2009

COMMITTEE ON NATURAL RESOURCES

NEBRASKA LEGISLATURE

LR 83

Interim Study Report

Interim Study Relating to Expanded Development of Wind Energy in Nebraska

ONE HUNDRED-FIRST LEGISLATURE

FIRST SESSION

NATURAL RESOURCES COMMITTEE MEMBERS

Senator Chris Langemeier, Chairman
Senator Annette Dubas, Vice-Chairwoman
Senator Tom Carlson
Senator Tanya Cook
Senator Deb Fischer
Senator Ken Haar
Senator Beau McCoy
Senator Ken Schilz

LR 83

NATURAL RESOURCES COMMITTEE
DECEMBER, 2009

I. LEGISLATIVE RESOLUTION 83

II. MEMORANDUM, SENATOR CHRIS LANGEMEIER, CHAIRMAN

III. COMMITTEES

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V. COMMITTEE WORK

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ONE HUNDRED FIRST LEGISLATURE
FIRST SESSION
LEGISLATIVE RESOLUTION 83

Introduced by Natural Resources Committee Langemeier, 23, Chairperson; Carlson, 38; Cook, 13; Dubas, 34; Fischer, 43; Haar, 21; McCoy, 39; Schilz, 47; Giese, 17; Gloor, 35; Hansen, 42; Pirsch, 4.

PURPOSE: To study issues relating to expanded development of wind energy in Nebraska, while preserving the ability of the state's unique public power system to continue serving the state with low-cost, reliable electricity. The study may use as a guide the National Renewable Energy Laboratory's report that focuses on the impact on renewable energy in Nebraska. This study shall, as a starting point of reference, based on U.S. Department of Energy findings, assume that a total of 7,800 megawatts of wind power would be consumed in or exported from Nebraska by 2030.

A task force comprised of individuals from the electric utility and wind energy industries will be convened by the committee to provide technical expertise and advice relevant to the study. An advisory group of all interested parties shall also be convened by the committee to review, advise, and make recommendations to the committee. The committee shall conduct a

study that includes, but is not limited to, the following topics:

1. The roles the state's public power utilities and private developers play in the generation of wind energy for consumption both in Nebraska and for export.

2. The role of the Nebraska Power Review Board in approving renewable generation and transmission projects.

3. The current status of the eminent domain power of utilities and the policy changes, if any, that would be necessary for public and private wind energy development.

4. The process for planning, constructing, operating, and financing generation and transmission facilities in the state and region and changes that may be required.

5. The land use, including leases and contracts on public and private lands, and environmental impacts of developing wind energy, including transmission needs.

6. The financial benefits and risks that will affect Nebraskans due to the expansion of wind energy for consumption and export and how the benefits could be maximized while at the same time minimizing the risks to ratepayers and taxpayers.

7. The content and status of the legislative bills related to renewable energy and public power that were introduced in the One Hundred First Legislature, First Session.

NOW, THEREFORE, BE IT RESOLVED BY THE MEMBERS OF THE ONE HUNDRED FIRST LEGISLATURE OF NEBRASKA, FIRST SESSION:

1. That the Natural Resources Committee of the Legislature shall be designated to conduct an interim study to carry out the purposes of this resolution.

2. That the committee shall, on or before December 1, 2009, make a report of its findings, together with its recommendations, to the Legislative Council or Legislature.

MEMORANDUM

TO: NATURAL RESOURCES COMMITTEE MEMBERS
FROM: SEN. CHRIS LANGEMEIER, CHAIRMAN
DATE: DECEMBER, 2009
SUBJECT: LR 83

> The American Wind Energy Association (AWEA) has represented that policy barriers, not technical or economic barriers, are the main factors hindering construction of power superhighways.[1] According to AWEA, the existing grid could be used more efficiently through technology and coordinating regional transmission operations. Further, the regulatory structures in many states, including Nebraska, require regulators to consider the benefits to their citizens only when deciding whether to allow new transmission. A comprehensive plan is needed between the Western Interconnection and Eastern Interconnection to get to interstate interconnection.[2]

LR 83 was introduced to allow the Natural Resources Committee to bring all parties interested in wind energy together to undertake the significant task of creating a state policy that encourages wind development in Nebraska while ensuring preservation of the benefits provided under our unique public power system.

A great deal of progress has occurred over the past year regarding wind energy. The public utilities have worked towards their self-imposed renewable energy goals, numerous wind projects have started operating or are in the works, and committee members and other senators have received an extensive education about the generation and distribution of energy.

I assigned those who I considered to be technical experts in their respective fields to ten technical committees, divided by subject matter. I have attached a list of the technical committee members and subject areas.

I also assigned a larger list of individuals with a broad range of interests to an advisory committee to review the work of the technical committee. A list of advisory committee members is also attached.

At the beginning of the study, I asked each technical committee to complete a "white paper" on various topics related to the wind energy industry. The topics of those papers are listed below, and the links to the completed white papers are attached. The technical committees also prepared an additional assignment asking more specific questions. The assignment request and finished assignments are also provided in this report.

These documents were sent to members of the advisory committee with a request that they review each one and submit comments. Some of their responses are provided below.

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[1] "Green Power Superhighways, Building a Path to America's Clean Energy Future," American Wind Energy Association and Solar Energy Industries Association, White Paper, February, 2009, p. 1.
[2] Id at 3.

The issues are complex and require careful consideration due to the resulting policy implications. Also, we have to ensure our activities fit into the current national regulatory scheme. For instance under the Federal Energy Regulatory Commission (FERC), there are ten ISO/RTO organizations (Independent System Operators/Regional Transmission Organizations) that comprise the ISO/RTO Council. The Southwest Power Pool (SPP) is a member of the ISO/RTO Council, and provides transmission coordination for its members. The three largest providers of Nebraska public power, Nebraska Public Power District, Omaha Public Power District, and Lincoln Electric System, joined the SPP last year. The SPP also belongs to other organizations that collaborate on transmission and integration planning. We have learned that bringing in wind for export is not a simple task as all of these entities and their requirements must be considered as we plan for wind energy in Nebraska.

Many of those involved in this study have also been active in other activities involving wind. For example, the Nebraska Power Association recently finished its technical and detailed Statewide Integration Study, and members of AWEA (American Wind Energy Association) toured the state last year to educate Nebraskans on the potential benefits wind could bring to their communities. The participation of these people has been to our advantage.

Over the past six months, those involved in the study gave their time and resources towards providing a base of information on matters that are relevant only to Nebraska due to our unique public power-only system. The collaborative effort of the different interests has progressed towards a legislative proposal that would provide a procedure for the development of large-scale wind projects in Nebraska. The interested parties are working on a bill that will be introduced this session.

The work on this study will continue as there is still much to learn. The plan for the next steps will be laid out during the 2010 session.

Technical Working Group by Study Area

1. **Role of Public power utilities and private developers (technology, integration)**
    - Ron Asche, President & CEO of NPPD and
    - Gary Stauffer, Executive Director of NMPP
        - Gary Gates, OPPD
        - Jay Holmquist, NREA
        - Bruce Pontow, NE G&T
        - Max VanSkiver, South Central PPD
        - Clint Johannes, NPA Joint Planning Subcommittee
        - Jeff Anthony, American Wind Energy Association
        - Mike Donahue, Midwest Wind LLC
        - Paul Johnson, Res-Americas Inc.
        - Aaron Peterson, Juwi Wind US Corp.

2. **Land Use/Sighting Leases and Contracts/Eminent Domain (decommissioning)**
    - Steve Bruckner, Fraser Stryker, General Counsel for OPPD
        - NPA Lawyers Subcommittee
        - John McClure, NPPD General Counsel
        - David Levy, Baird Holm LLP

3. **Land Use/Real Estate/Transmission Needs**
    - Marc Nichols, Division Manager Sustainable Energy OPPD
        - NPA Joint Planning Subcommittee
        - Dave Rich, NPPD
        - Steve Boyer, Third Planet Windpower
        - Mark Jacobson, Invenergy LCC

4. **Role of Power Review Board**
    - John McClure, General Counsel NPPD
        - NPA Lawyers Subcommittee
        - Charlie Humble, Erickson Sederstrom Law Firm
        - Tim Texel, NE Power Review Board
        - Lou Lamberty, Olsson and Associates
        - Jay Holmquist, NREA

5. **Land Use Environmental (renewable standards)**
    - Joe Citta, NPPD Environmental Manager
        - NPA Environmental Subcommittee
        - Ken Winston, Sierra Club

- Gretchen Dolson, HDR Engineering

6. Transmission Planning, Constructing, Operating and Financing (exportation, integration)

- Paul Malone, Transmission Strategies & Planning Manager for NPPD
- Jay Caspary, Southwest Power Pool
- Clint Johannes (to coordinate between transmission and generation)
    - NPA Joint Planning subcommittee
    - Bruce Merrell, LES Manager of Resource and Transmission Planning
    - Larry Ciecior, OPPD Transmission Planning
    - Michael Goggin, American Wind Energy Association
    - Alan Myers, ITC Great Plains
    - Andy Pollock, Rembolt Ludtke

7. **Generation Planning, Constructing, Operating and Financing**

- David Ried, Division Manager Energy Marketing and Trading for OPPD
- Clint Johannes (to coordinate between transmission and generation)
    - NPA Joint Issues Planning subcommittee
    - Bruce Merrell, LEC
    - Larry Ciecior, OPPD
    - David Gardels, Husch Blackwell Sanders LLC
    - Mark Jacobson, Invenergy LLC
    - Reed Bartels, Tradewind Energy
    - Laurie Mazer, BP alternative Energy

8. Financial Benefits and Risks (taxes, incentives, C-BED)

- Rich Andrysik, Rates and Forecasting Manager for LES
    - NPA Rates Subcommittee
    - Jay Anderson, OPPD
    - Phil Euler, MNPP
    - Traci Bender, NPPD
    - Lyle Kinley, Deloitte
    - Charles Ziese, First National Bank
    - John Wiechmann, Kutak Rock LLP
    - Gregg Yeutter, Kutak Rock LLP
    - Larry Johnson, NE Trucking Association

9. Economic Development (green job market)

- Roger Christianson, Manager Economic Development for OPPD
    - NPA Subcommittee
    - John Bourne, IBEW
    - Jessica Kolterman, Farm Bureau
    - Mike Bruening, Omaha Chamber of Commerce

- Peder Hansen, Northstar Wind Towers
- Darrell Lehmann, Katana-Summit LLC
- Adam Herink, Boyd Jones Construction Company
- Chris Chorba, Union Pacific Railroad

10. Legislative Issues (federal activity, renewable standards, State Energy Office)

- Kristen Gottschalk, Government Relations Director for NREA, Chair of NPA Legislative Subcommittee
  - Rich Lombardi, American Wind Energy Association
  - NPA Legislative Subcommittee
  - Han Detweiler, American Wind Energy Association
  - Neil Moseman, NE Energy Office

Advisory Group

This is a broad group of individuals and organizations that have an interest in wind energy development. Members will be asked to review the output of the Technical Working Groups.

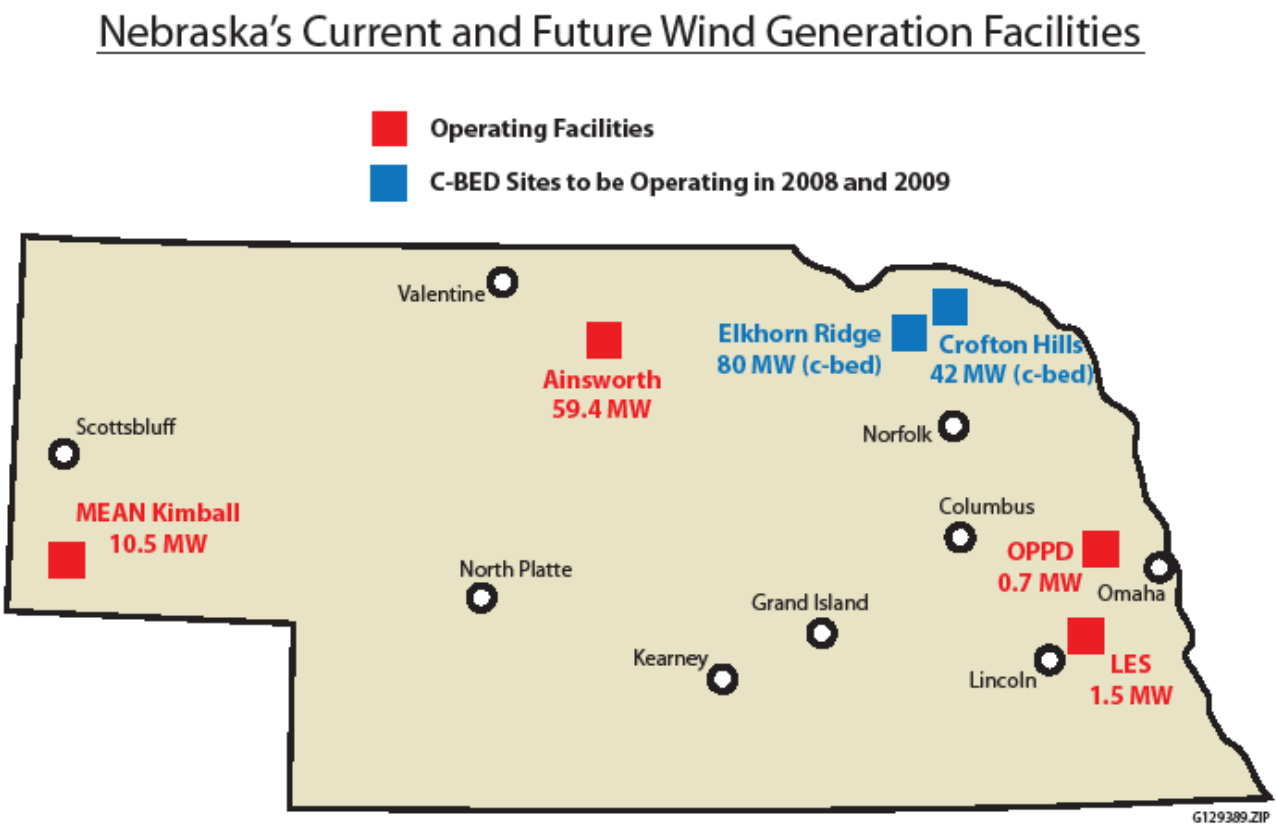
NAME	REPRESENTING
Abbott, Chris	
Aksamit, Gary	Pegasus Power, Inc.
Alberts, Dan	Third Planet Wind
Anderson, Alan	Husch Blackwell Sanders
Anderson, Tim (CNPPID)	NE Power Association
Bahnsen, Karen	Banner County Wind Energy Assoc.
Bargen, David	Rembolt Ludtke
Bell, David (Loup PD)	NE Power Association
Chaffin, Lash (League)	NE Power Association
Chavez-Ramirez, Felipe	Platte River Whooping Crane Trust
Christensen, Graham	
Cunningham, George	NE Wildlife Federation
Cutsor, Billy	MEAN-NPA
Dennis, Ginette (Tri-State GT)	NE Power Association
Dibbern, Chris (NMPP)	NE Power Association
Dittrich, Keith	
Dix, Larry	NE Association of County Officials

Doose, LeAnne (SNPPD)	NE Power Association
Dukesherer, James	NE Rural Electric Assn
Eveans, Steve	Windrow Energies LLC
Fox, Andrea	City of Omaha-Mayor
Frager, Jim	Genesis Renewable Systems
French, Lynn	
Frost, Wayne	
Gangwish, Duane	NE Cattlemen
Geisert, Nathan	Rural Electric Utility
Girthoffer, Garner	NE Department of Rev.
Glerum, Rolf	
Graham, Mark	NE Power Review Bd.
Hack, Mace	Nature Conservancy
Hallstrom, Bob	NE Bankers Associtation
Hansen, John	NE Farmers Union
Harding, Mary	League of Conservation Voters
Hayek, Darrel	Saline County Wind Assn.
Hedman, Gary (SNPPD)	NE Power Association
Hoke, John	Niobrara Valley EMC
Hovorka, Duane	NE Wildlife Federation
Hudgins, Jerry	Electrical Engineering Department, UNL

Jacobson, Mark	Invenergy LLC
Keim, Dennis	
Knapp, Ray	
Knott, Ross	Petersburg State Bank
Knotwell, Jim	
Kuehn, John	Hastings College
Kuhl, Art	
Langan, Marian	Audubon Nebraska
Liliedahl, Bob	
Mazour, David (Tri-State GT)	NE Power Association
McCollister, Anne	Interfaith Power and Light
McCormick, Robert	CNPPID
McCoy, Tim	Game and Parks Commission
Mehring, Don	
Momsen, Scott	
Morrill, Connie	
Nelson, Rick	Custer Public Power District
Olsson, John	
Pollard, Kevin (Norris)	NE Power Association
Reiber, Ryan	Panhandle REA
Rippe, Dave	NE Department of Economic Development

Rosacker, David	Rosacker & Associates LLC
Rudloff, Thomas	Elkhorn Rural Public Power District
Sarchet, Mike	NE Wildlife Federation
Savage, Dave	RES Americas Inc.
Schaefer, Matt	Rembolt Ludtke
Schafer, Andrea (Norris)	NE Power Association
Simpson, Ryan	Van Wall Energy
Srivastav, Piyush	NE Air Quality Specialties LLC
Sunderman, Tom	DOR District Representative
Swigart, Carol	
Tobias, Mike	NET
Umberger, Larry	Midwest Electric Cooperative Corporation
Van Buskirck, Mike	
Vavra, David	Saline County Wind Assn
Walters, Rich	
Wehling, Ed and Maxine	
Wiedenman, Martin	Windrow Energies LLC
Wood, Lynnette	
Young, Joseph	
Zimmerman, James	

Wind Projects in Nebraska:
http://www.neo.ne.gov/statshtml/89.htm



White Papers

1. The roles the state's public power utilities and private developers play in the generation of wind energy for consumption both in Nebraska and for export.
2. The role of the Nebraska Power Review Board in approving renewable generation and transmission projects.
3. The current status of the eminent domain power of utilities and the policy changes, if any, that would be necessary for public and private wind energy development.
4. The process for planning, constructing, operating, and financing generation and transmission facilities in the state and region and changes that may be required.
5. The land use, including leases and contracts on public and private lands, and environmental impacts of developing wind energy, including transmission needs.
6. The financial benefits and risks that will affect Nebraskans due to the expansion of wind energy for consumption and export and how the benefits could be maximized while at the same time minimizing the risks to ratepayers and taxpayers.
7. Economic development and potential benefits of wind power in Nebraska.

NEBRASKA POWER ASSOCIATION

LR 83 White Paper Topic 1

"The roles the state's public power utilities and private developers play in the generation of wind energy for consumption both in Nebraska and for export."

Role of Public Power Today

Nebraska is the only totally public power state in America. Nebraska's public power utilities are not-for-profit. They provide a low-cost, reliable, and essential service to the citizens of the state. Nebraska's utilities put customers – not stockholders – at the forefront of decisions.

Nebraska's electric utilities are controlled by publicly elected public power boards, rural electric cooperative boards, and elected or appointed city council representatives. Public power board directors and council members understand that their most important responsibility is to serve the needs of their constituents. These governing representatives set policies, rates, budgets, and service standards. Regularly scheduled meetings of utility boards and councils are open to the public. Public participation and comments are welcomed.

There are 167 independent, publicly owned electric utilities in Nebraska. Less than one-third of these generate all or some portion of the electricity needed by their consumers and also distribute that electricity at retail to those consumers. Others, like Nebraska Public Power District (NPPD), have substantial generation resources that serve not only their own retail customers but also serve many other utilities at wholesale. Approximately 100 electric utilities in the state do not own generation facilities and only distribute electricity at retail to their consumers. They purchase the electricity needed by their consumers at wholesale from other utilities under contracts that may prevent them from buying power from other utilities or generating a significant amount of their own electricity.

The role of public power is to provide low cost, reliable electricity for the ratepayers of Nebraska. Today, Nebraska's average electric rates are the 5th lowest among all 50 states and millions of dollars are invested annually to maintain and upgrade utility infrastructure. The low cost of electricity is a benefit to the citizens of the state and a significant contributor to economic development.

There are fundamental reasons electric rates are lower in Nebraska. Locally elected boards and councils consider the needs and costs to consumers when approving purchases and electric rates. In addition, the Nebraska Power Review Board (PRB) has historically been required by Neb. Rev. Stat. §70-1014 to base its approval of new generation facilities and transmission lines on necessity, cost, and non-duplication of facilities.

This policy was modified in 2003 to allow the Power Review Board to approve applications filed by the state's publicly-owned utilities to construct small (10 megawatts and smaller) renewable generation facilities without having to find that the project is the lowest cost alternative and does not unnecessarily duplicate existing facilities. A much more significant change in this policy was enacted during the 2009 legislative session in LB 561.

Public power utilities build generation facilities and transmission lines primarily to serve their customers' maximum needs. The state's utilities generally have not built generation facilities or transmission lines in order to export power, although there have been projects involving contracts with participating utilities in other states which have resulted in sales of electricity on a regular basis to out-of-state utilities. In addition, surplus electricity which is not needed for immediate in-state use is regularly sold to out-of-state utilities, which provides financial benefit to Nebraska ratepayers. Although transmission lines are interconnected with other states for reliability purposes, they are not sized for the purpose of exporting large amounts of power out of the state.

Nebraska's power generation portfolio includes a diverse mix of resources including coal, nuclear, natural gas, diesel/oil, wind, hydro, and methane. This mix offers public power utilities the flexibility to draw upon a variety of resources, including the non-emitting sources such as nuclear, hydro, and wind. Currently, 152 megawatts of wind-powered generation exists in the state. Several projects, such as the ones near Ainsworth and Kimball are owned by public power utilities. The wind farm near Bloomfield is owned by private developers, but the generation output of the facility is purchased by NPPD under a 20-year Power Purchase Agreement.

NPPD and the Omaha Public Power District (OPPD) have implemented goals to produce 10% of their energy needs from new renewable resources by 2020. This would amount to approximately 400 megawatts of primarily wind energy for OPPD and approximately 530 megawatts of primarily wind energy for NPPD. It is of utmost importance the utilities' power generation portfolios continue to include a diversity of resources. New generation resources will need to be added in a reasonable and prudent manner.

The development of wind energy provides a hedge against the risk of rising fuel costs and/or carbon tax or caps. Wind energy requires no fuel or water and has no emissions or waste. In addition, wind generation provides income to landowners (economic development in rural Nebraska) and to investors.

Incentives to build renewable resources are significantly greater in areas surrounding Nebraska, and are reflected in larger wind developments constructed in other states. Public power utilities do not qualify for Federal Production Tax Credits (PTCs), or recently expanded tax credits or grants, and Nebraska has not implemented state tax credits for renewable resources or corresponding incentives, for public power, such as are available in neighboring states like Iowa. Most states that are leading the nation in wind-powered generation do so on a subsidized basis. Iowa utilities, for example, have the benefit of nearly 3.5 cents per kilowatt-hour credit, due to federal and state tax incentives and sales tax exemptions. This equates to a 45 percent subsidy of wind development not available to Nebraska utilities.

For many years, Congress funded the Renewable Energy Production Incentive (REPI) for not-for-profit utilities. Although this program initially was funded at a level to be equivalent with Production Tax Credits, the appropriation remained the same, at $5 million annually, resulting in paying less than 20% of PTCs. The Department of Energy has zeroed out the REPI program as part of President Obama's 2010 fiscal budget.

More recently, Congress has approved funding of Clean Renewable Energy Bonds (CREBs). The concept of CREBs is that a public entity could use "zero" interest bonds to finance their project. The challenges for public power are:

1. The application process is burdensome with no guarantee of funding;
2. The term of the bonds are significantly less than the life of the project resulting in higher annual payments;
3. The savings resulting in the use of CREBs (effective interest rate of 1.5% vs. 5% without CREBs) results in an incentive which is about half of the incentives available to private developers;
4. Only $800 million has been allocated for public power, severely limiting the number of projects funded; and
5. The recent credit crisis has resulted in a limited number of investors interested in purchasing CREBs, whereas PTCs have been modified to allow grants which can be utilized by any private investor.

Other barriers to wind development in the state include the lack of transmission lines in areas with the best wind sites, rate impacts, and potential environmental issues.

Nebraska's public power utilities are chartered to generate and deliver power to their customers reliably and at the lowest cost. While the state's utilities import and export power as needs and opportunities arise, it is outside their current business models to build merchant venture generation facilities or transmission lines for the sole purpose to export power to remote, out-of-state markets. Because Nebraska has significant potential for the development of wind powered generation, it could become an exporter of wind energy, provided the merchant power sales receipts provide adequate dollars to pay for wind generation plant construction and the required transmission, and help to minimize electric rates for Nebraska customers.

Role of FERC, SPP and RTOs

There is a growing debate at the regional and national levels on the need to enact federal legislation to require a national renewable electricity standard. At the same time there is a tremendous backlog of proposed wind generation interconnection requests that have been submitted to the Regional Transmission Organizations (RTOs), particularly the Southwest Power Pool (SPP) and the Midwest Independent System Operator (MISO), as well as utilities that have their own Open Access Transmission Tariffs (OATTs).

The great majority of these interconnection requests are waiting for transmission planning studies to be completed to determine what transmission expansion is required for interconnection. Most of the wind generation interconnection requests are by independent developers that do not have a power purchase contract with any customer, and the developers are normally not willing to pay for any significant transmission expansion that may be required. There is very little cost to the developers to submit interconnection requests, which has resulted in many speculative requests. The transmission system in Nebraska and the surrounding regions cannot currently accommodate large additions of new wind resources without significant expansion.

The Federal Energy Regulatory Commission (FERC) has jurisdictional authority over the RTOs and certain other utilities with OATTs. FERC has set forth the generator interconnection procedures and agreements, as well as requirements for coordinated transmission expansion planning between regions. FERC has required that wind interconnection requests be studied in the sequential order in which they were submitted, which has resulted in the significant backlog of requests. FERC has further prescribed how the transmission expansion costs are to be paid for due to new generation additions. (There is additional discussion of this in the "NPA White Paper Topic 4".) Proposed national legislation calls for providing FERC further authority to grant eminent domain for construction of transmission facilities and the authority to determine how to allocate costs for the transmission expansion to users of the transmission system.

NPPD, OPPD, and Lincoln Electric System (LES) joined the Southwest Power Pool (SPP) on April 1, 2009. As such, the transmission systems of these Nebraska utilities are now under the operational control of the SPP transmission tariff. SPP will conduct transmission planning studies for wind generation interconnection requests for the Nebraska utilities' transmission systems. Other utilities that own transmission facilities in Nebraska, such as Western Area Power Administration, Tri-State G& T, and certain municipalities have not joined SPP.

SPP has conducted a high level transmission study to determine what transmission expansion is required for large scale wind development. The study concluded that an entirely new transmission system, or overlay, operated at 765 kilovolts (kV) is required to interconnect the tens of thousands of megawatts of wind potential in SPP. The cost for this transmission expansion is estimated at approximately $8 billion. This estimate does not include costs for transmission expansion in Nebraska, as the study was being completed at the time Nebraska was joining SPP. The study did make some very preliminary assumptions about the transmission expansion required in Nebraska.

SPP has also been involved in another study with other regions that studied wind interconnection for most of the Eastern (United States) Interconnection. This study also concluded that an extensive network of new 765 kV transmission facilities is needed to interconnect the vast potential of wind resources throughout the central plains states for delivery to load centers in the eastern U.S. The estimated cost of this transmission expansion is $80 billion. This figure does not include lower voltage transmission and distribution lines and substations which will also be required to integrate wind-powered generation into the electric grid.

The most contentious issue to resolve may be how to allocate the cost for the transmission expansion. Many of the eastern states are now raising concerns about paying for the cost of transmission to deliver wind energy from the Midwest to the east coast. On May 4, 2009, governors of ten Northeast and Mid-Atlantic States sent a letter (see attachment) to Congress stating that east coast ratepayers could be negatively impacted by paying for Midwest renewables. They argue that they can develop renewable resources in their own states and regions.

What is required to build 7,800 megawatts of wind for use in Nebraska or for export?

As a starting point for the wind export discussion, 7,800 megawatts was identified in LR 83. This amount of wind-powered generation is nearly equal to all other existing generation resources combined in Nebraska. Cost estimates for building wind generation facilities are approximately $2.1 million per megawatt of capacity, for a total of approximately $16.38 billion for 7,800 megawatts. Although no detailed transmission study has been done to determine what transmission expansion is required in Nebraska, it is reasonable to use a preliminary estimate of $500,000 per megawatt. This would equate to $3.9 billion for the cost of transmission expansion in Nebraska. This does not include the costs of lower-voltage transmission and related infrastructure mentioned above to interconnect the wind generation resources to the 765 kV network.

For wind export projects to go forward, one of the most critical questions that will need to be answered is: “Who pays for this multi-billion dollar price-tag?” Another question to be answered is: “How will the benefits from these projects be shared and by whom--private wind developers, public power, or the citizens of the state?”

The total debt of the state's public power utilities today is approximately $5 billion. Due to the significant dollars required, public power will likely not be able to raise the capital needed to build these projects, as it could more than quadruple the Nebraska utilities' existing debt. Under current regulatory structures, public power utilities have long-term contracts with customers allowing for favorable financing terms. That is not the case for venture power plant construction intended for export to remote markets. In addition, public power does not receive federal or state financial incentives to make it feasible to engage in the wind for export business.

Before entering the wind export business, essential information will be required. First, is there a process whereby public power might receive financial incentives for merchant wind power plant investments equivalent to investor owned utilities? How much transmission will be required in Nebraska and nationally, and who will pay for it? Where is the market for wind-powered generation? Is it an exclusive market or will there be competition for the market? What is the long-term future of the market?

How Can Wind for Export be Accomplished?

The export of wind-powered generation will require: massive financial investment, significant time to site and build facilities and transmission infrastructure, changes to state statutes, and the development of a comprehensive plan. A comprehensive plan will be paramount to successful wind-powered generation export. The plan must determine:

- The market outside of Nebraska for wind energy and the long-term viability of that market;
- Best wind site areas;
- Process for siting transmission lines;
- Ownership of the transmission lines;
- Role of public power;
- Function of the Power Review Board;
- Costs – (who pays and who benefits);
- Rate impacts on Nebraskans;
- Eminent domain authority of public power to condemn private property for profit-serving facilities;
- Involvement of the Federal Energy Regulatory Commission, North American Electric Reliability Corporation, Southwest Power Pool, other Regional Transmission Organizations;
- Impact of county and city ordinances; and
- Responsibility of parties to remove retired turbines.

There are a variety of models that could be considered. For the magnitude of wind development contemplated by LR 83, several of these models, or variations thereof, are likely to be utilized. The potential models include:

- All public power;
- All private development and/or ownership;
- New State Entity; or
- Partnerships or combinations of models.

The complex issues of each model must be analyzed in detail to better understand the risks, obstacles, and benefits.

Conclusion

The electric industry in Nebraska commends the Natural Resources Committee for moving ahead with LR 83 and a comprehensive study of wind generation potential in Nebraska. In the future, wind energy for export may prove to be beneficial to the state. Prior to moving forward with wind for export, comprehensive policies need to be developed and the role of Nebraska's public power utilities will need to be determined. The Nebraska Power Association looks forward to the opportunity to work with the Legislature, the Governor, and the State Energy Office to move Nebraska forward in capitalizing on the state's wind resources. However, we advise caution and prudence in doing so.

Leaders of Nebraska's public power industry formed the Nebraska Power Association in 1980 to address industry-wide concerns and interests. This voluntary association represents all segments of the public power industry in Nebraska: municipalities, public power districts, public power and irrigation districts, rural public power districts and rural electric cooperatives engaged in generation, transmission or distribution of electric energy in the state.

NEBRASKA POWER ASSOCIATION

LR 83 White Paper Topic 2

"The role of the Nebraska Power Review Board in approving renewable generation and transmission projects."

History and Composition of the Power Review Board

The Nebraska Power Review Board (PRB) was created by the Nebraska Legislature in 1963. The PRB is required to have five members—an engineer, an attorney, an accountant, and two laypersons. Members are appointed by the Governor subject to approval by the Legislature. Members may not serve more than two consecutive four year terms. See Neb. Rev. Stat. §70-1003 (1) Currently the PRB has a staff of three including an Executive Director who is also General Counsel, a Paralegal and an Business Manager. The PRB has express, but limited authority regarding the state's unique public power system including jurisdiction over establishment of exclusive retail and wholesale service areas, approving the creation of and amendments to public power district charters, and the approval for acquiring or constructing certain generation and transmission facilities.

Prior to the establishment of the PRB in 1963, there was no independent state entity or statutory framework to regulate certain actions by electric utilities. During the 1950's, there was substantial growth in the demand for electricity as homes, businesses and agriculture added appliances and equipment that required electricity. The utility structure in the state then was much different than it is today, and there were on-going questions and controversies about who would build the necessary power plants to serve the growing electric loads. Electric infrastructure, especially power plants and high voltage transmission, is highly capital intensive. As a matter of public policy it was critical that adequate electric infrastructure be in place, but also important that the system not be overbuilt and duplicated which would saddle electric consumers with unnecessary costs. For more information on developments leading up to the PRB, see the Nebraska Legislative's L.R. 455 Phase I Study, Final Report, dated December 1997 Section 1.4, and Public Power in Nebraska, by Robert Firth (1962), especially Chapter XII.

As a result of the conflicts and confusion in the 1950's, legislation creating the PRB was passed in 1963. Throughout the 1950's, Nebraska had established itself as a low cost electricity state primarily due to its unique public power system. Consequently, it was not surprising to find the following public policy declaration at the beginning of the legislation establishing the PRB. Neb. Rev. Stat. §70-1001 states in part:

> In order to provide the citizens of the state with adequate electric service at as low overall cost as possible, consistent with sound business practices, it is the policy of this state to avoid and eliminate conflict and competition between public power districts, public power and irrigation districts, individual municipalities, registered groups of municipalities, electric membership associations, and cooperatives in furnishing electric energy to retail and wholesale customers, to avoid and eliminate the duplication of facilities and resources which result therefrom, and to facilitate the settlement of rate disputes between suppliers of electricity.

It is also important to understand that the regulatory regime that was established has been designed to regulate the unique public power system serving the State of Nebraska as is evident from the description of utilities in the section above. Public power utilities were created in Nebraska primarily to serve Nebraskans, not to serve customers outside of the state.

Current Approval Standard for Generation

Prior to constructing or acquiring generation facilities or transmission facilities carrying more than 700 volts, there must be an application filed with the PRB subject to certain exceptions described in Neb. Rev. Stat. §70-1012.

An applicant must prove to the Board that the facility "will serve the public convenience and necessity, and that the applicant can most economically and feasibly supply the electric service resulting from the proposed construction or acquisition, without unnecessary duplication of facilities." See Neb. Rev. Stat. §70-1014. Public convenience and necessity is a phrase frequently found in other states regarding the approval to construct electric generation and transmission facilities, as well as other public utility facilities. The meaning of the phrase has been addressed by the Nebraska Supreme Court which found that "what constitutes public convenience and necessity is primarily a fact question with a number of imponderables to be taken into consideration. The facts in each case must be separately considered, and from those facts, it must be determined whether public convenience and necessity require a given service to be performed." In Re Applications of Nebraska Public Power District 215 Neb. 8, (1983).

Approval Standard for Public Power Renewable Energy Projects

There are currently two exceptions to these requirements for obtaining approval of a generating facility, one of which is found in Neb. Rev. Stat. §70-1014.01. It addresses small scale renewable projects and states:

> An application by a municipality, a registered group of municipalities, a public power district, a public power and irrigation district, an electric cooperative, an electric membership association, or any other governmental entity for a facility that will generate not more than ten thousand kilowatts of electric energy at rated capacity and will generate electricity using solar, wind, biomass, landfill gas, methane gas, or hydropower generation technology or an emerging generation technology, including, but not limited to, fuel cells and micro-turbines, shall be deemed a special generation application. Such application shall be approved by the board if the board finds that (1) the application qualifies as a special generation application, (2) the application will provide public benefits sufficient to warrant approval of the application, although it may not constitute the most economically feasible generation option, and (3) the application under consideration represents a separate and distinct project from any previous special generation application the applicant may have filed.

Unlike the general requirement found in Neb. Rev. Stat. §70-1014, a special generation project can be approved "although it may not constitute the most economically feasible generation option." This particular exception is limited to smaller projects and is not available for renewable projects above 10 megawatts.

During the 2009 session of the Nebraska Unicameral, LB 561 was passed and signed by the Governor providing a second exception to the traditional "least cost" standard. LB 561 allows Nebraska's electric utilities to gain PRB approval of renewable energy projects up to 10% of the utility's annual, if the utility conducts at least one advertised public hearing on the project. The new law applies to public power and cooperative electric suppliers and to C-BED projects developed for one or more Nebraska electric suppliers. This law eliminates PRB review of cost issues up to the specified threshold.

Approval Standard for Future Renewable Generation

LB 561 will make it easier to for Nebraska's public power utilities to build or contract with C-BED developers to add renewable energy projects in Nebraska compared to the approval criteria currently found in Neb. Rev. Stat. §70-1014. However, LR 83 contemplates a much larger amount of renewable energy than LB 561 will accommodate. Since the focus of LR 83 is the development of a substantial amount of renewable generation by 2030 (essentially a doubling of the current nameplate generation in the state) additional statutory changes would need to be considered and adopted.

The current criteria that the PRB is required to use were designed to review projects intended to provide electric power to Nebraska wholesale and retail customers. It should not be surprising that these criteria simply do not lend themselves easily for use when reviewing applications for facilities that will produce and transmit power outside Nebraska, for use by non-Nebraska customers. This white paper does not propose specific alternatives since that is within the province of the study efforts, but does identify certain issues that may require assessment as part of the study process.

Summary

In summary, the current PRB statutes generally were designed to regulate the provision of electric service to Nebraskans by public power and cooperative entities. The regulatory regime does not contemplate export of power outside the state, especially as the primary purpose of constructing facilities. There are numerous examples of Nebraska generation and transmission facilities being used by non-Nebraska utilities, but the main reason for the construction of all power plants in the state's eastern interconnection has been the benefit to Nebraska electric customers.

Below are just some of the questions that should be analyzed as part of this section of the study:

A) What changes, if any, are required in the PRB statutes to allow Nebraska's public power and cooperative utilities to construct renewable energy projects and related transmission to support the export of renewable energy from Nebraska?
B) What changes, if any, are required to allow private developers or private utilities to construct renewable energy projects and related transmission to support the export of renewable energy from Nebraska?
C) What are the consequences for Nebraska's public power utilities and the customers they serve if private developers or private utilities begin developing renewable energy projects in Nebraska solely or primarily for export?
D) What changes, if any, are needed to obtain adequate public input regarding renewable energy projects and related transmission projects?
E) What criteria should be considered by the PRB in approving renewable energy projects that are primarily for export? For example, should there be a showing of an adequate market or adequate transmission to support the project?

Leaders of Nebraska's public power industry formed the Nebraska Power Association in 1980 to address industry-wide concerns and interests. This voluntary association represents all segments of the public power industry in Nebraska: municipalities, public power districts, public power and irrigation districts, rural public power districts and rural electric cooperatives engaged in generation, transmission or distribution of electric energy in the state.

NEBRASKA POWER ASSOCIATION

LR 83 White Paper Topic 3

"The current status of the eminent domain power of utilities and the policy changes, if any, that would be necessary for public and private wind energy development."

Nebraska Eminent Domain Law

The Nebraska Constitution and state statutes establish the power of eminent domain. The Nebraska Constitution provides that "[t]he property of no person shall be taken or damaged for public use without just compensation therefore." Under Nebraska law, the power of eminent domain is an inherent attribute of sovereignty and it exists independently of [the] Constitution. Constitutional provisions relating thereto are in no sense a grant but are a limitation upon the power. The constitutional limits on the power of eminent domain are the "public use" and "just compensation" requirements. Whether a use is public or private is a judicial question.

As a general rule, the measure of compensation for taking property for public use is the value of the land actually taken or appropriated, [and] also any depreciation in the value of the remainder of the tract caused by the construction work, excluding general benefits. Nebraska courts have established the burden of proving damages in condemnation cases. The general rule in condemnation cases is that the burden of showing the damages which the landowner or lessee will suffer rests upon him while the burden is on the condemner to show matters which tend to reduce or mitigate damages.

Nebraska statutes grant the power of eminent domain to public power districts, municipalities and electric cooperatives. Neb. Rev. Stat. Chapter 25, article 25 and Chapter 76, article 7 govern the procedure for condemning property by the state's public power entities and private utility companies. Chapter 19, Article 7, establishes the procedures for cities of the primary, first, or second class, or villages, to exercise the power of eminent domain with respect to certain public utilities.

Nebraska statutes permit public power districts to acquire, through the exercise of the power of eminent domain, all property that is reasonably necessary for a public use. The Nebraska Legislature passed LB 561 in the past legislative session. LB 561 permits public power districts to agree to limit the exercise of the power of eminent domain. LB 561 provides that a public power district "may agree to limit its exercise of the power of eminent domain to acquire a project which is a renewable energy generation facility producing electricity with wind and any related facilities." It does not apply to municipal electric utilities or electric cooperatives.

Public power districts may operate jointly and exercise their powers of eminent domain. Two or more public power districts may create a joint authority to plan, finance, develop, own, and operate a system or facility for the generation, transmission, and transformation of electric power. Joint authorities have the same power of eminent domain as the public power districts have under Neb. Rev. Stat. §70-670. Public power districts may also participate jointly or in cooperation with municipalities, other public agencies, electric cooperatives, and electric membership corporations and could jointly exercise the power of eminent domain.

Renewable Energy & Eminent Domain

The Community-Based Energy Development Act (C-BED) permits electric suppliers to agree to limit exercising their powers of eminent domain in certain circumstances. For purposes of C-BED, an "electric supplier" means "any legal entity supplying, producing, or distributing electricity within the state for sale at wholesale or retail." C-BED applies to new wind energy developments that meet certain statutory requirements. The C-BED statutes provide that an electric supplier "may agree to limit its exercise of the power of eminent domain to acquire a C-BED project which is a renewable energy generation facility producing electricity with wind and any related facilities if such electric supplier enters into a contract to purchase output from such facility for a term of 10 years or more."

In addition, LB 561, passed by the Nebraska Legislature in 2009, permits a public power district to "agree to limit its exercise of the power of eminent domain to acquire a project which is a renewable energy generation facility producing electricity with wind and any related facilities." Thus, public power districts would be able to agree to limit exercising the power of eminent domain with respect to *any* wind energy development, not just C-BED projects.

Although Nebraska law confers upon public power districts the power of eminent domain, it does not affirmatively mandate that public power districts use that power in every circumstance where it would be advantageous.

Current Law Makes Additional Eminent Domain Restrictions Unnecessary.

It appears that the limitations on the exercise of eminent domain in the C-BED statutes and LB 561 have eliminated the concerns of renewable energy developers regarding the risk of condemnation of their projects by Nebraska public power suppliers. The Nebraska Legislature allows public power districts to agree to limit exercising their eminent domain powers. Nebraska's C-BED law currently permits public power districts to agree to limit the exercise of the power of eminent domain with respect to renewable energy generation facilities that produce electricity with wind. LB 561 expands the ability of public power districts to agree to limit the exercise of the power of eminent domain. Thus, current law permits public power districts to agree to limit the exercise of the power of eminent domain with respect to renewable energy projects, making the need for additional restrictions questionable and unnecessary.

Further restrictions on public power districts' power of eminent domain are also unnecessary because of the vast protections provided by the Nebraska Constitution, statutes, and common law. The Nebraska Constitution requires a public use and the payment of just compensation if a public power district acquires private property through the exercise of eminent domain. This constitutional protection is self-executing. The Nebraska Constitution "prohibits the state from damaging property for public use without compensation. The Nebraska Constitution protects property rights from invasion by the state as well as the subdivisions of the state and corporations." Therefore, the Nebraska Constitution adequately protects wind energy developments from public power districts' exercise of eminent domain. Nebraska law already protects private property owners by requiring a public use, the payment of just compensation, an independent damage appraisal process, and good faith negotiations. Wind energy developments do not need additional special protections from public power districts' power of eminent domain.

Finally, Nebraska courts protect property owners by limiting the exercise of the power of eminent domain. The power of eminent domain may only be exercised "on the occasion, and in the mode and manner, prescribed by the Legislature." Nebraska courts strictly construe statutes that confer and circumscribe the power of eminent domain. By determining the property rights that are reasonably necessary for a public use, Nebraska courts limit the extent of property rights that may be acquired through the exercise of eminent domain. Because Nebraska courts strictly construe and limit statutes authorizing public power districts to exercise the power of eminent domain, special protections for wind energy developments are unnecessary.

Conclusion

Nebraska's constitutional, statutory and common law already provide substantial protections to private property owners, including wind energy developments. The Nebraska Constitution requires a public use and the payment of just compensation for property to be acquired through the exercise of the power of eminent domain. Nebraska statutes mandate that the public power entities attempt to purchase property through good faith negotiations prior to exercising the power of eminent domain. Nebraska statutes also require that the value of condemned property be independently appraised.

The concerns relative to the power of eminent domain and private wind energy development have been essentially eliminated by the C-BED legislation and by LB 561 that was passed by the Legislature in May and signed into law by Governor Heineman.

Leaders of Nebraska's public power industry formed the Nebraska Power Association in 1980 to address industry-wide concerns and interests. This voluntary association represents all segments of the public power industry in Nebraska: municipalities, public power districts, public power and irrigation districts, rural public power districts and rural electric cooperatives engaged in generation, transmission or distribution of electric energy in the state.

NEBRASKA POWER ASSOCIATION

LR 83 White Paper Topic 4

"The process for planning, constructing, operating, and financing generation and transmission facilities in the state and region and changes that may be required."

Planning

The 7,800 megawatts (MW) of wind generation is equivalent to approximately 87% of the generation capacity now available to Nebraska while increasing the energy production available to Nebraska by about 68% (compared to current approximate 9,000 megawatts (MW) and 40,000 gigawatt-hours). With forecasted growth rates of approximately 2% per year, the addition of 7,800 MW of wind over the next 20 years will result in a significant surplus of energy production. This will require significantly reducing the output of existing generating plants or locating and contracting with export markets outside Nebraska.

Current state statutes require that prior to construction of any generation facility, including a wind generation project, the owner must obtain approval from the Power Review Board (PRB). There is an option available for proposed generation of 80 MW or less under the federal Public Utility Regulatory Policies Act (PURPA) that, if exercised by the generation owner, would preempt PRB approval. However, wind projects over 80 MW are not eligible for the PURPA option and must obtain PRB approval.

During the 2009 session of the Nebraska Unicameral, LB 561 was passed and signed by the Governor providing a second exception to the traditional "least cost" standard. LB 561 allows Nebraska's electric utilities to gain PRB approval of renewable energy projects up to 10% of the utility's annual, if the utility conducts at least one advertised public hearing on the project. The new law applies to public power and cooperative electric suppliers and to C-BED projects developed for one or more Nebraska electric suppliers. This law eliminates PRB review of cost issues up to the specified threshold.

Additional discussion of the PRB's role in approving generation can be found in the Topic 2 white paper also submitted by the Nebraska Power Association (NPA).

The planning for significant new generation also requires transmission planning and determination of cost recovery. The planning process for interconnecting wind generation to the transmission system is established through the Federal Energy Regulatory Commission's Large Generator Interconnection Procedures and it is regulated through mandatory compliance with the North American Electric Reliability Corporation (NERC) Planning and Operating Standards.

These NERC Standards establish the requirements for maintaining the reliability of each of the North American interconnected transmission systems. Any new proposed wind generation interconnection must not degrade the reliability or operating flexibility of the existing power system and it must comply with all NERC and regional reliability criteria.

The transmission planning process must also accommodate coordinated joint studies and plans with other affected interconnected systems. These planning processes are very robust as the reliability of the interconnected transmission grid cannot be compromised and it is considered an issue of national security.

With respect to adding 7,800 MW of new wind power in the state of Nebraska, the SPP generator interconnection procedures and NERC Standards must still be adhered to in order to maintain the integrity of the transmission system. The fundamental transmission planning process must still be followed, but the scope would need to be expanded significantly to include all of the numerous other external systems impacted by the interconnection and export delivery of much of the 7,800 MW of wind generation into other states and regions. Extensive transmission facility additions would be required to interconnect this magnitude of wind in Nebraska and additional transmission facilities would be required in neighboring states and the region to facilitate the delivery of this wind generation to major load centers and export markets. In addition to the development of new high-voltage interstate transmission facilities, additional lower voltage transmission systems within Nebraska would need to be constructed to support the high-voltage network.

An expansive coordinated transmission plan is critical to integrating this amount of new wind generation and still maintaining the reliability of the interconnected transmission network. This planning process must include representation from all impacted transmission owners, planning authorities, and regional transmission organizations. For example, the planning and cost allocation procedures applicable to the development of Nebraska's extra high voltage transmission system would be an intricate part of the Southwest Power Pool (SPP) transmission planning process.

Nebraska utilities are SPP members and cannot independently plan transmission. Members of SPP cannot enter into specific agreements to recover the costs for transmission facilities. Rather, members are required to use the SPP planning process and the rates, terms, and conditions of operation under the SPP tariff. The standard formula provides that all or part of the cost of the transmission upgrades will be blended with SPP's existing transmission system costs and recovered in rates that are the same for all load. A portion would be paid by all members of SPP and a portion would be paid by loads in the zone in which the load is located.

However, in the case of wind generation it is also possible that the customer/owner would be "directly assigned" some of the cost. If SPP deems that all or part of the facilities be handled as direct assignment facilities, the customer would sign an agreement with SPP agreeing to pay for those facilities separately. This direct assignment charge would be over and above the standard average transmission rate. It is the SPP tariff studies group that develops the criteria and performs studies of the generation requests to make this determination.

SPP is considering some new tariff language that relates specifically to wind generation transmission upgrades. The language has yet to be approved. The current proposal is as follows:

> "If the wind generation upgrade qualifies as a Base Plan Upgrade and is a designated resource (which it probably would be) and the load and the resource are in the same zone then 33% is paid for by all users of the SPP system and 67% will be paid through the zonal rate based on MW mile impact. For wind generation where the resource and load are not in the same zone, then 67% of the cost of the upgrade will be included in the region-wide rate and 33% will be *directly assigned* to the customer/owner."

Constructing

The lead time to construct a transmission line is on the order of four years whereas a wind plant can be constructed in about one year. In either case, if there are massive expansion programs going on across the region, the availability of equipment, materials and labor can become problematic.

Topography, land use and proximity to population centers are all determining factors in constructing wind resources. Much of Nebraska's best wind is located in areas fairly remote from population and load centers. So collector and transmission systems will be needed to deliver the power to Nebraska load centers. Beyond that, much of the export will need to be delivered several states away over new and upgraded systems in those states.

At the wind farm, the individual turbines now are typically 3 MW each, which computes to approximately 2,600 turbines to achieve development of 7,800 MW of wind. The last wind farm installation contained 27 turbines for 80 MW. One picture of the 7,800 MW concept would then be 97 new wind farms each with 27 turbines.

The turbines are usually placed out in the open on ridge lines to maximize the wind effectiveness and require connecting rights-of-way for road and cable to each turbine. The wind generation is collected and brought to the wind plant substation and then connected to a nearby transmission line.

Construction and operation requires a certain class of roads in order to deliver the very large turbine parts and cranes for assembly and repair. Routine maintenance crews need to be stationed nearby.

Land use dedicated to the wind farms producing 7,800 MW amounts to approximately 800,000 acres under lease and 42,000 acres disturbed.

Operating

The key problems with operating wind generation stem from its variability and uncertainty. Energy has to be generated on demand of the customers whereas production capability is usually scheduled a day ahead of time.

Because the wind speed cannot be well forecasted a day ahead, the rest of the system must adjust for these undesirable wind characteristics which are accentuated by the physical laws. Wind generation output varies generally by the cube of the wind speed. For example, it is expected that a day-ahead wind speed forecast error could lead to a day-ahead wind generation forecast error of up to 3,000 MW, being either high or low. The total range from minimum to maximum operating level for all the on-line coal plants dedicated to Nebraska is approximately 2,500 MW. These "problems" of system adjustment will need to be "exported" to larger generation and load areas, along with the surplus electric energy.

NPA is well along to completing a wind integration study with partial funding from the National Renewable Energy Laboratory (NREL), which is described at www.nepower.org/wind_study.asp. In this study, penetrations of 10%, 20%, and 40% measured by energy are being studied based in the 2018 time frame. At 40%, the amount of wind being represented is 4,727 MW. The study objectives include applying the best study practices for the assessment of wind's impact in the different time scales from immediate to longer time frames (i.e., regulation, load following, and unit commitment/scheduling) using high-quality wind speed and/or wind power data. The study uses detailed and voluminous wind speed calculations made by NREL for many specific locations across the state of Nebraska. Besides estimating these impacts, the study examines potential system changes to accommodate wind generation such as hydro flexibility, wind generation capacity value, hydro-pumped storage, other generation for backup and adjustment, and power market participation.

Financing

An estimate of the capital cost to construct 7,800 MW of wind generation, transmission, and substation facilities is roughly $20 billion in today's dollars. This assumes at least $2,100/kW for installed turbines and $500/kW for transmission facilities for in-state and out-of-state delivery. This would represent a per capita investment of over $11,000, so it would likely need significant investment from outside of Nebraska.

Private Use - The Internal Revenue Service limits tax-exempt entities, including public power and cooperative utilities, from using tax-exempt funds to construct facilities for the sole and long-term use by taxable entities, which most electric utilities are, beyond a 10% share of the facility output. Public power could, however, use taxable bonds and still maintain its tax-exempt status. Other options for wind development would be for public power to construct with cash, sell the power to tax-exempt entities only, or allow that the construction be done by private developers.

Clean Renewable Energy Bonds (CREB) – Federal legislation was passed in 2005 to allow qualifying utilities, like public power, to invest in clean renewable projects and issue interest-free bonds. The legislation capped the amount allocated to this program at $800 million per year, and was only available to finance very small projects. The American Recovery and Reinvestment Act of 2009 increased the volume cap to $2.4 billion where public power will have access to $800 million. The new CREB funding will be awarded on a pro-rata basis. However, new CREB financing is subject to labor standards of Chapter 31, Title 40 of the US Code which includes Davis-Bacon wage rules. Another disadvantage of new CREB financing is that bondholders will only receive a 70% interest subsidy requiring CREBs to offer a low interest rate to bondholders.

Federal Tax Credits – The Production Tax Credit (PTC) of approximately $21/MWh for wind generation is only available to taxable entities, not including public power. The American Recovery and Reinvestment Act of 2009 extended the Investment Tax Credit (ITC) to wind projects. The ITC is only available to taxable entities and can be monetized within 60 days as a grant from the Department of Energy.

Federal Renewable Energy Production Incentive (REPI) – This program also provides approximately $21/MWh to tax-exempt entities for producing qualifying renewable energy; however, total funding is limited to $5 million per year. This means that it will only cover about 700 MW nationwide, assuming all is wind capacity operating at 40% on average. Annual REPI subsidies to Nebraska wind projects have been reduced to less than 1/3 of anticipated amounts, and are proposed to be zeroed out in President Obama's budget.

State Tax Credits – Provisions in the Community-Based Energy Development (C-BED) statutes offer a sales tax exemption on wind facility equipment to C-BEDs in Nebraska. Other states offer tax incentives and/or Renewable Energy Credit bonuses to encourage in state development, but Nebraska has no incentives or tax credits for its public power and cooperative utilities. This puts Nebraska at a disadvantage for wind energy development. Many states in the region are ahead of Nebraska in the development of wind resources, primarily due to the subsidies that have been provided.

Summary

The NPA believes all four elements of the process listed--planning, construction, operations, and financing--will need careful and significant changes in order for Nebraska to transition to the scenario under study.

Additional background information and detailed discussion from the NPA regarding wind energy development can be accessed at the NPA website www.nepower.org. Documents on this website include: "NPA Energy Policy Principles" at www.nepower.org/energy_policy_principles.pdf, "Renewable Energy Background and Outlook for Nebraska Electricity Consumers: A Reference Document by the NPA" at www.nepower.org/NPA%20Report.pdf, "Wind Power in Nebraska" (brochure) at www.nepower.org/windBrochure.pdf, among other documents.

Leaders of Nebraska's public power industry formed the Nebraska Power Association in 1980 to address industry-wide concerns and interests. This voluntary association represents all segments of the public power industry in Nebraska: municipalities, public power districts, public power and irrigation districts, rural public power districts and rural electric cooperatives engaged in generation, transmission or distribution of electric energy in the state.

NEBRASKA POWER ASSOCIATION

LR 83 White Paper Topic 5

"The land use, including leases and contracts on public and private lands, and environmental impacts of developing wind energy, including transmission needs."

Introduction

Wind projects produce energy without generating many of the pollutants associated with fuel combustion; however, wind energy development is not environmentally neutral. Wind energy facilities and construction activities have the potential to impact landscapes, viewscapes, and wildlife. They require infrastructure (e.g., roads, substations, transmission lines, and possibly maintenance buildings) and construction activities that can also impact the environment. This white paper identifies some environmental considerations with regard to developing wind energy in Nebraska.

Permits and Environmental Compliance

Currently, there are no federal or state environmental permits required for siting wind energy projects in the state of Nebraska. This does not, however, relieve developers of the need to comply with existing laws such as the Endangered Species Act, the Migratory Bird Treaty Act, and Nebraska Nongame and Endangered Species Conservation Act. The potential for development of large wind farms in Nebraska with no siting guidelines or process could result in adverse impacts to the environments of Nebraska. The options for dealing with these impacts range from the current status of not having a formal process, to establishing voluntary guidelines and consultation with environmental resource agencies, to requiring a permit or approval from an authorizing agency with siting standards and a requirement to consult with the environmental resource agencies. If guidelines or standards are developed, the NPA would like to be a participant in the development process.

Wildlife/Environmental

Impacts of wind energy facilities on wildlife can be direct (e.g. fatality) or indirect (e.g. habitat loss or behavioral displacement). Turbine and transmission line siting and other environmental factors (e.g., proximity to bird concentration areas, refuges, wetlands, threatened and endangered species, prairie dog towns, critical habitat, sensitive species, and others) are important factors determining environmental risk at wind energy facilities. Evaluating environmental impacts and taking into consideration all potential direct and indirect impacts should be the primary method of addressing environmental concerns.

Pre-construction assessments and evaluation of potential impacts should be considered during the planning stage of wind energy facilities. State and federal agencies and others should work together to determine what, if any, environmental risk would be posed by a planned wind facility.

Wind Farm and Turbine Siting Considerations

In addition to topographical and wind speed factors, there are numerous environmental factors that must be considered when siting a wind farm. Following is a discussion of some of those considerations.

- Documented locations of suitable habitat of any species of wildlife, fish, or plant protected under Federal Endangered Species Act and/or critical listed habitat (i.e. critical listed habitat for whooping cranes is the Platte River from Lexington to Denton). Information regarding location of state and federally listed species can be obtained by contacting the Nebraska Game and Parks Commission and the U. S. Fish and Wildlife Service. Evaluation of specific impacts to listed species may need to be evaluated prior to development (i.e. the American Burying Beetle).
- Recognized bird concentration areas. Examples of high concentration areas are lakes, wetlands, state or federal refuges, private duck clubs, staging areas, rookeries, and riparian areas along streams.
- Known bat hibernacula (i.e., caves, etc. where bats hibernate), breeding and maternity/nursery colonies, in known migration corridors, or in flight paths between colonies and feeding areas.
- Features of the landscape known to attract raptors, such as cliff/rim edges; setbacks from these edges may reduce mortality. Other examples include saddles (dips or passes) in ridges or prairie dog towns.
- Predominant bird movement direction.
- Turbine spacing and configurations.
- Fragmentation of large, contiguous tracts of wildlife habitat. Where practical, place turbines on lands already altered or cultivated.
- Prairie grouse leks (traditional courtship display grounds). Prairie grouse (greater prairie chicken and sharp-tailed grouse) are not a listed species in Nebraska. Studies suggest that prairie grouse avoid certain anthropogenic features (e.g. roads, buildings, powerlines) making habitat less suitable. Little is known in Nebraska regarding impacts of wind facilities on prairie grouse behavior and populations.
- Roads, fences, and other infrastructure.

- If taller turbines (top of rotor-swept area greater than 199 feet above ground level) require lights for aviation safety, the minimum amount of pilot warning and obstruction avoidance lighting specified by the Federal Aviation Administration (FAA) should be used. Unless otherwise requested by the FAA, only white strobe lights should be used at night, and these should be a minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. Solid red incandescent lights should not be used, as they appear to attract night-migrating birds at a much higher rate than white strobe lights.
- Where feasible, place electric collection system underground, thus avoiding the addition of perches for raptors in the vicinity of the wind facility.

Land Disturbing Activities and Erosion Control Considerations

In addition to the wildlife considerations, there are considerations for land disturbance activities that deal with soil erosion and impacts to cultural resources. Disturbance activities could result from installation of foundations, development of temporary and permanent access roads, and construction of other site facilities such as maintenance buildings. Depending upon the extent of the disturbance, various permit requirements may become applicable. A few examples of such permits are identified below.

- Construction Storm Water Permit – Application with Nebraska Department of Environmental Quality includes Erosion Control Plan, monitoring requirements, reporting, and record keeping.
- Section 404 of Clean Water Act Permit Authorization – Required if any wetlands will be impacted by wind facility development. Permits administered by U.S. Army Corps of Engineers.
- Cultural and Paleontological Resources – Contact should be made with the Nebraska State Historical Preservation Office regarding known cultural and paleontological resources at or in the vicinity of the wind facility site and procedures should be in place in the event undiscovered finds are discovered during construction activities.
- Conditional Use Permit – Conditional use of property for industrial use (operation of wind generation facility). May or may not be required by local zoning authority (County Commissioners).

Mitigation Considerations

If wildlife habitat losses or fragmentation must be mitigated, develop a plan to protect, create and/or restore habitat away from the wind facility site. This will serve to attract birds, bats and other wildlife away from the development. Wherever possible, habitat mitigation sites should be coordinated with other public or private wildlife lands, to connect, enlarge or enhance those areas.

Questions regarding wind energy development and impacts to wildlife may require further investigation to advance understanding and/or fill information gaps. Developers may be provided the opportunity to conduct monitoring or research as part of a mitigation strategy. Developers of wind energy facilities should cooperate with scientists and natural resource agency specialists in developing and testing methods to minimize impacts to wildlife.

Transmission Considerations

Development of new wind projects may require the construction of new transmission or the expansion of existing transmission. The environmental impacts of the new or expanded transmission will need to be evaluated by the party constructing the line. Transmission projects are linear in nature and impacts may need to be evaluated over a greater geographical area. Transmission projects may also require coordination with additional governmental agencies or other entities.

If federal dollars are involved in future wind development, there could be a federal nexus and compliance with the National Environmental Protection Act (NEPA) may be required. The Department of Energy and/or other federal governing agency would have to consult with the U.S. Fish and Wildlife Service (USFWS) and possibly the Environmental Protection Agency to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions (i.e. impacts to endangered or threatened species). To meet NEPA requirements federal agencies prepare a detailed statement known as either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) to make sure that their own actions comply with NEPA. Included in the scope of an EA or an EIS will also be evaluation and discussion of cultural resources and socio-economic impacts. The evaluation of these impacts will require additional time and monies in project planning. Under NEPA, the impacts associated with the development of transmission lines to support wind projects could be considered "secondary" impacts of the wind project and need to be evaluated as such.

Whooping Crane Habitat Conservation Plan

Currently there is an ongoing effort between the USFWS and interested parties to develop a means of protecting the Aransas/Wood Buffalo population of the federally-listed endangered whooping crane, while allowing wind energy development. A programmatic Habitat Conservation Plan (HCP) may represent the best solution to providing Endangered Species Act compliance for wind energy development within the migration corridor.

A HCP is required before an applicant could apply for an Incidental Take Permit (ITP). The plan would specify, among other things, the impacts that are likely to result from the taking and the measures the applicant will undertake to minimize and mitigate such impacts. The applicants for the ITP would be the individual operators or project proponents who have signed on to the whooping crane HCP. The development of the HCP is an involved process that includes several states, two USFWS regions, and multiple wind development interests. Since Nebraska has areas in the whooping crane migration corridor, the NPA recognizes potential benefits of an HCP. The NPA also recognizes, however, that obtaining consensus between the diverse interest groups involved will be difficult and that the process will be a multi-year effort.

Summary

While wind farms are not free from environmental concerns, most concerns can be lessened by proper planning and design and by the involvement of affected stakeholders. This paper identifies many of the environmental considerations that may need to be addressed with significant wind energy development in the state.

Leaders of Nebraska's public power industry formed the Nebraska Power Association in 1980 to address industry-wide concerns and interests. This voluntary association represents all segments of the public power industry in Nebraska: municipalities, public power districts, public power and irrigation districts, rural public power districts and rural electric cooperatives engaged in generation, transmission or distribution of electric energy in the state.

NEBRASKA POWER ASSOCIATION

LR 83 White Paper Topic 6

"The financial benefits and risks that will affect Nebraskans due to the expansion of wind energy for consumption and export and how the benefits could be maximized while at the same time minimizing the risks to ratepayers and taxpayers."

Assumptions

When evaluating the financial risks and benefits of exporting wind power from Nebraska, several assumptions are made--some of which are made with considerable uncertainty.

The cost for constructing 7,800 MW (nameplate rating) of wind would be approximately $16 billion in 2009 dollars, based on a construction cost of $2,100 per kilowatt. This does not include the cost of any transmission.

Legislative Resolution 83 suggests construction of 7,800 MW of wind generation between now and 2030. Considering the NPA's state-wide load projection for 2028 of 9,070 MW, Nebraska would need to add about 2,850 MW at 40% capacity factor, in addition to current renewable resources. This leaves the remaining 4,950 MW for sale to others outside the state.

The operational model to be used for planning, constructing, and maintaining the project(s) needed to provide the wind generation resource could include private ownership and development, public power ownership or a combination of these two. The private ownership model is the most likely, due to reasons to follow in this paper. Legal and regulatory concerns need to be addressed to allow for private "merchant" type projects to exist in Nebraska.

Benefits

Market for Wind Energy - Wind resource availability could bring revenue into Nebraska. Wind energy has value in offsetting carbon dioxide (CO_2) emissions from fossil fuel generation. CO_2 emission costs are expected to rise via federal regulations. A market for wind energy and "CO_2 attributes" or Green Tags will then develop to be applicable to existing and new Renewable (electricity) Portfolio Standards (RPS). Since some neighboring states also have high wind potential, thousands of miles of additional transmission will be necessary. One of the drivers to this resolution is to provide wind energy to states without this resource.

Job Creation - Wind farms can have an economic impact through job creation. The creation of jobs can be categorized into three different areas: direct, indirect and induced. Direct jobs are the on-site or immediate jobs created by the new wind project (e.g., the contractors and crews hired to construct the plant). These jobs will be temporary, rather than permanent. Indirect jobs are created as a result of the wind project (e.g., bankers, legal counsel, electrical part manufacturers, other suppliers, etc.). Induced jobs are created as a result of the economic activity generated by the direct and indirect workers associated with the new wind project. These jobs are created at project area businesses that provide food, clothing, professional services and other related goods and services.

In addition, manufacturing jobs may be created in the state of Nebraska as a result of the wind energy industry. In Iowa, wind turbine related manufacturing is producing 1,000+ jobs and positive economic impacts. Some wind tower manufacturers have located in Nebraska. Their strategy was to locate close to the wind sites to reduce transportation costs and time. Schooling and training would be needed to provide personnel for a large wind development. Some of this training has already been added to offerings at Nebraska community colleges and technical schools, but more may be needed.

Nebraska's experience with wind turbine operation has required about one permanent on-site job per 10 MW. This experience implies the need for 780 full-time permanent on-site workers to maintain the 7,800 MW of turbines. There is also potential to add to the existing green manufacturing jobs in Nebraska. Nebraska's location is central to the primary wind regimes in the country which provides significant potential for increasing the number of manufacturers of wind energy equipment.

The benefits of job creation can be maximized for Nebraskans by mandating use of Nebraska labor for construction, providing business incentives for construction of manufacturing plants in the state and various other methods. A recent report by the Pew Charitable Trusts indicates that Nebraska ranks second in the country in "green" job growth even though Nebraska lags other states in wind energy development.

Landowner Income - Nebraska's economy would see a boost in economic activity from construction-related activities between 2011 and 2030. Annual land-lease payments to Nebraska landowners during operations of 7,800 MW are estimated to range from $19 million to $39 million. This helps to diversify the agriculture business in the state. There would also be an increase in property tax revenue for the State.

Risks

Stranded Investment – Nebraska utilities need to be mindful to avoid the cost obligations of stranded investments. With possibly three years for transmission construction, transmission investment needs to begin before wind turbine construction. There is the possibility of a wind development being cancelled after some transmission has been completed. Another concern is the possibility of energy sales being cancelled before the transmission investment has been recovered. This leaves the transmission owner with stranded transmission assets. Also, wind technology continues to improve and turbines may become obsolete before their full cost recovery is complete. Replacement parts could become scarce later in life rendering some machines inoperable. Public power utilities could minimize these risks by using a "buy model" where they would buy energy from wind resources developed by private companies.

Wind Energy Costs – According to the NPA's Statewide Coordinated Long-Range Power Supply Plan (available at www.nepower.org), the cost of wind energy is higher than fossil fueled resources. There are no fuel costs other than maintenance. Capital costs are affected by the lower capacity factor of wind (30% to 40%) which pushes up the cost per kilowatt-hour produced. The life of wind turbine generators and blades is typically 20 years, requiring capital costs to be recovered faster than for a coal plant with an expected 30 year life before being renewed or decommissioned. Generally, a 20% RPS would boost Nebraska's electric rates initially.

Financing - Construction of public power generation and transmission can be funded by federal income tax exempt bonds when the facilities are built to meet the needs of Nebraska customers. It is uncertain how the IRS would rule on borrowing by public entities for renewable energy production primarily for export.

Bond ratings are based on the level of risk the utility poses. A wind energy development may increase the risk from the rating agencies' point of view. Reduced bond ratings due to risk may lead to higher interest costs for the wind development and other utility capital projects.

At the present time, the credit markets are not functioning as in the past. It is possible that borrowing for wind generation and transmission will be more expensive if lenders perceive wind investments to be risky. This may change with time. Wind project debt may need to be guaranteed or secured by other assets to compete in the bond market. Here again public power utilities could minimize risks by buying energy from private developers.

The economics of wind generation development by public power utilities could be improved significantly with state and federal incentives similar to those available to private, investor-owned utilities. Public power utilities are not eligible for the federal Production Tax Credits (PTCs). The federal program available to public power utilities is the Renewable Energy Production Incentive (REPI) program, but it has never been fully funded by Congress and the Department of Energy has zeroed out the REPI program as part of President Obama's 2010 fiscal budget. A number of states have enacted tax credits or other incentives on the state level for wind energy development, but Nebraska has not implemented any such incentives for public power.

Transmission - Typically, wind farms are located far from load centers which require substantial investment in transmission lines and facilities. The amount of wind contemplated in LR 83 will require significant investment in major new transmission infrastructure from Nebraska throughout the region in order to deliver the wind energy generated to the export markets.

The cost of transmission needs to be recovered from the transmission users, not the utilities' ratepayers. The acquisition process for transmission corridors has changed dramatically over the past ten years. "Not in my backyard" issues have led to more than doubling the cost of siting these facilities. There are fewer and fewer land owners willing to allow power facilities to be placed on their property. This forces the utility to increase their offering in order to obtain the land or the rights they need to place the facilities along their chosen route.

Potential Risk to Nebraska's Public Power Status - Partnering with private entities to establish additional wind farms is considered a favorable option in order to reduce the cost to our customers. There are tax credits available to private entities that are not available to Nebraska utilities. Capturing these credits allows the project costs to be more acceptable and justifiable in order to pursue this renewable energy source. All options must consider the current public power status in the state.

Other Issues

Backup Capacity - By its nature, wind is an intermittent resource which means it is variable with limited dispatchability. Wind farms in Nebraska have shown capacity factors up to 43%. Non-firm energy from wind resources requires firm support from other resources. The output of wind resources varies seasonally, with most energy available other than during the summer months when it is needed most due to the summer peaking nature of Nebraska loads. Variations in energy production must be addressed by local utilities. A cost allocation system must be developed to protect Nebraska's consumers from rising bills due to wind energy exports. Any impact on costs for utilities needs to be offset by the benefits.

Potential Inability to Pay Debt on Wind Facilities - As with all other investments, it is prudent to evaluate potential risks, and not invest in assets of limited future value. Investment must not exceed the market for the energy. There is some danger that the rush to build renewable generating facilities will lead to another asset bubble similar to that of ethanol industry in the plains states. A large number of ethanol plants were built because of federal gasoline additive mandates and state ethanol subsidies to its use as a motor fuel. Many plants then became uneconomical because of changing gasoline and corn prices and overcapacity. Long-term power purchase agreements will be necessary to minimize risk.

Land and Land Right Acquisition Issues - Building wind facilities will require land to be purchased or leasing rights to the land be obtained. This will require negotiations with current land owners. The popularity among landowners to this leasing has gained due to increased media coverage regarding the issue. This in turn has led to a substantial increase in the cost of the acquisition of the land or land rights because the land owners are aware of a higher demand for their space. Wind energy developers are also offering more to entice landowners to participate.

Current Laws - Currently laws favor entities which pay income taxes with investment tax credits, production tax credits and accelerated depreciation. Companies that don't pay income taxes cannot use the tax credits. Congress has provided Renewable Energy Production Incentives (REPI) to provide public power an incentive equivalent to the Production Tax Credit. However, REPI has never been adequately funded. The level of appropriations from Congress and the growth of renewable generation have not kept pace with REPI demands. An alternative to REPI, Clean Renewable Energy Bonds (CREB) does not provide public power with an equivalent incentive as compared to Production Tax Credits for investor-owned utilities.

In May 2007, the Nebraska Legislature passed LB629 and other legislation to provide Community-Based Energy Development (C-BED) projects with state sales tax exemption. These laws provide public power the ability to contract away their right of eminent domain during construction of wind projects. Through this mechanism, public power utilities may be able to purchase wind energy at a lower cost than they could produce on their own.

Leaders of Nebraska's public power industry formed the Nebraska Power Association in 1980 to address industry-wide concerns and interests. This voluntary association represents all segments of the public power industry in Nebraska: municipalities, public power districts, public power and irrigation districts, rural public power districts and rural electric cooperatives engaged in generation, transmission or distribution of electric energy in the state.

LR 83 TECHNICAL COMMITTEE CHAIRS
September 2, 2009 Meeting Assignments
Revised list of Questions & Update
10-14-09

1. **Role of public power utilities: Asche, Stauffer**
   - **a.** Describe the structure of Nebraska's public power system.
   - **b.** How could a private energy producer operate within Nebraska's public power structure?

2. **Siting/leases/eminent domain: Bruckner**
   - **a.** Identify typical lease payments and terms for wind towers, solar, etc. across the country.
   - **b.** What do other states have for eminent domain abilities for both the public and private sector?

3. **Land use: Nichols**
   - **a.** Please describe land use and siting issues relating to siting renewable energy projects and associated transmission lines

4. **Role of Power Review Board: McClure**
   - **a.** Define the role of the Power Review Board in other non-public power states (How do other states regulate electric utilities and approve facilities construction?)
   - **b.** Do we need a renewable review board?

5. **Environment: Citta**
   - **a.** Which animal species have created concerns in development of wind energy in the U.S. that may also raise concerns in Nebraska?
   - **b.** List the species (animal and plant) that could create unique concerns in Nebraska.
   - **c.** Provide a map of the locations of sensitive wildlife habitats in Nebraska based upon selected wildlife and vegetation species of concern in Nebraska.

6. **Exportation/integration: Malone, Caspary, Johannes**
   - **a.** Define how private companies interconnect with the transmission grid system in other states.
   - **b.** Please describe the current transmission system in Nebraska and locations that have limited capacity to add new generation resources.
   - **c.** How do other states fund transmission development?

d. How do private energy producers work within SPP and how do they share the cost of transmission in other states?
e. What is the role of SPP and NERC in the development of transmission for export?

7. Generation planning/financing: Ried, Johannes

a. What are the projections for new power demands for the next 50 years?
b. What are the personal goals for renewable energy for NPPD, OPPD, LES, and each and every rural electric system?
c. What is the typical arrangement for the purchase of new energy (contract, partnerships) and how does public power pay for their share? Bonds?

8. Financial/taxes/incentives: Andrysik

a. Please provide the incentives for wind and any renewable energy source in each state.
b. Explain how property taxes on wind turbines work.
c. Provide a renewable energy credit fact sheet.

9. Economic development: Christianson

a. Describe economic efforts in the promotion of new business development and recruitment along with percentage of budget use.
b. For a 80 MW wind facility, what is the detailed economic impact?

10. Legislation/government: Gottschalk

a. What are other states currently looking at for incentives, goals, promotions, etc.?
b. Please review pending federal legislation that could impact Nebraska export wind development.
c. Please review model legislation and policy statements proposed by the Council of State Governments, National Conference of State Legislatures, and the American Legislative Exchange Council.

LR 83 Question 1.a - The role of Public Power Utilities

1. Role of Public Power Utilities
a. Describe the structure of Nebraska's public power system.

In total there are 169 entities providing retail or wholesale electric service in Nebraska:

122 - Municipal Systems
31 - Public Power Districts
14 - Rural Cooperatives (11 distribution and 3 G&T)
1 - Public Power and Irrigation District
1 - Municipal Joint Action Agency

These 169 entities serving Nebraska are organized under state statute. Nebraska's three largest utilities (Nebraska Public Power District, Omaha Public Power District, and the Lincoln Electric System) serve about 56 percent of the state's retail customers. The remaining 44 percent are served by a mix of smaller public power districts, municipal systems, and rural electric cooperatives.

- <u>Municipal Electric Systems</u>
  Nebraska has 122 municipalities that own and operate their electric systems. The power requirements of the individual municipal electric systems are generally provided either through 1) total requirements power purchase contracts, 2) municipally owned local generation, 3) a combination of municipally owned local generation and generation ownership at remote locations, or 4) a combination of municipal owned generation and supplemental power purchase contracts. The power purchase contracts may be with a public power district, an investor owned utility, a rural electric generation and transmission cooperative, the Western Area Power Administration, or a joint action agency. Of the 121 municipalities 56 have owned generation facilities, with such generation facilities output either 1) used to meet the municipal's energy requirements, 2) used for wholesale sales to other utilities, 3) used to meet a portion of the municipals' energy requirements, with the balance of their energy requirements met by power purchase agreements, or 4) sold to other utilities or joint action agencies under a power sales contract.

  Municipal systems in Nebraska are organized under Nebraska's statutes. According to state law, cities and villages that own and operate electric facilities shall have and may exercise their power and authority to plan; finance, acquire, construct, own, operate, maintain, and improve electric generation or transmission facilities located within or without the cities.

- <u>Public Power Districts</u>
  There are a total of 31 public power districts formed under the authority of the Enabling Act as political subdivisions of the state. These include systems serving about 65 percent of the state's total retail customers in both urban and rural areas. Nebraska's public power districts may be separated into two distinct groups. The first group consists of generation, transmission, and distribution systems that are vertically integrated and sell power at wholesale as well as retail. This group consists of the three largest public power districts, Nebraska Public Power District (NPPD), Omaha

Public Power District (OPPD), and Loup River Public Power District. The remaining public power districts are generally total requirements customers of either NPPD or a rural electric G&T cooperative.

Public power districts (PPDs) are organized under Chapter 70 of Nebraska's statutes. This law authorizes the PPDs to engage in the generation, transmission, and distribution of electric energy. They may do so in cooperation with other PPDs, municipalities, other public agencies or electric cooperatives. PPDs are authorized to conduct their business in other states, subject to the limitations in the PPD's petition for creation and the laws of the other state.

- Nebraska Public Power District – The Nebraska Public Power District is the state's largest electric utility in terms of generation capability and geographical area. Primarily a wholesale supplier, NPPD provides electricity at wholesale to 52 municipalities, 24 public power districts and one rural electric cooperative. Twenty-one of the 24 public power districts and the rural electric cooperative are served by NPPD through the Nebraska Electric G&T. NPPD also leases and operates distribution systems for retail service in 79 Nebraska communities, and owns the distribution system in one. In addition, NPPD operates a surface water irrigation system.

  NPPD owns or has under contract a mix of generating facilities to meet the needs of its customers. This includes a nuclear plant, two coal-fired steam plants, nine hydro facilities, 2 wind generation facilities, 1 combined cycle natural gas plant, 1 oil-fired steam plant, 19 diesel plants, and three gas-fired peaking units, producing approximately 3,200 MW. NPPD also purchases electricity from the Western Area Power Administration. The average mix of fuel to supply NPPD's customers in a typical year is 62 percent from coal, 21 percent from nuclear, 9 percent from hydro, 1 percent wind, 2 percent from gas or oil and 5 percent purchases.

- Omaha Public Power District (OPPD)
  The Omaha Public Power District is the largest retail electric utility in Nebraska, serving more than 340,000 customers. In addition to the city of Omaha, the utility serves 51 towns as well as the surrounding farm areas in 13 southeast Nebraska counties, and Carter Lake, Iowa. OPPD owns and operates 2,400 MW of generation to meet the needs of its customers. The generation mix includes seven coal-fired steam units, a nuclear unit and five oil/gas fired combustion turbine units. The mix of fuel used for generation is 65.8 percent coal, 33.7 percent nuclear and 0.5 percent oil/gas. OPPD also purchases power from the Western Area Power Administration.

- Loup Power District
  Aside from NPPD and OPPD, Loup Power District is the only public power district that has generation and transmission substation facilities in the state. Loup is primarily a distribution utility, but also owns and operates two hydro facilities, the output of which is purchased by NPPD under long-term contract from Loup Power District. The power requirements of Loup Power District are met with a total requirements power purchase contract with NPPD.

- Rural Power Districts

  There are 27 rural electric systems operating as public power districts in Nebraska and organized under Chapter 70 of Nebraska's statutes. Altogether they serve some 215,000 farmers and ranchers and more than 300 of the state's smaller communities. The power requirements of these rural power districts are generally met through power purchase contracts from different suppliers, typically another public power district, such as NPPD, or a rural electric G&T cooperative, such as Tri-State G&T or Nebraska Electric G&T.

- Rural Cooperatives

  There are two different types of electric cooperatives: Generation and transmission cooperatives and rural distribution cooperatives. The generation and transmission cooperatives provide wholesale power and transmission services to their membership, usually consisting of rural distribution cooperatives and rural power districts.

  The Nebraska Electric G&T serves 21 rural power districts and one cooperative. NPPD provides the total electric requirements of the Nebraska Electric G&T members. Tri-State Generation and Transmission Association is headquartered in Colorado and serves four public power districts and six cooperatives located in western Nebraska. Rushmore Electric Power Cooperative is headquartered in South Dakota and serves two South Dakota-based rural cooperative systems that have customers in north central Nebraska. Basin Electric Power Cooperative, headquartered in North Dakota, maintains 147 miles of transmission lines in Nebraska for the Missouri Basin Power Project and provides wholesale service to the Tri-State and Rushmore G&T cooperatives.

  Rural Cooperatives may be organized under Chapter 70, Article 7, or the state's Nonprofit Corporation Act, Chapter 21-1901 et. Seq. Nebraska-based cooperatives are all organized under the Nonprofit Corporation Act, except for the Nebraska Electric G&T, which is organized under Chapter 70. A cooperative, other than one organized under Chapter 70, can engage in any lawful business activity approved by their members and authorized in their Articles of Incorporation. This may include selling other forms of energy and providing telecommunications services, cable television and selling and servicing residential appliances.

- Municipal Joint Action Agency ---- Municipal Energy Agency of Nebraska

  The Municipal Energy Agency of Nebraska (MEAN) is the wholesale electric supply organization of NMPP Energy, a joint action agency based in Lincoln, Neb. MEAN was created in 1981. Its creation followed the passage of the Municipal Cooperative Financing Act by the Nebraska Legislature. Today, it provides energy and related services to more than 60 participants in Colorado (14), Iowa (9), Nebraska (40), and Wyoming (3). MEAN has a total member load of approximately 550 MW. MEAN maintains a power supply portfolio consisting of generation

facility ownership and shared participation, member generation and purchased power. MEAN's power supply mix includes coal, wind, hydro, natural gas, nuclear and diesel.

- Central Nebraska Public Power and Irrigation District

  This system in south central Nebraska has four hydroelectric plants that produce power sold at wholesale to NPPD for distribution to electric customers.

- Western Area Power Administration (WAPA)

  Western Area Power Administration (WAPA) is a federal wholesale supply agency providing service to consumers in 15 western states, including Nebraska, with most of the power for Nebraska coming from hydropower plants on the Missouri River. WAPA markets and transmits hydro power and provides related services. All Nebraska customers benefit from WAPA power either directly or indirectly.

- High Voltage Transmission Grid

  The high voltage transmission line grid (115 kV and above) in Nebraska is owned and operated by a number of electric utilities. Those utilities with 150 miles or more of high voltage transmission lines in Nebraska are as follows:

NPPD	4,300 miles
OPPD	790 miles
Tri-State G&T	430 miles
Basin Electric G&T	165 miles (estimate)
WAPA	214 miles
LES	284 miles

  The transmission grid in Nebraska is an integrated network, within the Eastern Interconnect, operated by the various Nebraska utilities in cooperation with one another to maintain a high level of system reliability. The transmission grid in Nebraska is also interconnected with other regional utilities and operated in coordination with Regional Reliability Coordinators who have been granted authority of nationwide reliability by the North American Reliability Corporation (NERC).

LR 83 Question 1.b - The role of Public Power Utilities

1. **Role of Public Power Utilities**
   b. How could a private energy producer operate within Nebraska's public power structure?

   There are no statutes or case law barring private investors from constructing an electric power plant within the boundaries of the State of Nebraska. However, under certain circumstances, there may be a risk of condemnation by a Nebraska utility.

   A private energy producer wishing to locate a wind farm within the State of Nebraska to export electric power to markets elsewhere must assume the capital costs of construction, transmission interconnection planning and construction, permits for construction, environmental compliance, and operational certification.

   The Nebraska Power Review Board (PRB) has jurisdiction over whether an electric plant can be constructed within the state of Nebraska unless it is exempt as in certain small renewable projects (under 80 megawatts) or is pre-empted under the Public Utilities Regulatory Policies Act (PURPA).

   Once operational, a private producer exporting wind must comply with and pay the published tariffs of transmission providers within Nebraska and regional transmission organizations such as the Midwest Independent System Operator (MISO), the Southwest Power Pool (SPP), or the Western States Power Pool (WSPP) to move the power to markets outside the state.

   Nebraska's system of public power has been successful in achieving the state's primary goal of providing reliable, low-cost energy to Nebraska residents. For this reason the existing system and its primary mission should be protected and maintained for the purpose of continuing to serve Nebraska's in-state, or domestic, requirements.

   Public power has determined that with Federal incentives available only for private developers, the lowest cost option for new wind development currently is for public power to enter into long-term Power Purchase Agreements (PPAs) with private developers.

   Thus far, these agreements provide that the developer will plan, fund, construct, own, and operate the wind generation facility, and public power will agree to purchase the electricity and renewable attributes (RECs) at a contract specified price over the PPA contract period (20 years). Operating risk is carried by the private developer.

   As the public power utilities are the purchasers, to-date they have agreed to pay for transmission interconnection and transmission system improvements, since there are no federal incentives to the private developer for ownership of these facilities.

As many have stated, development of large scale wind projects for export of energy will potentially require billions of dollars of investment, including transmission additions and upgrades. Public power may very well find that it cannot, or does not, wish to expose Nebraska ratepayers and taxpayers to this level of risk. Involving private energy producers may make sense to mitigate risks and to attract outside investment to the state.

In many other states, private energy producers and publicly-regulated utilities co-exist through a system of asset ownership and operations. This system would have to be better defined before it could be implemented in Nebraska.

For example, in the wind generation for export scenario, the wind generation facilities would be funded entirely by the private sector, and where a wind project requires a transmission addition or upgrade that would not otherwise be required or beneficial, the wind developer could fund that transmission addition or upgrade and then dedicate the transmission facility to the public power district. The public power district would need to be a partner in this since it has eminent domain authority, whereas a private developer typically does not, and the public power district would have the responsibility of integrating those facilities into their respective transmission systems. Any new lines or additions would be subject to policies and tariffs of the Southwest Power Pool and the Federal Energy Regulatory Commission.

For the export concept to work, and in order to garner political support from public power and state legislators, there must be tangible financial benefits for public power, ratepayers and taxpayers.

For Nebraska's ratepayers and taxpayers to benefit financially from export projects, reasonable fees and taxes could be considered at the state and local levels and at the public power level; provided, however, that the sum of these fees and taxes are consistent with those imposed by other states and they are not so overly burdensome that they defeat the purpose of stimulating an export industry. As noted above, privately-funded transmission may be another benefit. Moreover, a system could be implemented whereby public power receives priority to buy power from projects that are intended for export. The public power districts could use that power for domestic purposes, or possibly for their own wholesale purposes.

Additionally, instead of paying property taxes to counties at the current rate(s) of depreciation, consideration should be given to adopting a tax structure that is more predictable, long-term, and locally beneficial.

To expand availability of land for development of wind generation facilities and provide benefits to school districts, consideration should also be given to allowing the Board of Educational Lands and Funds to enter into longer term leases for wind generation projects. Currently, the maximum lease term allowed is 12 years, which precludes development of wind facilities on these properties.

LR 83 Technical Working Group: Study Area No. 2-Siting, Leases, Eminent Domain

Question 2a: Identify typical lease payments and terms for wind towers, solar, etc. across the country.

This memorandum summarizes the terms related to duration and payments in wind energy development option agreements and lease/easement agreements. The memorandum notes important caveats in interpreting and applying payment data. The memorandum also identifies additional terms that may be unique to wind energy development project option agreements and lease/easement agreements. The duration and payment terms of the sampled agreements are detailed in the attached charts.

Option Agreements:

- The term of an option agreement varies between 2 and 5 years.
- The amount a developer pays for the option varies.
    - The option agreement may call for an annual fixed dollar payment, typically $500.
    - Alternately, the option agreement may base annual payments on the number of acres being optioned, subject to a minimum payment. The fee varies between $3 and $5 per acre. The typical annual minimum payment is $1,000.
- Option agreements usually include the amount and types of payments the landowner will receive if the developer exercises the option. The payment term may be expressed as a percentage of gross operating proceeds, a per-acre fee, or a per-turbine fee.
    - If the annual payment is based on gross operating proceeds, the typical percentage is 2%, with a minimum payment of $1,000.
    - If the annual payment is based on a per-acre fee, the fee varies between $2 and $5 per acre, subject to a minimum payment.
    - If the annual payment is based on a fee per turbine, the fee varies between $2,400 and $4,000 per turbine based on the turbine's electric generating capacity.
- The option agreement may include a "signing fee." The signing fee is usually a per-acre fee, subject to a minimum payment. For example, the signing fee may be $2 per acre, subject to a $1,000 minimum payment.

- The option agreement may require the grantee to pay any increase in real property taxes that is attributable to the wind energy development project improvements.

Lease/Easement Agreements:

- The term of a lease/easement agreement varies between 25 and 52 years. The agreement may permit the grantee to renew the lease/easement for an additional period of time.
- Lease/easement agreements compensate landowners through one or more of the following types of payments: an annual rental payment, a per-turbine payment, a per-megawatt (MW) payment, or a percentage of gross revenue.
    - The landowner may receive an annual rental payment. The annual rental payment may be based on a flat rental fee, a per-acre fee, or a percentage of gross revenue.
        - If rent is based on a flat dollar fee, $500 is the typical amount.
        - If rent is based on an annual per-acre fee, the fee varies between $2.50 and $5 per acre.
        - If rent is based on a percentage of gross revenue, the percentage varies between 4% and 6%.
    - The landowner may receive a per-turbine payment. These annual payments are typically between 2% and 6% of gross revenues, subject to a minimum payment. Alternately, the landowner may receive a one-time turbine installation payment. The amount of this one-time payment varies greatly and may be based on the number of turbines installed or nameplate electric generating capacity of the installed wind turbines.
    - The landowner may receive a per-megawatt payment based on the installed electric generating capacity. The per-megawatt payment varies between $1,212 and $5,387.
    - The landowner may receive an annual payment based on a percentage of gross revenue. If compensation is based on a percentage of gross revenue, the percentage is typically between 2% and 8%, subject to a minimum payment. The percentage depends, in part, on the length of the lease/easement term.
- Most compensation terms include annual adjustments for inflation.

Caveats in Interpreting and Applying Payment Data:

It is important to note that multiple factors influence and ultimately determine the value of payments landowners receive under an option agreement or lease/easement agreement. These factors vary by region and state. The following non-exhaustive list illustrates the factors that affect the value of payments an owner receives in a wind energy development project.[1]

- Demand and location. Compensation rates tend to be lower in windy areas that have scarce demand for electricity. For example, although North Dakota has significant wind resources, North Dakota landowners receive lower compensation rates compared to landowners in other regions because North Dakota has a lower demand for electricity.
- Energy prices. Landowner compensation depends on the relative price of electricity, anticipated future energy demands, the overall economics of the wind energy development project, and the price of competing energy sources (e.g., coal).
- Land value. Land with few economic uses other than farming or ranching tends to command a lower compensation rate. Land with many alternative higher value uses, such as recreation or development, may command higher compensation levels for wind energy development projects.
- Public policy. The availability of federal, state, and/or local tax incentives affects landowners' compensation.
- Regional/state variations. California and the Northeast generally have the highest compensation rates. The high energy costs and scarcity of land in these areas partially accounts for the high compensation rates.
- Transmission. Access to adequate transmission lines and the ability to economically interconnect to the electric grid influences landowner compensation. Sites that are closer to transmission lines may command higher compensation levels.
- Turbine size. Wind turbines with higher nameplate electric generating capacities tend to command higher levels of compensation than those with lower generating capacities.
- Wind resources. The quality of wind resources (e.g., availability and speed) at a particular location affects compensation rates.

[1] These factors are summarized from Windustry, *Wind Energy Easements and Leases: Compensation Packages* (September 2005 & June 2009). Available online: http://www.windustry.org/sites/windustry.org/files/Compensation-2009-07-06.pdf.

Additional Terms in an Option or Lease/Easement Agreement:[2]

- Access. The Agreement may permit the lessee to access and use all other easements and right-of-ways serving the land. The Agreement may allocate liability and indemnification obligations related to such use and access rights. The Agreement may limit the lessor's ability to enter, access, and/or use the property that is subject to the Agreement.
- Arbitration. The Agreement may require that all disputes, including those relating to property valuations, be resolved through arbitration. The Agreement may establish specific procedures for selecting the arbitrator(s).
- Chemical spraying. The Agreement may prohibit the use of chemicals (herbicides) to control vegetative growth.
- Crop damage. The Agreement may require payment for crop damage that directly results from the lessee's activities on the leased property. Agreements providing for crop damage payments establish a formula to determine the proper payment.
- Decommissioning/removal. The Agreement may establish procedures for removing wind power facilities[3] and the depth to which wind power facilities must be removed. For example, wind power facilities must be removed to a depth of 42 inches below the natural surrounding grade. The Agreement may require the lessee to establish a decommissioning fund that will satisfy the costs of removing all improvements related to wind power facilities (including distribution and collection lines, substations, towers, and foundations). An expert may review the value of the decommissioning fund every five years to determine whether it is adequate to satisfy the lessee's decommissioning obligations.
- Hazardous materials. The Agreement may prohibit the lessee's use, possession, or control of the leasehold estate from causing contamination or pollution of the soil, surface water(s), groundwater(s), sediments, surface, ambient air, or subsurface strata.

[2] For simplicity, option, easement, and lease agreements will collectively be referred to as "Agreement" in this section.

[3] "Wind power facilities" is a broad term that includes transmission lines, distribution lines, substations, access roads, foundations, turbines, and towers.

- Indemnification. The Agreement typically requires the lessee to indemnify the lessor against liability for injuries and claims related to the wind power facilities.
- Legislative Bill 568 (Nebraska). Legislative Bill 568 ("LB 568"), approved by Nebraska Governor Heineman on May 22, 2009, affects wind energy development agreements. For example, LB 568 defines the term "wind agreement." LB 568 provides that a "wind agreement" runs with the land and that the initial term of a "wind agreement" cannot exceed forty years. LB 568 also provides that a "wind agreement" shall terminate if development of a wind energy conversion system (as defined by a Nebraska statute) has not commenced within ten years after the effective date of the "wind agreement," except that this period may be extended by mutual agreement of the parties to the "wind agreement." LB 568 also defines "decommissioning security" and amends NEB. REV. STAT. § 66-911.01.
- Liability insurance. The Agreement requires the lessee to maintain a specified dollar amount of liability insurance.
- Maintenance. The Agreement may provide that the lessor is not required to make any repairs to the leased property or to personal property (including fixtures) installed or furnished by the lessee. The Agreement may require the lessee to maintain the leased property and the personal property (including fixtures) installed or furnished by the lessee.
- Mechanics' liens. An Agreement may prohibit the lessee from allowing mechanics' liens to be filed against the leased property.
- Mineral development. The Agreement may include a provision reserving the landowner's rights to develop minerals on the leased property.
- Mortgage by lessee. The Agreement may permit the lessee to hypothecate, mortgage, pledge, or alienate wind power facilities and/or the leasehold estate. Detailed provisions govern the rights of leasehold mortgagees. The Agreement may provide that a leasehold mortgage shall not encumber or affect the landowner's fee interest in and to the property that is subject to the Agreement.
- Negative covenants. The Agreement may prohibit the lessor from granting, conveying, assigning, or providing any easement, license, permit, lease, or other right for access across the leased property, or for generating and transmitting power on or across the

leased property, to any third party in connection with the construction or operation of electrical generating or transmission facilities.

- Nondisturbance agreement. The Agreement may require the lessor to provide the lessee a current abstract of title showing all liens and other exceptions to title to the leased property. The lessor may be required to obtain a nondisturbance agreement from each lienholder under which the lienholder agrees not to disturb the lessee's possession or rights under the lease or to terminate the lease as long as the lessor is not entitled to terminate the lease.
- Personal property taxes. The Agreement may require the lessee to pay all personal property taxes and assessments levied against the wind power facilities.
- Quiet use and enjoyment. The Agreement may limit the lessor's use of the leased property to agricultural purposes. The Agreement may prohibit the lessor from taking any action on the leased property that is incompatible with the lessee's use of the property or that interferes with the wind flow (including speed and direction) across the leased property. For example, the lessor may be prohibited from installing improvements, fixtures, structures, or trees that could interfere with the wind flow.
- Real property taxes. The Agreement may require the lessee to pay any increase in the real property taxes on the leased property which is directly attributable to the installation of wind power facilities. The Agreement establishes procedures for the lessor to claim reimbursement for property tax increases.
- Security. The Agreement may require the lessee to furnish performance bonds, letters of credit, or a cash deposit as security during the construction and operation phases of a wind energy development project. The construction security protects the lessor against losses due to the lessee's failure to complete construction or pay contractors and subcontractors. The operating security makes available to the lessor an amount equal to one year's annual rent (adjusted annually for inflation).
- Soil replacement. The Agreement may provide that the lessee must restore the soil surface. The Agreement should define the type of soil that must be used in soil restoration.
- Special cleanup escrow. The Agreement may require the lessee to establish a special cleanup escrow account. The special cleanup escrow account provides funds for the

removal of wind turbine foundation pedestals, construction material and debris, and restoration of the leasehold to as near as possible to its original condition. The special cleanup escrow account is only available in the event of abandonment of construction.[4]

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[4] "Abandonment of construction" occurs when no commercial operation takes place within two years of commencement of actual construction.

Summary of Terms Related to Duration and Payments in Wind Energy Development Option Agreements Information Collected by the Industrial Wind Action Group

Document Name	Date	Jurisdiction	Duration	Option Payment	Exercise Payment
Option for Easement*	March 1, 2003	New York	2 years	$500 upon signing agreement; $500 on March 1, 2004.	$10/lineal foot for right-of-way (not less than $10,000 or more than $25,000). Grantee pays all real estate taxes attributable to improvements.
Option Agreement for Easement**	N/A	New York	5 years	$500 per year.	Minimum rent of $1,000/year; royalty of 2% of gross operating proceeds.
Wind Option Agreement***	N/A	New York	5 years. Term is 30 years if commercial operations begin.	$5/acre but not less than $1,000.	Easement payments of $2,400 per turbine for 900 kW turbines (annually), $4,000 per turbine for 1500 kW turbines (annually), both escalated at 2% per year. Easement signing fee of $2/acre, with minimum payment of $1,000. Grantee pays increases in real property taxes attributable to improvements.
Agreement to Study Site for Wind-Powered Generation with the Option to Purchase an Easement for Wind Generation****	2009	Nebraska	5 years with right to extend for an additional 5 years	An annual payment of the greater of $3/acre or $1,000.	If agreement is extended for an additional 5 year term, annual payment is the greater of $5/acre or $1,667.

SOURCES:
* http://www.windaction.org/documents/2435
** http://www.windaction.org/documents/2435
*** http://www.windaction.org/documents/2435
**** Nebraska Public Power District (NPPD)

Land use and Siting Issues Relating to Renewable Energy Projects and Associated Transmission

December 1, 2009

The Land Use and Siting Issues taskforce is comprised of Marc Nichols, OPPD; Dave Rich, NPPD; Steve Boyer, Third Planet Windpower and Mark Jacobson, Invenergy. We have identified six areas that provide the frame work for studying issues relating to the siting of renewable energy projects and the associated transmission lines to deliver the energy from the projects. The six areas are:

1. Overhead vs. underground transmission lines
2. Payment structures for acquiring easements and leases
3. Public involvement process in siting facilities
4. Zoning and land use regulations
5. Siting issues specific to solar projects
6. Issues relating to two recent transmission projects

A discussion of the six areas follows. We have attempted to outline the issues and provide discussion on some of the possible areas that will require further study. This report assumes that an in depth study will take place in 2010.

Overhead vs. Underground Transmission Lines

Typical wind projects include 10's of miles of collector system lines (voltage is standardized at 34.5kV) and these lines are buried underground 3-4 feet and do not impact agricultural activities. Some wind projects will require a transmission line to connect the project to the utility's grid system (i.e. tie-line)—these lines are higher voltage (typically ranging from 69kv to 230kV) and are built overhead/above ground.

Overhead transmission lines are almost exclusively used in Nebraska. Overhead lines are generally cheaper, easier to repair and construct than underground lines. Several drawbacks of overhead transmission lines are that they are not aesthetically pleasing and may disrupt normal farming activities. Overhead lines may also pose risks to the welfare of wildlife species that routinely come in contact with the lines.

Underground transmission lines are generally used when there are no reasonable overhead transmission options. While underground lines are aesthetically pleasing, they cannot as easily avoid obstacles such as underground utilities, waterways, highways, wetlands or bedrock. Extra considerations must also be made for items such as the thermal characteristics of the soil at each site. The trenching needed for construction and repair of underground lines is very costly and time consuming. The difference in construction and repair time is not a matter of hours or days, but weeks and months.

The estimated cost for one mile of 345 kV overhead transmission line is $1.5 million. Underground lines are at least 5 times that cost depending on the location, terrain and other design factors. The estimated cost for one mile of 765 kV is $3.5 million. Underground transmission lines over 345 kV are not technically feasible because the heat cannot be dissipated from the lines and therefore the capacity of the line is diminished.

Using the example of 100 miles of 345 kV transmission line, the overhead line cost is approximately $150 million. The same 100 miles constructed as underground transmission line would cost at least $750 million. The differential cost for the 100 mile 345kV line is $600 million and would cost each Nebraska customer $35.40 per year for 40 years at 5% interest.

Payment Structures for Acquiring Easements and Leases

Wind Agreements:

Wind farm agreements generally take the form of leases/easements and are divided into various levels of evaluation period payments and operating period payments. The compensation during the development period can take the form of per acre payments on an annual basis or a flat fee to evaluate property for wind development. Once a wind farm is built, Operational payments typically fall into two basic categories 1) a fixed payment with an annual escalator which removes the risk of production variations, or 2) Percentage of Gross Revenues which is based on production.

The following provide a more detailed look into the agreement, its term and compensation issues:

A typical full Wind Lease/Easement Agreement compensates landowners in both phases of a project (1. the Development/Study Phase and 2. Operations Phase):

1) Development/Study Phase:
    - Initial Term: The study phase can last between 4 and 7 years. If the project is not built by the end of this phase, the typical Lease Agreement is terminated. Attention needs to be focused on the length of study/evaluation periods, and the termination language to ensure that the landowner's expectations are managed with regards to project development term and project COD, and control of wind rights.
    - Development payment: The amounts paid for study phases typically compensate landowners annually on a per acre basis, however payment structures can vary with one time payments also offered.
2) Operations Phase--after facility is built.
    - Operations Term: Once the wind farm is in operation, the Operations term begins and ranges from 35 to 50 years.
    - Operations/Royalty payments can follow two basic structures:
        1. Minimum royalty is also common. Paid as a dollar amount per MW of production on annual basis and usually applied in combination with number 2 below.
        2. Percentage royalty is also common. This is typically in addition to the minimum royalty and acts as an "inflation guard" and/or production risk insurance for the landowner. Royalties (for projects actually built across the U.S. range from 2%-4% of gross revenue produced from the wind

farm—driven primarily by the development costs/risks and the market rate for power in that region.

3. Percentage royalties typically have a built in inflation adjustment for the landowner--for the PPA price typically escalates each year and the total payment to the landowner is the product of the PPA price, the average turbine production and the number of turbines the landowner is hosting. The primary Landowner Royalty driver is the value ($/Mwh) of the PPA signed between the wind developer and the power purchasing utility.

- Additional payments paid to landowners may involve crop damage payments, access road payments, transmission/collection line payments, construction staging and laydown area payments, substation payments, and payments to alter irrigation devices/pivots.

The above payments describe some of the most common ways landowners are compensated for hosting wind turbines on their property. Due to the many variations in payments and wind farm agreement structures, it is recommended further research be conducted to produce guidelines and resources available to landowners considering a wind farm agreement—with an emphasis on agreements used where projects were actually built, not just proposed.

Transmission Easements:

Transmission lines are completely different from wind farm agreements and generally take the form of an easement. Payments are typically one time and up front. This is due to the fact most transmission lines do not generate revenue and have less of an impact on the hosting landowner's property. Transmission lines are long-term projects that need a solid legal binding agreement with perpetual terms and conditions that will exist as long as the facility is in place without being subject to modifications, whereas wind farms are revenue generating facilities set up for annual payments that can cease at any time the operation of the facility ends.

Public Involvement Process in Siting Facilities

A public involvement process for siting should be utilized for transmission, utility scale wind, and solar projects. The overall purpose of the process is to get broad public support for the projects. This will be done by having the stakeholders play a major role in the site selection process.

Siting transmission lines is very difficult in today's world. As we get more wind and solar farms developed, they will also become more difficult. Some of the issues driving this are people's concerns relating to disruptions to the aesthetic environment, as well as the natural environment. There are also perceived health concerns for wind relating to noise and other issues. Also, more utility scale renewable generation projects will ultimately mean more transmission lines will need to be built to move the power to the load sites. Movements are starting to manifest themselves in fighting the renewable project to stop the transmission projects. Utilizing a well planned public involvement process can help mitigate the overall impact to the communities and stakeholders.

This section needs to explore the pros and cons of creating renewable energy zones throughout the state, coupled with transmission corridors to connect the projects to the load and upgrade the transmission grid to move the energy.

Zoning and Land Use Regulations

Zoning regulations concerning renewable energy projects are generally absent in most jurisdictions within Nebraska. Only a few Counties have zoning regulations governing the permitting of commercial wind farms. Most regulations in existence do not address the unique situations surrounding renewable projects. County officials often request professional guidance when confronted with the permitting of a large renewable energy project. There is no one source for assistance in understanding all the issues that can affect the permitting of a renewable project.

Due to the fact there is no one source for assistance and guidance in creating zoning regulations within the State, a temporary committee should be assembled and be comprised of various stakeholders. These representatives may be from the Wind Industry, State DOE/policy, Utilities, Land Zoning experts and Agricultural Community Representatives and would serve to develop a valuable resource for assistance in compiling resources and developing guidelines. These resources and guidelines would be derived from lessons learned from other communities that are hosting turbines and would be helpful to a local county or city which is evaluating renewable projects proposed in their community. These resources and guidelines would not be mandatory but simply an available resource for those communities to use to discuss the issues and develop responsible ordinances and permitting procedures. Some of the common items that require discussion and should be considered for inclusion into a wind ordinance are:

- Determining set back allowances for renewable infrastructure equipment
- Setting allowable and non-discriminatory noise tolerances
- Population density of the areas under consideration
- Recommending de-commissioning guidelines for renewable projects
- Permitted use versus conditional use permitting
- Local and state fees associated with permitting
- System for community input during permitting process

This temporary Committee would be comprised of all the stakeholders who are impacted by renewable energy projects. It would be anticipated two sets of guidelines would be available. One for rural areas and another for more densely populated areas and cites. Again, these guidelines would not be mandatory, but exist as a resource for the various planning and zoning boards/commissions throughout the State to demonstrate how successful projects in other counties (inside or outside of NE) have been zoned and permitted.

Siting Issues Specific to Solar Projects

Utility Scale Central Station Photovoltaic:

1. Need large area to install collector panels
2. Can utilize low cost thin film
3. Need transmission lines to move energy to loads

Distributed Scale Photovoltaic:

1. Utilize roof tops, small foot print
2. Utilize higher efficiency crystalline cells
3. Integrate generation directly to distribution grid, reducing transmission line requirements and losses

The lowest cost photovoltaic solar is typically from thin film (lower efficiency) fixed collector system. These systems may require 2 to 3 times the physical space as crystalline tracking systems.

Nebraska covers approximately 77,358 square miles. According to an UNL 2005 Land Use report, approximately 58% or 28.7 million acres of Nebraska are categorized as range, pasture, or grass lands.

With the conservative estimate of 10 acres per megawatt of solar capacity (using low efficiency non tracking thin film solar collection), Nebraska would use 10,000 acres for 1000 MW of utility scale solar. This represents .035% of the land in this category. For comparison purposes, assuming $10/watt for installed thin film solar collectors with utility grid connection, 1000 MW would be a $10 billion investment or a $1 million per acre.

It must be recognized that the majority of this land, as well as the best solar is in western Nebraska; therefore, it is likely that additional transmission lines would be required to move this renewable resource to loads.

Issues Relating to Two Recent Transmission Projects

Recently NPPD and OPPD sited and built two 345KV Transmission Lines in the state. The siting process took approximately 18 months and construction took about 20 months, with some of the work performed concurrently. The utility's public involvement process is designed to be very inclusive with all of the stakeholders in the area being impacted by the new line. This process included contacting and soliciting information from community leaders and the general public along the proposed corridor route during the line siting process. Public Meetings were held that included community leaders and the general public in the area in which the route would be located. This approach takes a great deal of time and effort, but in the end will mitigate the impact of the line.

Issues relating to line siting include, but are not limited to:

- Existing homes and residential dwellings
- Existing buildings (airports, airstrips, churches, commercial buildings, hospitals, industrial buildings, schools)
- Use of existing right-of-way or corridors (highway, railroad, power lines, etc.)
- Natural resources (woodlots, prairies, threatened and endangered species, trees, water ways, wetlands, etc.)
- Future planning districts (platted residential lots, commercial development plans)
- Agricultural considerations (irrigation, interference with farming operations)
- Utilities (underground gas lines, crossing existing overhead power lines)
- Total length of the line (length impacts cost)

All of these areas and others were encountered during the project. However, the overall process contributed to being able to find a route that had the least issues and the highest number of voluntary easements.

4. Role of the Power Review Board

a. Define the Role of the Power Review Board in other Non-Public Power States. (How do other states regulate electric utilities and approve facilities construction?)

Nebraska

The Power Review Board was created in 1963 by the Nebraska Legislature to address certain regulatory issues associated with Nebraska's unique electric industry structure. Nebraska is the only state that has no investor-owned electric utilities providing retail electric service. The Power Review Board has the following two primary responsibilities:

1) Regulation of exclusive retail service areas for electric utilities; and
2) Approving construction of certain electric generation and transmission facilities based on "public convenience and necessity" and other statutory factors.

Nebraska is often referred to as an "all public power state." Technically, the cooperatives in the state are private entities. However, because public power (municipalities, public power districts, and joint action agencies) provides most of the retail electric service in the state and the remainder comes from not-for-profit consumer-owned entities (electric cooperatives) the industry is often characterized as "all public power".

Other States

While Nebraska is recognized as the only "all public power state", Hawaii is the only state with no public power utilities. The remaining 48 states vary from a small to large percentage of public power operations. All other states have regulatory authorities with certain responsibilities similar to the Power Review Board and may have additional responsibilities beyond those of the Power Review Board as generally described below. These state agencies are generally known as public service commissions, public utility commissions, commerce commissions or sometimes utility boards. These regulatory bodies including the Nebraska Public Service Commission exercise jurisdiction over the provision of certain utility services which have traditionally been subject to economic regulation due to their historic monopoly positions – the list typically includes private electric utilities, private natural gas utilities, private telecommunication utilities, private transportation companies and certain other private entities. The Nebraska Public Service Commission has limited jurisdiction over the Nebraska public power industry regarding certain electrical safety issues.

One of the primary roles for the commissions in other states involves the regulatory process for approving retail rates of the utility service providers. This has changed to some degree in states that now offer retail competition or choice of electric providers, but even those jurisdictions have significant regulatory requirements for retail choice providers although the retail rates are no longer approved by the Commission. Another change in certain deregulated states is that generation assets can be built without traditional regulatory commission approval although approvals do remain necessary for transmission additions and environmental requirements. Many utility services were traditionally provided under a monopoly arrangement and the role of the utility commission was to insure reliable service, public safety and fair and reasonable rates

since the consumers of the services had no choice in who was serving them. In most states, retail electric rates for municipal electric utilities (and other public entities such as a public power district or joint action agency) are set by the publicly elected governing body of the utility (city council or utility board) and are not subject to the retail rate setting authority of a state regulatory commission. The same is generally true for electric cooperatives whose rates are regulated by their board of directors elected by the membership.

As noted above, state utility commissions were created to protect the public interest by insuring reliable service, safe operations and fair rates from monopoly service providers. These responsibilities are often interwoven with other public policy considerations which have been implemented in several states such as initiatives to promote energy efficiency, renewable energy or assist low income consumers. Consequently, it is the utility commission in many of the states that develops programs (often implemented through unique retail rate designs) that regulated utilities must follow in order to achieve policies unique to each state. As a general rule, most states' municipal utilities and electric cooperatives are not subject to the commissions' jurisdiction over these rate-related programs.

Like the Nebraska Power Review Board, the utility commissions in the other 49 states generally regulate construction of generation and transmission facilities through the determination of "public convenience and necessity" and similar or related criteria which declares a project should be constructed to meet growing energy needs, support reliability, be economically viable or meet some other public policy objective such as the expansion of renewable energy. The size threshold requiring approval varies from state to state depending upon the size and type of electric generation and the length and voltage level of transmission facilities. Location may also be a factor.

b. Do We Need a Renewable Review Board?

Based on the review of other states and the current capability of the Nebraska Power Review Board, there is no need to create a separate regulatory entity focused on the regulation of renewable energy development. The Nebraska Power Review Board meets monthly. Based on discussions with the Board's Executive Director, former Board members, and the public power industry, there is a common belief that the Power Review Board can timely respond to applications for renewable energy projects and no separate entity is required. However, there is a fundamental question whether the statutory regime under which the Power Review Board operates contemplates the development of renewable energy by either Nebraska's public power industry or by investor owned utilities or other private developers for the sole or primary purpose of export to other states. This is a policy issue that may require additional consideration as part of the LR 83 study.

October 9, 2009

LR 83 Technical Committee

5. Environment

A - Which animal and plant species have created concerns in development of wind energy in the U. S. that may also raise concerns in Nebraska.

This list includes species which have been of concern for wind energy development in other states and which also occur in Nebraska.

Whooping Crane

Greater Prairie-Chicken

Sharp-tailed Grouse

Golden Eagle

Bald Eagle

Mountain Plover

Ferruginous Hawk

Bats

Grassland nesting birds

B-1- List the species (animal and plant) that could create unique concerns in Nebraska.

This list includes species in Nebraska that may be impacted by wind energy development specifically, rather than infrastructure development in general. These include species that are susceptible to direct damage by rotating turbine blades and those susceptible to habitat loss through avoidance of areas near wind towers. The distributions of these species should be used in indentifying areas of the state that are more or less sensitive to wind energy development, as was done by the Game and Parks Commission.

Whooping Crane

Sandhill Crane

Greater Prairie-Chicken

Sharp-tailed Grouse

Golden Eagle

Bald Eagle

Mountain Plover

Interior Least Tern

Piping Plover

Ferruginous Hawk

Long –billed Curlew

Rocky Mountain Bighorn Sheep

Long –legged Myotis

Fring-tailed Myotis

Townsend's Big-eared Bat

Important bird migratory corridors and stop-over sites

Grassland nesting birds

Breeding bat populations

B-2- Site specific species of concern in Nebraska

Any infrastructure development project, including wind energy development, has the potential to impact at-risk species at specific sites. Once the initial design (roads, tower sites, transmission lines, etc) of a wind energy development has been completed, it should undergo an environmental review to determine if there will be impacts to the at-risk species listed below, as well as those listed above.

River Otter

Burrowing Owl

American Burying Beetle

Southern Flying Squirrel

Massasauga

Swift Fox

Platte River Caddisfly

Salt Creek Tiger Beetle

Western Prairie Fringed Orchid

Small White Lady's Slipper

Hayden's (Blowout) Penstemon

Colorado Butterfly Plant

American Ginseng

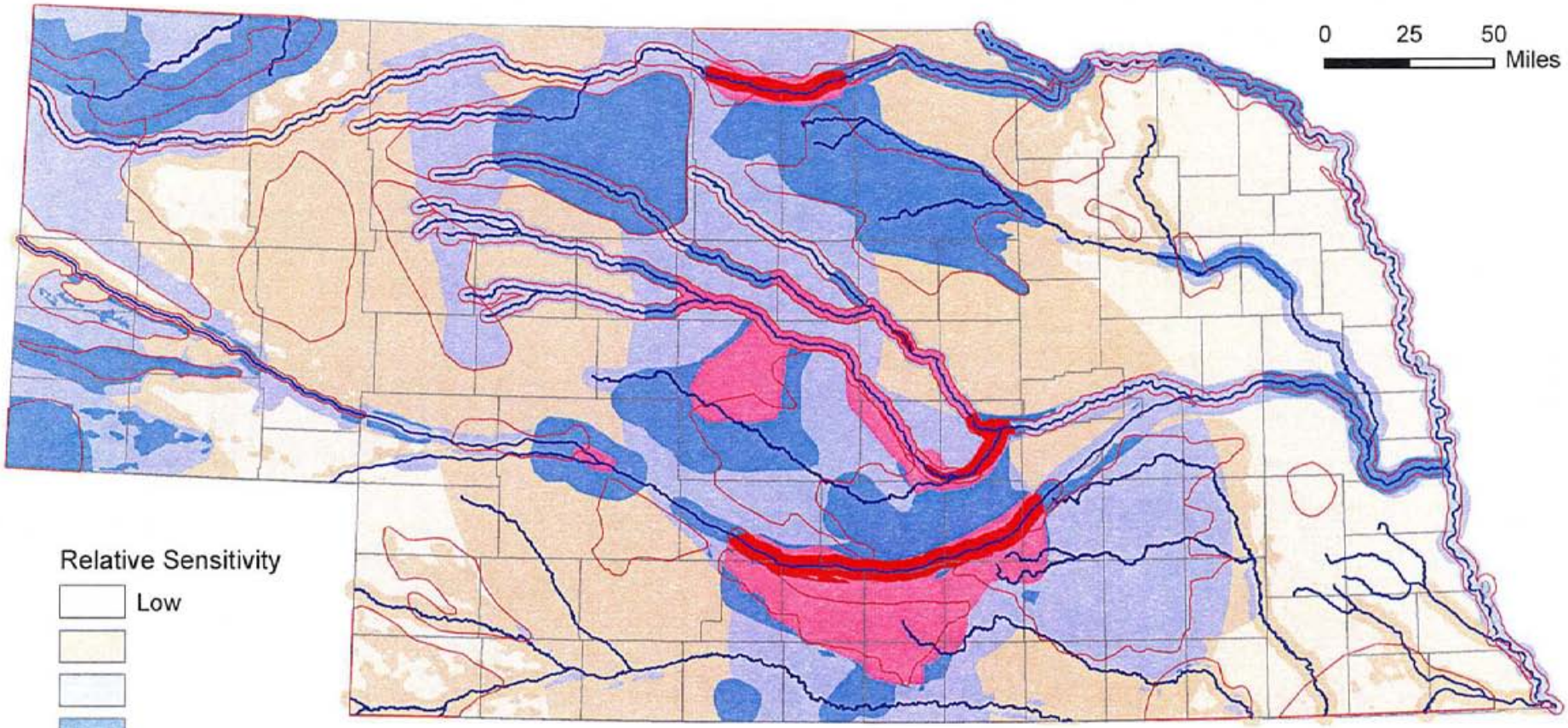
Saltwort

Ute Ladies' Tresses

C- Provide a map of the locations of sensitive wildlife habitats in Nebraska based upon selected wildlife and vegetation species of concern in Nebraska.

See the attached Nebraska Game and Parks Commission (NGPC) map and one page write-up explaining the map. Also attached are individual species range maps.

DRAFT: Wind power and Nebraska's wildlife: An index of the sensitivity of wildlife habitats to wind power development, based on selected at-risk species



Relative Sensitivity

Low

High

Biologically Unique Landscapes

This map was designed to aid in planning for wind power development by identifying areas that are considered relatively more sensitive or less sensitive to such development, with respect to species of concern. This map is not designed to evaluate wind farm siting at specific locations. Even in "low sensitivity" areas shown, there will be specific locations where siting of wind power infrastructure can negatively impact significant biological resources (e.g. remnant tallgrass prairie, listed plant species, etc.). Contact the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service for potential site-specific impacts and potential conservation measures to avoid "take" under the state Nongame and Endangered Species Conservation Act and the federal Endangered Species Act.

See attached document for a description of the information used to develop this map.

Map version date: April 30, 2009

Wind power and Nebraska's wildlife: An index of the sensitivity of wildlife habitats to wind power development, based on selected at-risk species

This map was designed to aid in planning for wind power development by identifying areas of the state that are considered relatively more sensitive or less sensitive to such development, with respect to selected species of concern. This map is not designed to evaluate wind farm siting at specific locations. Even in "low sensitivity" areas shown on the map, there will be specific locations where siting of wind power infrastructure can negatively impact significant biological resources (e.g. remnant tallgrass prairie, listed plant species, etc.). Proposed wind farms will need to have a detailed, site-specific environmental evaluation and we recommend coordination with Nebraska Game and Parks Commission and U.S. Fish and Wildlife Service staff.

The map is based on the following species or groups of species: bald eagle, 3 species of bats, bighorn sheep, ferruginous hawk, golden eagle, greater prairie-chicken, interior least tern, long-billed curlew, mountain plover, piping plover, sharp-tailed grouse, and whooping crane. Important migratory stopovers for birds are also included. For each species or migratory stopover, areas of concern were delineated based on expert knowledge and species occurrence data. For some species, portions of their areas were ranked as relatively more/less important.

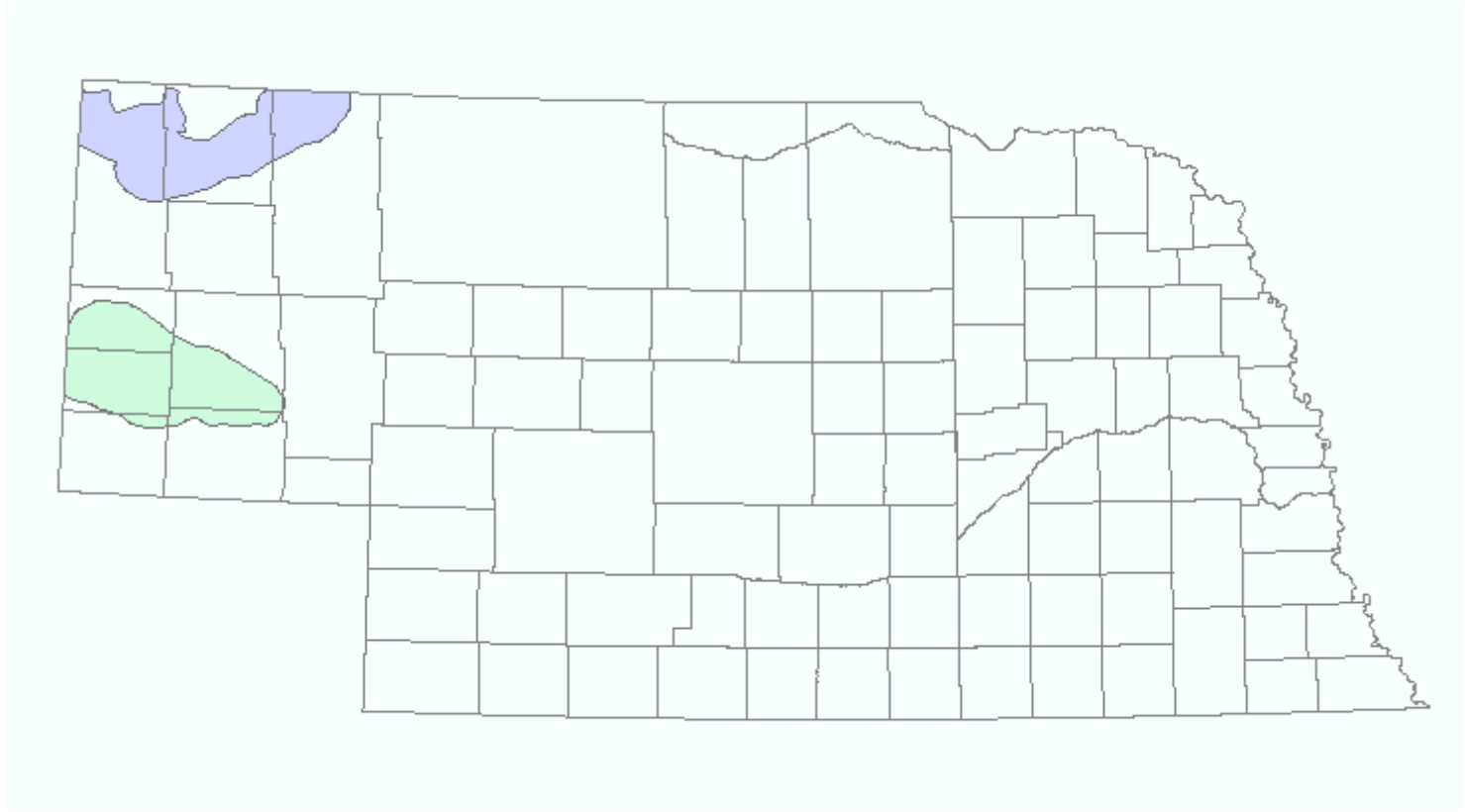
Species were selected for inclusion in the map, and were assigned relative weights, based on several factors. Factors considered were: status with respect to the state and federal endangered species acts, degree of imperilment, susceptibility to direct damage by turbine blades, and susceptibility to loss of available habitat through avoidance of areas with wind towers. For example, stopover sites for the federally endangered whooping crane are very highly weighted. This species is rare; less than 250 whooping cranes survive in the Central Flyway population, the only self-sustaining population in the world. Direct effects (e.g., potential turbine and related power line collisions) and indirect effects of wind energy development (e.g., reduced availability of nightly roost areas during migration due to avoidance of prime wetlands in the vicinity of turbines) could impact the survival of the species.

There are a number of at-risk species for which damage can be minimized through siting of individual towers and other infrastructure within a wind farm location, and these species were not included in the map. For example, plant species of concern have restricted distributions and are relatively immobile. Therefore, within the area selected for a given wind farm, direct damage to an at-risk plant may be minimized by placing turbines away from the plant's population.

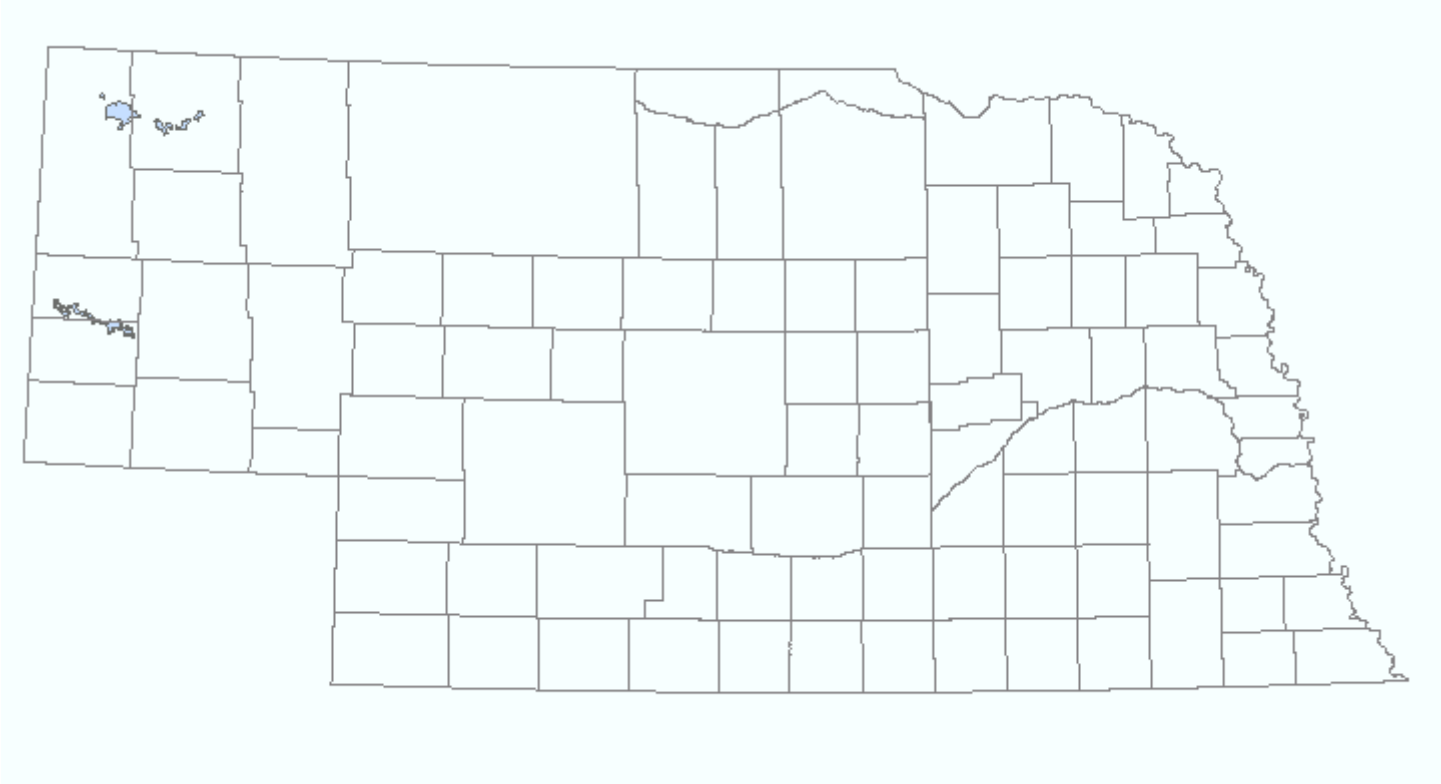
The Biologically Unique Landscapes (BULs) were delineated by the Nebraska Natural Legacy Project (Nebraska's State Wildlife Action Plan), based on known occurrences of at-risk species and high quality examples of natural communities, embedded in a relatively intact landscape. These areas represent the best opportunities to conserve the full array of Nebraska's flora and fauna. These landscapes are the focus of significant conservation effort among a variety of conservation agencies and organizations in the state. One of the conservation goals is to reduce habitat fragmentation in these BULs and thus infrastructure development in these BULs should be carefully evaluated.

This draft map was developed by an informal working group at the Nebraska Game and Parks Commission. As new information becomes available on species' distributions or susceptibility to wind power development, the map will be updated.

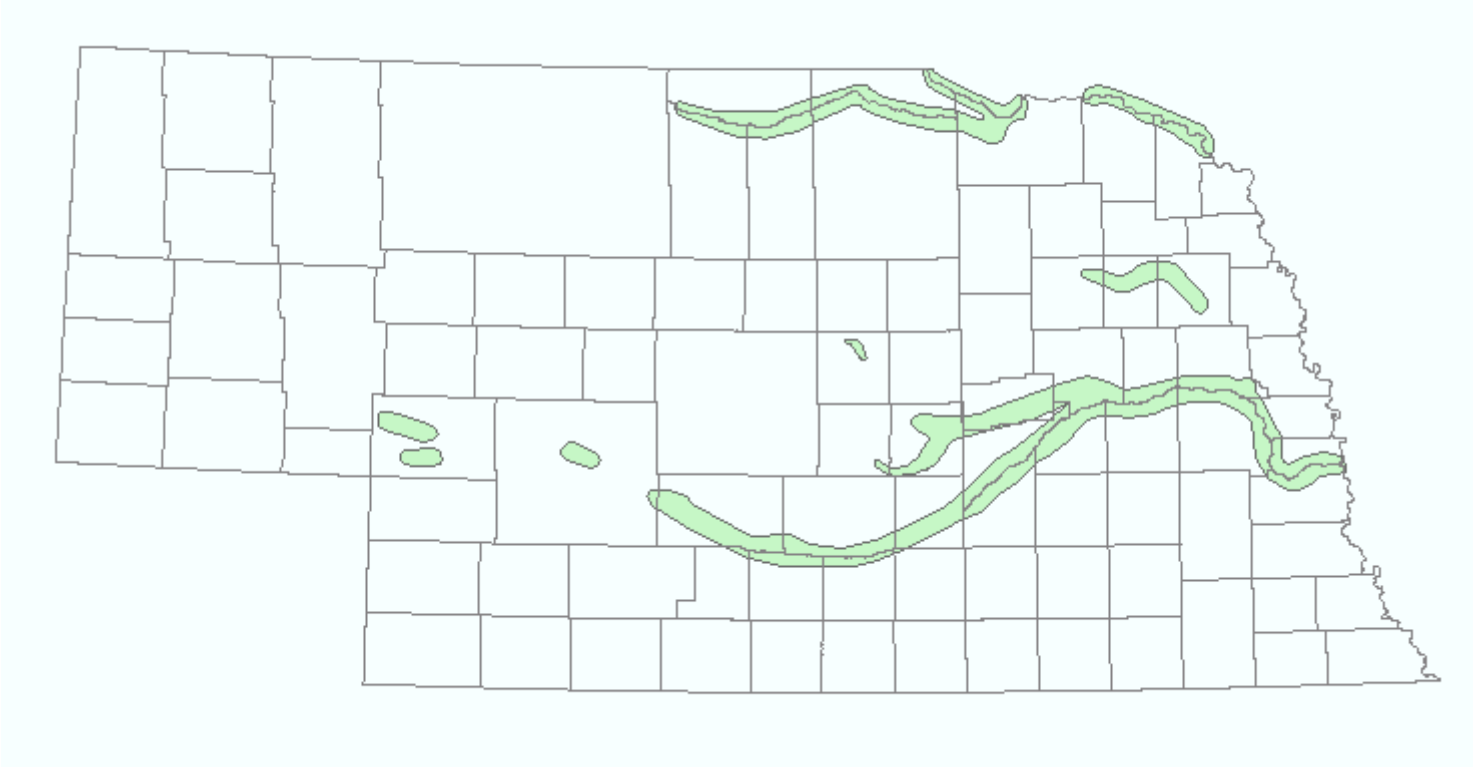
Map last updated April 30, 2009.



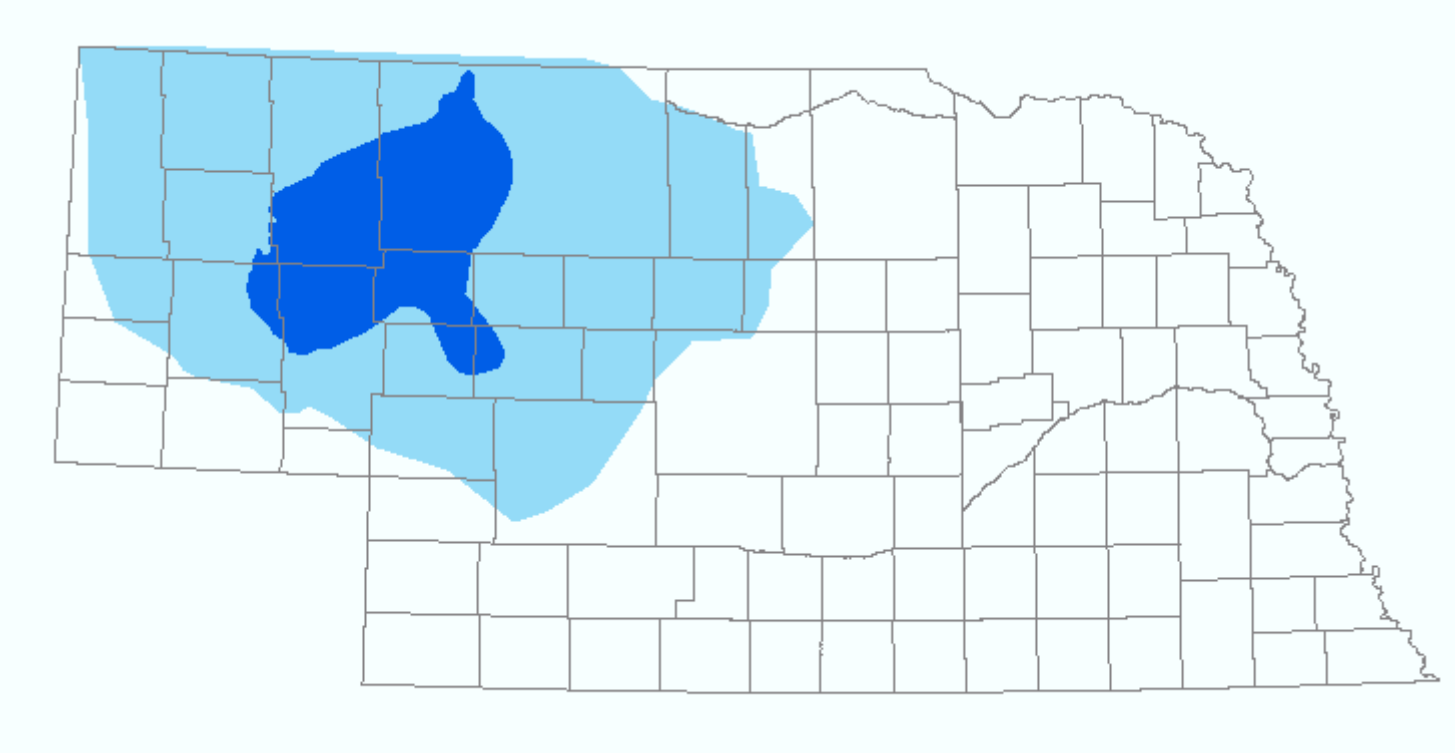
bats



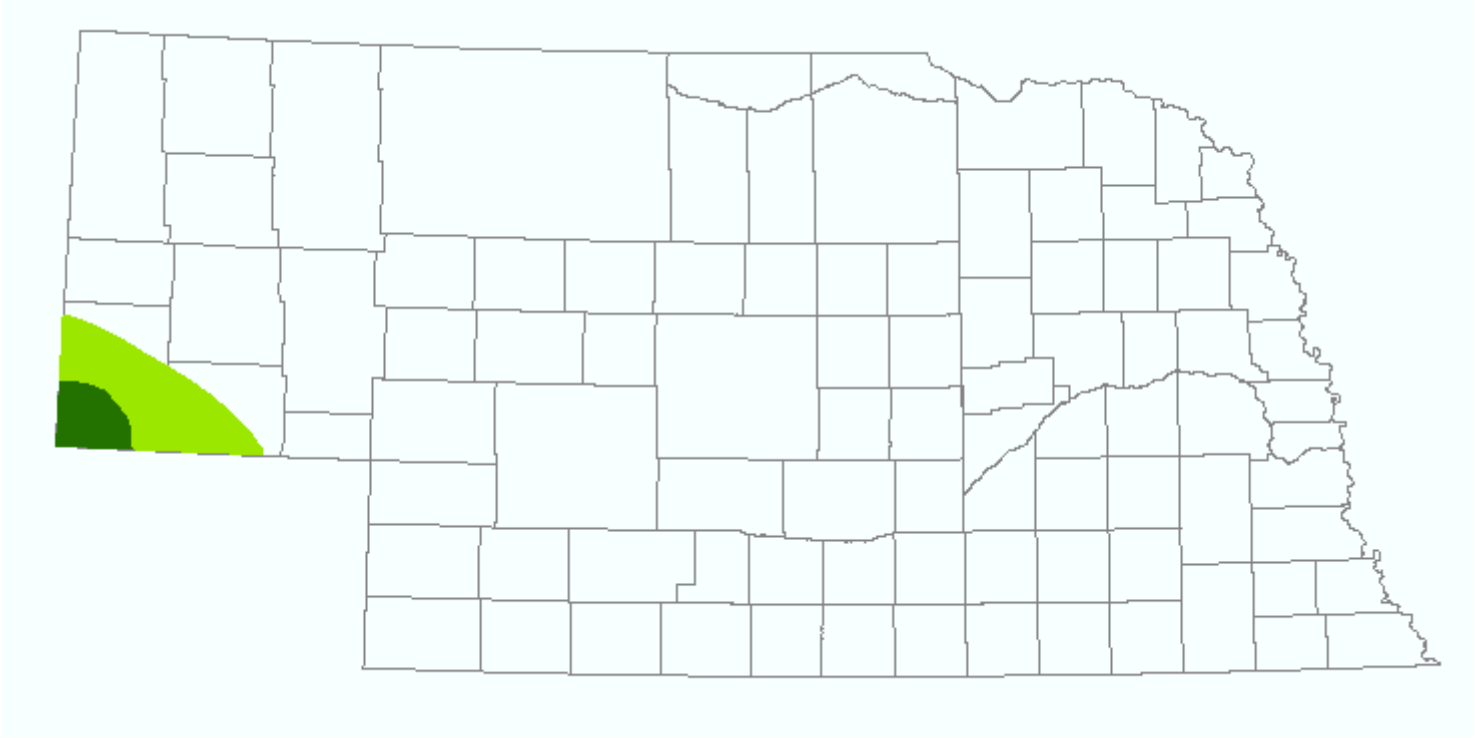
bighorn sheep



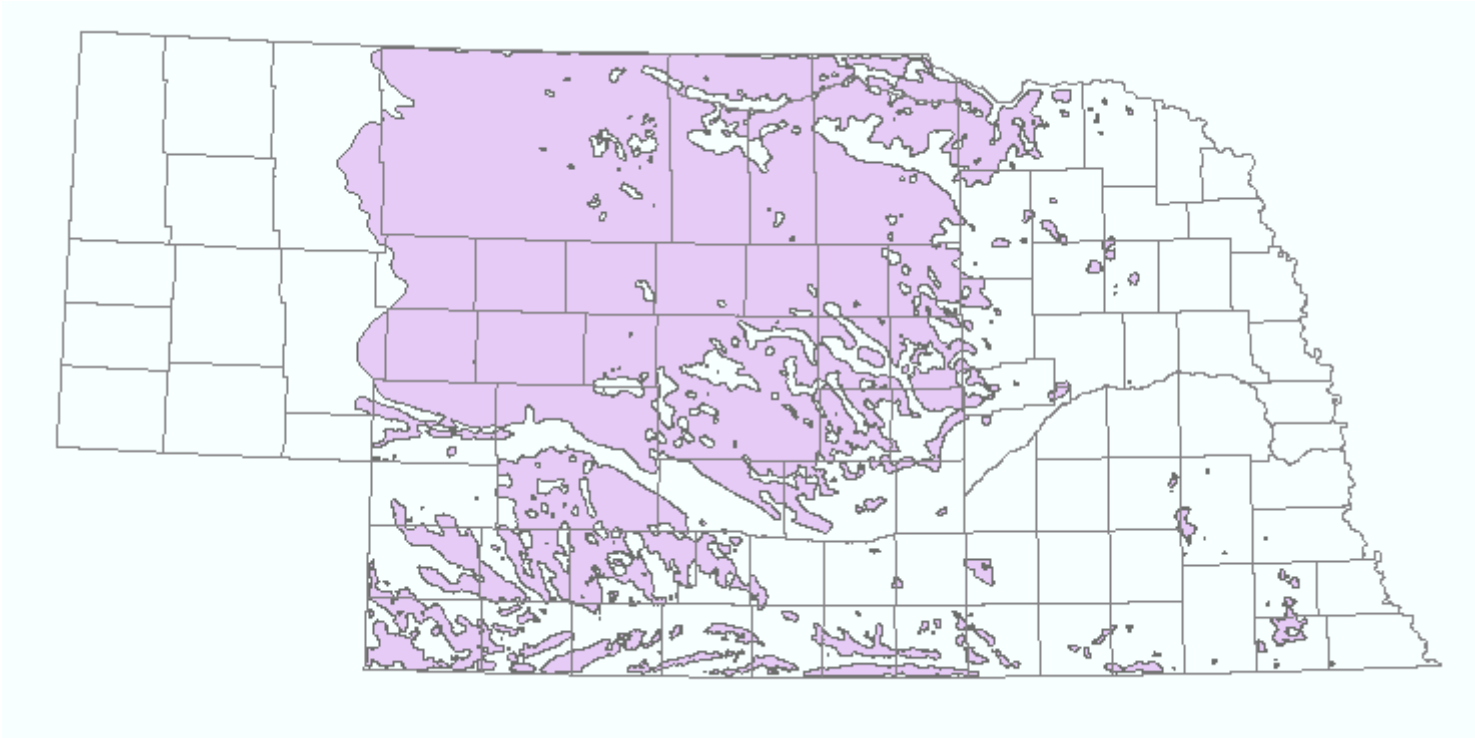
interior least tern and piping plover



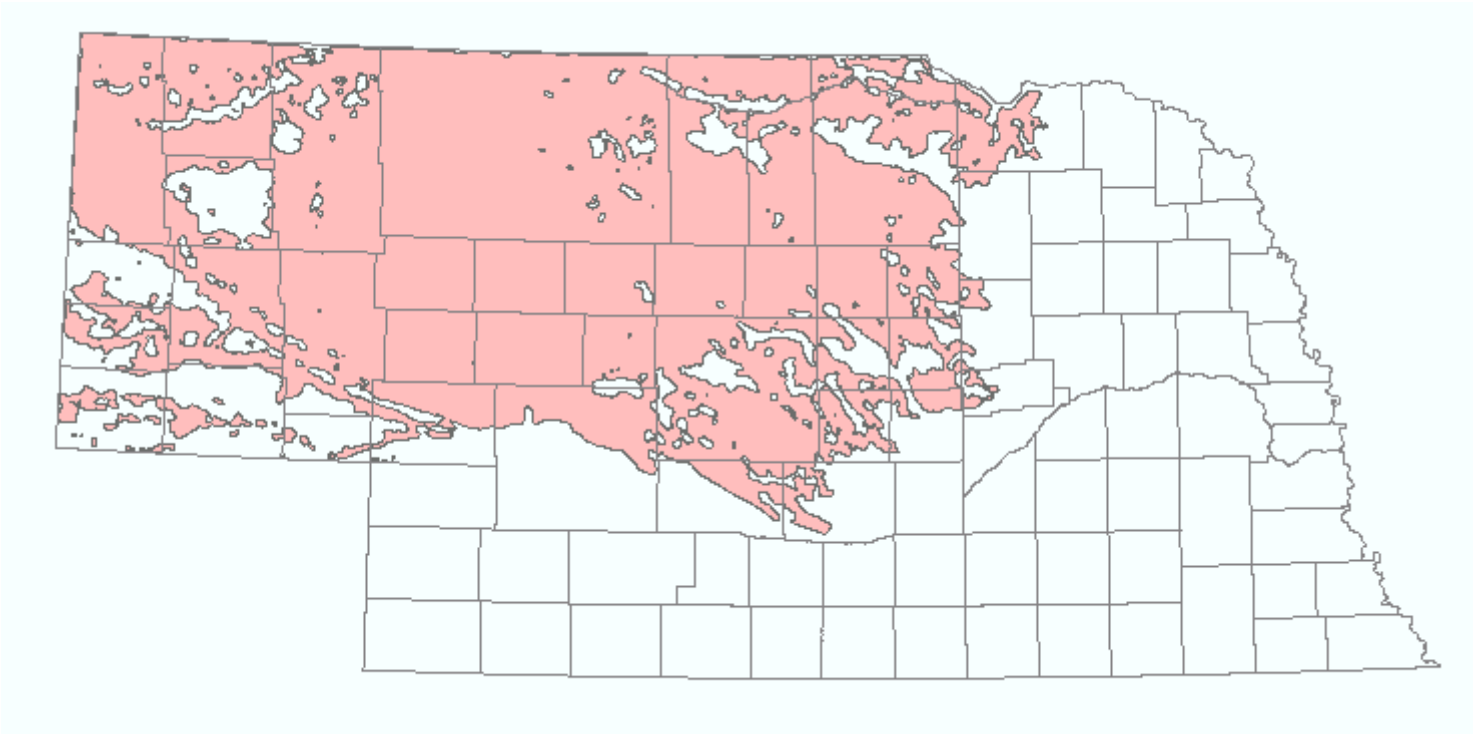
long-billed curlew core (dark blue) and range (light blue)



Mountain plover core (dark green) and range (light green)



greater prairie-chicken



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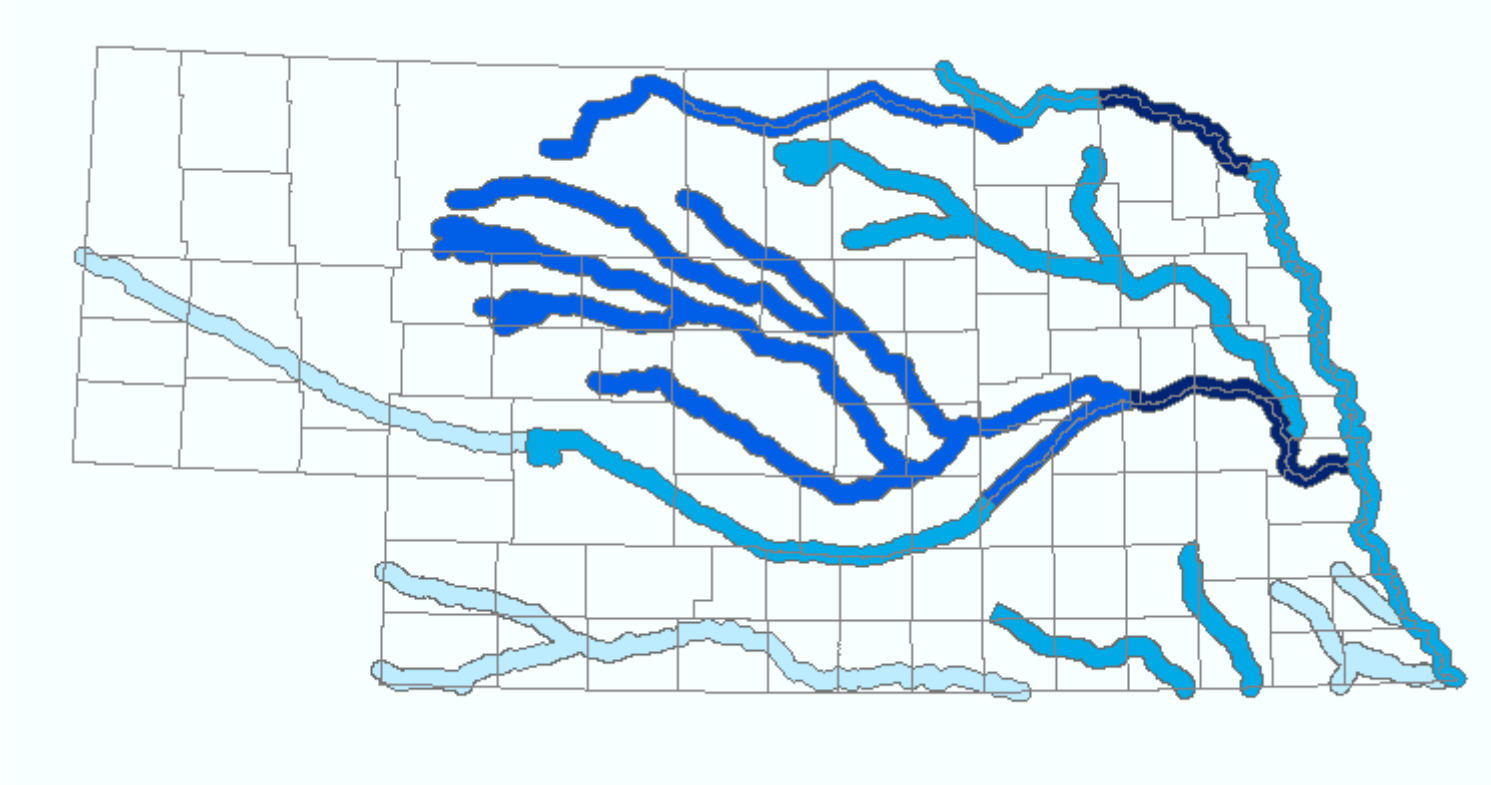
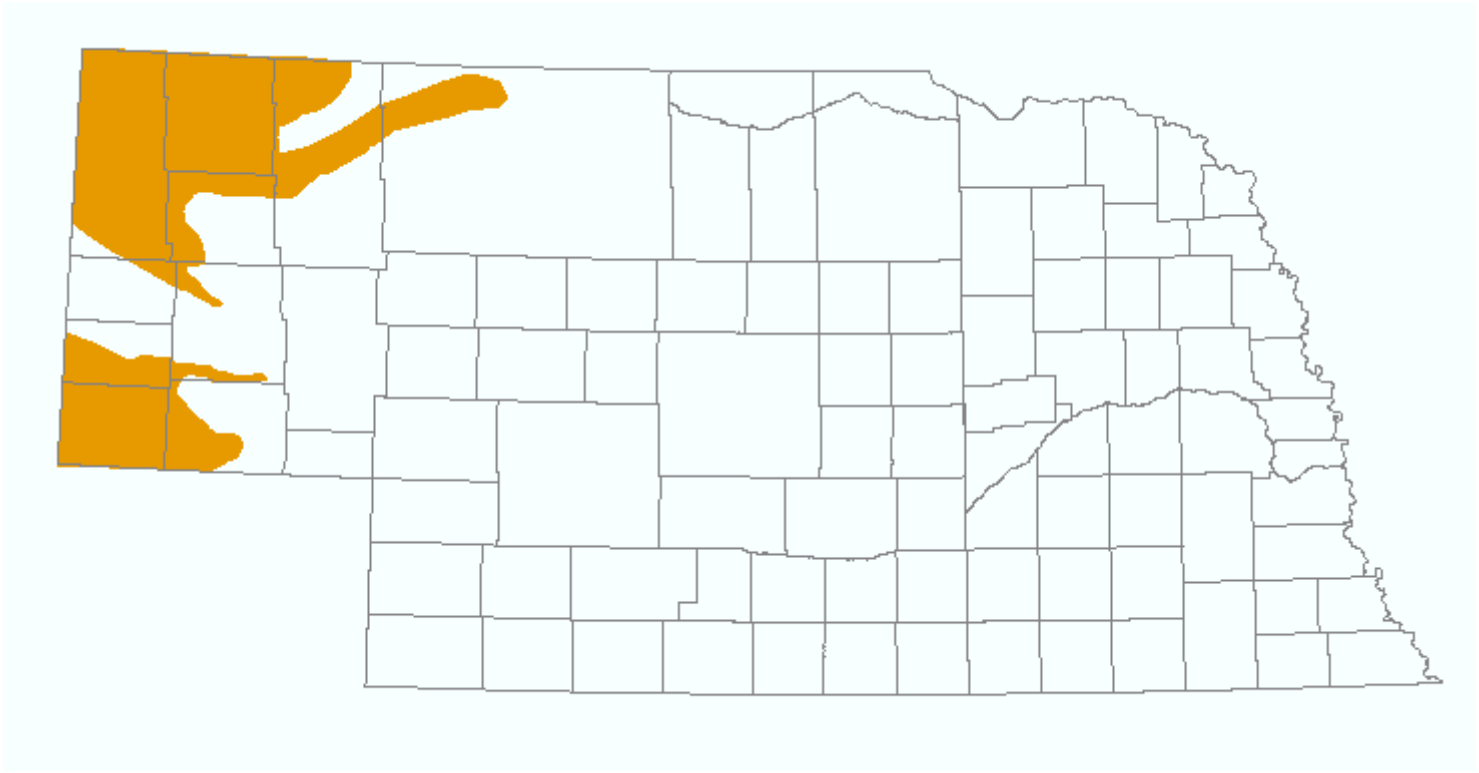
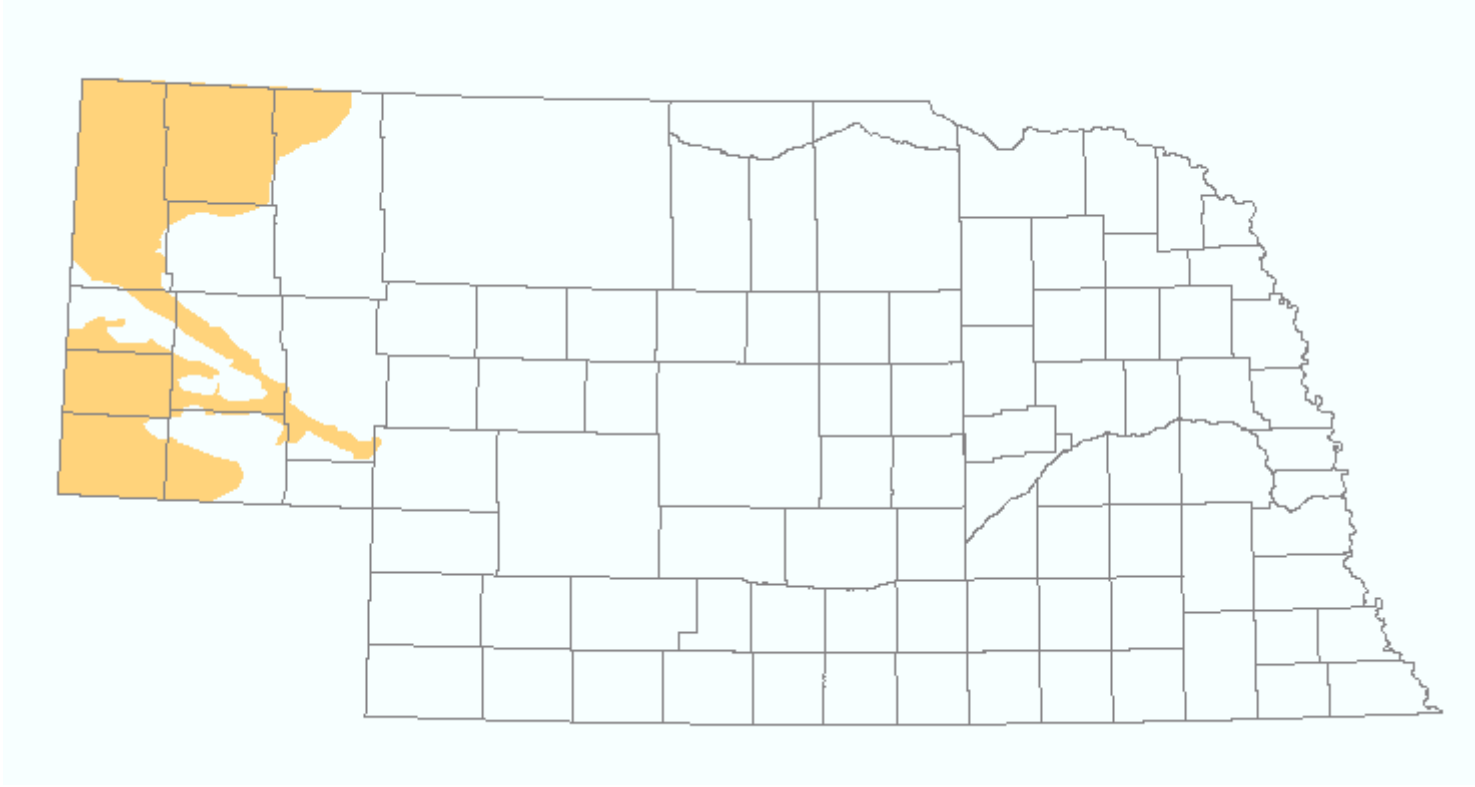


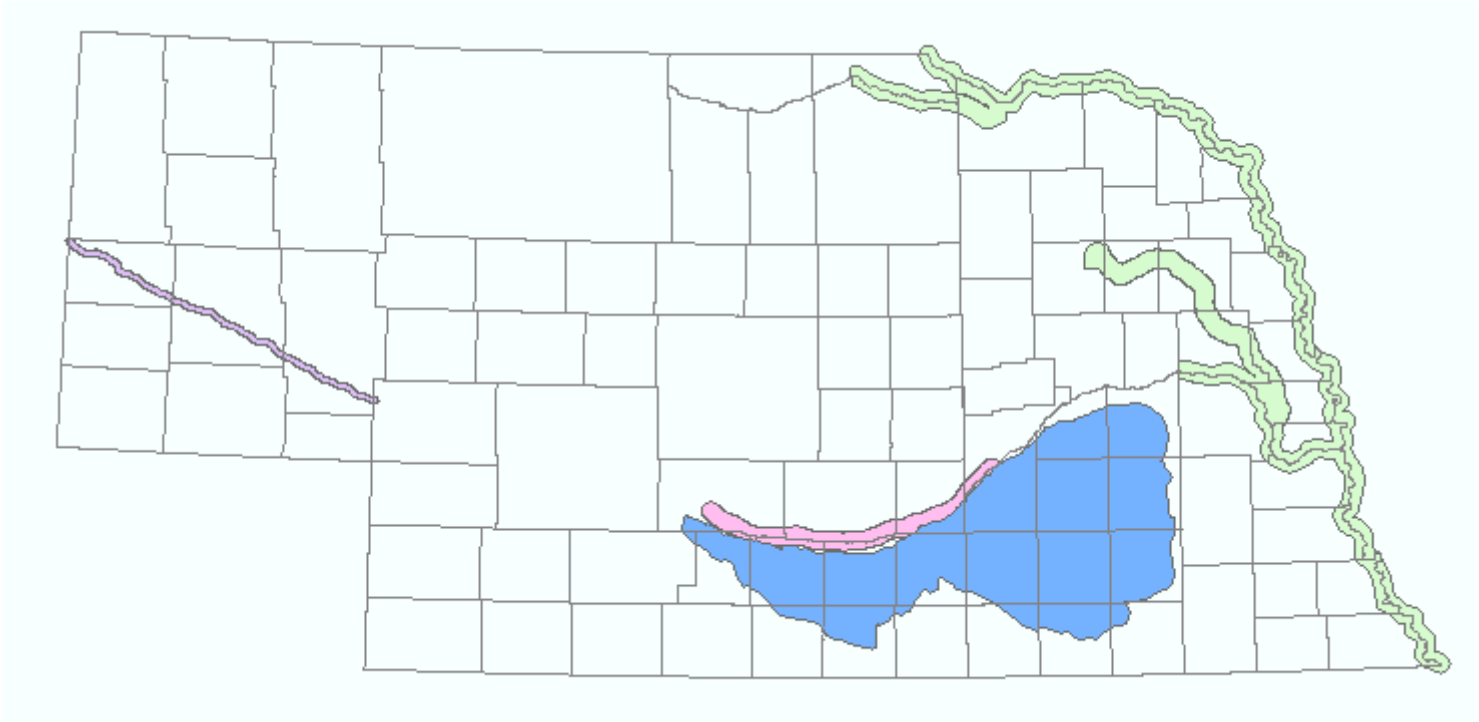
bald eagle



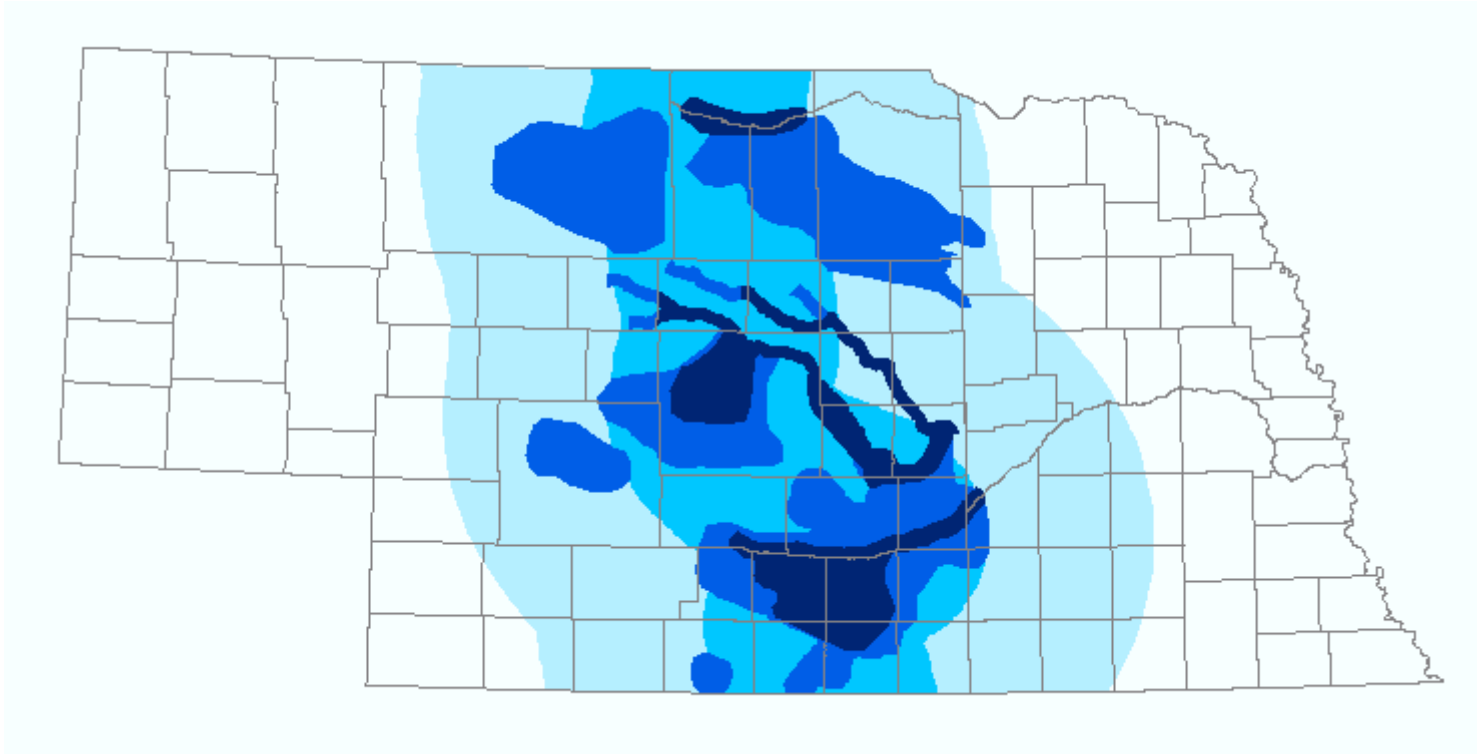
ferruginous hawk



golden eagle



bird stopover areas



Whooping crane

LR83 Question 6 – Exportation/integration

a. Describe how private companies interconnect with the transmission grid system in other states

The Federal Energy Regulatory Commission (FERC) has established standard procedures and agreements for generator interconnections to the transmission system (grid). All utilities subject to FERC jurisdiction, which includes all investor-owned utilities and FERC approved Regional Transmission Organizations (RTOs) must adhere to these FERC procedures. The procedures are included in the utilities' and RTO's transmission tariffs, referred to as Open Access Transmission Tariffs (OATTs). These OATTs are filed and approved by FERC and are publically available. In addition, most public power utilities that own transmission facilities have also adopted generator interconnection procedures that are similar to the procedures established by FERC.

RTOs cover a multi- state area and a utility that joins a RTO basically suspends its own OATT and places its transmission facilities under the OATT of the RTO, and is therefore subject to generator interconnection procedures of the RTO. Because the transmission system is an interconnected network, a generator interconnecting to the transmission system will have impacts across a wide area and the RTO can more readily study those impacts.

By utilizing these standard FERC procedures and agreements for generator interconnection throughout the United States, private generation developers can expect that the procedure for interconnecting to the transmission system is generally the same regardless of the state where their project is located. However, FERC has made it clear that the generator interconnection procedure does not include transmission service for delivery of the generator output to any customer. FERC requires that the transmission customer receiving the output of the generator submit a transmission service request which is evaluated in a separate transmission study. This study identifies the transmission upgrades required to deliver the generator output from the Point of Receipt on the transmission system to the Point of Delivery where the customer (load) is located.

Since NPPD, OPPD and LES have joined the Southwest Power Pool (SPP), and have placed their transmission facilities under the SPP OATT, private generator developers that want to interconnect to the transmission facilities of these

Nebraska utilities will be required to submit their generator interconnection request to SPP. Likewise, these Nebraska utilities will also have to submit a generator interconnection request to SPP for any new generation that the Nebraska utilities want to interconnect. SPP will conduct the generator interconnection studies for both the private developers and these Nebraska utilities. FERC requires that private generation developers receive comparable access to the transmission system, which means that the transmission owner does not receive any preferential treatment to interconnect its own generation.

SPP has 54 members, including investor-owned utilities, municipalities, cooperatives, state agencies, independent power producers, power marketers, and independent transmission companies serving customers in nine states, including portions of Arkansas, Kansas, Louisiana, Missouri, Nebraska, New Mexico, Oklahoma, and Texas. Any private developer that wants to interconnect generation to any of the SPP member's transmission system is assured that its generation interconnection request will be evaluated in a comparable manner using the SPP generator interconnection procedures. SPP will also conduct the transmission service request study for delivery of the generator output to any transmission customer in SPP. If the private generation developer wants to deliver the output to a customer outside of the SPP footprint, then the customer will also have to request transmission service on any adjoining transmission systems.

Private generation developers that want to interconnect to transmission facilities in Nebraska owned by Tri-State G&T or Western Area Power Administration need to submit a generator interconnect request with those utilities. The utilities will evaluate the request in accordance with their generator interconnection procedures.

The FERC procedure for generator interconnection was first established in an Order issued in July 2003 applicable to generators with a capacity greater than 20 MWs. FERC issued an Order in May 2005 applicable to generators 20 MWs or less. Both of these Orders have been modified through subsequent FERC issuances. The FERC procedures have not been very successful because the procedure has resulted in an enormous backlog of generator interconnection requests awaiting transmission studies, whether the generator interconnection request is under a RTO's or individual utility's OATT. The reason for the backlog is primarily due to the FERC requirement to study the interconnection requests sequentially in the order the request was received. This is referred to as "first in queue, first studied". To address this backlog, some of the RTOs (the Midwest ISO and the Southwest Power Pool) have received FERC approval to change the transmission study procedure in order to speed up the generator interconnection

procedure. SPP received FERC approval in July 2009 to study the interconnection requests in groups or clusters based on the readiness of the developer to proceed. This process is referred to as “first ready, first served”.

While the transmission study process has been very protracted, even with resolution of that part of the generator interconnection procedure, the fundamental issue that still remains is the allocation of costs for transmission upgrades required to interconnect the new generation. Because there is very limited capacity in the existing transmission system, oftentimes a new generator will be allocated a significant cost to upgrade the transmission system in order to connect the generator, which may make the generation project uneconomical.

Without describing all of the detailed generation interconnection procedures, an abbreviated explanation is provided to give some insight into what is required.

- Generator submits a completed generator interconnection request form to SPP. Typical required information includes: point of interconnection to the transmission system, output of generating facility in MWs, technical data on generator, proposed in-service date, evidence of site control of land where generator is located, type of interconnection service requested (energy resource or network resource service) and type of transmission interconnection study requested (feasibility or more detailed system impact study), along with a deposit to fund the study work.
- SPP places the request in queue assuming all required information has been provided.
- SPP conducts the transmission interconnection study
- SPP conducts a facilities study after completion of the interconnection study
- Generator signs an Interconnection Agreement with SPP and the Transmission Owner obligating the generator to pay for any necessary transmission upgrades. The time frame to get to this point may be 12 months or more.
- SPP authorizes transmission owners to construct necessary transmission facilities

In summary, generator interconnection procedures are very similar in all states, whether the generator is interconnecting to the transmission facilities owned by an investor-owned utility or a public power utility.

b. Please describe the current transmission system in Nebraska and locations that have limited capacity to add new generation resources.

The transmission system in Nebraska is considered to be those facilities rated 115 – 345 kV. The facilities are owned by various utilities including NPPD, OPPD, LES, Tri-State G&T, Basin Electric Power Cooperative, Western Area Power Administration, the City of Hastings, and the City of Grand Island. The facilities are all interconnected and power is distributed across the network from the generating plants, generally interconnected at 345 kV, to lower voltage facilities. The Nebraska transmission system is connected to utilities in the surrounding states, including South Dakota, Iowa, Missouri, and Kansas. With the exception of a small portion of extreme western Nebraska, the Nebraska transmission system is part of the Eastern Interconnection. The only interconnections from Nebraska to the Western Interconnection are through two DC ties, one near Sidney, and the other west of Scottsbluff.

NPPD, OPPD, and LES are the only Balancing Authorities in Nebraska. A Balancing Authority must be certified by the North American Electric Reliability Corporation (NERC), and their role is to continuously monitor the status of the electric system; balancing generation to match load every few seconds, maintain voltages and thermal loading within equipment ratings, maintaining system frequency and coordinating exchange of energy with adjoining Balancing Authorities. Balancing Authorities must also coordinate their operations with Reliability Coordinators, who monitor the status of the system on a much larger geographical area. SPP serves as the Reliability Coordinator for NPPD, OPPD, and LES.

Because the transmission system is a network of interconnected facilities with energy flowing over the path of least impedance (“resistance”), it is not possible to simply look at the thermal capacity of a given transmission line to determine how much generation can be interconnected at a given location. Instead, the system must be modeled using sophisticated computer simulations that determine the impacts on each element of the transmission system under a multitude of outage scenarios with the new generation added to the system. However, as a general rule of thumb it is reasonable to consider interconnecting generation rated 80-100 MW at the 115 kV level, 200-300 MW at the 230 kV level, and 300 or more MWs at the 345 kV level.

Not surprisingly, the greatest concentration of transmission facilities in Nebraska is located in the same areas as the greatest concentration of population. In a very general sense the best locations for interconnecting generation to the Nebraska transmission system tend to be in the south-central and eastern one-

third of the state. The areas of the state where the transmission system can least likely support new generation interconnection without extensive transmission upgrades are in western Nebraska, generally areas west of NPPD's Gerald Gentleman power station near Sutherland Nebraska, and in north-central Nebraska, generally from O'Neil to Chadron. There is very little existing transmission in north-central Nebraska simply because there is little population and consequently very little load.

Western Nebraska is characterized by much less load than generation which means the transmission system must be closely monitored to maintain system stability. There is very little excess transmission capacity to interconnect additional generation in western Nebraska (to the Eastern Interconnection) without extensive transmission system upgrades. Generation interconnecting to the Eastern Interconnection in western Nebraska cannot be delivered to any states in the Western Interconnection, except through the limited capacity of the DC ties, which are fully utilized. However, generation in western Nebraska could interconnect directly to the transmission facilities in extreme western Nebraska that are part of the Western Interconnection. For example, there is a wind farm near Kimball Nebraska that is interconnected to transmission facilities that are part of the Western Interconnection. The transmission facilities in western Nebraska that are part of the Western Interconnection (generally Kimball, Banner, and parts of Cheyenne, Morrill, Scottsbluff, Sioux, and Dawes Counties) are owned by Western Area Power Administration, Tri-State Generation and Transmission Cooperative, and Black Hills Power & Light. There are transmission limitations in the Western Interconnection in the Colorado and Wyoming area that would require transmission upgrades to allow interconnection of additional generation in western Nebraska to the Western Interconnection.

c. How do other states fund transmission development?

In most cases transmission is funded by the utilities that own the transmission. When transmission is built to serve load growth the utility will fund the project and recover its costs through its transmission rate that is paid by all users of the transmission system including both wholesale and retail customers. If transmission is required to interconnect new generation the cost is generally assigned directly to the generator per the FERC interconnection procedures described above. Some states have created state agencies with the authority to issue bonds intended to fund transmission additions. Wyoming, South Dakota, and Kansas have created such authorities, but it is not known to what extent bonds have been issued for transmission projects. The bonds are paid back by

the utility which includes those costs in its rates. It appears the only advantage to this approach is if the state authority can issue bonds at a lower financing rate than the utility.

d. How do private energy producers work within SPP and how do they share the cost of transmission in other states?

Private generation developers in SPP submit a generation interconnection request as described in question (a) and SPP will conduct the generator interconnection studies. When complete the private developer must sign an Interconnection Agreement with SPP and the transmission owner, and agree to pay for the required transmission upgrades. If the private developer wants to deliver the output of the generator to a specific customer, a transmission service request study must also be conducted. SPP groups all transmission service requests submitted within a specified time frame and performs an aggregate deliverability study. This study may require that additional transmission facilities be constructed and the private developer will be assessed a portion of those costs in addition to the transmission facilities required by the interconnection study. If the private developer does not have a specific customer to deliver the energy to, but instead wants to deliver the generator output to the SPP energy market, it can do so without the need for a transmission service request. However, the delivery to the energy market is classified as non-firm delivery, meaning that when transmission congestion occurs, the generator will be curtailed.

SPP has several different methods to share the cost of transmission expansion. For transmission expansion needed to meet reliability standards for load growth, one-third of the calculated annual transmission revenue requirement for the project is shared by all SPP members based on their load-ratio share (i.e. if 10% of the load, then share 10% of the cost), and two-thirds is shared among the transmission owners based on the power flows on their transmission systems. To facilitate wind development in SPP that is located remotely from the load (i.e. outside of the SPP member's transmission system or zone), a new transmission cost sharing mechanism was recently approved. If the wind generator is developed as a network resource to serve a SPP load-serving member, then two-thirds of the annual transmission revenue requirement for the transmission upgrades required to interconnect the generator is shared by all SPP members on a load-ratio basis, and one-third is assigned directly to the SPP member requesting the interconnection.

SPP is currently considering a new transmission planning process and a group of priority projects which are intended to reduce congestion on the transmission

system and create a robust transmission system that will enable additional interconnection of new generation. Included are projects rated 765 kV which has much higher transmission capacity than the existing 345 kV facilities. Coupled with this effort, SPP is also considering a transmission cost-sharing mechanism referred to as a “highway/byway” transmission rate. The concept is that the 345 kV and higher voltage facilities serve as the “highway” to deliver energy throughout SPP, and the 115- 230 kV facilities serve as the “byway” to deliver energy locally. All new highway facilities would be cost-shared on a load-ratio share basis, and new byway facilities would be funded by the local SPP transmission owner. One of the concerns with the highway/byway cost sharing is that private generators that want to export power outside of SPP need to help fund this transmission expansion, rather that SPP members’ load paying for all of the new transmission.

In other states, the cost of transmission expansion for private developers to interconnect new generation is addressed in the OATT of the utility. Generally, the private developer will have to fund the cost of the transmission expansion. If the utility is a member of a RTO, then the OATT of the RTO will specify any cost sharing.

The Midwest ISO serves a large part of the Midwest, including most of Iowa, parts of North and South Dakota, most of Minnesota, Wisconsin, eastern Missouri, and portions of several states further east. The Midwest ISO does not have cost-sharing mechanisms as developed as those of SPP. 345 kV projects needed for reliability are cost-shared 20% regionally and 80% locally. Recently, the Midwest ISO made a major change in it cost sharing for transmission upgrades for generator interconnection, which now assigns the cost to the generation developer. Previously, the costs were assigned to the transmission owner where the generator was interconnected even though the generation was being delivered elsewhere. Several of the Midwest ISO members threatened to withdraw from the Midwest ISO because the transmission upgrade costs were going to cause skyrocketing rate increases for their customers.

The California ISO has a unique cost-sharing mechanism for generator interconnection transmission upgrades. The ISO approved construction of significant transmission expansion to a location remote from the existing transmission network for the purpose of developing wind generation. They allowed the utilities to recover the construction costs in their rates, and later the ISO will charge the generators a portion of the transmission costs when they interconnect to the system. Basically, this results in the utilities’ customers providing advance funding for the transmission expansion.

In summary, private generation developers are on equal footing with the utilities when requesting interconnection to the transmission system. The as yet unsolved issue is who will pay for the transmission upgrades for large scale wind development, which will require hundreds of millions of dollars in new transmission construction.

e. What is the role of SPP and NERC in the development of transmission for export?

NERC establishes reliability standards applicable to the bulk power system and performs both seasonal and long-term (10 year) assessments of the system to determine if there is adequate generation to serve load, and that the system can be operated to meet reliability standards for a number of contingency conditions. For instance, the standards require that reliability of the system must be maintained even if a major transmission line is out of service due to planned maintenance or a forced outage. However, NERC does not have a role in development of transmission expansion plans for export of wind generation to other regions. NERC's role is not to determine which type of generation should be developed and where, but to ensure that there are adequate plans for generation development and that the system is operated reliably.

SPP is charged with developing transmission plans to meet the needs of its members within the SPP footprint. SPP has participated in a joint transmission planning effort that involved other regions, including the Midwest ISO, the MAPP region, TVA, and PJM. A study was published that showed the transmission facilities needed to deliver 20% renewable energy, developed mostly in the central plains states to customers throughout the Eastern Interconnection. The study concluded that nearly $60 billion of new transmission investment would be required. There has been considerable negative response to this study by the northeastern, mid-Atlantic, and southeastern states, who do not want to fund transmission investment to deliver Midwest wind to the east. Instead, they believe they can develop renewable resources locally at less cost.

Another effort is underway to conduct a similar and updated study for the Eastern Interconnection paid for by funds from the DOE. The study title is the Eastern Interconnection Wind Integration and Transmission Study prepared for the National Renewable Energy Laboratory. All of the transmission planning entities in the Eastern Interconnection, including SPP and the other RTOs, as well as individual utilities that are not members of a RTO, are participating in this study. While the study may provide valuable insights as to the transmission network

expansion required for development of wind in the central plains states for delivery to the population centers in the eastern U.S., there is no federal authority to require that any of the transmission facilities identified in such a study ever gets built. The only mechanism that would result in development of transmission for export is for the RTOs to reach a cost-sharing agreement on how to pay for the transmission. Given the diverse interests of the stakeholders in the various regions, it is very doubtful that such agreement could be reached.

Under the current regulatory regime, the RTOs develop transmission expansion plans and cost allocation methods for interconnection and delivery of new generation resources within their respective footprints, but there is no mechanism to plan for or cost-share transmission expansion that crosses these regional boundaries. Of course there is nothing that prevents a private wind generation developer from funding the needed transmission expansion for export, but they have been unwilling to do so because of the large investment required and uncertainty of how that investment will be recovered.

NATURAL RESOURCES COMMITTEE

LR 83 GENERATION PLANNING/FINANCING COMMITTEE

1 *What are the projections for new power demands for the next 20 years? Use reports that utilities currently provide to PRB.*

Attached are Exhibits 1-7 of the NPA Load and Capability that was submitted to the Nebraska Power Review Board (PRB) with one change. Since the submittal on June 29, 2009, OPPD has a new peak demand forecast that is substantially lower. This resulted in OPPD delaying the need for new intermediate capacity from 2014 to 2022.

Over the twenty year period 2009 through 2028, the average annual compounded peak demand growth rate for the State is projected at 1.48% per year. This is slightly lower than the 1.63% reported in the June PRB submittal.

The “Committed” Resources have Nebraska Power Review Board (NPRB) approval if required. PURPA qualifying projects do not need NPRB approval.

The “Planned” Resources are those that a utility has authorized expenditures for an architect/engineer, or permitting, but do not have NPRB approval.

The “Studied" Resources were not based on the traditional method but in a way specifically for the statewide plan. For years beyond the point when existing, committed, and planned resources would meet a utility's Planned Obligation, each utility would establish Studied resources in a quantity to meet this deficit gap. These Studied resources are identified based on renewable, baseload, intermediate, and peaking resources considering current and future needs. The result is a listing of the ideal mix of renewable, baseload, intermediate and peaking resources for each year. The summation of Studied resources will provide the basis for the NPRB and the state utilities to understand the forecasted future need by year and by resource type. This can be used as a joint planning document and a tool for a coordinated long range power supply planning.

The NPA Load and Capability shows a need for new capacity in 2022 based on the latest peak demand forecasts and existing and committed generating capacity. The statewide deficit has been delayed one year (from 2021 to 2022) as compared to the L&C submitted to the PRB in June. This assumes NPPD receives approval from the NRC to extend Cooper Nuclear Station operating license beyond 2013.

2 *What are the personal goals for renewable energy for NPPD, OPPD, LES, and each and every rural electric system?*

NPPD has a 10% renewable energy goal by 2020 for both wholesale (rural public power districts and municipalities) and retail load.

OPPD has a 10% renewable energy goal by 2020 for all firm retail and wholesale load.

LES has not set a renewable energy goal. LES evaluates options as they become available and decides on a participation amount.

3 *What are distribution system distributed generation goals (if any)?*

OPPD has an energy conservation goal of 50 MW by 2012. OPPD currently has 67 MW of curtailable load. OPPD also has 6 MW of landfill gas distributed generation.

LES has no distributed generation or energy efficiency goals. However LES has a Sustainable Energy Program where LES contributes money toward efficiency projects and could do grants toward distributed generation. The amount available to the customers was $1 million this year and perhaps more in 2010 depending on budget authorizations. LES also works with large customers to set up District Energy Corporations. These generally focus on efficiency but could include some generation.

In May of 2009, NPPD issued a request for proposals for small-scale (< 10 MW) renewable energy projects that meet Public Utility Regulatory Policy Act (PURPA) guidelines. Nine proposals have been received and are currently being evaluated. Any of the proposed projects ultimately approved for development by the NPPD Board of Directors would be expected to be operational by December 2010.

4 *What is the typical arrangement for the purchase of new energy both traditional and renewable (contract, partnerships) and how does public power pay for their share? Bonds?*

The typical arrangement depends more on who owns the facility rather than what type a facility it is. If the utility owns the facility (either traditional or renewable), the utility will issue tax-exempt bonds for the construction cost. Operating and maintenance (including fuel) costs to operate the facility are typically paid out through its own revenues as an operations and maintenance expense.

If the utility purchases energy (either traditional or renewable) it is typically purchased through its own revenues as an operations and maintenance

expense. The construction costs are financed by the owner and are included in the purchased power expense. In some Participation Power Agreements (PPA) the owner of the facility will allow the participant to finance their share of the construction costs as was the case in the Nebraska City Unit 2 PPA. PPA 's can be fixed price (usually in the case of wind) or can be pay your pro-rata share of the actual costs (like Nebraska City #2).

By law Public Power Districts are not allowed to use its tax exempt financing to construct facilities for the sole and long-term use by taxable entities that exceeded 10% of the output or $15 million whichever is less. Therefore if a Power District were to build Wind Generators or any other generating resource it would be prohibited into entering a long-term contractual arrangement to sell energy to a private utility if it exceeded the above restrictions. This restriction also applies to any transmission infrastructure built for the sole use of a private entity.

A Public Power District could issue taxable bonds and still maintain its tax exempt status. These bonds would be issued at a higher interest rate and the bondholder would be subject to tax consequences of holding those bonds. Obviously issuing the bonds at a higher interest rate would put a Public Power District at a disadvantage since as a public utility it is not subject to taxes and does not have the tax benefit associated with these higher interest payments.

5 *How do we use the NPA/NREL Integration Study and other future joint studies?*

NPA's year-long "Nebraska Statewide Wind Integration Study" will be completed in late October, 2009. Its focus is to identify what are the main issues associated with integrating various levels of wind generation, what are the associated costs of integration, and what can possibly help to mitigate these effects. The study focuses on year 2018 and various levels of 10%-40% wind penetration (into the resource mix) as measured by share of load energy. At the highest (40%-4,727 MW) level, we are studying an intermediate condition in 2018 that is approximately 60% of the way to the 7,800 MW by 2030 level (i.e., on a faster pace than probably implied by the goal in the LR 83 study). Many study questions will remain, however. We will have made good progress in understanding and communicating the large implications on transmission needs, export requirements, existing generation unit impacts, and approximate overall cost effects. Said in other words, high levels of wind generation and its transport will require very large investments and create significant operational issues associated with the variability and uncertainty of wind generation. Future joint studies both within Nebraska and in cooperation with regional pools will be needed to go further into the system design and operation requirements for integrating wind generation. The LR 83 study can use this NPA study by summarizing its key findings, maybe even attach its Executive Summary, and

point to this work as a good start in addressing these various issues associated with the LR 83 goal.

The NPA/NREL study can be used as a beginning conceptual estimate of the scale of a transmission build/upgrade necessary to support this level of wind. From this the committee can explore various funding/permitting measures that could be taken to facilitate the build of transmission lines to support wind.

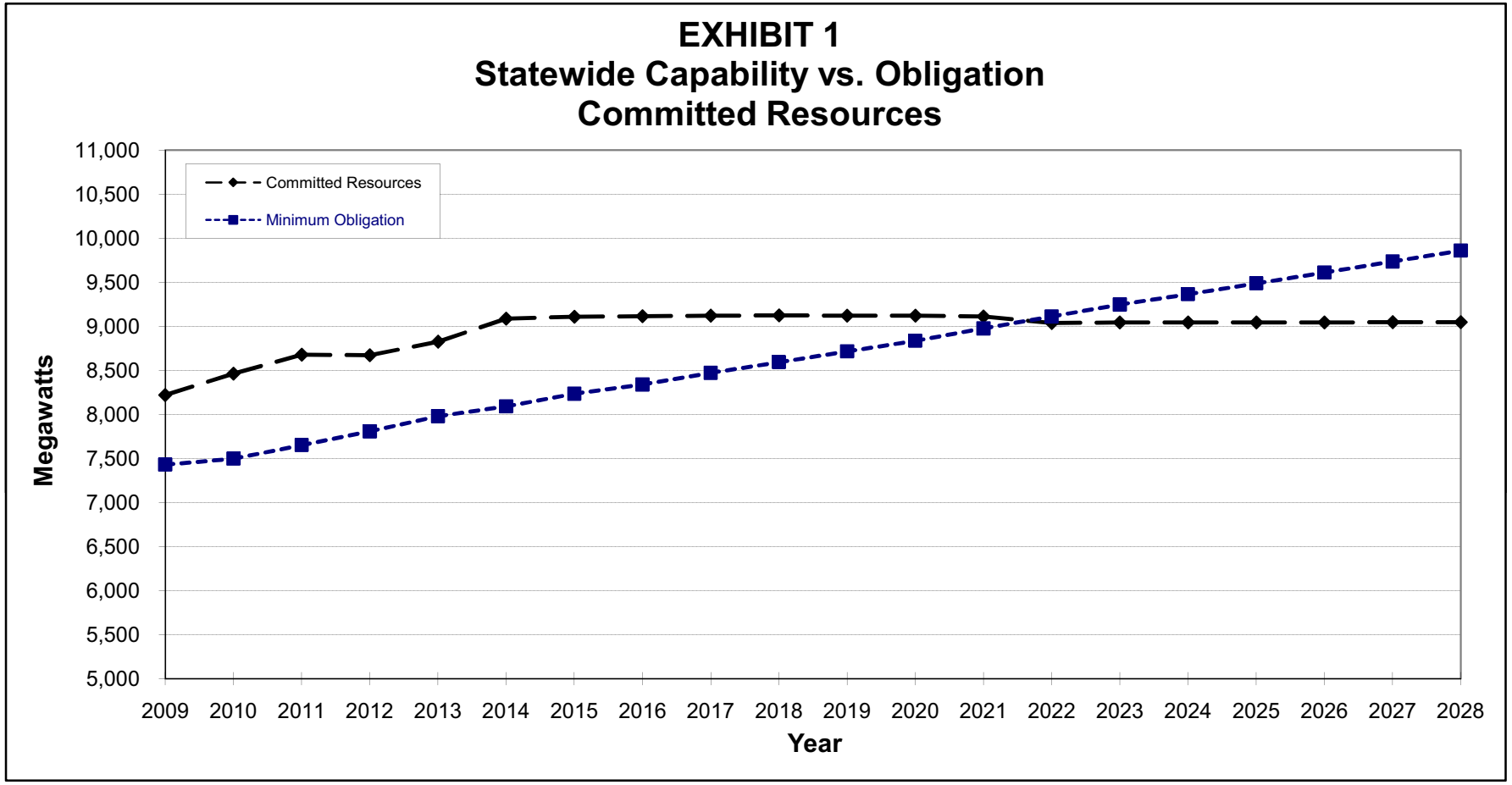


EXHIBIT 1
Statewide Capability vs. Obligation
Committed Resources
Committed Resources
Minimum Obligation
Megawatts
11,000
10,500
10,000
9,500
9,000
8,500
8,000
7,500
7,000
6,500
6,000
5,500
5,000
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
Year

EXHIBIT 2
NEBRASKA STATEWIDE
Committed Load & Generating Capability in Megawatts
Summer Conditions (May 1 to October 31)

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
1 Seasonal System Demand	6,660	6,719	6,853	6,989	7,141	7,239	7,366	7,459	7,575	7,682	7,791	7,895	8,020	8,139	8,258	8,362	8,471	8,579	8,688	8,799	1.48%
2 Annual System Demand	6,660	6,719	6,853	6,989	7,141	7,239	7,366	7,459	7,575	7,682	7,791	7,895	8,020	8,139	8,258	8,362	8,471	8,579	8,688	8,799	
3 Firm Purchases - Total	1,090	1,092	1,088	1,085	1,084	1,085	1,091	1,091	1,093	1,094	1,097	1,097	1,099	1,100	1,102	1,103	1,105	1,106	1,106	1,107	
4 Firm Sales - Total	83	93	95	96	92	93	93	91	93	93	94	96	97	99	95	96	97	99	100	102	
5 Seasonal Adjusted Net Demand (1-3+4)	5,653	5,720	5,860	6,000	6,148	6,247	6,368	6,460	6,575	6,681	6,789	6,894	7,018	7,138	7,251	7,355	7,464	7,573	7,682	7,793	
6 Annual Adjusted Net Demand (2-3+4)	5,653	5,720	5,860	6,000	6,148	6,247	6,368	6,460	6,575	6,681	6,789	6,894	7,018	7,138	7,251	7,355	7,464	7,573	7,682	7,793	
7 Net Generating Capability (owned)	7,890	7,894	8,114	8,116	8,197	8,306	8,318	8,321	8,321	8,321	8,317	8,317	8,307	8,230	8,230	8,230	8,230	8,230	8,230	8,230	
8 Participation Purchase -Total	564	555	625	627	625	578	577	575	572	571	572	572	573	575	576	576	577	578	579	579	
9 Participation Sales -Total	1,242	983	1,053	1,058	988	788	783	778	773	768	768	768	768	768	768	768	768	768	768	768	
10 Adjusted Net Capability (7+8-9)	7,212	7,465	7,686	7,685	7,834	8,096	8,112	8,118	8,120	8,124	8,121	8,121	8,112	8,036	8,037	8,038	8,039	8,039	8,040	8,041	
11 Net Reserve Capacity Obligation (6 x 0.15)	771	780	799	818	838	852	868	881	897	911	926	940	957	973	989	1,003	1,018	1,033	1,048	1,063	
12 Total Firm Capacity Obligation (5+11)	6,424	6,500	6,659	6,818	6,986	7,099	7,236	7,341	7,472	7,592	7,715	7,834	7,975	8,111	8,240	8,358	8,482	8,606	8,730	8,856	
13 Surplus or Deficit (-) Capacity @ Minimum Obligation (10-12)	788	965	1,027	867	848	997	876	777	648	532	406	287	137	-75	-203	-320	-443	-567	-690	-815	

EXHIBIT 3
Statewide Capability vs. Obligation
Committed, Planned & Studied Resources

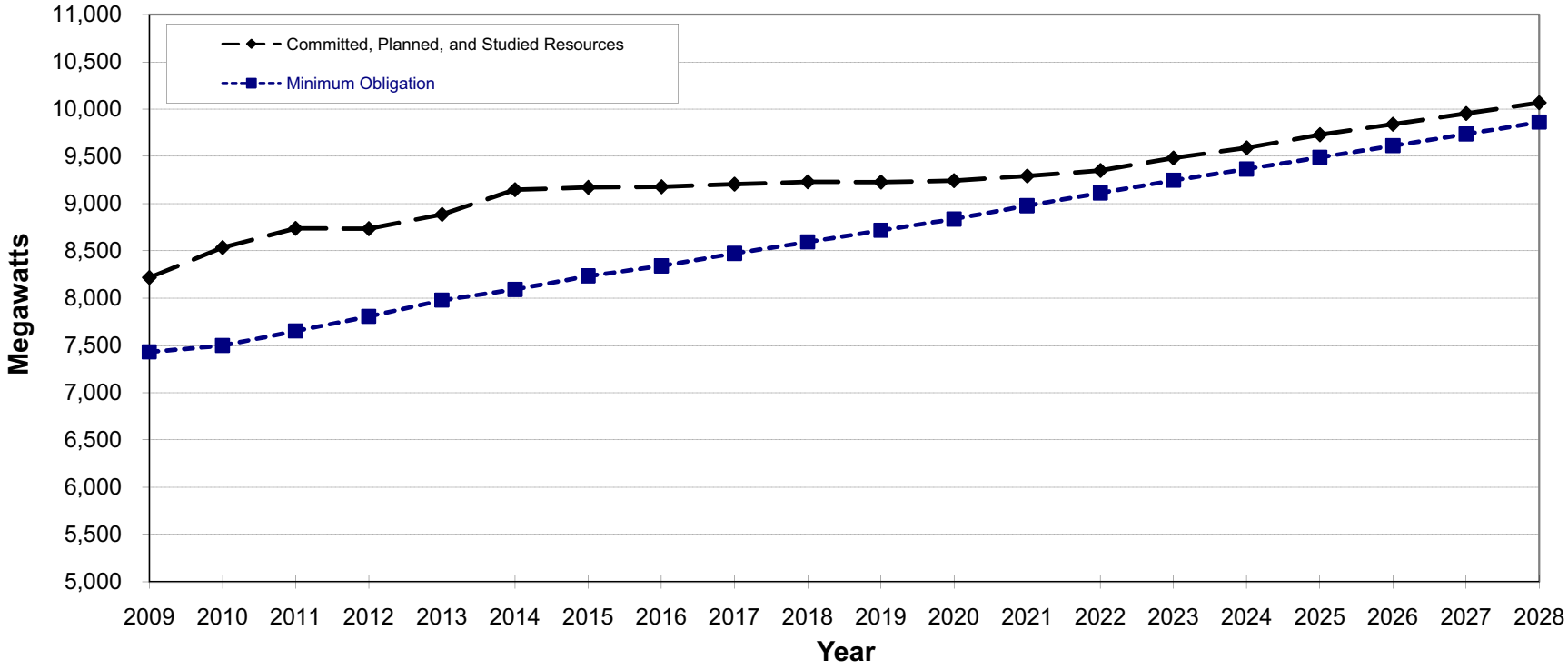


EXHIBIT 4
NEBRASKA STATEWIDE
Committed, Planned & Studied Load & Generating Capability in Megawatts
Summer Conditions (May 1 to October 31)

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
1 Seasonal System Demand	6,660	6,719	6,853	6,989	7,141	7,239	7,366	7,459	7,575	7,682	7,791	7,895	8,020	8,139	8,258	8,362	8,471	8,579	8,688	8,799	1.48%
2 Annual System Demand	6,660	6,719	6,853	6,989	7,141	7,239	7,366	7,459	7,575	7,682	7,791	7,895	8,020	8,139	8,258	8,362	8,471	8,579	8,688	8,799	
3 Firm Purchases - Total	1,090	1,092	1,088	1,085	1,084	1,085	1,091	1,091	1,093	1,094	1,097	1,097	1,099	1,100	1,102	1,103	1,105	1,106	1,106	1,107	
4 Firm Sales - Total	83	93	95	96	92	93	93	91	93	93	94	96	97	99	95	96	97	99	100	102	
5 Seasonal Adjusted Net Demand (1-3+4)	5,653	5,720	5,860	6,000	6,148	6,247	6,368	6,460	6,575	6,681	6,789	6,894	7,018	7,138	7,251	7,355	7,464	7,573	7,682	7,793	
6 Annual Adjusted Net Demand (2-3+4)	5,653	5,720	5,860	6,000	6,148	6,247	6,368	6,460	6,575	6,681	6,789	6,894	7,018	7,138	7,251	7,355	7,464	7,573	7,682	7,793	
7 Net Generating Capability (owned)	7,890	7,964	8,174	8,176	8,257	8,366	8,378	8,381	8,406	8,426	8,422	8,436	8,485	8,543	8,667	8,775	8,911	9,024	9,137	9,251	
8 Participation Purchase -Total	564	555	625	627	625	578	577	575	572	571	572	572	573	575	576	576	577	578	579	579	
9 Participation Sales -Total	1,242	983	1,053	1,058	988	788	783	778	773	768	768	768	768	768	768	768	768	768	768	768	
10 Adjusted Net Capability (7+8-9)	7,212	7,535	7,746	7,745	7,894	8,156	8,172	8,178	8,205	8,229	8,226	8,240	8,290	8,350	8,474	8,583	8,720	8,834	8,947	9,062	
11 Net Reserve Capacity Obligation (6 x 0.15)	771	780	799	818	838	852	868	881	897	911	926	940	957	973	989	1,003	1,018	1,033	1,048	1,063	
12 Total Firm Capacity Obligation (5+11)	6,423	6,500	6,659	6,818	6,987	7,099	7,237	7,341	7,472	7,591	7,714	7,834	7,975	8,111	8,239	8,358	8,481	8,605	8,730	8,856	
13 Surplus or Deficit (-) Capacity @ Minimum Obligation (10-12)	789	1,035	1,087	927	907	1,057	936	837	734	637	511	406	315	239	235	225	239	228	218	206	

EXHIBIT 5
Committed, Planned and Studied Accredited Capability

Utility	Unit Name	New Existing	Committed	Planned	Studied	Unit Type	Fuel Type	Accredited Capacity	2009	2010	2011	2012	2013	###	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Falls City	Future Base				S			0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Falls City	**Total**							0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fremont	Future Base				S			20.0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20
Fremont	**Total**							20.0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20
Grand Island	Future Base				S			0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Island	**Total**							0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hastings	WEC #2		C			C	Coal	220.0	0	0	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220
	Future Peak				S			27.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8	13	18	22	27
Hastings	**Total**							247.3	0	0	220	220	220	220	220	220	220	220	220	220	220	220	224	228	233	238	242	247
LES	Future Peak				S			0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Future Intermediate				S			43.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	26	43
	Future Base				S			100.0	0	0	0	0	0	0	0	0	0	0	0	14	28	43	60	75	92	100	100	100
LES	**Total**							143.0	0	0	0	0	0	0	0	0	0	0	0	14	28	43	60	75	92	109	126	143
MEAN	Future Peak				S			0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Future Intermediate				S			10.0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Future Base				S			50.0	0	0	0	0	0	0	0	0	25	25	25	25	25	25	25	25	50	50	50	50
MEAN	**Total**							50.0	0	10	0	0	0	0	0	0	25	25	25	25	25	25	25	25	50	50	50	50
Nebraska City	Future Base				S			0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebraska City	**Total**							0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NPPD	Future Peak				S			42.8	0	0	0	0	0	0	0	0	0	0	0	0	0	13	18	23	28	33	38	43
	Future Intermediate				S			128.3	0	0	0	0	0	0	0	0	0	0	0	0	0	39	53	68	83	98	113	128
	Future Base				S			251.0	0	60	60	60	60	60	60	60	60	60	60	60	60	72	102	131	161	191	221	251
NPPD	**Total**							422.0	0	60	60	60	60	60	60	60	60	60	60	60	60	124	173	222	272	322	372	422
OPPD	Nebraska City #2	E				C	Coal	682.0	682	682	682	682	682	682	682	682	682	682	682	682	682	682	682	682	682	682	682	682
	Landfill Gas	E				R	L	0.9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Ft. Calhoun Uprate		C			N	UR	75.0	0	0	0	0	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
	Future Peak				S			151.0	0	0	0	0	0	0	0	0	0	0	0	0	45	0	0	0	27	68	109	151
	Future Intermediate				S			208.0	0	0	0	0	0	0	0	0	0	0	0	0	0	102	155	195	208	208	208	208
	Future Base				S			0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPPD	**Total**							1116.9	683	683	683	683	758	758	758	758	758	758	758	758	803	860	913	953	993	1034	1075	1117
	Nebraska Grand Total							**1999.2**	683	753	963	963	1038	###	1038	1038	1063	1083	1083	1097	1156	1291	1415	1523	1660	1772	1885	1999

Unit Type	Fuel type
H-Hydro	HS-Run of River
D-Diesel	NG-Natural Gas
N-Nuclear	O-Oil
CT-Combustion Turbine	Coal-Coal
CC-Combined Cycle	HR-Reservoir
C-Pulverized Coal	UR-Uranium
R-Renewable	Wind-Wind
	L-Landfill Gas

	2009	2010	2011	2012	2013	###	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
New Existing	683	683	683	683	683	683	683	683	683	683	683	683	683	683	683	683	683	683	683	683
Committed	0	0	220	220	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295	295
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future Renewable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future Peak	0	0	0	0	0	0	0	0	0	0	0	0	45	13	22	31	68	118	169	221
Future Intermediate	0	10	0	0	0	0	0	0	0	0	0	0	0	141	208	263	291	315	347	379
Future Base	0	60	60	60	60	60	60	60	85	105	105	119	133	160	207	251	323	361	391	421
TOTAL	683	753	963	963	1038	###	1038	1038	1063	1083	1083	1097	1156	1291	1415	1523	1660	1772	1885	1999

EXHIBIT 6
Renewable Energy (Nameplate)

Utility	Unit Name	Existing	Committed	Planned	Studied	Unit Type	Fuel Type	Nameplae	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Falls City	Future Renewable				S	R	Wind	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fremont	Future Renewable				S	R	Wind	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Island	Future Renewable				S	R	Wind	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hastings	Future Renewable				S	R	Wind	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LES	Lincoln	E				R	Wind	1.3	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	0	0	0	0	0	0	0	0	0	0
LES	Future Renewable				S	R	Wind	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEAN	Kimball	E				R	Wind	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	0	0	0	0	0	0	0	0
MEAN	Future Renewable				S	R	Wind	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebraska City	Future Renewable				S	R	Wind	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NPPD	Ainsworth	E				R	Wind	59.6	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	0	0	0
NPPD	Elkhorn Ridge	E				R	Wind	80.0	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
NPPD	Crofton Hills		C			R	Wind	40.0	0	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
NPPD	Future Renewable				S	R	Wind	320.0	0	80	80	160	160	240	240	320	320	320	320	320	320	320	320	320	320	320	320	320
OPPD	Elk City Landfill	E				R	L	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
OPPD	Valley Wind Turbine	E				R	Wind	0.7	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0	0	0	0	0	0	0
OPPD	OPPD RFP		C			R	Wind	106.0	0	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106	106
OPPD	Future Renewable				S	R	Wind	320.0	0	0	0	0	0	0	0	0	0	80	160	240	240	240	240	240	240	240	240	320
	Nebraska Grand Total							**872.1**	158	384	384	464	464	544	544	624	624	704	783	863	863	852	852	852	852	792	792	872

Unit Type	Fuel type
R-Renewable	Wind-Wind
	L-Landfill Gas

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Existing	158	158	158	158	158	158	158	158	158	158	157	157	157	146	146	146	146	86	86	86
Committed	0	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146	146
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Studied	0	80	80	160	160	240	240	320	320	400	480	560	560	560	560	560	560	560	560	640
TOTAL	158	384	384	464	464	544	544	624	624	704	783	863	863	852	852	852	852	792	792	872

EXHIBIT 7
2009 Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial Operation Date	Summer Accredited Capacity	Summer Utility Capacity
Falls City	Falls City #1	P	D	O	1930	0.70	
	Falls City #2	P	D	O	1937	1.00	
	Falls City #3	P	D	NG/O	1965	2.30	
	Falls City #4	P	D	NG/O	1946	0.80	
	Falls City #5	P	D	NG/O	1951	1.40	
	Falls City #6	P	D	NG/O	1958	2.00	
	Falls City #7	P	D	NG/O	1972	6.20	
	Falls City #8	P	D	NG/O	1981	6.00	
Falls City	**Total**						**20.4**
Fremont	**Fremont #6**	**B**	**F**	**C/NG**	**1958**	**15.60**	
	Fremont #7	**B**	**F**	**C/NG**	**1963**	**20.50**	
	Fremont #8	**B**	**F**	**C/NG**	**1976**	**85.00**	
	CT		CT	NG/O	2003	36.00	
Fremont	**Total**						**157.1**
Grand Island	Burdick #1	P	F	NG/O	1957	16.00	
	Burdick #2	P	F	NG/O	1963	22.00	
	Burdick #3	P	F	NG/O	1972	54.00	
	Burdick GT1	P	CT	NG/O	1968	13.00	
	Burdick GT2	P	CT	NG/O	2003	34.00	
	Burdick GT3	P	CT	NG/O	2003	34.00	
	Platte Generating Station	**B**	**F**	**C**	**1982**	**100.00**	
Grand Island	**Total**						**273.0**
Hastings	**Whelan Energy Center #1**	**B**	**F**	**C**	**1981**	**77.00**	
	Hastings-NDS#4	P	F	NG/O	1957	16.00	
	Hastings-NDS#5	P	F	NG/O	1967	25.00	
	DHPC-#1	P	CT	NG/O	1972	18.00	
Hastings	**Total**						**136.0**
LES	**Laramie**	**B**	**F**	**C**	**1982**	**188.69**	
	CB#4	**B**	**F**	**C**	**2007**	**101.28**	
	J St	P	CT	NG/O	1972	27.10	
	Rokeby 1	P	CT	NG/O	1982	62.70	
	Rokeby 2	P	CT	NG/O	1997	86.30	
	Rokeby 3	P	CT	NG/O	2001	96.70	
	Wind Turbines #1-2	**I**	**R**	**W**	**1999**	**0.00**	
	Rokeby Black Start	P	D	O	1997	3.00	
	Salt Valley	P	CC	NG/O	2003	120.30	
	Salt Valley	P	CT	NG/O	2003	46.50	
	Salt Valley Black Start	P	D	O	2004	1.60	
LES	**Total**						**734.2**
OPPD	**Fort Calhoun #1**	**B**	**N**	**UR**	**1973**	**484.00**	
	Nebraska City #1	**B**	**F**	**C**	**1979**	**648.00**	
	Nebraska City #2	**B**	**F**	**C**	**2009**	**682.00**	
	North Omaha #1	**B**	**F**	**C/NG**	**1954**	**77.00**	
	North Omaha #2	**B**	**F**	**C/NG**	**1957**	**109.00**	
	North Omaha #3	**B**	**F**	**C/NG**	**1959**	**109.00**	
	North Omaha #4	**B**	**F**	**C/NG**	**1963**	**138.00**	
	North Omaha #5	**B**	**F**	**C/NG**	**1968**	**213.00**	
	Jones St. #1	P	CT	O	1973	62.00	
	Jones St. #2	P	CT	O	1973	62.00	
	Cass County #1	P	CT	NG	2003	161.00	
	Cass County #2	P	CT	NG	2003	161.00	
	Sarpy County #1	P	CT	NG/O	1972	55.00	
	Sarpy County #2	P	CT	NG/O	1972	55.00	
	Sarpy County #3	P	CT	NG/O	1996	105.00	
	Sarpy County #4	P	CT	NG/O	2000	47.00	
	Sarpy County #5	P	CT	NG/O	2000	47.00	
	Sarpy Co. Black Start	P	D	O	1996	3.40	
	Elk City Station #1-4	**B**	**D,R**	**L**	**2002**	**3.05**	
	Elk City Station #5-8	**B**	**D,R**	**L**	**2006**	**3.05**	
	Valley Wind Turbine #1	**I**	**R**	**W**	**2001**	**0.00**	
	Tecumseh #1	P	D	O	1949	0.60	
	Tecumseh #2	P	D	O	1968	1.40	
	Tecumseh #3	P	D	O	1952	1.00	
	Tecumseh #4	P	D	O	1960	1.20	
	Tecumseh #5	P	D	O	1993	2.40	
OPPD	**Total**						**3231.1**

EXHIBIT 7
2009 Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial Operation Date	Summer Accredited Capacity	Summer Utility Capacity
MEAN	Ansley #1	P	D	NG/O	1972	0.40	
	Ansley #2	P	D	NG/O	1968	0.80	**1.2**
	Arnold #1	P	D	NG/O	1960	0.40	
	Arnold #2	P	D	NG/O	1942	0.20	
	Arnold #3	P	D	NG/O	1946	0.30	**0.9**
	Beaver City #1	P	D	NG/O	1958	0.40	
	Beaver City #2	P	D	NG/O	1961	0.30	
	Beaver City #4	P	D	NG/O	1968	0.45	**1.2**
	Benkelman #1	P	D	NG/O	1968	0.75	**0.8**
	Blue Hill#1	P	D	NG/O	1964	0.80	
	Blue Hill#2	P	D	O	1948	0.40	**1.2**
	Broken Bow #1	P	D	O	1933	0.50	
	Broken Bow #2	P	D	NG/O	1971	3.20	
	Broken Bow #3	P	D	NG/O	1936	0.80	
	Broken Bow #4	P	D	NG/O	1949	0.80	
	Broken Bow #5	P	D	NG/O	1959	1.00	
	Broken Bow #6	P	D	NG/O	1961	2.00	**8.3**
	Burwell#1	P	D	NG/O	1955	0.50	
	Burwell#2	P	D	NG/O	1962	0.70	
	Burwell#3	P	D	NG/O	1967	0.90	
	Burwell#4	P	D	NG/O	1972	0.90	**3.0**
	Callaway #1	P	D	O	1936	0.18	
	Callaway #2	P	D	O	1948	0.18	
	Callaway #3	P	D	O	1958	0.50	**0.9**
	Chappell #2	P	D	O	1945	0.30	
	Chappell #3	P	D	O	1982	0.90	**1.2**
	Crete #1	P	D	NG/O	1939	0.50	
	Crete #2	P	D	NG/O	1955	1.10	
	Crete #3	P	D	NG/O	1951	0.90	
	Crete #4	P	D	NG/O	1947	0.90	
	Crete #5	P	D	NG/O	1962	2.70	
	Crete #6	P	D	NG/O	1965	3.50	
	Crete #7	P	D	NG/O	1972	6.07	**15.7**
	Curtis #1	P	D	NG/O	1975	1.20	
	Curtis #2	P	D	NG/O	1969	0.90	
	Curtis #3	P	D	NG/O	1955	0.90	**3.0**
	Fairbury #2	P	F	NG/O	1948	4.30	
	Fairbury #4	P	F	NG/O	1966	11.00	**15.3**
	Kimball #1	P	D	NG/O	1955	1.00	
	Kimball #2	P	D	NG/O	1956	0.90	
	Kimball #3	P	D	NG/O	1959	1.00	
	Kimball #4	P	D	NG/O	1960	0.90	
	Kimball #5	P	D	NG/O	1951	0.70	
	Kimball #7	P	D	NG/O	1975	3.50	**8.0**
	Kimball Wind Turbines #1-7	**I**	**R**	**W**	**2002**	**0.00**	
	Oxford #1	P	D	O	1948	0.54	
	Oxford #2	P	D	NG/O	1952	0.53	
	Oxford #3	P	D	NG/O	1956	0.76	
	Oxford #4	P	D	NG/O	1956	0.47	
	Oxford #5	P	D	O	1972	1.00	**3.3**
	Pender #1	P	D	O	1967	1.06	
	Pender #2	P	D	NG/O	1973	1.72	
	Pender #3	P	D	O	1953	0.44	
	Pender #4	P	D	O	1961	0.74	**4.0**
	Red Cloud #2	P	D	NG/O	1953	0.50	
	Red Cloud #3	P	D	NG/O	1960	1.00	
	Red Cloud #4	P	D	NG/O	1968	1.00	
	Red Cloud #5	P	D	NG/O	1974	1.50	**4.0**
	Sargent #1	P	D	NG/O	1963	0.00	
	Sargent #2	P	D	NG/O	1964	0.75	
	Sargent #3	P	D	NG/O	1966	0.25	**1.0**
	Sidney #1	P	D	NG/O	1967	1.00	
	Sidney #2	P	D	NG/O	1973	2.50	
	Sidney #3	P	D	O	1953	0.65	
	Sidney #4	P	D	NG/O	1961	0.85	
	Sidney #5	P	D	NG/O	1939	2.65	**7.7**
	Stuart #1	P	D	NG/O	1965	0.75	
	Stuart #2	P	D	NG/O	1996	0.75	
	Stuart #3	P	D	O	1954	0.28	
	Stuart #4	P	D	O	1946	0.28	**2.1**
	West Point #1	P	D	NG/O	1950	2.05	
	West Point #2	P	D	NG/O	1959	0.95	
	West Point #3	P	D	NG/O	1965	0.59	
	West Point #5	P	D	NG/O	1971	3.81	**7.4**
	Laramie #1	**B**	**F**	**C**	**1982**	**10.00**	**10.0**
	CB#4	**B**	**F**	**C**	**2007**	**56.60**	**56.6**
MEAN	**Total**						**156.5**

EXHIBIT 7
2009 Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial Operation Date	Summer Accredited Capacity	Summer Utility Capacity
NPPD	Ainsworth Wind (NPPD)	I	R	W	2005	0.00	
	Auburn #1	P	D	NG/O	1982	2.10	
	Auburn #2	P	D	NG/O	1949	0.50	
	Auburn #4	P	D	NG/O	1993	3.30	
	Auburn #5	P	D	NG/O	1973	3.00	
	Auburn #6	P	D	NG/O	1967	2.20	
	Auburn #7	P	D	NG/O	1987	5.20	
	Beatrice Power Station	I	CC	NG	2005	237.00	
	Belleville 4	P	D	NG/O	1955	0.00	
	Belleville 5	P	D	NG/O	1961	1.40	
	Belleville 6	P	D	NG/O	1966	2.50	
	Belleville 7	P	D	NG/O	1971	3.30	
	Belleville 8	P	D	NG/O	2006	2.80	
	Cambridge	P	D	NG	1972	3.00	
	Canaday	P	F	NG/O	1958	117.95	
	Columbus 1	**B**	**H**	**HR**	**1936**	**15.00**	
	Columbus 2	**B**	**H**	**HR**	**1936**	**15.00**	
	Columbus 3	**B**	**H**	**HR**	**1936**	**15.00**	
	Cooper	**B**	**N**	**UR**	**1974**	**774.10**	
	David City 1	P	D	NG/O	1960	1.30	
	David City 2	P	D	NG/O	1949	0.80	
	David City 3	P	D	NG/O	1955	0.90	
	David City 4	P	D	NG/O	1966	1.80	
	David City 5	P	D	O	1996	1.33	
	David City 6	P	D	O	1996	1.33	
	David City 7	P	D	O	1996	1.34	
	Deshler 1	P	D	NG/O	2001	0.27	
	Deshler 2	P	D	NG/O	1950	0.29	
	Deshler 3	P	D	NG/O	1998	1.10	
	Deshler 4	P	D	NG/O	1956	0.60	
	Emerson #2	P	D	NG/O	1968	1.15	
	Emerson #3	P	D	NG/O	1948	0.15	
	Emerson #4	P	D	O	1958	0.40	
	Franklin 1	P	D	NG	1963	0.65	
	Franklin 2	P	D	NG	1974	1.35	
	Franklin 3	P	D	NG	1968	1.05	
	Franklin 4	P	D	NG	1955	0.70	
	Gentleman 1	**B**	**F**	**C**	**1979**	**665.00**	
	Gentleman 2	**B**	**F**	**C**	**1982**	**700.00**	
	Hallam (Black Start)	P	CT	NG/O	1973	52.00	
	Hebron	P	CT	NG/O	1973	51.00	
	Holdrege 1	P	D	O	1938	0.00	
	Holdrege 2	P	D	O	1952	0.00	
	Holdrege 3	P	D	O	1945	0.00	
	Jeffrey 1	**B**	**H**	**HR**	**1940**	**9.00**	
	Jeffrey 2	**B**	**H**	**HR**	**1940**	**9.00**	
	Johnson I 1	**B**	**H**	**HR**	**1940**	**9.00**	
	Johnson I 2	**B**	**H**	**HR**	**1940**	**9.00**	
	Johnson II	**B**	**H**	**HR**	**1940**	**18.00**	
	Kearney	**B**	**H**	**HR**	**1921**	**1.00**	
	Kingsley(Black Start)	**B**	**H**	**HR**	**1985**	**36.51**	
	Lodgepole 1	P	D	O	1934	0.00	
	Lodgepole 2	P	D	O	1947	0.00	
	Lyons 2	P	D	O	1953	0.20	
	Lyons 3	P	D	O	1960	0.90	
	Madison 1	P	D	NG/O	1969	1.70	
	Madison 2	P	D	NG/O	1959	0.95	
	Madison 3	P	D	NG/O	1953	0.85	
	Madison 4	P	D	O	1946	0.50	
	McCook(Black Start)	P	CT	O	1973	50.00	
	Monroe	**B**	**H**	**HS**	**1936**	**2.45**	
	Mullen #1	P	D	O	1958	0.35	
	Mullen #2	P	D	O	1966	0.65	

EXHIBIT 7
2009 Existing Generating Capability Data

Utility	Unit Name	Duty Cycle	Unit Type	Fuel Type	Commercial Operation Date	Summer Accredited Capacity	Summer Utility Capacity
NPPD (contd)	North Platte 1(Black Start)	B	H	HR	1935	12.00	
	North Platte 2(Black Start)	B	H	HR	1935	12.00	
	Ord 1	P	D	NG/O	1973	5.00	
	Ord 2	P	D	NG/O	1966	1.00	
	Ord 3	P	D	NG/O	1963	2.00	
	Ord 4	P	D	O	1997	1.40	
	Ord 5	P	D	O	1997	1.40	
	Sheldon 1	B	F	C	1961	105.00	
	Sheldon 2	B	F	C	1965	120.00	
	Spalding 2	P	D	O	1955	0.40	
	Spalding 3	P	D	O	1975	1.40	
	Spalding 4	P	D	O	1999	0.20	
	Spalding 5	P	D	O	2001	0.25	
	Spencer 1	B	H	HS	1927	1.00	
	Spencer 2	B	H	HS	1952	0.80	
	Sutherland 1	P	D	O	1952	0.45	
	Sutherland 2	P	D	O	1959	0.85	
	Sutherland 3	P	D	O	1935	0.00	
	Sutherland 4	P	D	O	1964	1.35	
	Wahoo #1	P	D	NG/O	1960	1.70	
	Wahoo #3	P	D	NG/O	1973	3.60	
	Wahoo #5	P	D	NG/O	1952	1.80	
	Wahoo #6	P	D	NG/O	1969	2.90	
	Wakefield 2	P	D	NG/O	1955	0.54	
	Wakefield 4	P	D	NG/O	1961	0.69	
	Wakefield 5	P	D	NG/O	1966	1.08	
	Wakefield 6	P	D	NG/O	1971	1.13	
	Wayne 1	P	D	O	1951	0.75	
	Wayne 3	P	D	O	1956	1.75	
	Wayne 4	P	D	O	1960	1.85	
	Wayne 5	P	D	O	1966	3.25	
	Wayne 6	P	D	O	1968	4.90	
	Wayne 7	P	D	O	1998	3.25	
	Wayne 8	P	D	O	1998	3.25	
	Wilber 4	P	D	O	1949	0.78	
	Wilber 5	P	D	O	1958	0.59	
	Wilber 6	P	D	O	1997	1.57	
	York 1	P	D	O	1980	1.00	
	York 2	P	D	O	1996	1.60	
NPPD	**Total**						**3142.4**
Nebraska City	Nebraska City #2 Black start	P	D	NG/O	1953	1.00	
	Nebraska City #3	P	D	NG/O	1955	2.00	
	Nebraska City #4	P	D	NG/O	1957	2.50	
	Nebraska City #5 Black start	P	D	NG/O	1964	1.60	
	Nebraska City #6	P	D	NG/O	1967	1.50	
	Nebraska City #7	P	D	NG/O	1969	1.50	
	Nebraska City #8	P	D	NG/O	1970	3.50	
	Nebraska City #9	P	D	NG/O	1974	5.60	
	Nebraska City #10	P	D	NG/O	1979	5.80	
	Nebraska City #11	P	D	NG/O	1998	3.80	
	Nebraska City #12	P	D	NG/O	1998	3.80	
	Nebraska City #13	P	D	O	1998	4.50	
Nebraska City	**Total**						**37.1**
Nebraska Grand Total						**TOTAL**	**7887.7**

Duty Cycle	Unit Type	Fuel type
B-Base	H-Hydro	HS-Run of River
I-Intermediat	D-Diesel	NG-Natural Gas
P-Peaking	N-Nuclear	O-Oil
	CT-Comb T	C-Coal
	CC-Comb (	HR- Reservoir
	F-Fossil	UR-Uranium
	R-renewabl	L=Landfill Gas
		W-Wind

LR83 Questions 8.a, 8.b – State Incentives for Renewable Energy

The summary table "Financial Incentives for Renewable Energy" lists each state and the number and type of incentives available at the state level as well as local, utility and private incentives. For example, Iowa has 1 state sales tax incentive (1-S), 11 different rebates through the utilities (11-U), and 3 loan programs, 2 through the state and 1 through a utility (2-S 1-U). Nebraska's rebates are actually for energy efficiency, but are listed here since they require use of geothermal energy. Nebraska also has a renewable energy tax credit (not on the table) for renewable energy producers to apply to their state income tax. Summary maps for "Tax Credits," "Sales Tax Incentives," and "Property Tax Incentives" show the states with these incentives geographically.

Most states have some type of property tax exemption. A few states, including Colorado and Iowa, have a property tax exemption with the local option. The amount of the exemption and the number of years the exemptions are in effect after construction vary by state. About half the states offer a sales tax exemption or refund on the sale of equipment, service or property used for renewable energy systems. **Nebraska** is represented on the "Sales Tax Incentives for Renewables" summary map with a sales tax exemption on the sale, lease or rental of personal property used in a new community-based wind energy development project. Some states have a tax credit (personal and corporate income tax) on renewable generation and sales.

The "Renewable Portfolio Standards" summary map shows that 29 states plus D.C. have a renewable energy standard in place while an additional 5 states have renewable energy goals. In most cases, the standard requires eligible renewable electricity account for a certain percentage of the utility's total electric sales or peak demand. Note, **Iowa** only requires its two investor-owned utilities to meet the renewable standard.

Note: All of this information is either taken or summarized from http://www.dsireusa.org/ (Database of State Incentives for Renewables and Efficiency) with some additional research on state or utility websites. From the DSIRE website: "DSIRE is a comprehensive source of information on state, local, utility, and federal incentives and policies that promote renewable energy and energy efficiency. Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the N.C. Solar Center and the Interstate Renewable Energy Council." The Solar Center is operated by the College of Engineering at North Carolina State University.

Financial Incentives for Renewable Energy										
State	Personal Tax	Corp. Tax	Sales Tax	Prop. Tax	Rebates	Grants	Loans	Industry Support	Bonds	Production Incentives
Federal	3-F	4-F				3-F	5-F	1-F		1-F
Alabama	1-S				2-U	1-S	1-S 1-U			1-U
Alaska						1-S	2-S			1-U
Arizona	3-S	1-S	1-S	2-S	6-U		2-U	1-S		
Arkansas					1-U		1-U			
California				1-S	6-S 38-U 3-L	1-S	2-S 1-U 4-L			1-S 1-U
Colorado			2-S 1-L	1-S	8-U 1-L	1-S 1-L 2-P	1-S 3-U 2-L			
Connecticut			2-S	1-S	1-S 2-U	3-S	2-S	2-S		
Delaware					1-S	2-S				
Florida		2-S	2-S	1-S	1-S 8-U 1-L	1-S	5-U	1-L		2-U
Georgia	1-S	1-S	1-S		8-U		1-U			2-U
Hawaii	1-S	1-S			2-U		1-S 2-U 1-L	1-S		
Idaho	1-S		1-S	1-S		1-P	1-S		1-S	1-P
Illinois			1-S	2-S	1-S	3-S 1-P	1-S		1-S	1-P
Indiana				1-S	4-U	1-S	1-U			
Iowa	1-S	1-S	1-S	3-S	11-U	1-S	2-S 1-U			
Kansas				1-S	2-U			1-S		
Kentucky	1-S	2-S	1-S		7-U		1-U 1-L 1-P			1-U
Louisiana	1-S	1-S		1-S			2-S			
Maine			1-S		1-S	1-S	1-S			1-S
Maryland	3-S	3-S	2-S	4-S 7-L	3-S 1-L		3-S			
Massachusetts	2-S	3-S	1-S	1-S	2-S 5-U	2-S	1-U	1-S		1-P
Michigan				2-S	3-U	2-S		3-S		1-U
Minnesota			2-S	1-S	2-S 23-U	1-S 2-U	5-S 3-U			1-S 1-U
Mississippi					4-U		1-S 2-U			1-U
Missouri		1-S			7-U		1-S 1-U			
Montana	3-S	1-S		3-S	4-U	1-U	1-S	2-S		1-P
Nebraska			1-S		2-U		1-S			
Nevada			1-S	3-S	1-S		1-S			
New Hampshire				1-S	1-S 4-U		1-S			
New Jersey			1-S	1-S	4-S		2-S 1-U	1-S		1-S
New Mexico	4-S	3-S	2-S				1-S	1-S	1-S	3-U
New York	3-S	1-S	1-S	2-S 1-L	5-S 4-U 1-L	2-S	2-S	2-S		1-S
North Carolina	1-S	1-S	1-S	2-S	5-U	1-S	2-S 1-U			3-U 1-P
North Dakota	1-S	1-S		2-S			2-U			
Ohio		1-S	1-S	1-S 1-L	5-U 1-P	6-S	1-S 1-U 1-L	1-S		
Oklahoma		1-S			3-U		4-S 2-U	1-S		
Oregon	1-S	1-S		1-S	8-S 21-U	1-S 1-P	3-S 11-U	1-S		1-S 1-U 1-P
Pennsylvania	1-S	1-S		1-S	1-S 1-L	8-S 1-U 2-L	6-S 1-U 5-L	3-S		
Rhode Island	1-S	1-S	1-S	2-S	1-U	1-S	1-S			1-P
South Carolina	1-S	2-S	1-S		4-U		1-S 4-U			1-S 1-U 1-P
South Dakota				3-S	4-U		2-U			
Tennessee				1-S		2-S	1-S	1-S		1-U
Texas		1-S		1-S	16-U		2-S	1-S		1-U
Utah	1-S	1-S	1-S		6-U			1-S		
Vermont	1-S	1-S	1-S	1-S	1-S	1-S 1-U	2-S			1-S 2-U
Virginia				1-S			1-S	1-S		1-U
Washington			1-S		17-U	1-L 1-P	13-U	1-S		1-S 3-U 1-P
West Virginia	1-S	1-S		1-S						
Wisconsin			1-S	1-S	3-S 6-U	1-S 1-U	2-S	3-S		5-U
Wyoming			1-S		1-S 3-U		2-U			
District of Columbia					1-S					
Totals	39	39	36	61	300	64	147	32	3	51
F = Federal S = State/Territory L = Local U = Utility P = Private										

The following is a list of **federal** incentives implemented for **utilities** developing renewable energy technology such as wind and solar.

Business Energy Investment Tax Credit (ITC) and Renewable Electricity Production Tax Credit (PTC) – An income tax credit is allowed for electricity generated by qualified renewable energy resources. The PTC is a per-kilowatt-hour tax credit for electricity generated by renewable resources whereas the ITC credit is equal to a certain percentage of expenditures. Those eligible for the ITC may choose to receive a grant instead.

Renewable Energy Production Incentive (REPI) – provides incentive payments (1.5 cents per kilowatt-hour in 1993 dollars and indexed for inflation) for electricity generated and sold by new qualifying renewable energy facilities for the first 10 years of their operation subject to the availability of annual appropriations in each federal fiscal year of operation. Qualifying systems must generate electricity using solar, wind, geothermal (with certain restrictions), biomass (excluding municipal solid waste), landfill gas, livestock methane, or ocean resources (including tidal, wave, current and thermal). The production payment applies only to the electricity sold to another entity. REPI eligible electric production facilities include: not-for-profit electrical cooperatives, public utilities, state governments, common wealths, territories of the United States, the District of Columbia, Indian tribal governments, or a political subdivision within, and native corporations that sell the facilities' electricity. The total REPI annual appropriation, since the programs' inception, has ranged from $700,000 to $5 million.

USDA - Rural Energy for America Program (REAP) Grants – grants and loans are available for agricultural producers to purchase renewable energy systems.

Clean Renewable Energy Bonds – for local government, municipal utility, rural co-op, bonds may be used to finance renewable energy projects. The 2009 national volume cap on new CREB bonds is $2.4 billion, with one-third of the volume cap allocated to each of the three types of qualified owners, including public power providers, governmental bodies, and cooperative electric companies, respectively.

Modified Accelerated Cost-Recovery System (MACRS) + Bonus Depreciation (2008-2009) – businesses may recover investments in certain property through depreciation deductions.

Also, the U.S. Department of Energy (DOE) is authorized to issue loan guarantees for projects that "avoid, reduce or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued."

The following is a list of incentives implemented by **state** for **utilities** developing renewable energy technology such as wind and solar.

Alaska created a renewable energy grant fund to provide assistance to utilities for feasibility studies, etc. related to the design and construction of solar, wind, geothermal, hydropower, etc.

Arizona. Renewable energy equipment owned by utilities and other entities operating in Arizona is assessed at 20% of its depreciated cost for the purpose of determining property tax.

Colorado exempts from their sales and use tax all sales, storage, and use of components used in the production of alternating current electricity from a renewable energy source.

Florida established a renewable energy technologies grant program to provide matching grants for commercialization, research and development projects relating to renewable energy technologies.

Iowa. The alternate energy revolving fund program provides loans to individuals and organizations seeking to build renewable energy production. Production tax credits are available for energy generated by renewable energy facilities and for electricity generated by eligible wind facilities.

Maryland offers a production tax credit for electricity generated by renewable resources.

Nebraska established an exemption from the sales and use tax imposed on the gross receipts from the sale, lease, or rental of personal property for use in a community-based energy development (C-BED) project. A C-BED project is a new wind energy project with ownership conditions.

North Dakota offers property tax reductions for commercial wind energy generation devices.

South Dakota has an alternative taxation method and a tax exemption for large wind farms.

Utah exempts the purchase or lease of equipment used to generate electricity from renewable resources from the state sales tax.

Wyoming exempts sales, purchases and leases of equipment used to generate electricity from renewable resources and connect it to the transmission grid from the state excise tax.

The following is a three-page list of incentives implemented by **state** for all sectors implementing **wind**, **solar, and other renewable energy technology**. This list includes some of the same information as the previous list but is expanded to include incentives available to all sectors including residential, commercial, industrial, government, schools, and utility.

Alabama. A state loan program provides zero-interest loans to local governments and schools for renewable energy systems.

Alaska created a renewable energy grant fund to provide assistance to utilities for feasibility studies, etc. related to the design and construction of solar, wind, geothermal, hydropower, etc.

Arizona provides a tax credit for solar and wind installations in commercial and industrial applications, a property tax assessment for renewable energy property, a tax credit for individual taxpayers who install a solar or wind energy device, a sales tax exemption on solar and wind energy equipment, and potential tax credits on business investments for businesses who manufacture renewable energy products to expand their manufacturing or corporate facilities in Arizona.

California offers cash incentives/rebates to promote the installation of grid-connected small wind and fuel cell renewable energy generating systems.

Colorado offers property or sales tax rebates at the local level (city or county) and property tax assessments to property owners, residential or commercial, who install renewable energy systems on their property. Renewable energy equipment is exempt from sales and use tax, too. Colorado also maintains a clean energy fund to provide grants to support renewable energy projects.

Connecticut has a property tax exemption for renewable energy systems, offers low-interest loans and grants for customer-side renewable generation, and requires the state's two electric distribution companies to enter into long-term purchase agreements for a certain amount of renewable energy.

Delaware offers research and development and technology and demonstration grants.

D.C. offers rebates for solar and wind energy systems.

Florida has tax credits for renewable energy production, a property tax exemption, and a grants program.

Georgia offers a personal and corporate tax credits for clean energy equipment installed and placed into service.

Idaho provides low-interest loans for active solar, wind, geothermal, hydropower and biomass energy projects, property tax exemptions for commercial wind farms and geothermal energy producers, and sales tax refunds on renewable energy equipment.

Illinois provides a sales tax exemption on equipment used for *high impact business* wind energy facilities, commercial wind energy property valuations, and financing and/or grants for renewable energy projects.

Indiana. Systems that generate energy using solar, wind, hydropower or geothermal resources -- including geothermal heat pumps -- are exempt from property tax. Also, a grant program provides matching funds for projects that use alternative energy systems including solar and wind power.

Iowa imposes a replacement generation tax in lieu of property tax. Wind energy property is exempt from this tax. Iowa also maintains an alternative energy state loan program and a state grant program and provides production tax credits. Renewable energy systems are exempt from the additional property valuation and sales tax on equipment and materials used to construct wind energy systems.

Kansas exempts renewable energy equipment from property taxes.

Kentucky has renewable energy production tax credits, tax credits for the facilities, and a sales tax exemption for large-scale renewable energy projects.

Louisiana provides a tax credit for the purchase and installation of solar and wind energy systems.

Maine has a community-based pilot program offering renewable energy production incentives and may require investor-owned utilities to have long-term contracts for the energy. Sales and use tax refunds are available for community wind generators, and rebates are available for PV and wind-energy systems.

Maryland offers a production tax credit for electricity generated by renewable resources, income tax credits for green buildings (PV, wind turbines and fuel cells), property tax exemptions for solar and wind energy systems, and sales and use tax exemptions for renewable energy equipment. There is also a state loan program for wind and solar and a grant program for wind.

Massachusetts offers rebates for renewable energy projects, sales tax exemptions on renewable energy equipment and property tax exemptions.

Michigan exempts alternative energy technologies from property tax.

Minnesota has a state rebate program (funded in part by Xcel Energy) for PV systems, property tax exemptions for wind and solar energy systems, and a wind energy sales tax exemption.

Missouri. A state loan program is available for renewable energy projects for public and governmental buildings and structures. Loan amounts are based on projected energy savings.

Montana. Commercial and net metering alternative energy investments are eligible for a tax credit on income generated by the investment. Alternative renewable energy generating plants are eligible for a property tax reduction for the first 10 years.

Nebraska established an exemption from the sales and use tax imposed on the gross receipts from the sale, lease, or rental of personal property for use in a community-based energy development (C-BED) project. A C-BED project is a new wind energy project with ownership conditions.

Nevada offers rebates for PV and small wind systems. Nevada also has sales tax abatements and property tax exemptions.

New Mexico. A tax credit may be claimed for manufacturing alternative energy products and components, including renewable energy systems, fuel cell systems, and electric and hybrid-electric vehicles. Alternative energy components include parts, assembly of parts, materials, ingredients or supplies that are incorporated directly into end products. New Mexico also offers production tax credits on renewable energy and on sustainable building construction.

New York has several loan and grant programs for renewable energy and energy efficiency.

North Carolina offers a tax credit on the cost of renewable energy property.

North Dakota offers property tax reductions for commercial wind energy generation devices and an income tax credit for the cost of equipment and installation of a renewable energy system.

Oklahoma. Tax credits are available for manufacturers of small wind turbines, and production tax credits are available for zero-emissions/renewable energy facilities.

Oregon has tax credits for investments in energy conservation and sustainable buildings, state rebate programs for wind power installation, property tax exemptions on the added value from installed renewable energy systems, residential energy tax credits for PV systems and fuel cells, and tax credits for renewable energy equipment manufacturers.

Pennsylvania. Tax credits are available for all development, equipment and construction costs for qualifying alternative energy projects. Commercial wind farms' property tax valuation is determined without counting the turbines and equipment. There are also several loan and grant opportunities for wind and geothermal facilities.

Rhode Island exempts renewable energy systems and equipment from sales and use tax and offers tax credits for PV and wind systems.

South Dakota has an alternative taxation method and a tax exemption for large wind farms.

Texas allows an exemption on the appraised property value from the installation or construction of a solar or wind-powered energy device used on-site. Businesses that manufacture, sell or install solar devices are exempt from the franchise tax.

Utah exempts the purchase or lease of equipment used to generate electricity from renewable resources from the state sales tax and offers tax credits for renewable energy systems.

Washington does not apply sales to equipment used to generate electricity using fuel cells, wind, sun, bio-mass or landfill gas. They also offer renewable energy production incentives.

Wisconsin has a renewable energy sales tax exemption, renewable energy grant programs, and solar and wind energy equipment property tax exemptions.

Wyoming exempts sales, purchases and leases of equipment used to generate electricity from renewable resources and connect it to the transmission grid from the state excise tax.

The following is a list of incentives implemented by **state** for all sectors implementing **wind**, **solar, and other renewable energy technology**. This list includes some of the same information as the previous list but goes into detail on some of the incentives implemented for states in the region. Sales tax exemptions are 100 percent, and property tax exemptions are on the value added to the property by the solar or wind system.

Colorado exempts from their state sales tax all sales and use of equipment (generating equipment, towers, switchgear, etc.) used to produce electricity from a renewable energy source. Colorado also authorizes counties to offer property or sales tax rebates to property owners who install renewable energy systems on their property. The incentive would be administered by the city or county. Several utilities offer rebates for grid-connected renewable systems. Colorado Springs Utilities pays $3.75/watt for PV systems. For PV systems smaller than 500 kW Xcel Energy will provide $2/watt, and for larger PV systems about $0.12/kWh produced is paid monthly.

Iowa will give a tax credit for energy generated by renewable energy facilities of $0.010 or $0.015/kWh for 10 years after the facility begins producing energy. All equipment used to manufacture, install or construct wind and solar energy systems is exempt from the state sales tax. Like Colorado, Iowa has a property tax exemption on the value added to a property by a wind or solar energy system, and any city or county has the option of passing a similar ordinance.

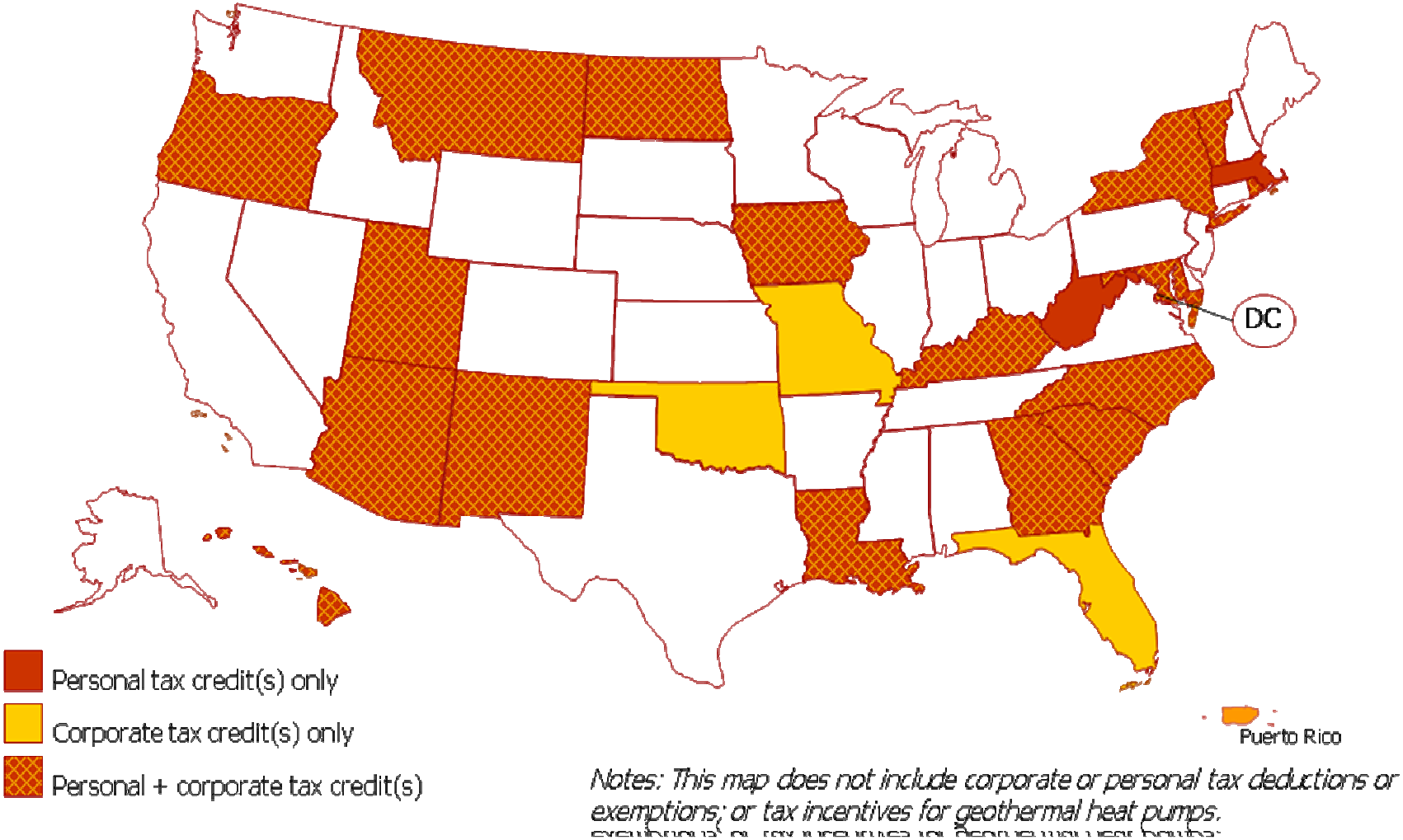
Kansas exempts renewable energy equipment from property taxes.

Minnesota exempts solar and wind energy systems from the state sales tax. Several rebate programs are available through the state or utility. PV systems are eligible for a rebate of $2/watt from the state. Some of this is funded from Xcel Energy's Renewable Development Fund.

9/10/2009

Tax Credits for Renewables

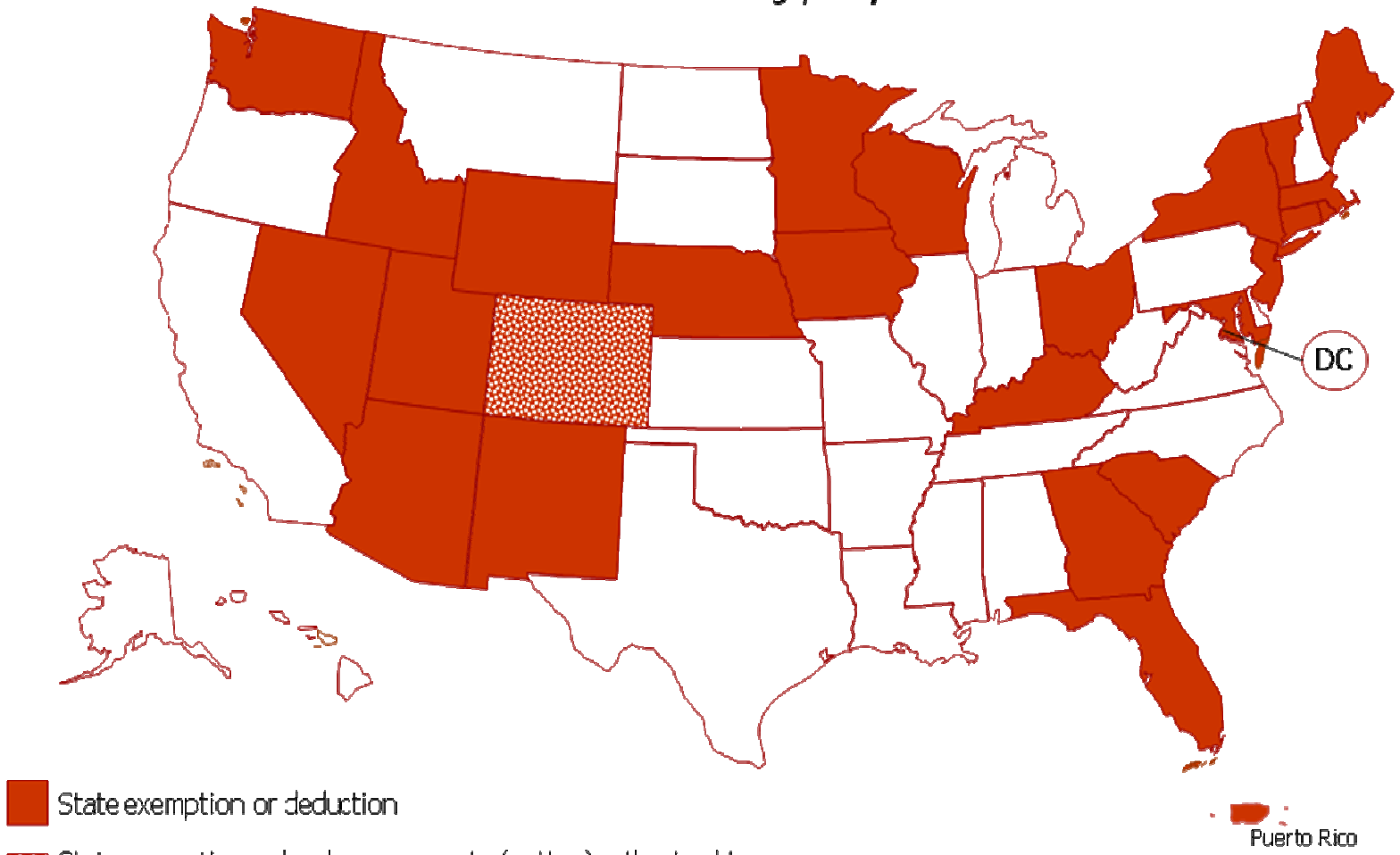
www.dsireusa.org / July 2009



Notes: This map does not include corporate or personal tax deductions or exemptions; or tax incentives for geothermal heat pumps.

Sales Tax Incentives for Renewables

www.dsireusa.org / July 2009



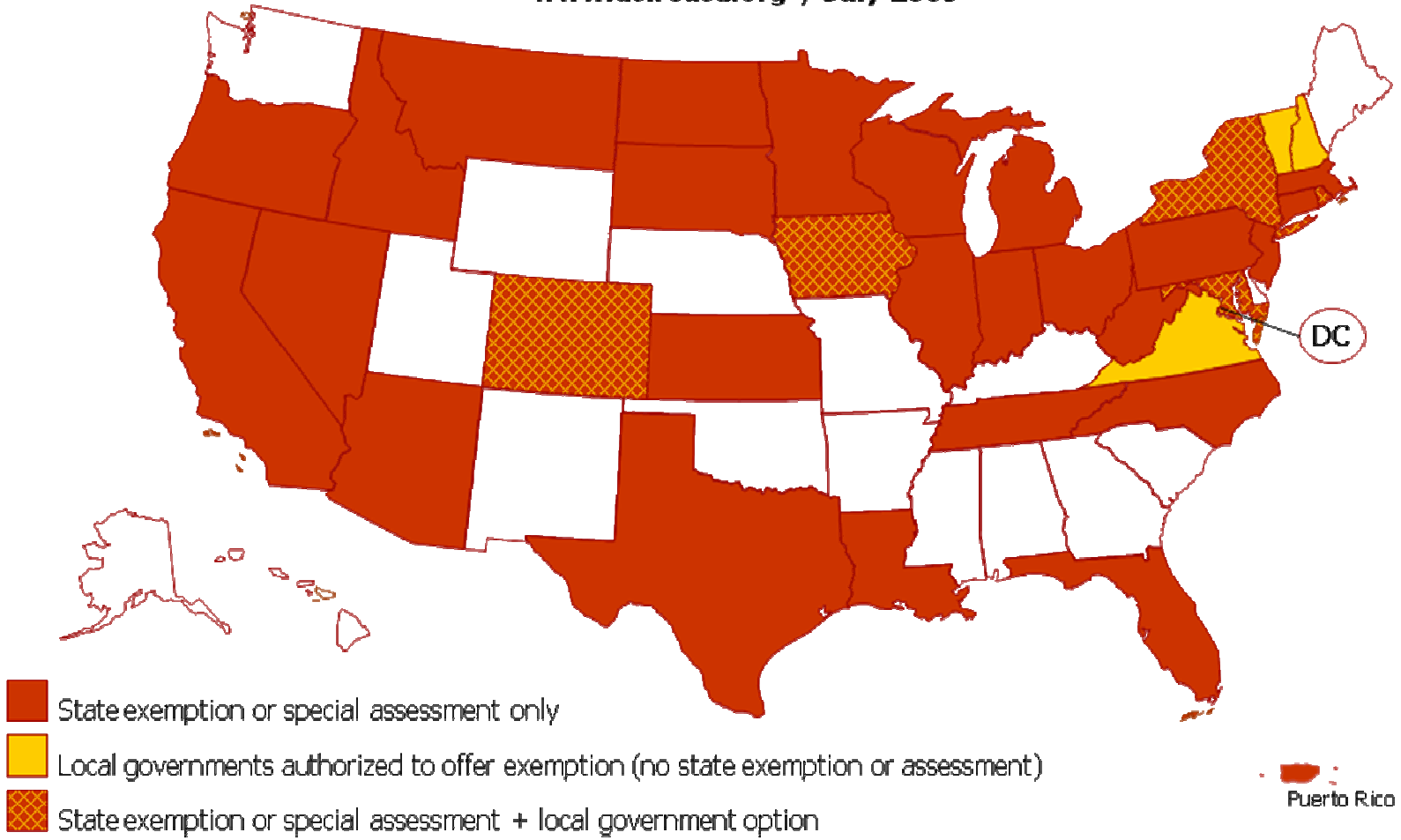
State exemption or deduction

State exemption + local governments (option) authorized to offer exemption or deduction

Notes: This map does not include sales tax incentives that apply only to geothermal heat pumps or other energy efficiency technologies.

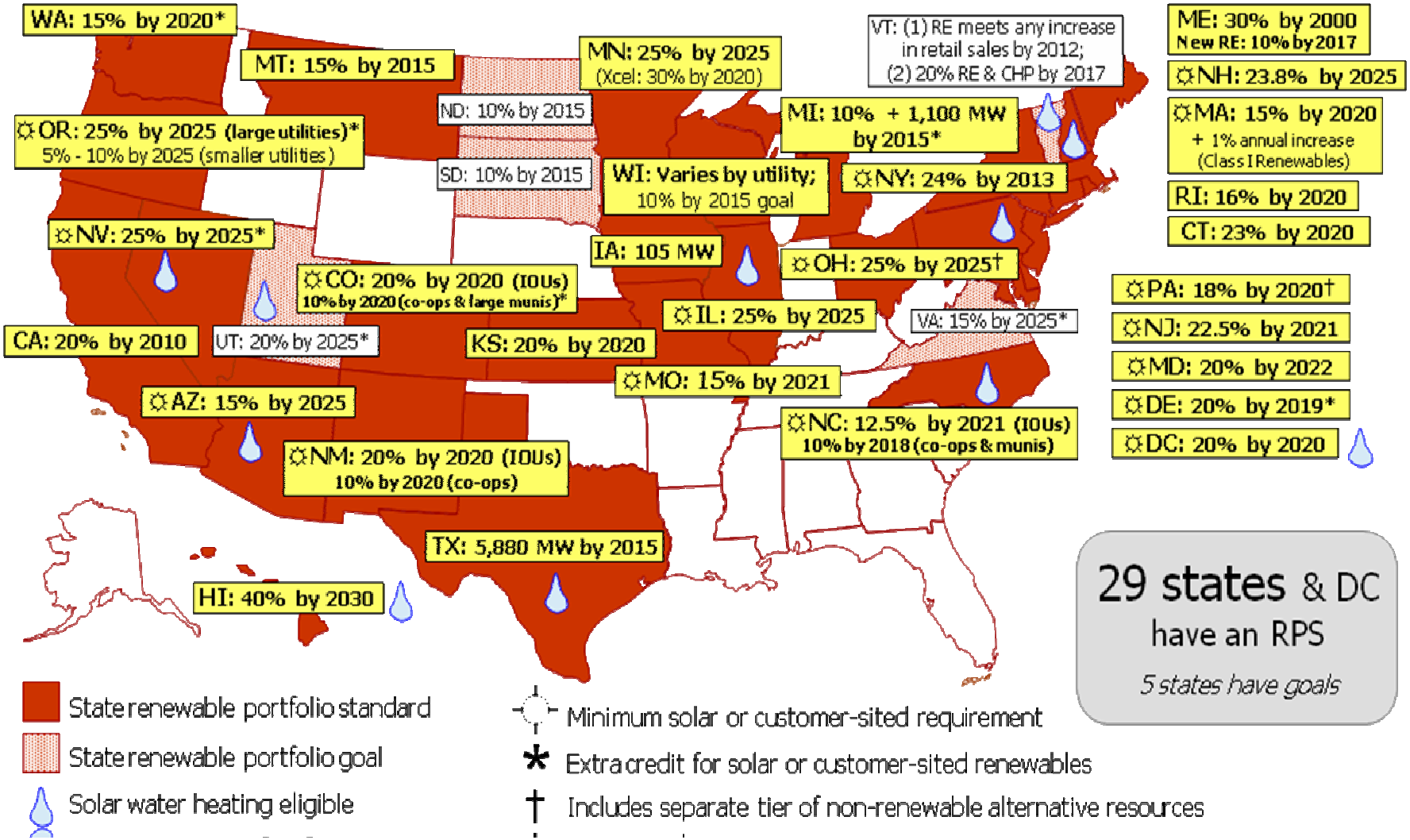
Property Tax Incentives for Renewables

www.dsireusa.org / July 2009



Renewable Portfolio Standards

www.dsireusa.org / September 2009



LR83 Question 8.c – Property Taxes on Wind Turbines

The property tax treatment of wind turbines varies widely from state to state. Property taxes are universal. However, their application to wind turbines is not uniform because of the states' commitment to renewable energy and desire for economic development. Complicating the issue is the tax treatment of depreciation by the Internal Revenue Service (IRS Publication 926).

The Knox County assessor has experience with how the Elkhorn Ridge wind farm near Bloomfield, NE is assessed and taxed. The value of the turbines is "centrally assessed" by the state, not by the local assessor. The turbines are depreciated over five years so the taxable value after that is zero. The assessor believes that the wind farm can be sold to a public utility after ten years. There would be some taxes paid for the site value of the real estate, but that is minor. Local officials are disappointed because the IRS accelerated depreciation schedule results in relatively little tax revenue for the county beyond the first 5 years

An NPPD engineer, knowledgeable about property taxes on wind turbines, confirmed that wind turbines in Nebraska are treated as personal property and depreciated over five years using the IRS depreciation schedule. Aside from the initial tax revenue and increased employment because of construction and operation and maintenance, the counties may gain if the developers pay for improvements to the county infrastructure necessary for the wind farm (e.g., roads and bridges).

Property tax assessments vary from state to state. The DSIRE (Database of State Incentives for Renewables and Efficiency) web site shows that the states on the eastern seaboard normally do not address the issue while other states can be quite aggressive. For example, Kansas exempts renewable energy resources from property taxes. Iowa taxes them at a maximum of 30% of the acquisition cost in the 7th year after starting at 0% in the first year. South Dakota has a tax of $3.00/kW of capacity and 2% of gross receipts. If requested, Texas will exempt renewable resources from property taxes. North Dakota offers exemptions resulting in a 70% reduction of property taxes. Montana offers a 50% reduction of assessed value. Idaho has a 3% tax on gross energy earnings. Minnesota has a production tax that varies by the size of the wind farm. Missouri and Wyoming didn't address the issue.

In summary each state has its own rules for wind farms.

LR83 Question 8.d – Renewable Energy Credit Fact Sheet

What is a Renewable Energy Credit (REC)?

- Represents the renewable characteristic of the energy generated from renewable resources, such as wind or solar
- One REC is generated for every megawatt-hour (MWh) generated by a renewable resource
- RECs do have some monetary value
- RECs cannot be subdivided (utility must deal in whole RECs)
- RECs are recognized by the Department of Energy (DOE) and the Environmental Protection Agency (EPA)
- Most State Renewable Portfolio Standards (RPS) use the concept of transfer of RECs between parties to assist with utilities meeting a RPS
- RECs are the "currency" of existing State Renewable Portfolio Standards and for proposed Federal RPS requirements. Utilities would need to hold a quantity of RECs equal to a percentage of their customer's load.

How many RECs does an average residential customer need to cover their usage?

- The average residential customer (in Nebraska) consumes 1 MWh per month. So, 12 RECs would cover the average residential customer.

How is the value of a REC determined?

- RECs can be bought and sold on the open market. Companies survey REC brokers and other utilities that market their RECs.
- The value of a REC in the wholesale market is currently less than $1 per REC (September 2009).
- The value of a REC is expected to increase with the implementation of a Federal renewable energy standard (RES).

LR83 Question 8.e – Costs and Benefits of Wind Power in Nebraska

Owner costs – The owner will bear the cost of construction of wind farms. Assuming the owner is a corporation, tax free bonds will not be available; however, federal production tax credits generally have been available.

Transmission costs – The best wind sites are generally not located near existing transmission lines. As nearby sites use up any existing transmission capability, lines with voltages of 345kV - 765kV will need to be added in the state and interconnecting to other states. For a 7,800 MW wind generation injection, such additions will cost several billion dollars. Constructing these lines will require the usual process of finding routes, hearings, buying easements, construction, etc. that are associated with any transmission project. Most transmission lines in Nebraska are already fully committed to existing generation. Unless that generation is retired, existing lines will be largely unavailable for wind power transmission. It is unclear where the power will be marketed. If the markets are in the more heavily populated states east of Nebraska then additional extensive transmission infrastructure will be required in Nebraska and other states. If the municipals and public power districts build the additional transmission for export to private entities, then the IRS private use rules will apply, thereby most likely requiring financing via taxable bonds to some degree. Transmission planning and construction in the Southwest Power Pool (SPP) also involves SPP processes that govern transmission line construction, cost allocation, and other processes, including potential cost sharing by the wind power-receiving parties.

Taxpayer costs –The Federal government generally provides a production tax credit (PTC) to private corporation developers. The PTC credits are currently 2.1¢/kWh or the private developer can receive a direct cash payment equal to 30% of the project cost. For public power entity developers, there is currently no comparable level of incentives. The Renewable Energy Production Incentive (REPI) offered to public power entities has been funded by the Federal Government to a max level of only $5 million per year. The Federal government REPI payments are less than 0.5 cents/kWh today. The government allows accelerated depreciation of the assets over five years for private developers, though the life of the assets is commonly assumed to be 20 years. Some other states exempt wind turbines from property and other taxes and/or provide their own state production tax credits. The federal government also, for the past several years, has offered a national volume cap on Clean Renewable Energy Bonds (CREBs) for local government, municipal utility and rural co-ops. These tax free bonds (in most cases the bonds issued have had a small interest cost) may also be used to finance renewable projects. In 2008, the national volume cap for CREB bonds was $2.4 billion. Since Nebraskans pay taxes to the Federal government, they will share the costs of paying for these subsidies.

National costs – Currently, without CO2 emission regulation and associated costs for fossil fuel burning, the total costs for wind power are higher than for traditional resources. Under a no-CO2 cost scenario, higher electricity costs from greater use of wind power will shift consumption and production, and could make the U.S. less competitive. Further, if natural gas-fired units are used to back up the wind turbines, the increased gas use may lead to higher gas prices. Some gas may be imported, worsening the balance of payments problem. The balance of payments problem will also be worsened to the degree that the wind turbine components are imported instead of manufactured in the U.S. However, all of these

uncertainties are quite dynamic and interrelated, in that wind generation can reduce gas consumption at times, it can reduce CO2 cost if greenhouse gases are regulated, renewable equipment manufacturing facilities can be constructed in the U.S., and renewable generation can carry a marketable value called a renewable energy credit.

Local costs – Because of their size, construction of the wind turbines will require a robust infrastructure of roads and bridges. Some of the costs for these infrastructure improvements can be collected by local governments from the wind turbine owners through property taxes on the wind generation facilities and its employees, or other assessments.

Other local costs – Wind turbines are large structures. These will have an impact on the environment as a result of noise, lights, change of landscape view, bird collisions, air travel considerations, and equipment failure and salvage.

Utility costs – Wind power is an intermittent variable resource, with an average operating level of 35%-40% of nameplate in the best wind locations in the state of Nebraska. Electricity by its nature cannot be economically stored in significant amounts. Pumped hydro storage is possible as a mechanical storage method, and there is some discussion of producing hydrogen as a fuel source for fuel cells or combustion turbines. Instead of installing storage, utilities manage the wind variability by importing/exporting power, dispersing the wind generation locations, regulating the output of other generation sources, and installing additional, quickly-dispatchable gas-fired generation, all depending on the most economical short and long-term considerations. Additionally the utility may be able to fill in the generation gaps of wind power by curbing demand, either by direct control of customers' appliances or price signals. Price signals control requires additional monitoring, billing and communication system (e.g., Smart-Grid).

If a public power utility is required to make sizable infrastructure investments for renewable energy projects, it would result in increased debt financing, which may be difficult to do in unsettled credit markets.

As quoted in a Rating Methodology Report published in April 2008, "U.S. Public Power Electric Utilities", by Moody's Investors Service:

> "The ability of utilities to manage compliance with renewable energy portfolio standards is an emerging credit issue that requires close assessment given the potential of reliability and cost issues associated with maintaining a large renewable portfolio."

Wind also benefits a utility and its customers by bringing a certain degree of fuel diversity, which helps limits a utilities' exposure to volatility in the global energy market prices or disruptions in the delivery of any single fuel.

Consumer costs – Utility customers must ultimately pay the bills for generation, transmission, and distribution. Even though wind is "free", the capacity cost (with or without subsidies) and operating costs are currently higher than the capacity and energy costs of other existing base load resources. The

"bottom line" result for consumers regarding a large buildup of wind generation, associated transmission, and any generation backup, will depend largely on potential future regulations of CO2 and renewable energy standards.

National benefits – The major benefits at the national level are the reduction in fossil fuel emissions during energy production and energy security/diversity. Other benefits are from the construction of new generation (and transmission) facilities. Workers will be required to design, build and transport the turbines. Efforts to improve the efficiency or lower the cost of renewable energy may result in technological breakthroughs.

State benefits – The state would have higher tax revenues because of higher corporate income taxes (if the company is based in Nebraska), or some type of severance tax. The increase in employment would lead to higher income and sales tax revenue. Easement payments would also increase corporate and personal income taxes.

Local benefits – Local employment will increase because of workers coming into the area and local hiring to install the turbines. Sales of construction materials such as concrete will increase. Motels will have higher occupancy rates and restaurants will have higher sales. After the construction phase workers will be needed for operation and maintenance of the wind turbines. Property tax revenue will be higher because of taxes on the turbines, although that may be reduced over time because of depreciation. Property taxes on the land under the turbines may be higher. Rent payments to landowners will diversify and supplement income from crops and livestock.

October 5, 2009

LR83 – Economic Development Technical Committee

Responses to Chairman Langemeier's questions – 9/2/09

Describe economic development efforts in the promotion of new business development and recruitment along with percentage of budget use.

The Nebraska Public Power District (NPPD) and the Omaha Public Power District (OPPD) Economic Development Departments are similar in that each has primary responsibility for basic economic development functions such as business attraction and community preparedness. The two departments differ greatly in terms of additional areas of functional responsibility, budget and the geographic size of areas and communities served.

Both OPPD and NPPD employ professional economic development staff, including 4 Certified Economic Developers (a certification of the International Economic Development Council) at each district. Site Selection Magazine, in their annual selection of Top 10 Utilities in Economic Development in the United States, gave Honorable Mention to both utilities economic development departments. These rankings are based on a combination of Conway Data New Plant Project data for 2008; survey responses of corporate end users and independent corporate real estate advisors; evaluation of economic development program results; innovation, Web site tool and data functionality; and the utilities' own investment trends in new generation, renewable energy and transmission.

Professional economic developers at NPPD and OPPD work in three primary areas:

1 Recruitment of new business
2 Retention and expansion of existing businesses
3 Community preparation for successful business recruitment

Business recruitment efforts are performed in partnership with the Nebraska Department of Economic Development, Chambers of Commerce and Economic Development organizations, other economic development allies (railroads, financial institutions, other utilities, state agencies) and, of course, each other.

NPPD and OPPD's departments also work very closely with communities to have the best informed, best organized and best prepared communities possible when there is an opportunity for them to compete for new capital investment and job creation in Nebraska.

The majority of NPPD and OPPD business attraction efforts are planned and implemented jointly with the Nebraska Department of Economic Development. These include:

1 Prospecting trips to identify companies that may be expanding and have an interest in locating in Nebraska, or, to visit with companies who have indicated an interest in Nebraska and make them aware of the many advantages Nebraska offers new and expanding companies.

2 Special events – The 2008 Reverse Trade Mission and the 2009 Site Selection Consultant's Tour organized by the Nebraska Department of Economic Development and co-sponsored by NPPD and OPPD are two recent examples.

3 Membership and active participation in the Industrial Asset Management Council (IAMC) and the Corporate Real Estate Network (CoreNet). The active members of these organizations are national and international real estate professionals and site selection consultants. NPPD and OPPD co-sponsor, with the Department of Economic Development, invitation-only dinners and events, many of which have been led by the Governor or Lieutenant Governor.

4 Nebraska Diplomats Passport to Nebraska Weekend. This annual event of the Nebraska Diplomats provides an opportunity to showcase Nebraska to business prospects, international business leaders and site selection consultants.

5 Trade shows – NPPD and OPPD, along with the Nebraska Department of Economic Development (NDED) have a joint effort currently underway to market Nebraska as a perfect location for wind manufacturers (towers, blades, turbines and other components) and suppliers. In December of 2008 we participated in a supply-chain conference at Cleveland and in May of 2009 we sponsored a booth and many individual appointments with wind related companies at the American Wind Energy conference in Chicago. Planning is in process for an expanded role at the 2010 show in Dallas.

6 Existing business and headquarters calls. We regularly call on our existing businesses and the headquarters of companies located outside of Nebraska and doing business in our service territory. The purpose of these calls is to 1) show our appreciation for the jobs they provide and the positive impact on the Nebraska economy; 2) identify any potential expansion opportunities; and, 3) identify any barriers to expansion which we may be able to assist them in addressing.

The percentage of total budget spent for economic development in 2009:

NPPD - 0.426%.

OPPD – 0.07%

<u>Nebraska Municipal Power Pool (NMPP) Energy Community and Economic Development Services</u>

This area works primarily with Municipal Energy Agency of Nebraska member communities through an agreement with and guidance of the MEAN Board of Directors and the MEAN Services Committee. MEAN members are located in Colorado, Iowa, Nebraska and Wyoming and operate public power electric utilities. Community and Economic Development services are available to

members of Nebraska Municipal Power Pool and are billed on a per project basis or hourly fee. NMPP members are located in Colorado, Iowa, Kansas, Nebraska, North Dakota and Wyoming.

- Work with member communities and their designated economic developers, key account managers, community improvement corporations, chamber executives and other business development organizations in the five core areas of Economic Development:
    - Business retention and expansion
    - New inquiries
    - Planning
    - Entrepreneurship
    - Resource for external funding

- Facilitate MEAN member needs assessments and assist in the implementation of their community issues.
- Assist and support member communities in the promotion of public power communities to potential new businesses.
- Encourage members to become Nebraska Certified Communities.
- Facilitate community and strategic planning sessions with boards, councils and select community groups.
- Help identify and make connections with the networks and resources that can assist municipal members. Such as USDA, DEQ, EPA, DED, various foundations, and energy-related projects and programs.
- Assist and partner with others in Economic Development research and viability studies.
- Provide member staff opportunities for growth and training through the Employer of Choice and Employee Pride series.
- Provide communications tools for assistance with programs and projects within the community.
- Assist with grant applications for ARRA funds.
- Administer a scholarship fund for registration expenses for MEAN members' elected and appointed leaders to attend various workshops, seminars and conferences plus a major portion going for correspondence or on campus Line Worker Training.

The percent of total MEAN budget spend for Economic/Community Development in 2009 was approximately .03%.

For a 80 MW wind facility, what is the detailed economic impact?
Example: 100 construction jobs (local or imported)
8 maintenance jobs (local or imported)
Wage rates

It is estimated the construction of a new, 80 MW Nebraska wind facility would generate the equivalent of 64 full-time jobs (a full-time job equals 2080 hours of work) for Nebraska workers with total compensation (salary and benefits) of about $3.3 million.

Operation of the 80 MW wind facility would generate an estimated 5 new, permanent Nebraska jobs with total annual compensation estimated to be $270,000 per year. Annual lease payments to Nebraska land owners for an 80 MW wind project are estimated to be $243,000 per year. It should be noted, reported lease payments for an 80 MW Nebraska wind project are $325,000 per year.

Economic development projects are widely sought after for new job creation, capital investment and a broadening of the tax base. These elements are certainly a part of any wind development project.

There are jobs created to construct wind towers; utilizing local labor for project construction and road building. A construction project to build 100 MW of wind power capacity would take about 9 months with an average of between 80 to 120 workers on site[i]. The source of on-site labor depends on the availability and skills of local construction workers. Projects may use local businesses in the construction process. Materials utilized in the construction project include cement, rebar, site grading/finishing, underground cabling and cranes.

The August 2009 version of the National Renewable Energy Laboratory (NREL) model used to estimate job and economic development impacts[ii] contains state-specific, default values for local construction jobs associated with a new wind turbine project. Using the NREL default values, the estimated direct, local impacts for the construction of an 80 MW wind project in Nebraska are 64 local jobs[iii] and $3.3 million in wages and benefits to local workers or about $52,000 of annual wages and benefits per worker. Table One below contains data on average annual and hourly wages for the Nebraska construction industry. The values in Table One do not include benefits or other adders which are included in the NREL estimates.

Table One
Nebraska Occupational Employment Statistics (OES)
Survey Wage Data, Second Quarter, 2009

Standard Occupational Code Title	Average Hourly Wage	Average Annual Wage
Total all Construction Occupations	$17.63	$36,679
Construction Managers	$44.01	$91,532
First-Line Supervisors/Managers of Construction Trades and Extraction Workers	$28.22	$58,708
Cement Masons and Concrete Finishers	$16.39	$34,108
Construction Laborers	$12.81	$26,661
Paving, Surfacing, and Tamping Equipment Operators	$14.68	$30,537
Structural Iron and Steel Workers	$18.12	$37,686
Highway Maintenance Workers	$15.19	$31,580
First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	$24.29	$50,532
Mobile Heavy Equipment Mechanics, Except Engines	$17.83	$37,096
Maintenance and Repair Workers, General	$16.37	$34,047
Electrical Power-Line Installers and Repairers	$16.64	$34,616
Welders, Cutters, Solderers, and Brazers	$18.31	$38,095
Crane and Tower Operators	$23.00	$47,834

Excavating and Loading Machine and Dragline Operators	$14.99	$31,172

Source: Nebraska Department of Labor, Labor Market Information, Occupational Employment Statistics, May, 2009.

Permanent service jobs are created for operating and maintaining towers/turbines/blades once they are in operation. Annual operation and maintenance of a 100 MW wind farm is estimated to require between 6 and 12 full-time, on site employees[iv]. Anecdotal evidence suggests that local workers, once trained, are preferred for these jobs.

The NREL model was used to estimate local, direct job, and wage impacts for the operation of a Nebraska wind farm project. The estimated local impacts for the operation of a 80 MW wind project in Nebraska are 5 permanent jobs and $270,000 in annual wages and benefits or about $54,000 of annual wages and benefits per worker[v].

Table Two below contains data on average annual wages for wind turbine technicians. The values in Table Two do not include benefits or other adders which are included in the NREL estimates.

Table Two
Wind Energy Technicians
Average Base Salary

NPPD:	
Renewable Energy Technicians (One Level): Average Base Salary	$60,800
Hewitt Wind Energy Compensation Survey:	
Wind Turbine & Electrical Technician (Intermediate Level)	$56,700
Wind Turbine & Electrical Technician (Sr. Level)	$71,100
Wind Turbine Technician (Intermediate Level)	$39,300
Wind Turbine Technician (Senior Level)	$52,800
Wind Turbine Technician (Lead)	$56,500

Wind farms also generate rent for farmers with minimal impact on farming and ranching operations. They generate additional incomes via lease payments to the land owners where turbines are constructed. These additional incomes also have the potential to create additional local spending and jobs which are not included in the above job estimates. These lease payments on wind towers also help diversify Nebraska's farming/ranching operations.

Using the NREL model, estimated annual property lease payments for an 80 MW wind farm are $243,000 per year. The 80 MW Elkhorn Ridge project is reported to have annual lease payments in excess of $325,000 per year[vi].

[i] The low value assumes 0.6 job years/MW and the high value assumes 0.9 job years/MW. Sources for these values: (1) values calculated by Ken Lemke, Nebraska Public Power District (NPPD), using U.S. Department of Energy, *Job and Economic Development Impact - Wind (JEDI-Wind) model rel. W1.09.03b*, available at http://www.nrel.gov/analysis/jedi/about_jedi.html; (2) values calculated by Ken Lemke, NPPD using values from McCook Daily Gazette, *New wind farm to be state's largest*, March 19, 2008, available at http://www.mccookgazette.com/story/1319205.html.

[ii] U.S. Department of Energy, *Job and Economic Development Impact - Wind (JEDI-Wind) model rel. W1.09.03e*, available at http://www.nrel.gov/analysis/jedi/about_jedi.html;

[iii] A construction job is equal to 2080 hours of work.

[iv] The low value assumes 0.06 direct jobs/MW and the high value assumes 0.12 direct jobs/MW. Sources for these values: (1) New Amsterdam Wind Source LLC, *Nolan County: Texas Wind Energy Economics Case Study*, July 9, 2008, available at http://www.docstoc.com/docs/2362701/Nolan-County-Case-Study-of-Wind-Energy-Economic-Impacts-in-Texas; (2) data compiled by Ken Lemke, NPPD, from reports available on NextEra Energy Resources website: http://www.nexteraenergyresources.com/content/where/portfolio/contents/portfolio_by_source.shtml; and (3) data compiled by Ken Lemke, NPPD, from reports available on Horizon Wind Energy website: http://www.horizonwind.com/projects/whatwevedone/.

[v] U.S. Department of Energy, *Job and Economic Development Impact - Wind (JEDI-Wind) model rel. W1.09.03e*, available at http://www.nrel.gov/analysis/jedi/about_jedi.html.

[vi] New Wind Facilities, Elkhorn Ridge web page, available at http://www.nppd.com/wind_generation/new_facilities.asp.

Legislative Issues/Government Tech Group

Question Response—What are other States currently looking at for(new) incentives, goals, promotions etc.?

A request was put out to all states through the lobbyist list serve of the National Rural Electric Cooperative Association regarding what 'Potential' incentives/policies/legislative changes were being proposed to encourage renewable energy development through the legislative process. Limited response was received.

The danger in looking at proposed or suggested legislation from other states is that there is not a clear way of determining if the legislation is a legitimate consideration in the state. Also differences in organization, state funding, budget status, and regulation need to be taken under consideration. The information provided by the Economic Development Tech Group regarding existing incentives should be considered in concert with potential new incentives and proposals.

A brief summary of legislative issues that were proposed by states surrounding Nebraska is included here, but the list is incomplete due to lack of response or legislation/policy under development that has not been made public.

The legislative tech group will continue to monitor other states policy/legislative developments and will provide updates as appropriate.

The general trend in new policies centers around the creation of incentives, state funded incentives and tax credits, and sales tax and property tax exemptions. Loss of revenues may cause a slowdown in the implementation of policy due to state budget woes in many states.

Mandates are also proposed as a means to create a market for renewable energy resources. In some states, specific requirements for renewable energy to be developed from specific resources have been proposed.

The Legislative group felt that it would be helpful to review policies and model legislation of the three major Legislative organizations that Nebraska Legislators use as resources. The American Legislative Exchange Council' (ALEC), National Council of State Legislators' (NCSL) and Council of State Governments' (CSG) model legislation will give a snapshot of the trends in incentives and policies for renewable energy development. These summaries follow information provided on surrounding states' activities.

Surrounding States Summary Activity

Iowa

Iowa has been active in increasing renewable energy tax credits, expanding energy efficiency programs and grants and continues to look at ways to encourage both small and large renewable energy programs.

Bills that became law

Renewable Energy

HF 810 – Small Wind Innovation Zones
Iowa Code Sections 404A.2 – 404A.5
HF 817 – Renewable Energy Generation Component Tax Credits
Iowa Code Section 15.335
SF 376/SF 477 – Bonding for Iowa Energy Center Alternative Energy
Revolving Loan Program (AERLP)
Iowa Code Section 476.46
SF 456 – Wind Energy Tax Credit s
Iowa Code Section 476B.1 – 476B.5, 476C.3

Bills that did not become law:

Renewable Energy

HSB 242 – Renewable Portfolio Standard
HF 177 – Renewable Energy Homestead Property Tax
HF 192 – Low-Head Hydropower Energy Production Facility Feasibility Study
HF 412 – Green Power Zone Program
SF 29 – Standardized Small Wind Interconnection Agreement
SF 84 – Small Wind Ordinances
SF 169 – Alternate Power Purchase Programs
SF 238 – Sale of Energy by Alternate Energy Production Facilities
SF 459 – Geothermal Incentives

Transmission

HSB 281 – Renewable Energy Transmission Franchise
HF 340 – Renewable Energy Transmission Authority

Colorado

One of the issues being raised in Colorado is mandated state transmission planning requirements. Specific legislation has not been passed. The Legislature directed the state Public Utility Commission (PUC) to issue a report on the state of transmission planning and to provide legislative recommendations. The PUC legislative recommendations should come forth after the 2010 legislative session.

There is existing legislation in Colorado that would provide Investor Owned Utilities s with financial incentives to build transmission lines to renewable energy areas, but also mandates a specific process by which they plan that transmission and requires them to build transmission to the specific renewable energy areas.

Kansas

The Kansas Governor's office has continued to advocate for a state renewable portfolio standard, but it has not been adopted by the legislature. New proposals that provide financial incentives for companies that make renewable energy components, such as wind turbines, to locate in Kansas; and require that state buildings meet energy efficiency standards continue to be introduced and discussed by the Legislature.

Missouri

No response.

South Dakota

No response.

Wyoming

The Wyoming Legislature has also developed a Wind Energy Task Force Chaired by Senator Jim Anderson. There are hopes in Wyoming to develop large amounts of wind energy for exportation to the South and West. It appears that development hinges on the uncertainty of the tax situation in Wyoming and the potential for the Sage Grouse to become listed as an endangered species. If Sage Grouse is listed it will have a large impact on wind development.

Wyoming's Wind Energy Task Force will be meeting later this fall to give recommendations to the legislature.

Oklahoma

Recent legislative proposals

HB 1682—Creates Green Jobs Act to establish and implement an energy efficiency and renewable energy worker training program. Authored by Scott in the House/Newberry in the Senate carried over to next session.

SB 827—Authorizes the Oklahoma Corporation Commission to contract for an electric transmission system advisor. Authored by Schulz in the Senate/Blackwell in the House signed by Governor 5-23-09.

HB 1953—Adds support, repair and maintenance service activity for the wind industry to the Oklahoma Quality Jobs Program. Authored by Benge in the House/Bingman in the Senate signed by the Governor 05-28-09.

SB 828—Creates rules regarding new electrical facilities and property owner rights ,(wind turbines and transmission) requires certain contracts. Authored by Marlatt in the Senate/Blackwell in the House. Carried over to next session.

ALEC, CSG and NCSL Policy Information

(Note: We have excerpted portions of the policies that we believe are pertinent to renewable energy development)

American Legislative Exchange Council
Energy Principals

Energy Realism

Rely on the market to develop and produce new technologies: The free market should be the principal determinant of which products reach the marketplace.

Governments should not mandate nor limit energy choices: Government programs designed to encourage and advance energy technologies should not reduce energy choices or supply. They should not limit the production of electricity, for example, to only politically preferable technologies.

Rely on existing technology: Energy policy should rely on technologies that exist, not on uncertain future technological advancements. Technological advancement will occur, but we cannot predict them ahead of time.

Energy Infrastructure

Reliable electricity supply depends upon significant improvement of the transmission grid. Interstate and intrastate transmission siting authority and procedures must be addressed to facilitate the construction of needed new infrastructure.

New, expanded, and modified refineries, power plants, and transmission facilities require streamlining of siting and permitting processes.

First adopted by the Natural Resources Task Force in 2002. Amended at the States and Nation Policy Summit, May 16, 2008.

National Conference of State Legislators
National Energy Policy

National Energy

The National Conference of State Legislatures urges the federal government to develop, implement and maintain an expansive, integrated, environmentally-sensitive and cost-effective national energy policy. NCSL commends Congress and the Administration on the continued attention to these pressing issues which are a priority to the success of the United States. It is imperative that federal, state, local, and tribal governments continue to work cooperatively as our country moves forward.

The primary goals of a national energy policy should be to develop a comprehensive energy conservation strategy, provide for the most efficient use of energy, to promote reliable sources of domestic energy supplies and to develop and promote the use of alternative, renewable energy sources. A national energy policy should ensure adequate supplies of affordably priced energy. A national energy policy should ensure the use of energy in an efficient and environmentally-sound manner so that the needs of our citizens, economy and national security interests are met. Energy independence must be a goal of the United States. A balanced mix of energy sources is essential to the security and the future economic growth of the United States. It is also imperative that a national energy policy must utilize a cost-benefit analysis to determine the effect of each fuel source on the environment.

Principles

Those principles which NCSL believes ought to guide the development and implementation of a national energy policy include:

Promotion of the most efficient and economical use of all energy resources.

Promotion of energy conservation and efficiency and the development and use of alternative and renewable energy supplies.

Promotion and provision of incentives for the development and optimal use of all energy resources and new facility infrastructure.

Assurance that various domestic energy sources are continually developed, maintained and stored to prevent supply emergencies and to promote energy independence.

Consideration and assessment of environmental costs and benefits for all energy resources, fuels and technologies in rendering legislative, regulatory and market decisions regarding energy production and use.

Provision of an affordable and reliable energy supply for all citizens.

Examine the feasibility of and where feasible promote state-wide or regional minimum storage level requirements for heating oil for states dependent on this fuel.

Specification and balancing of clear lines of local, state and federal regulatory authority.

Development of both short - and long-term strategies to provide adequate energy supplies, efficient utilization of those supplies and optimum cost effectiveness.

Promotion of the education of school-age children regarding energy resources, consumption, conservation, and production and regarding environmental protection, safety and risks in energy production.

Assurance of expanded energy research and development and broadening of the citizenry's access to energy-related information.

Assurance of participation of state and local officials in the development and implementation of a national energy plan and strategy.

Avoidance of mandates, particularly unfunded mandates, upon state and local governments in developing a national energy policy.

Avoidance of pre-emptive federal laws.

Transmission.

Implementation

NCSL believes development of a national energy strategy should have at least these seven components:

an assessment and forecast of our nation's energy future and its impacts;

an evaluation and ranking of short and long-term energy options available to the nation;

an evaluation of possible energy futures which provide greater benefits to our citizens;

development of recommendations for energy options and energy futures that the nation should pursue, with the establishment of national targets or goals;

evaluation and recommendation of implementation mechanisms including, but not limited to, incentives, technical assistance, educational programs, regulatory standards or guidelines to achieve the targets or goals;

coordination of federal and state components, responsibilities, and authority; and

a cost-benefit analysis to determine the use of each fuel source.

NCSL believes that a national energy policy should consider energy sources based on the following criteria first: lowest cost, cost benefit analysis, revenue loss, cost to consumers, reliability, and environmental or other impacts. Energy policy alternatives that would improve our energy security without imposing significant new costs, while balancing the need for environmental protection, should be implemented. NCSL strongly supports a coordinated effort between state and federal government in producing a national energy policy. In the development of a national energy policy, the federal government should consult closely with state legislatures, devise mechanisms to bring state legislatures into the energy decision-making process as full participants on a continuing basis, and ensure the inclusion of representatives of the legislative branch of state government in all state-federal working groups dealing with energy policy.

Renewable Energy

Renewable energy sources include, but are not limited to, geothermal, hydropower, biomass, wind, photovoltaics and solar. NCSL believes that recognizing this spectrum of resources, the federal government should institute a long-range, stable Renewable Energy Development Program which identifies and supports development of renewable energy sources from research and development through demonstration projects and commercialization in a cooperative effort among industry, higher education, and national laboratories.

Electricity

The federal government should promote energy efficiency and conservation to lower the demand for electricity. The development of sources of electric energy that are sufficient to meet national needs, secure from external threat, reliable in availability and delivery, safe relative to people and the environment, and efficient for use in homes, businesses, industries, and as an alternative vehicular fuel, should be pursued in junction with aggressive efficiency and conservation programs are implemented.

Public Benefits/Environment:

- States should maintain the authority to require public benefits programs on a nondiscriminatory basis, including those that support reliable and universal service, energy efficiency, renewable technologies, research and development, and low-income assistance. Existing federally sponsored public benefits programs should be maintained in a

restructured market. Electric industry restructuring should be consistent with any federal environmental laws, including the Clean Air Act.

- In regards to fuel usage, the electricity sector is characterized by tremendous diversity, regionally, and state-to-state. Factors relating to fuel usage include energy efficiency, economic competitiveness, environmental impacts, and technological adaptability. Implementation of Federal legislation that fails to recognize market mechanisms inevitably penalizes one region or state or another. Mandate programs, which have led to energy market distortions in the past, are counter to the concept of restructuring, which encourages the efficiencies of market competition. States are in the best position to evaluate market force considerations. Congressional legislation should not limit, through the use of mandates or otherwise, state flexibility in addressing market mechanisms in electric restructuring plans.

- NCSL believes that non-traditional energy production should be encouraged. The federal government must maintain and increase its commitment to cost effective energy conservation and efficiency while maintaining adequate and reliable energy. Power providers, equipment and appliance manufacturers, and consumers should be given legislative and regulatory incentives to promote these goals.

Regulatory Authority

NCSL acknowledges the need for a robust national transmission system that can support new technology and allow for additional power production to be brought onto the grid. In the 2005 Energy Policy Act Congress established federal backstop authority for the Federal Energy Regulatory Commission (FERC) over the siting of transmission lines in National Interest Energy transmission Corridors. Since the enactment of the new authority, the provisions have proven largely unnecessary and court action in the 4th Circuit Court of Appeals has upheld that the rejection of a permit application by a state for good cause is not grounds for being able to appeal to the FERC to obtain the permit.

Renewable Energy R&D Market Support

Part of the renewable energy resource development program, and critical to its success, is federal development of alternative technologies that improve renewable energy efficiencies, cut costs, and assist in integrating renewable energy into existing energy systems. Federal standards for the deployment of these new technologies should not undermine established programs at the state level to integrate these resources into existing energy systems. Also needed is a translation and distribution system for international technical and marketing papers on renewable energy. The U.S. should strive for excellence in the use, manufacturing, and marketing of renewable energy resources and technologies.

Council of State Governments

Quoted from the Suggested State Legislation Supplement

ENERGY TRENDS - OVERVIEW, STATE SOLUTIONS

The prevalent view among experts is that the world could reach peak oil production capacity in the next 10 to 40 years. Likewise, natural gas supplies are projected to last about 50 years. Given these predictions and the push to reduce dependence on foreign energy sources, alternative fuels such as ethanol, biodiesel and hydrogen are gaining prominence.

Compared with the rest of the world, people in the United States use large amounts of energy, electronic devices, food, paper, and natural resources. However, especially as gas prices increase in this country, Americans are starting to pay more attention to energy conservation.

States play a central role in managing natural resources and protecting the environment, including promoting energy conservation and renewable energy. Indeed, many states are taking action to promote alternatives to oil and other fossil fuels. Several states offer incentive programs to encourage the purchase of alternative fuel vehicles, the conversion of vehicles to run on biofuels, and the installation and operation of fueling facilities to serve these vehicles. States are looking at alternative energy not only as a power source, but also to fuel economic development. However, as this industry grows, so does the need for best practices, model solutions, and incentives.

STATE SOLUTIONS

States' Options to Encourage Energy Conservation – (Excerpted from *Resource Management: Sustaining Our Future - Trends in America: Navigating Turbulence to Success: 2005*)

States are promoting energy conservation in a number of ways, including developing standards to increase the energy efficiency of appliances and lighting. In addition, some states are concentrating on increasing the efficiency of whole buildings through their green building initiatives.

Promoting Energy Efficiency

New York enacted the Appliance and Equipment Energy Efficiency Standards Act of 2005. The measure establishes energy efficiency standards for appliances not included in the National Appliance Energy Conservation Act of 1987. New York's law sets energy efficiency standards for ceiling fans and light kits, furnace air handlers, commercial washing machines, commercial refrigerators, freezers and icemakers, floor lamps, unit heaters, reflector lamps, large packaged air conditioning equipment and other commercial and household items. The Act also calls on the state to develop energy efficiency standards for consumer products while they are in standby mode.

California's law focuses on lighting. Beginning in October 2005, all new homes built in the state must meet new rules that save at least 30 percent of an average home's lighting costs. This will be accomplished by requiring that fluorescent light fixtures provide at least half the light in kitchens. Also, bathrooms, garages, laundry rooms, and utility rooms must be lit by fluorescent lights or incandescent lights with motion sensors.

Also, the California Public Utilities Commission recently agreed to spend $2 billion over the next three years to provide consumer rebates of up to $600 for Energy Star appliances, Energy audits, design assistance and equipment rebates designed to increase energy efficiency. State officials hope for a $5 billion decrease in energy costs for homes and businesses and to eliminate the need to construct three power plants.

Some states are combining efficiency efforts with an emphasis on renewable energy. In July 2005, Illinois adopted a Sustainable Energy Plan that calls for energy efficiency and CSG 2008 SSL Energy Supplement renewable energy portfolio standards. The energy efficiency standard requires utilities to develop and implement programs that reduce electricity consumption 10 percent by 2008 and 25 percent by 2015. Utility companies must assist their customers in investing in energy-saving equipment and other technologies.

In April 2005, Iowa Gov. Thomas Vilsack issued an executive order mandating state agencies to increase their operational energy efficiency and renewable energy use. The executive order requires state facilities to reduce their energy use 15 percent by 2010 through energy efficiency measures. It also calls for the procurement of hybrid or alternative-fuel vehicles for non-law enforcement state vehicles.131

Promoting Green Buildings

Some states are leading by example in terms of energy-efficient building. The headquarters for New York's Department of Environmental Conservation, for example, is designed for optimal energy performance, and is expected to cost approximately 40 percent less per year to operate than a typical building its size. More than half the cost of materials used in the construction was spent on recycled supplies. And 20 percent of the materials were manufactured within 500 miles of the site, which cut down on emissions released while transporting them.

The building that houses California's Environmental Protection Agency is also a model of green building principles. It maximizes natural light and uses special glass to conserve energy, and employs super high efficiency/low-mercury lighting tubes and perimeter light sensors that dim the lights in bright sunlight. The building uses solar panels, low-flow toilets, and special paints and carpets that minimize or eliminate harmful emissions. Among other features, it has 25 electric vehicle charging stations and the capacity to add a natural gas powered fuel cell.

The California Public Utilities Commission approved in September 2005 funding of $230 million annually for the next three years for a Green Building Initiative to reduce energy consumption in government buildings by 20 percent.

Washington passed a law in 2005 mandating that any new construction or remodeling of state buildings of more than 5,000 square feet must achieve Silver LEED (Leadership in Energy and Environmental Design) ratings.133 various types of laboratory facilities, hospitals, pumping stations, and research facilities are the only exemptions. The Silver LEED rating is the third highest rating for high-performance sustainable buildings, after Platinum and Gold.

New York's Green Buildings Initiative encourages building owners and developers to design, construct, and operate buildings that are more in harmony with the environment. Executive Order 111 further builds on this initiative by directing state agencies to be more energy efficient and environmentally aware by setting new energy efficiency goals and practices, following guidelines for the construction of green buildings, procuring energy efficient products, purchasing power from renewable sources, procuring clean fuel vehicles and involving the participation of other governmental entities. Additionally, New York is among the first states in the nation to offer a tax incentive program for developers and builders of environmentally friendly buildings.

New York's Green Building Tax Credit Program was signed into law in 2000. Since its inception, the program has issued $25 million in tax credits for seven buildings. The law was amended in 2005 to provide an additional $25 million in funding for up to $2 million in tax per qualified building.

CSG ACTION

CSG's 16-state Southern Legislative Conference adopted the following policy positions about energy at its July 2007 meeting in Williamsburg, Virginia:

POLICY POSITION REGARDING FEDERAL RENEWABLE PORTFOLIO STANDARDS

Background

The production of electricity using renewable energy sources has become more commonplace recently. In fact, over 20 states and the District of Columbia have adopted renewable portfolio standards (RPS) programs based on their available resources. Nonetheless, there is increasing pressure to adopt mandatory renewable portfolio standards at the federal and state level. Despite current state RPS activity, Congress is considering adopting a federal RPS mandate.

A federal mandate fails to recognize the significant differences among the states in terms of available and cost-effective renewable energy resources, and the impact on consumers' electric bills.

Not all states have abundant traditional renewable energy resources or have them located close enough to the load to render them cost effective. This is especially true in the South. Moreover, some traditional resources such as wind face resistance because there is frequent opposition to building huge wind turbines, concerns over cost impacts for additional transmission needed and reliability concerns. As a result, wind energy projects are delayed and, in some cases, cancelled. In other cases, the availability of other renewable resources, such as geothermal, are even more limited.

The states that have adopted RPS programs not only have more resources available to them, they have also included resources in their definitions of eligible renewable resources that are not included in the mandate currently being discussed in Congress. Such resources include power produced from solid waste, hydroelectric facilities, and coal waste. Some states even include expenditures on demand-side management or alternative compliance payments.

Recommendation

Because availability and cost-effectiveness of renewable energy resources vary widely among the states and regions, decisions regarding RPS programs should be left to the states, and available and cost-effective renewable energy resource options should be considered.

The Southern Legislative Conference of The Council of State Governments urges Congress to expressly allow each individual state to determine how renewable energy can be reliably and cost effectively utilized within that state and forwards its position to the President of the United States and the Secretary of Energy.

RESPONSES

Senator Langemeier,

I am responding to your request dated October 2, 2009, for LR83 Advisory Committee feedback on the list of questions for the technical committees to investigate further. Thank you for the opportunity to provide my input. Wind energy development could be very valuable for Nebraska, and the rest of the USA, particularly if it is well-planned. I applaud your efforts to begin this planning process.

I have reviewed all the materials you sent but will focus on questions for the Environmental Tech Comm, given that this is my primary area of expertise.

The white paper appropriately recognizes that wind energy development may have two types of environmental impacts: direct mortality to species at-risk and indirect degradation of habitat quality. The latter is more subtle but of greater importance. Turbines and transmission lines can cause wildlife to vacate the general area within a mile or more. This is particularly true for grasslands, and Nebraska is home to some of the best remaining, intact grasslands in the world (e.g. Panhandle, Sandhills). Focus on individual species impacts overlooks the cumulative impacts to the many species relying on healthy grasslands. As a group, grassland birds that we have most commonly in NE have declined more steeply over the past 30 years than any other birds in North America (according to recently released study by the US Dept. of the Interior: The State of the Birds, 2009).

An additional question that gets to the indirect environmental impacts to grassland wildlife: Where are the largest blocks of intact grassland left in Nebraska and how could wind farms and transmission lines be sited to avoid breaking these blocks into smaller pieces?

I attach a map to exemplify what I mean by "intact grasslands" in Nebraska. You will note that it is not the same as the species at-risk map, but it does complement it.

Thank you,
Mace Hack

Mace A. Hack, Ph.D.
State Director

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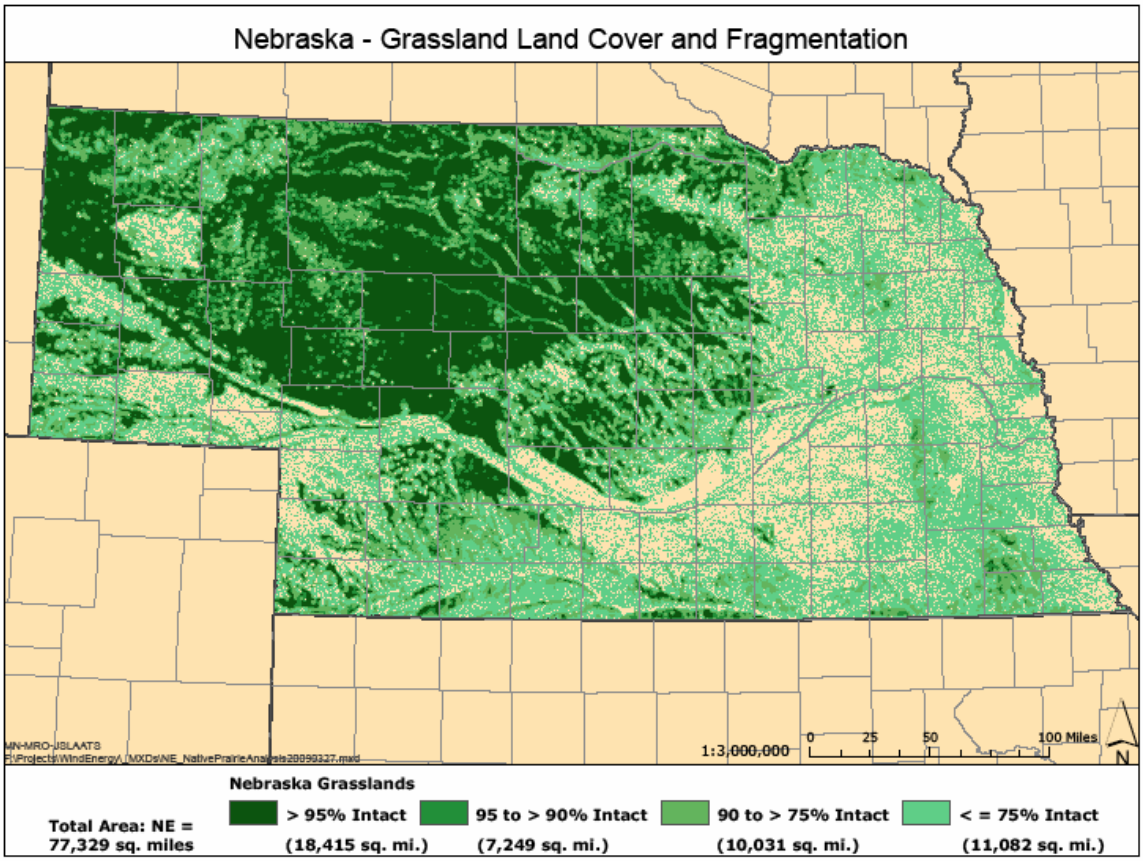
Nebraska - Grassland Land Cover and Fragmentation
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N
Nebraska Grasslands
Total Area: NE = 77,329 sq. miles
> 95% Intact (18,415 sq. mi.)
95 to > 90% Intact (7,249 sq. mi.)
90 to > 75% Intact (10,031 sq. mi.)
< = 75% Intact (11,082 sq. mi.)

From: David M. Vavra [mailto:dmvavra@abswebb.net]
Sent: Tuesday, November 17, 2009 12:13 AM
To: Sen. Langemeier, Chris
Subject: RE: Lr 83 papers: Monday Oct. 26 2:27 p.m.

Honorable Senator Langemeier,

I apologize for the getting this back to you so late. I wanted to hear what discussion concerning LR83 would be brought forward at the Nebraska Wind Conference. Unfortunately, there was no discussion in the area of my concern that being the Landowner lease agreements.

Most of my comments will be made in reference to the attached file: Memo windproject agrment sum.pdf

As Chairman of the Saline County Wind Association (SCWA), I led a team of landowners in negotiating a contract with RES Americas. It is RES' intention to development a 400MW wind facility in Saline County. The SCWA's attorney's fee alone cost over $27,000. The SCWA represents over 260 landowners and 60,000+ acres.

While I can not discuss specifics, I can point out where most of our time was spent.

Very little time was spent negotiation the Option and lease payments. Those financials are pretty much set by the operating margins the developer/operator has to work with.

Where we spent most of our time was in the area of "What happens if something goes wrong?" “Who's going to be liable for what?”

After reading the attached summary, I can tell very little consideration given to those questions as well. There are only 2 sentences, Indemnification and Liability insurance, relating to issues that could literally cost the landowner their farm.

1st, the Indemnification sentence. There is no guarantee the lessee (developer/operator) will indemnify the lessor (land owner). Some agreements hold both parties equally liable. That may seem equitable as the lessee could be worth millions of dollars and the lessor maybe a few million. For example, if the developer destroyed a combine, they could easily cover the $250,000+ cost of replacement. On the flipside it is argued that there is little likelihood of a combine damaging a wind tower. However, if a combine was to accidently hit an 115KV line carrying the electricity from the generation facility to a main transmission line, the damage could be considerable. The landowner could not only be liable for the damage to the line, but the loss of revenue as well.

This would even be worse if someone was hunting on land on which the wind facilities substation was situated and the transformer was damaged by a stray shot. Again there would be the cost of the transformer repair, but if repairs could not be made in a short order, revenue loss could be considerable. It could be as long as a year before facility operations would be restored.

This could be handled by only allowing the developer/operator to hold the landowner liable to a Gross Negligence Standard (purposely causing the damage).

2nd, the Liability insurance sentence. The summary only mentions the lessee maintaining any insurance. But as I cited above, the lessor can have a lot at stake. An example of this case is, if someone (be it worker or anyone visiting the facility) is injured while performing an activity related to the wind facility. Who's that injured person going to sue? Anyone and everyone, that’s who.

The developer may decide to quickly settle out of court. The injured party can still pursue action against the land owner. Even though the land owner didn't materially contribute to the injured party's accident, liability could still be assessed against the land owner.

This could be handled by having both parties 'Named as Insured' on their respective liability policies.

There should also be given consideration to having a mandatory liability cap to protect the land owner.

There are 2 reasons why I believe these items have been over looked:

1. In the past the power companies owned the land the substations, maintenance yards, and generation facilities where situated on. With the advent of private ownership of wind facilities, the developers/operators don't want to own the land. Thus leaving the landowner open to possible law suits.
2. The person causing the damage to a power line has always be the responsible to pay for repairs. However, if a line was damaged and taken out of service, there would be an alternate feed to pick up the load. With a wind facility, where production is God, lost revenues would have to be made up.

Now it can be said the landowner can just take out more liability insurance. The question then has to be asked “How Much More?” No one seems to have an answer for that. If a landowner has a turbine on his/her property generating $10,000 a year, the cost of a couple thousand in extra insurance isn’t to bad of a deal. But if a landowner only has a transmission line running across his/her property and only receives a one time access payment for the line they loose thousands each year.

When a landowner signs a long term wind lease, they could literally be opening themselves up to what ever the developer wants to do with their land. While the developer can terminate the lease at any time, the landowner (with few exceptions) is bound to it for the entire term of the lease. The developer needs this flexibility to put together the project and obtain financing. But when so much power is giver to the developer, there needs to be liability protection for the landowner.

To summarize, there are 3 areas of major concern that have been over looked in the present summary to Question 2a:

1. Indemnification – both parties should be listed ‘as insured’ on each other’s policy
2. Liability – the landowner should be held to a ‘Gross Negligence Standard’

3. Liability – the landowner's liability should have a cap. This could be a set dollar amount or based on the income he/she is expected to receive from the project.

While this became longer than I expected, these items can have a very big impact on the landowner entering a long term lease agreement.

The Power Companies and Developers have very deep pockets to hire legal counsel to protect their interests. The landowner on the other hand pretty much stands alone as the developers swoop in to grab the land for their respective projects. The intricacies of a lease agreement can't be left to a "Buyer Beware" kind of attitude. It is incumbent on the Nebraska Legislature to provide some protection for its citizens.

I appreciate all the work you are doing to further the development of wind generation in the State. I look forward to any comments or questions you might have of me on this subject.

Best regards,

David Vavra
Saline County Wind Association – Chairman
308-380-7225

From: Larry Dix
Sent: Monday, October 19, 2009 4:11 PM
To: Sen. Langemeier, Chris
Subject: RE: LR 83 Information: Friday, Oct. 2 11:06 a.m.

Senator Langemeier -

One of the questions related to LR 83 and Wind Energy was to describe land use and siting issues related to siting renewable energy projects and associated transmission lines. As of October 2008, there were 81 counties with zoning, seven counties that had adopted comprehensive development plans and five counties with no zoning or comprehensive development plan. For additional details, see the attached map.

Also, attached is a chart showing the results of a 2008 survey asking counties whether they have wind energy provisions within their zoning regulations. As you will note, there were 25 of the survey respondents that indicated their county had zoning regulations that deal with wind energy in 2008.

I hope this information is beneficial to you for LR 83. If you have additional questions, please feel free to contact me.

Larry J. Dix
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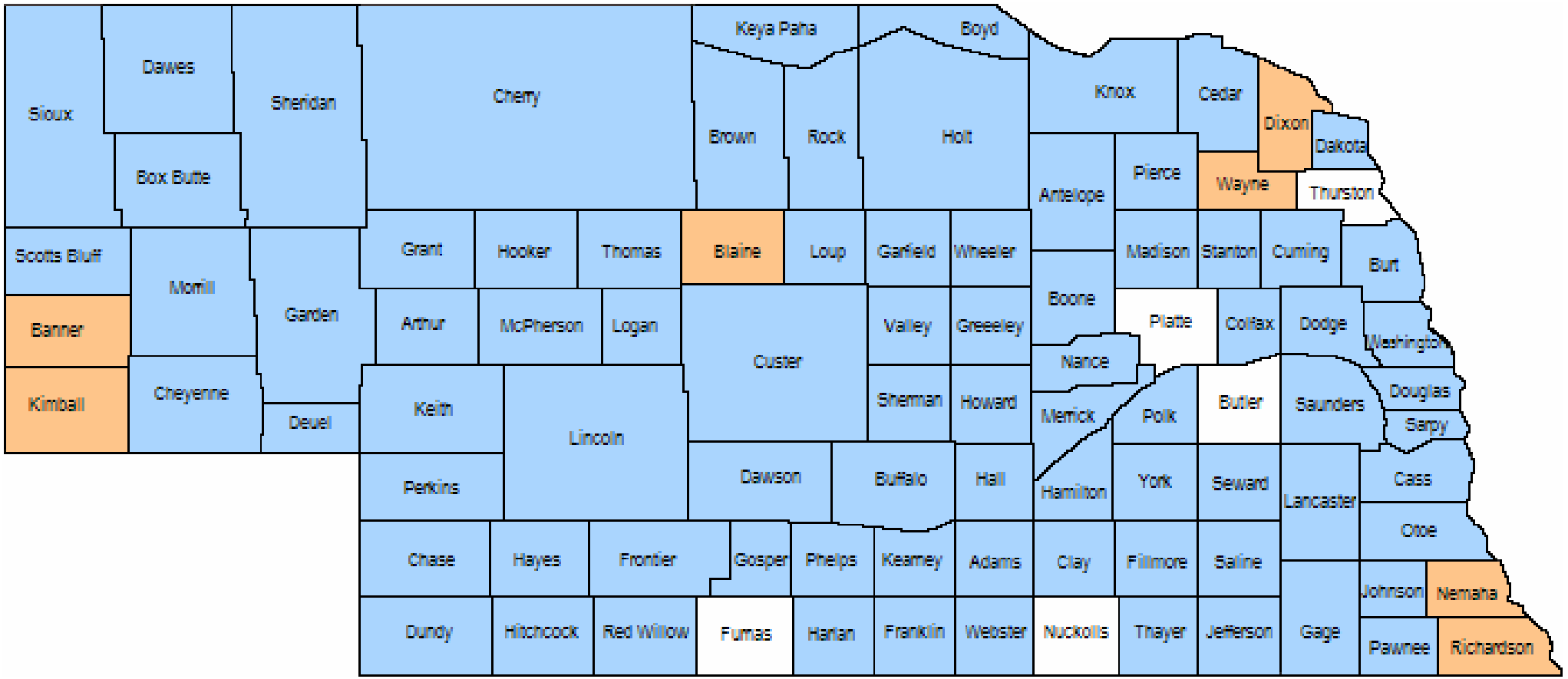
Sioux
Dawes
Sheridan
Cherry
Keya Paha
Boyd
Knox
Cedar
Dixon
Dakota
Box Butte
Brown
Rock
Holt
Antelope
Pierce
Wayne
Thurston
Scotts Bluff
Morrill
Garden
Grant
Hooker
Thomas
Blaine
Loup
Garfield
Wheeler
Madison
Stanton
Cuming
Burt
Banner
Arthur
McPherson
Logan
Custer
Valley
Greeeley
Boone
Platte
Colfax
Dodge
Washington
Nance
Kimball
Cheyenne
Deuel
Keith
Lincoln
Sherman
Howard
Merrick
Polk
Butler
Saunders
Douglas
Sarpy
Perkins
Dawson
Buffalo
Hall
Hamilton
York
Seward
Lancaster
Cass
Otoe
Chase
Hayes
Frontier
Gosper
Phelps
Kearney
Adams
Clay
Fillmore
Saline
Johnson
Nemaha
Dundy
Hitchcock
Red Willow
Furnas
Harlan
Franklin
Webster
Nuckolls
Thayer
Jefferson
Gage
Pawnee
Richardson

NACO Wind Energy Survey

County	Zoning Status	Specific Wind Energy Regulations	Has Wind Energy Units	Being Considered for Energy Units	Comments
Adams	Yes	No			Conditional Use required for 40 ft. height restriction
Antelope	Yes	Yes		Yes	
Arthur	Yes	No			monitoring towers in place
Banner	No	N/A			
Blaine	No	N/A			
Boone	Yes	Yes		Yes	
Box Butte	Yes	No			
Boyd	Yes	NR			
Brown	Yes	NR	Yes		
Buffalo	Yes	Yes			Special Use in AG zoning
Burt	Yes	Yes			
Butler	No	N/A			
Cass	Yes	No		Yes	
Cedar	Yes	No			
Chase	Yes	No			Currently regs. Address height; plan to address Wind Generator Towers in zoning regs.
Cherry	Yes	No			Plan to address Wind Generator Towers in zoning regs.
Cheyenne	Yes	NR			
Clay	Yes	No			Lays in "Major fly way" for migrating birds; therefore, unsuitable for Wind Energy Generators
Colfax	Yes	No			requirement to meet setbacks and safety concerns
Cuming	Yes	No			
Custer	Yes	No			Currently working on regs. For Windtower Generators
Dakota	Yes	Yes			
Dawes	Yes	?			Private individual has started one and plans to sell electricity to a local company
Dawson	Yes	No			Currently address w/ cell tower regs.; intend to address Wndtower Generator Regs.
Deuel	Yes	No			
Dixon	No	N/A		Yes	
Dodge	Yes	No			
Douglas	Yes	Yes	Yes		Section 5, supplemental uses
Dundy	Yes	Yes			Gen. AG. District - permitted use, subject to zoning restrictions -- conditional uses

Fillmore	Yes	No			Hearing to add Windtower Gernerator Regs. on 10-20-08
Franklin	Yes	No			
County	**Zoning Status**	**Specific Wind Energy Regulations**	**Has Wind Energy Units**	**Being Considered for Energy Units**	**Comments**
Frontier	Yes	No			Proposed Regs. On Windtower Generator Regs.
Furnas	No	N/A			
Gage	Yes	Yes			
Garden	Yes	Yes			Permitted Conditional Use in AG and Industrial Districts
Garfield	Yes	?			
Gosper	Yes	No			
Grant	Yes	NR			
Greeley	Yes	Yes		Yes	Chosen as test site by NPPD
Hall	Yes	NR			
Hamilton	Yes	No			
Harlan	Yes	No			
Hayes	Yes	No			
Hitchcock	Yes	No			
Holt	Yes	No			Plan on addressing Windtower Generator Regs. at next meeting
Hooker	Yes	No			
Howard	Yes	Yes			
Jefferson	Yes	Yes	1 private indiv.		Special permitted use process necessary
Johnson	Yes	No			
Kearney	Yes	Yes	No		Height restrictions, setbacks and special use permit in AG dist.
Keith	Yes	No		Yes	Working on regulations for Windtower Generators
Keya Paha	Yes	?	Yes		
Kimball	No	N/A	Yes		
Knox	Yes	Yes	Yes		
Lancaster	Yes	Yes	Yes		Currently revising provisions for Windtower Generator Regs.
Lincoln	Yes	?			
Logan	Yes	NR			
Loup	Yes	No			
Madison	Yes	Yes			
McPherson	Yes	No			Permitted principal use provisions
Merrick	Yes	Yes			Commercial towers in permitted use as a conditional use
Morrill	Yes	No		Yes	
Nance	Yes	No			Considering adding something to regs. On Windtower Generators.

Nemaha	No	N/A			
Nuckolls	No	N/A			
Otoe	Yes	No			On Planning Commission agenda - 10-16-08
Pawnee	Yes	NR			
County	**Zoning Status**	**Specific Wind Energy Regulations**	**Has Wind Energy Units**	**Being Considered for Energy Units**	**Comments**
Perkins	Yes	No	No		Working on regs. For Windtower Generators
Phelps	Yes	Yes	No		Special use permit required for Windtower Generators
Pierce	Yes	Yes			
Platte	No	N/A			
Polk	Yes	Yes			Permitted special use
Red Willow	Yes	No			Plan on addressing Windtower Generator Regs.
Richardson	No	N/A			
Rock	Yes	No			Conditional Use -- other uses and structures
Saline	Yes	NR			
Sarpy	Yes	NR			
Saunders	Yes	Yes			
Scotts Bluff	Yes	No		Yes	
Seward	Yes	Yes			
Sheridan	Yes	NR			
Sherman	Yes	No			
Sioux	Yes	NR			
Stanton	Yes	Yes			
Thayer	Yes	NR			
Thomas	Yes	Yes			Permitted special use
Thurston	No	N/A			
Valley	Yes	No			Conditional use permit necessary
Washington	Yes	Yes			Conditional use permit necessary
Wayne	No	N/A			
Webster	Yes	No			Zoning permit required and must meet regulations
Wheeler	Yes	No			
York	Yes	No			Special exception
AG - agricultural zone					
CU - Conditional Use					

N/A - Not Applicable					
NR - No Response					
V - Variance					
? - Contacted by Clerk but not Zoning Admin.					
Source: NACO County Survey (10/08)					

Senator Langemeier,

Thank you for the opportunity to review the current list of questions and white papers. There are a few additional questions that need to be asked from the standpoint of wildlife and plant resources of the state. I think the answers to these questions will be beneficial to developing legislation that will assist in moving windpower development forward by developing a clear and consistent process regardless of who is developing the power facility.

3. Land Use
(new) b. Are there processes in place that adequately address land use issues for the siting of renewable energy projects and association transmission.

5. Environment

(new) d. How is the impact of a windfarm on the environment currently determined and mitigated?
(new) e. Is there currently a clear process that adequately considers the environmental impacts in the development and construction of windfarms and transmission? If not, what are the needed processes so that environmental impacts are considered?

Thank you for the opportunity to provide input.

Tim

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Tim McCoy
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