p>COORDINATION: The Transmission Authority has greater coordination capacity under a rule requiring that they are invited to conversations, even out of state, that deal with</p>	<p>SPEED & SEQUENCE: Could likely speed up their currently 12 month approval process (Precedent of a 6 month siting approval process for wind farms)</p> <p>NEED: the PUC does not require need to be determined, but instead just 4 burdens of proof</p>	<p>BENEFIT: Currently has opportunities to broaden the tax base and provide payments from utility companies to counties for housing facilities</p>	
Threats	<p>BENEFIT/COST: The cost of getting transmission line routes approved is substantially higher than most other states in the region</p>	<p>AUTHORITY: Each municipality that a proposed route will pass through needs to approve the siting of the transmission lines, creating a slower process that could be subject to more</p>	<p>AUTHORITY: Governor's office has the authority to intervene in on other state's siting processes</p>	<p>BENEFIT/COST: The administrative costs to get transmission lines approved can be very expensive</p>		

NOTE: Black were noted as major observations and gray intermediate.

Appendix E: Discussion of Policy Criteria by Policy Option

FIRST TIER POLICY OPTIONS

Option 1A. Spread of Best Practices Within the Electric Utility Industry

Inclusive and Transparent: Best practices would create an incentive to explain processes to the public and reach out to diverse stakeholders. While this may not make the process significantly more transparent, it certainly would increase interactions with different affected parties, which in turn would create consistency in the way developers communicate with stakeholders. This practice would also increase sensitivity to local needs. This could also increase trust between developers and regulators, as best practices would show that developers are engaging in a good faith effort to properly follow procedures and collect accurate information.

Predictability: Though this option would likely increase the time developers have to spend interacting with the public and stakeholders, they can count on the fact that the process will take a longer time. This facilitates a certain degree of predictability in how long the process will take. Though this may take more time up front, inclusive interaction at the start of a process ensures that all issues are being properly addressed as opposed to the status quo wherein the process may be slowed down midway due to particular concerns suddenly arising. In the end, the ratepayers will foot the bill for public engagement efforts, thus the higher costs of engaging the public in a more meaningful way do not ultimately cost the developer money. However, to a certain extent this still decreases financial predictability because the developer does not know how many stakeholders it may need to engage or what kinds of mitigation efforts it will need to employ to satisfy stakeholder needs.

Feasibility: Current best practices exist within the industry. However, these practices are often viewed as proprietary, and current industry leaders would dislike losing their competitive edge in the market place. It would be easy for states to require BMPs, but whether such practices are actually adopted may be more questionable. There is also uncertainty about how states would monitor and enforce this policy.

Deliberate Coordination and Regional Consideration: It is unlikely this practice would increase regional coordination. However, there is a possibility that that this would increase coordination between different sections of a proposed route. It may also improve relations between different transmission owners, as they would have a standard of practices they can hold each other to. This may ease communication and coordination between developers, though this could be highly variable. Not all developers may adopt the exact same best practices.

Resiliency: This policy is fairly resilient as there is a lot of flexibility in the ways that developers can engage with stakeholders. The good will built by best practices may also aid in resiliency. However, there may be internal inertia against moving towards best practices. As the definition of best practices changes over time companies may be slow to change their habits.

Option 1B. Financial Incentive – Alternative Compensation Mechanisms to Landowners

Inclusive and Transparent: Reducing rates for affected landowners would be problematic, because the definition of who is affected is not clear. Reducing rates just for landowners that have transmission lines on their property may not be fair, as adjacent properties could still see declines in their property values. If the definition of affected landowner is expanded to include these property owners as well, the entire definition becomes a slippery slope and potentially entire communities could become rent-seekers, trying to get rate relief from a transmission owner. Under reassessed easement compensation payments would obviously be attached only to those landowners that had an easement on their property. This clarifies who the affected parties are, leading to higher transparency. It is also somewhat more inclusive because it allows for more active communication between landowners and transmission owners in terms of negotiating compensation payments.

Predictability: This policy is fairly predictable over time. Rate reduction would be attached to the property, so as the property changes hands there is a predictable compensation mechanism. The average cost of providing alternative compensation to landowners is likely negligible for a transmission owner, allowing for predictability for their bottom line. This could also potentially speed up siting processes, as affected landowners would be receiving compensation for lines sited on their property, which may help quell NIMBY attitudes. This may also lead to a situation in which landowners voluntarily allow for transmission to be sited on their land, which would reduce need for eminent domain proceedings. Affected landowners will have a dependable compensation mechanism for having transmission sited on their land. It may also reduce the developer's costs of acquiring easements because of reduced likelihood to engage in acrimonious battles with property owners to secure such easements.

Feasibility: There is high motivation to adopt alternative compensation mechanisms by industry as a means of more easily acquired easements. Some rate payers may push back, not understanding why some landowners receive payment. There is also flexibility associated with the degree of rate relief across a line's footprint. In places where there is more opposition utilities could offer higher compensation levels. The reassessed easement payment could be more difficult to implement than rate relief. Property value assessment is already a contentious and imprecise science. Thus adopting a payment scheme based on changes in land value would be difficult and require more coordination, as outside contractors would need to do an assessment.

Deliberate Coordination and Regional Consideration: This policy would certainly increase coordination between a developer and the affected landowners. Beyond this there is little increase in coordination or regional consideration. All the benefits of this policy would be experienced purely by those who are locally affected.

Resiliency: There is a certain amount of resiliency inherent to this policy because as the property changes hands the compensation mechanism will still be in place. Historically, NIMBY attitudes are among the major obstacles to siting transmission lines, and as this policy is tailored to appeal to those kinds of stakeholders, it offers resiliency in the siting process. However, there may be issues associated with the amount rate relief - whether it is adjusted for inflation over time.

Option 1C. Adoption of a Property Owner Impact Mitigation Agreement (POIMA)

Inclusive and Transparent: The high upfront engagement of landowners makes this very inclusive. All affected landowners would be considered in the creation of such a document. Additionally, the direct discussion of landowners' concerns makes the dialogue transparent in terms of the range of issues that a POIMA may address. It will determine upfront what issues developers will bring to the table. Developers have a set of guidelines and landowners know what to expect.

Predictability: This kind of agreement sets a baseline for how developers can expect to proceed during construction. There may mean less public opposition, which creates a predictable environment for developers. This also fosters predictability for landowners because they know how developers will treat them.

Feasibility: Some states already create similar contracts for farmers, so creating a larger version of this that engages all affected landowners may not represent a huge change. Generally a POIMA would help reduce contentious and improve the way landowners interact with developers, which could be sold as a win-win policy.

Deliberate Coordination and Regional Consideration: This policy helps coordinate between landowners and developers, but other creating these documents in each state a line passes through, there is little improvement in terms of regional consideration.

Resiliency: A POIMA would be created on a per project basis, and the range of topics that may be included in a POIMA certainly could change based on the nature of the project and its location. If landowners have additional concerns not addressed in a POIMA they can always enter into direct negotiations with the developer. Additionally, when a property changes hands the new owner would be able to see the POIMA and negotiate with the developer if they have additional concerns.

SECOND TIER POLICY OPTIONS

Option 2A. Increased Use of Temporal Backstops and Interstate Points of Contact

Inclusive and Transparent: Certainly having agencies work on approval simultaneously might lead them to communicate with each other more. However, transparency could be degraded. Concurrent processes may make an approval process appear more convoluted in some senses as agencies scramble to finish work in conjunction with another agency. Temporal backstops may help improve transparency somewhat because there are clear cutoffs to processes.

Predictability: Backstop timing certainly improves predictability as it creates clear time horizons for when a process ends. Concurrent approval processes may not improve predictability but certainly would not degrade it. It increases the amount of inter-agency communication required, but eventually agencies would adapt to this change.

Feasibility: There is significant room for this policy to morph depending on the interests of state legislatures adopting it. They could require certain agencies to work together and others to continue working individually. The timing of backstop authority also could flex across states and across different approval processes.

Deliberate Coordination and Regional Consideration: Backstop timing means that states have a

clearer sense of when their neighbors' processes end. Concurrent approvals also allow state agencies to share information and work together, which improves coordination.

Resiliency: The flexibility of state implementation means there is resiliency across state policies to be tailored to specific needs. Concurrent processes may also aid, as that kind of information sharing allows for more careful consideration during approval processes.

Option 2B. Exemption for *Scenic Easements (WI)*

Inclusive and Transparent: Changing regulations about scenic easements helps improve transparency to the public. By its namesake, the public would assume that a scenic route has protections in place to maintain its scenic qualities. Therefore exempting them from transmission development helps align public perception and state law.

Predictability: The exemption of scenic routes enhances predictability because a developer knows they are off the table and the public knows the scenic quality of those routes will be maintained.

Feasibility: Exempting scenic routes from transmission consideration would be relatively easy to implement. The marginal impact this would have on available transmission corridors is negligible.

Deliberate Coordination and Regional Consideration: To a certain extent this helps advance regional interests because there is more predictability in how a process will unfold in Wisconsin. However, overall this policy does not have much effect on coordination or the consideration of regional interests.

Resiliency: Exempting scenic routes would align public perception with state statutes and would also harmonize the Wisconsin DOT's practices with the interests of the Federal government in terms of protecting scenic routes.

Option 2C. Reauthorizing a Stronger Renewable Portfolio Standard (WI)

Transparent and Inclusive: There is some lack of transparency here because the RPS would be promoted as expanding clean energy production without understanding that it would also alleviate a regional bottleneck. It would also not be very inclusive, as the authority to enact a new RPS rests in the hands of the legislature, which by nature is an exclusive group.

Predictability: To a certain extent this is not very predictable because in the short term it would increase energy costs. But in the long term it would be more predictable, as there are usually benchmarks set within such laws. These kinds of deadlines build predictability in to the RPS. This creates very predictable time horizons for generation needs that must be met. Understanding these benchmarks would also create financial predictability, as utilities would be able to plan for what kinds of investments they need to make to meet RPS requirements.

Feasibility: Policies like an RPS are subject to the prevailing political winds within the state. As a swing state, Wisconsin has a history of supporting very progressive and very conservative policies. Historically Wisconsin has been an early adopter of progressive environmental policies, and one of

their state senators helped create Earth Day. At some point the RPS may increase. The question is when.

Deliberate Coordination and Regional Consideration: On the surface this policy is solely about increasing renewable energy production to reduce the state's carbon footprint. However, it also has positive externalities, such as building new transmission lines that would alleviate current bottleneck problems. To a certain extent this facilitates regional coordination, as neighboring Minnesota and Illinois also have high RPSs; this would put Wisconsin on par with them.

Resiliency: This is not very flexible in the sense that it mandates a power generation mix. However, it is resilient in other ways. Increasing renewable generation means Wisconsin does not need to import as much coal to power its plants. Given recent energy trends in the United States, adapting more environmentally friendly policies now could potentially put the state in a better position in the future. But of course any RPS policy is subject to political winds, as mentioned above, and could change after election cycles.

THIRD TIER POLICY OPTIONS

Option 3A. Harmonize State Statutes

Inclusive and Transparent: This is a highly transparent policy option because there is more predictability in state process across lines. This is inclusive to a lesser extent, as it does not involve broad stakeholder involvement. To a certain extent it is more inclusive because there would be more interstate communication during siting and permitting processes. It may also allow stakeholder groups to organize and advocate for their interests if public engagement processes are occurring concurrently.

Predictability: Ideally harmonization would allow for more synchronous timing of different permitting processes. This could potentially involve shorter time frames for permitting processes. The understanding of what is required for interstate transmission siting would be better understood upfront. Permitting agencies may need to hire additional employees to be able to process applications on time with neighboring states. This imposes a cost on government. For a developer, a harmonized process may help keep costs under control as fees for permits or other costs may be more standardized across the region.

Feasibility: This policy is not very feasible. This would require all the legislatures in the region to adopt unified language and successfully pass it. Certainly there would be disagreements over which statutory language to harmonize, and the scope of what kinds of language needs to be modified. It may be easier to agree to harmonization around backstop authority than harmonization of the definition of need.

Deliberate Coordination and Regional Consideration: This policy would greatly increase coordination across states as they would be more actively communicating with each other and coordinating their permitting practices. This would make transmission siting more responsive to regional needs.

Resiliency: Once this kind of policy is codified in state statute it becomes fairly resilient. Granted

there could still be problems siting lines across states, but having some kind of common denominator across states could certainly allow for more ease in siting.

Option 3B. Clearinghouse

Inclusive and Transparent: The point of the clearing house is to improve transparency by communicating and coordinating across the region. It would allow for a centralized place to collect information about interstate projects or voice concerns about local effects. A centralized location also helps that all states are held accountable to shared standards or expectations.

Predictability: This allows somewhat more predictability because there is so much more information sharing occurring under this policy. Currently interested parties need to navigate nebulous pathways to find information about projects and their point in the process. A clearing house is a centralized place that can perform these functions. While it does not necessarily reduce the time needed to complete a project, it may make it easier to understand the amount of time that will be required. There will be costs associated with creating and operating a clearing house. While it may not require a lot of funding, there may be arguments about who pays for what and whether those fees are being apportioned fairly. Any funding stream authorized by a state legislature could be subject to political winds, risking variability in the availability of funding.

Feasibility: The fact that this option is more voluntary and flexible in nature makes it more feasibility. There would certainly be good public buy-in, states would lose their autonomy, and developers would have a clearer sense of what requirements they must follow across states to push ahead projects. Further, the existence of OMS and the success of UMTDI suggests there is an appetite for more regional coordination that this type of policy could fill.

Deliberate Coordination and Regional Consideration: All states are accountable to each other under a clearing house which ensures deliberate coordination and communication. It would also allow for greater regional consideration of need because member state practices are centrally located and available. Compared to other policy options, this allows for more active coordination, as opposed to others that are more passive.

Resiliency: There is significant potential for political and financial volatility under this policy. Levels of interest and engagement in a clearing house could change with political winds. Despite this, the clearing house offers potential to evolve to meet member states' needs over time.

Option 3C. Creation of Regional Transmission Siting and Coordination Authority (RTSCA)

Inclusive and Transparent: To a certain extent this is less inclusive because it preempts state authority surrounding siting decisions. Having a centralized authority, however, will likely improve transparency.

Predictability: A centralized regional authority could speed up processes by dedicating resources to move projects ahead. However, this kind of centralized authority has the potential to anger a lot of

local parties who may bring siting decisions to court. Utilities might save money because they only need to interact with one major permitting body. There could also be high legal fees associated with defending siting decisions should they be brought to court.

Feasibility: The severe loss of state autonomy and authority associated with this policy would likely prevent states from ever agreeing to adopt it. This option would likely also need some kind of authorization from FERC, which also makes adoption of this policy harder.

Deliberate Coordination and Regional Consideration: The nature of such a body would necessarily require regional considerations of need. Planning for new transmission would occur at the macro level to serve the entire region.

Resiliency: The creation of such a body would require strong legal authorization, which could help keep it functioning in the long term. However, the possibility of contentious decisions landing in court could be very high, and may delegitimize the authority or cause it to become insolvent.

AGRICULTURAL IMPACT MITIGATION AGREEMENT
between
ILLINOIS POWER dba AMEREN IP and the ILLINOIS DEPARTMENT OF AGRICULTURE
Pertaining to the Construction of the
Latham to Oreana 345 kV Electric Transmission Line
In Macon County, Illinois

For system improvements for which Ameren (hereafter referred to as Company) has financial and/or technical oversight, the Illinois Department of Agriculture (IDOA) and the Company agree to the following standards and policies that the Company will implement as it constructs a 345 kV electric transmission line/distribution facilities on agricultural land in Illinois. These standards and policies will serve to minimize the negative agricultural impacts that may result due to transmission line construction.

The below prescribed construction standards and policies only apply to construction activities occurring partially or wholly on privately owned agricultural land. They do not apply to construction activities occurring on highway or railroad right-of-way or on other publicly owned land. The Company will, however, adhere to the construction standards relating to the repair of drainage tile (Item No. 5 in the Agreement) regardless of where drainage tile is encountered.

The mitigative actions specified in the construction standards set forth in this Agreement will be implemented in accordance with the conditions listed below:

- A. All mitigative actions are subject to modification through negotiation by landowners and a representative of the Company, provided such changes are negotiated in advance of any construction, maintenance, or repairs.
- B. The Company may negotiate with landowners to carry out the mitigative actions that landowners wish to perform themselves.
- C. All mitigative actions employed by the Company pursuant to this Agreement, unless otherwise specified in this Agreement, will be implemented within 45 days of completion of the transmission line facilities on any affected property, weather and landowner permitting. Temporary repairs will be made by the Company during the construction process as needed to minimize the risk of additional property damage that may result from an extended construction time period. If weather delays the completion of any mitigative action beyond the 45 day period, the Company will provide the landowner(s) with a written estimate of the time needed for completion of the mitigative action.
- D. Mitigative actions pursuant to this Agreement will extend to associated future construction, maintenance, and repairs by the Company.
- E. The Company agrees to include this Agreement as part of its submissions to the ICC and hereby agrees to the inclusion of the terms contained in this Agreement in any environmental assessment and/or environmental impact statement that may be prepared on the project.
- F. The Company will implement the mitigative actions contained in this Agreement to the extent that they do not conflict with the requirements of any applicable federal, state, or

Summary of Megan Hoyer's Capstone Contributions

INTRODUCTION

The scope of this capstone report encompassed state siting practices for transmission line development, an analysis of stakeholders, and an analysis of siting coordination across six of the twelve Midwest Independent System Operator (MISO) states (Illinois, Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin). The team working on the report included myself (MS STEP), Chet Bodin (MPP), and Erik Sowers (MURP). Our clients were two Minnesota, renewable energy advocacy non-profits that support transmission line development – The Great Plains Institute and Fresh Energy.

A large quantity of background research was required to understand the context for the scope of the report, including adjacent issues such as ratemaking, financing mechanisms for development, the presence of local incentives, and awareness of federal siting authority developments. The Background section of the capstone report has been further researched and detailed and accompanied by this summary of my individual contributions to the capstone project for the purpose of meeting the academic research requirements of my Plan B. The following is a discussion of my contributions and responsibilities during the development of the group report.

RESEARCH AND REPORT CONTRIBUTIONS

To manage the scope of work to be done for the report, topics were divided amongst team members both by topics of focus as well as geography. As a foundation for the report to the client, and as an area of research that could stand on its own for the purposes of my Plan B defense, I was responsible for scoping and researching the background. These included a description of how siting practices have been and are generally conducted today, the relatively new developments of regional transmission line planning in the Midwest (MISO), energy/renewable energy and economic development background information for each state, the relevancy and impact on climate change, why this is an important issue to taxpayers, ratepayers, and landowners, and why this issue is of current importance. This provided the general context for the proceeding sections and grounds for recommending policies that would help increase grid reliability through further development of transmission lines.

Beyond the Background section, each group member was responsible for researching and understanding state statutes and administrative laws that govern siting practices, who holds the siting authority for the state (single state agency, multiple state agencies, or local authority), the other agencies involved in the process and their responsibilities, the degree to which state statutes require or limit intrastate coordination around siting, as well as economic, political, and bureaucratic dynamics that are relevant to siting. I was responsible for researching 1.) Wisconsin – a state with a complex and long standing history of local and bureaucratic opposition to transmission development, and 2.) South Dakota – a siting practices outlier in the Midwest that is also the smallest generator and consumer of electricity in the six state region, but also holds a large quantity of undeveloped wind potential. Beyond learning about the issues described above, issues that would be researched for each state, issues relevant to each state were teased out of research to help tell a full story of the culture, values, and logistical barriers that motivate or hinder changing siting practices.

To better understand these issues in both South Dakota and Wisconsin, my research began by surveying the Public Utilities websites for general information about siting practices and local news that helped provide evidence of recent or historical concerns around transmission line development. I then used an Advisor to the Commission in SD and a Senior Manager at the Wisconsin Public Service Commission as my foundational interviewees. They help guide me towards relevant resources, such as state statutes, agency administrative laws or codes, past project records, as well as other interview contacts. The research team established a list of five questions that were going to be asked of each interviewee so that qualitative findings could be triangulated when possible.

Building from these initial interviews, I made an effort to interview people from as many stakeholder groups as possible, including advising state agencies (not the actual authority holders) ratepayer advocates, renewable energy advocates and educators, developers, local authorities, and MISO planning management. I also attended a public hearing for the Twin Cities to La Crosse project in Centerville, WI to observe the state facilitated public process and to hear first hand about local concerns. Throughout this process we each were also responsible for collecting relevant stakeholders and an understanding of their power and interest around transmission line siting and development.

To further support this research I reviewed industry, governance, and regulatory documentation ranging from Midwest Independent System Operator planning reports, previous reports surveying state siting practices, case studies of previous transmission line development projects, news that characterized local and advocate sentiments as well as political views at the state level, commentary put out by Midwestern and other progressive Governor's associations, to public record documents such as Environmental Impact Statements, *Intervener* statements, and final Certificate of Need decisions and commentary from Commissioners. I surveyed additional academic research to learn more about opinions and exploration around adjacent challenges such as misalignment of incentives to landowners and ratepayers, the historic importance of cost-allocation, the legal constraints of state coordination, and the balance of power between federal, regional, and state authority.

The team as a whole completed each analysis so that each state was represented during discussion. While this is true, I was the main contributor to the State Process Analysis and the Mapping of Regional Tensions, conceptualizing how this information would be aggregated, distilled, and communicated. This work is represented in a number of graphics, but most thoroughly in the Analysis Discussion section of the report. Each team member was responsible for drafting the outline of 2-4 policy options so that their scope could be understood for evaluation.

I conducted the background research on evaluation criteria that have a history of being used for policy analyses that address issues of public goods. This research helped inform the team discussion and refinement of what evaluation criteria were suitable for this analysis. The group jointly evaluated each policy option qualitatively and quantitatively (on a discreet, non-additive scale) and included this as a report appendix. Further joint evaluation explored the trade-offs, the anticipated response of *energy exporting* and *energy importing* states, and which stakeholder groups would benefit or lose from each policy option. Upon completion of the evaluation, the

other members of the group drafted the Policy Recommendations and Conclusion section, except the Future Applications and Future Research subsection, of which I was an equal contributor.

LEADERSHIP CONTRIBUTIONS

Our team established informal individual roles before research began to help guide our process. We did not select a formal team leader, but instead a time-manager, editor, and visionary – the role to which I was assigned. This role manifested itself in many ways including the drafting of the original report scope and outline. Because of my interest in facilitation, ability to communicate visually, and my visionary role, I led all team meetings as well as client meetings. This manifested itself in me recording all content from group discussions, evaluations, and analysis. As the project developed, this role grew into a *de facto* Project Manager role as I took responsibility for tracking tasks needing attention, timelines for completion, and identifying the party(ies) responsible. I also took the lead in communicating with Professor Wilson (capstone faculty) and sending draft and final versions of the report to our clients.

Beyond formal leadership, I was responsible for most of the graphics presented in the report (see *Table 1* for exceptions). I took responsibility for conceptualizing them, producing them, and editing them throughout the course of the project development. I was also responsible for formatting the body of the report, organizing endnotes and footnotes, and completing assembly (cover, graphics, body, and appendices) for all drafts except the first draft.

FINAL PRESENTATION

As I had been responsible for the visual presentation of the report until this point and my familiarity with document software, I was the sole creator of the final presentation. I created the original outline, reviewed it with the group, reviewed the draft version with the group and Professor Wilson, and made final revisions. The group was pivotal in helping weave all of the main themes together succinctly throughout the presentation, as we drafted the order of the message and the talking points.

Erik Sowers and I presented the slide presentation to the client while Chet Bodin offered support through feedback on our practice presentations and was responsible for drafting responses to questions that the group anticipated from the client, particularly in the areas of siting coordination, the scope of some of our policy options, and final recommendations. During the discussion with the client following the report, all three group members fielded questions and presented responses. A small number of final revisions were requested by the client, for which we each took a part. During the final week of revisions, Erik Sowers and I were responsible for revising our policy recommendation selection. Additionally, I made one of two major copying editing reviews and addressed the list of comments raised by the client while reviewing the report before the presentation.

Table 1. Summary of Contributions Made by Megan Hoye

Written Components	Contributions		
	ALL	MAJOR	MINOR
Table of Contents	■		
Executive Summary		■	
Introduction	■		
Background	■		
Methodology			■
Siting Processes & Practices		■	
Case Study 1			■
Case Study 2	■		
Discussion of Analysis		■	
Policy Options		Equal	
Criteria & Evaluation		Equal	
Policy Recommendations & Conclusion			■
Appendix C	■		
* Sections not listed are those to which I did not contribute actual writing.			
** Responsible for all WI and SD content in appendices			
Graphical Components	Contribution Type		
Figure 1. MISO MVP Lines	None		
Figure 5. Arntein's Ladder	None		
Figure 6a. Illinois Timeline	Original formatting		
Figure 6d. Iowa Timeline	Original formatting		
Table 3. Interstate Coordination	Production only		
Table 4. Summary of Stakeholder Groups	Refined formatting		
Table 5a. Stakeholder Scope of Interest	Refined formatting		
Table 5b. Stakeholder Scope of Entry	Refined formatting		
* I was the complete producer of all graphics except those noted below.			
** Created all Stakeholder Winner/Loser charts in Evaluation section			

GLOSSARY AND ABBREVIATIONS

Congestion: When existing transmission lines to not able to carry the quantity of electricity across the grid that is currently being demanded causing frequent, but sometimes unnoticeable power outages within a given region or local area.

Cooperative: a not for profit organization that provides electric utility services to members and member organization. Cooperatives were started in the 1930's in rural areas because other utility companies did not see servicing these areas as profitable.

Hedonic Pricing Model: a model for understanding how different property characteristics contribute to its overall value. Models are developed by compiling vast amounts of geographic data with specific information about attributes, such the presence of water features, forests, topographical variation, or presence of structures like transmission lines. This information is loaded into a complex regression equation, which determines the relative contribution each feature contributes to (or diminishes) property value.

Investor Owned Utility: (IOU) a privately owned business that offers electric utility services that is subject to government regulation

Municipal Utility: (MUNI) a utility owned by a city or other municipality that supplies electric utility services to its residents

Restructured: a market in which electricity generators, and or transmission companies, compete with each other instead of having their rates regulated by the government. There are varying degrees of restructuring amongst deregulated states.

Retail Rates: the price at which an end-user or consumer purchases electricity. This will often vary between residential, commercial, and industrial customers.

Wholesale Rates: the price at which a transmission company or local utility company buys electricity from a generator for further distribution and sale to retail customers.

Vertically Integrated: a utility company that owns electricity generation, transmission, and distribution. This contrasts from individual utilities/companies owning each of these components separately and generators and transmission developers selling electricity wholesale to distributors.

Abbreviations

ACP: Alternative Compliance Payment

ARES: Alternative Retail Electric Suppliers

FERC: Federal Energy Regulatory Commission

MISO: Midwest Independent System Operator

MTEP: MISO Transmission Expansion Plan

MVP: Multi Value Project, a portfolio of projects designated by MISO

NERC: North American Electric Reliability Corporation

NETL: National Energy Technology Laboratory

OMS: Organization of MISO States

PUC/PSC: Public Utility/Service Commission

REC: Renewable Energy Credit

UMTDI: Upper Midwest Transmission Development Initiative

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