



85 7th Place East, Suite 500
St. Paul, Minnesota 55101-2198
mn.gov/commerce/
651.539.1500 FAX 651.539.1547
An equal opportunity employer

January 31, 2014

Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: **Filing of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E999/M-14-65

Dear Dr. Haar:

Attached is the Filing of the Minnesota Department of Commerce, Division of Energy Resources (Department) in the following matter:

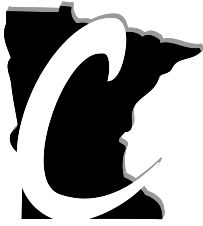
In the Matter of Establishing a Distributed Solar Value Methodology under Minn. Stat. § 216B.164, subs.10 (e) and (f).

The Department recommends that the Minnesota Public Utilities Commission (Commission) **approve the methodology proposed herein** and is available to answer any questions the Commission may have.

Sincerely,

/s/ HOLLY LAHD
Rates Analyst

HL/sm
Attachments



BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

PROPOSAL OF THE
MINNESOTA DEPARTMENT OF COMMERCE
DIVISION OF ENERGY RESOURCES

DOCKET No. E999/M-14-65

I. INTRODUCTION

During the 2013 Legislative Session, subdivision 10 was added to Minnesota Statute § 216B.164, Cogeneration and Small Power Production. The new subdivision states as follows:

Subd. 10. Alternative tariff; compensation for resource value.

- (a) A public utility may apply for commission approval for an alternative tariff that compensates customers through a bill credit mechanism for the value to the utility, its customers, and society for operating distributed solar photovoltaic resources interconnected to the utility system and operated by customers primarily for meeting their own energy needs.
- (b) If approved, the alternative tariff shall apply to customers' interconnections occurring after the date of approval. The alternative tariff is in lieu of the applicable rate under subdivisions 3 and 3a.
- (c) The commission shall after notice and opportunity for public comment approve the alternative tariff provided the utility has demonstrated the alternative tariff:
 - (1) appropriately applies the methodology established by the department and approved by the commission under this subdivision;
 - (2) includes a mechanism to allow recovery of the cost to serve customers receiving the alternative tariff rate;

- (3) charges the customer for all electricity consumed by the customer at the applicable rate schedule for sales to that class of customer;
 - (4) credits the customer for all electricity generated by the solar photovoltaic device at the distributed solar value rate established under this subdivision;
 - (5) applies the charges and credits in clauses (3) and (4) to a monthly bill that includes a provision so that the unused portion of the credit in any month or billing period shall be carried forward and credited against all charges. In the event that the customer has a positive balance after the 12-month cycle ending on the last day in February, that balance will be eliminated and the credit cycle will restart the following billing period beginning on March 1;
 - (6) complies with the size limits specified in subdivision 3a;
 - (7) complies with the interconnection requirements under section 216B.1611; and
 - (8) complies with the standby charge requirements in subdivision 3a, paragraph (b).
- (d) A utility must provide to the customer the meter and any other equipment needed to provide service under the alternative tariff.
- (e) *The department must establish the distributed solar value methodology in paragraph (c), clause (1), no later than January 31, 2014. The department must submit the methodology to the commission for approval. The commission must approve, modify with the consent of the department, or disapprove the methodology within 60 days of its submission. When developing the distributed solar value methodology, the department shall consult stakeholders with experience and expertise in power systems, solar energy, and electric utility ratemaking regarding the proposed methodology, underlying assumptions, and preliminary data.*
- (f) *The distributed solar value methodology established by the department must, at a minimum, account for the value of energy and its delivery, generation capacity, transmission capacity, transmission and distribution line losses, and environmental value. The department may, based on*

known and measurable evidence of the cost or benefit of solar operation to the utility, incorporate other values into the methodology, including credit for locally manufactured or assembled energy systems, systems installed at high-value locations on the distribution grid, or other factors.

- (g) The credit for distributed solar value applied to alternative tariffs approved under this section shall represent the present value of the future revenue streams of the value components identified in paragraph (f).
- (h) The utility shall recalculate the alternative tariff on an annual cycle, and shall file the recalculated alternative tariff with the commission for approval.
- (i) Renewable energy credits for solar energy credited under this subdivision belong to the electric utility providing the credit.
- (j) The commission may not authorize a utility to charge an alternative tariff rate that is lower than the utility's applicable retail rate until three years after the commission approves an alternative tariff for the utility.
- (k) A utility must enter into a contract with an owner of a solar photovoltaic device receiving an alternative tariff rate under this section that has a term of at least 20 years, unless a shorter term is agreed to by the parties.
- (l) An owner of a solar photovoltaic device receiving an alternative tariff rate under this section must be paid the same rate per kilowatt-hour generated each year for the term of the contract. (Emphasis added)

The above subdivision was added to Minnesota's extensive history of distributed generation (DG) legislation and rules. The italicized components provide the basis for these comments.

The following history informs and supports the Department's Value of Solar (VOS) approach discussed below.

In 1981, Minnesota was one of the first states to require net metering with the adoption of legislation for Cogeneration and Small Power Production.¹ In 2001, the legislature required the Commission to develop standards that govern the interconnection and operation of on-site

¹ Minn. Stat. § 216B.164. Cogeneration and Small Power Production.

distributed generation,² resulting in the September 28, 2004 Commission *Order Establishing Standards for Interconnection and Operation of Distributed Generation*.³

Over the last several years, the Department has regularly convened and engaged stakeholders to review and discuss and develop topics related to distributed generation.⁴ In the fall of 2011, the Department conducted a series of four workshops to explore DG resource opportunities and issues including an introduction and overview, contractual issues (e.g. standby rates, third party ownership, power purchase agreements, interconnection standards), net metering issues, and policy improvements.⁵ On May 31, 2012 a daylong workshop was held with stakeholder and utility engineers to discuss technical interconnection issues; a webinar on August 15, 2012 provided an update on baselines and benchmarks for Minnesota DG; and on October 11, 2012 a daylong stakeholder meeting explored the costs, values, benefits and policy options for DG.⁶

In the October 11, 2012 stakeholder meeting, Northern States Power, d/b/a Xcel Energy (Xcel), the state's largest electric utility, outlined concerns regarding net metering and proposed an alternative approach, similar to a Value of Solar tariff, that would separate the customer's electric consumption and the customer's DG production into two separate transactions with the utility.

In January 2013, at the invitation of the Department, Karl Rabago (Rabago Energy LLC) met with Minnesota stakeholders to discuss his experience developing Austin Energy's Value of Solar tariff and how it could inform DG rates in Minnesota.⁷

In May 2013, the Minnesota legislature passed legislation⁸ that allows Investor-Owned Utilities (IOUs) to apply to the Commission for a VOS tariff as an alternative to net metering and as a rate identified for community solar gardens. The Department was assigned the responsibility of developing and submitting a proposed methodology for calculating the VOS tariff to the Commission by January 31, 2014. Utilities adopting the VOS will be required to follow this methodology when calculating the VOS rate.

Key issues raised and questions addressed in the development of the VOS Methodology are central to all distributed generation regulatory models, including net metering. While Net Energy Metering effectively values Photovoltaic (PV)-generated electricity at the customer retail rate, a VOS tariff seeks to quantify the value of distributed PV electricity. Because the VOS rate is based on the values of the PV-generated electricity to the utility and society, the utility and its

² Minn. Stat. § 216B.1611. Interconnection of On-Site Distributed Generation.

³ Docket E-999 / CI-01-1023.

⁴ <https://mn.gov/commerce/energy/topics/clean-energy/distributed-generation/>

⁵ <https://mn.gov/commerce/energy/topics/clean-energy/distributed-generation/2011-workshops/index.jsp>

⁶ <https://mn.gov/commerce/energy/topics/clean-energy/distributed-generation/2012-workshops/index.jsp>

⁷ <https://mn.gov/commerce/energy/topics/clean-energy/distributed-generation/2013-workshops/index.jsp>

⁸ MN Laws 2013, Chapter 85 HF 729, Article 9, Section 10.

ratepayers can view electricity that is supplied from customer-sited PV similarly to electricity from comparable conventional means, particularly if environmental factors are fully considered. Thus, a VOS tariff is intended to eliminate the potential cross-subsidization concerns regarding net energy metering from a societal perspective.

A timeline of Minnesota Distributed Generation and Value of Solar activities is attached in the Appendix.

II. SUMMARY OF STAKEHOLDER ENGAGEMENT

The Department designed and actively facilitated a series of four stakeholder workshops to inform, develop, present, and receive feedback on the VOS Methodology development. Through the four VOS workshops (three full day, one half day), the Department, with the support of national experts, convened, informed, and robustly engaged a broad set of Minnesota and national stakeholders.

Each of the four workshops was well attended (100 to 150 participants) by a diverse set of interested parties including active participation from Minnesota utilities, advocates, and regional and national experts (see full list of participating organizations in the Appendix). Many of these active participants also submitted detailed written comments at several stages of the workshop series.⁹

The Department selected Clean Power Research (CPR) to support the process of developing the methodology.

Each stakeholder workshop built on the prior one:

Stakeholder Workshop 1 (8:30am – 4pm, September 17, 2013):

- Presented and discussed Value of Solar concepts and work to date around the country;
- Developed a shared understanding of the range and complexity of Value of Solar methods;
- Prepared stakeholders to be actively engaged in the VOS methodology development.

Stakeholder Written Comments - Initial (September 20, 2013)

These initial comments were used to frame the Stakeholders Perspectives portion of Workshop 2.

Stakeholder Workshop 2 (8:30am – 4pm, October 1, 2013):

- Introduced the Department's proposed approach to the methodology;
- Heard the responses and perspectives of stakeholders and utilities;
- Identified key issues for further discussion and development.

⁹ <http://mn.gov/commerce/energy/topics/resources/energy-legislation-initiatives/value-of-solar-tariff-methodology%20.jsp>

Stakeholder Written Comments – Key Issues (October 8, 2013)

These comments were used to frame the October 15th Stakeholder Workshop

Stakeholder Workshop 3 (8:30am – 3pm, October 15, 2013):

- Reviewed and discussed key issues identified by stakeholders;
- Prioritized key unresolved issues;
- Discussed options for resolution.

Stakeholder Workshop 4 (8:30am – Noon, November 19, 2013):

- Presented draft methodology;
- Answered clarification questions regarding the methodology;
- Reviewed timeline for stakeholder written comments.

Stakeholder Written Comments – Draft Methodology (December 10, 2013)

These comments were used to inform the final draft VOS Methodology

The full set of workshop agendas, including presenters and participating organizations, is attached in the Appendix.

All workshop materials were posted prior to each workshop and all stakeholder written comments were posted in a timely manner to maximize stakeholder engagement and participation.¹⁰

III. ISSUES FOR THE COMMISSION TO CONSIDER

The Minnesota VOS Methodology is based on the enabling statute, input from the four stakeholder workshops and 47 sets of written comments, and Department analysis.

The VOS is not an incentive for distributed PV, nor is it intended to eliminate or prevent current or future incentive programs.

The objectives of the VOS Methodology are to:

- Accurately account for all relevant value streams (benefits net of costs) from a societal perspective as required by Minnesota statutes;
- Simplify the methodology and the input data set (where possible and warranted);
- Provide transparency; and
- Facilitate modification, if necessary, in future years.

¹⁰ <http://mn.gov/commerce/energy/topics/resources/energy-legislation-initiatives/value-of-solar-tariff-methodology%20.jsp>

As indicated in the statutory language cited above, the legislature identified a VOS tariff as an alternative to existing Net Energy Metering tariffs that currently compensate home and business owners that own PV systems for their electricity production.

Key aspects of the VOS Methodology include:

- A standard PV rating convention
- Methods for creating an hourly PV production time-series, representing the aggregate output of all PV systems in the service territory per unit of capacity corresponding to the output of a PV resource on the margin
- Requirements for calculating the electricity losses of the transmission and distribution systems
- Methods for performing technical calculations for avoided energy, effective generation capacity and effective distribution capacity
- Economic methods for calculating each value component (e.g., avoided fuel cost, capacity cost, avoided environmental cost, etc.)
- Requirements for summarizing input data and final calculations in order to facilitate review and understanding

Application of the methodology results in the creation of two tables: 1) the VOS Data Table (a table of utility-specific input assumptions), and 2) the VOS Calculation Table (a table of utility-specific total value of solar). Together these two tables ensure stakeholder transparency and facilitate stakeholder understanding.

The VOS Calculation Table is illustrated below. The table shows each value component and identifies how the gross value of each component is converted into a distributed solar value. The process uses a component-specific load match factor (where applicable) and a component-specific Loss Savings Factor. The values are then summed to yield the 25-year levelized value.

VOS Calculation Table: economic value, load match, loss savings, and distributed PV value.

25 Year Levelized Value	$\text{Gross Value} \times \text{Load Match Factor} \times (1 + \text{Loss Savings Factor}) = \text{Distributed PV Value}$			
	(\$/kWh)	(%)	(%)	(\$/kWh)
Avoided Fuel Cost	GV1		LSF-Energy	V1
Avoided Plant O&M - Fixed	GV2		LSF-Energy	V2
Avoided Plant O&M - Variable	GV3		LSF-Energy	V3
Avoided Gen Capacity Cost	GV4	ELCC	LSF-ELCC	V4
Avoided Reserve Capacity Cost	GV5	ELCC	LSF-ELCC	V5
Avoided Trans. Capacity Cost	GV6	ELCC	LSF-ELCC	V6
Avoided Dist. Capacity Cost	GV7	PLR	LSF-PLR	V7
Avoided Environmental Cost	GV8		LSF-Energy	V8
Avoided Voltage Control Cost				
Solar Integration Cost				

Value of Solar

As a final step, the methodology calls for the conversion of the 25-year levelized value to an equivalent inflation-adjusted credit rate. The inflation-adjusted credit rate is intended to ensure that the credit's value will remain proportional to future costs of other electricity generation methods, while also meeting the statute's requirement that solar generators receiving VOS credits be paid the same rate during the contract's life (in real value terms).

The utility would then use the first year value as the credit for solar customers, and would adjust the rate each year using the latest Consumer Price Index (CPI) data for 25 years. For future solar interconnections under the VOS tariff, the utility is required to recalculate the VOS rate and file the new rate with the Commission. Recalculated VOS rates will also be adjusted for inflation annually.

The VOS methodology is detailed in the attached document: ***Minnesota Value of Solar: Methodology***.

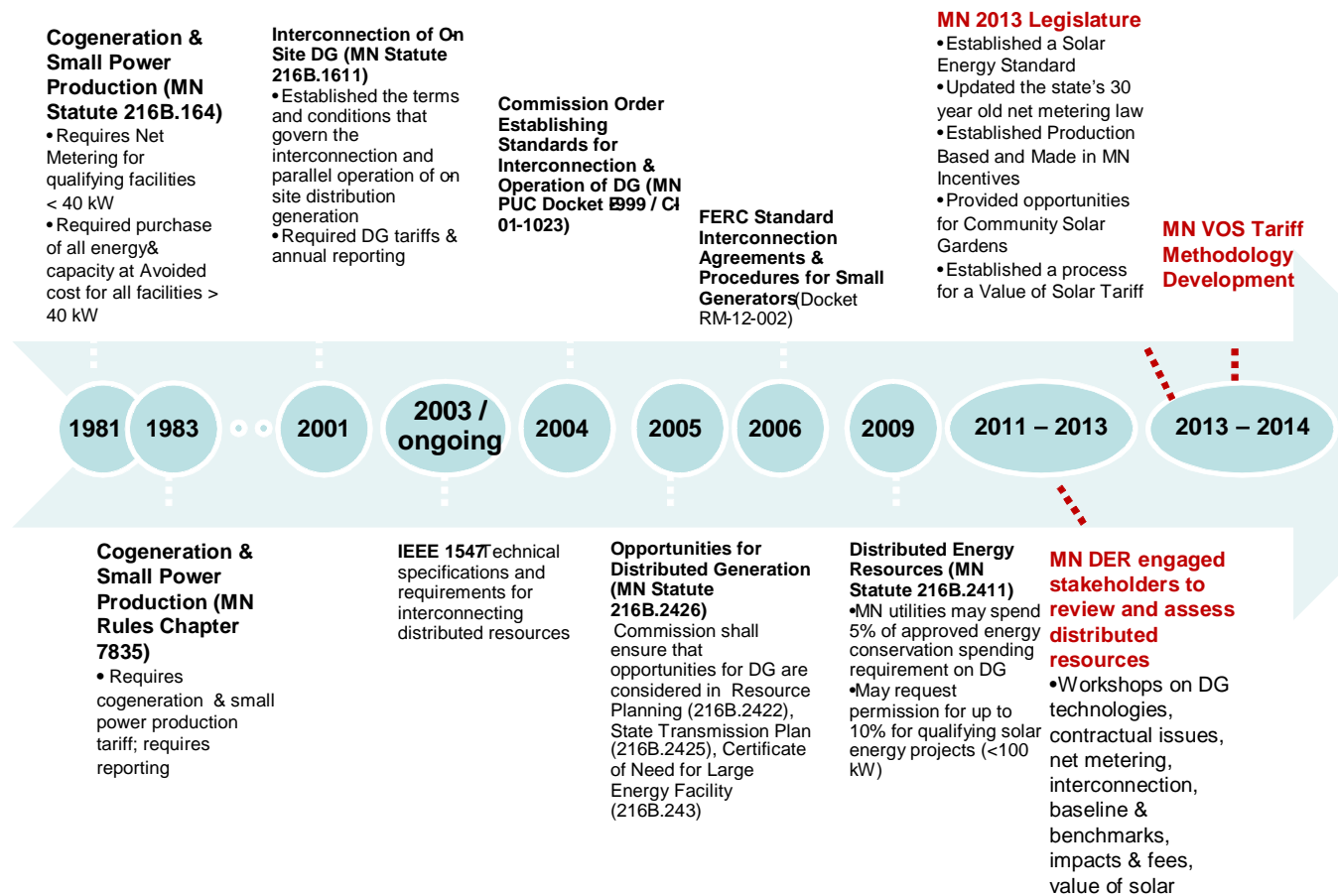
V. CONCLUSIONS AND RECOMMENDATIONS

The Department recommends that the Minnesota Public Utilities Commission (Commission) approve the methodology as detailed in the attached document: ***Minnesota Value of Solar: Methodology***. The Department is available to answer any questions the Commission may have.

Appendix

- Timeline, Minnesota DG and VOS activities
- Legislation, Alternative Tariff / VOS
- MN DER VOS Stakeholder Workshops

Timeline of Minnesota Distributed Generation and Value of Solar Activities



**Stakeholder Workshops for Minnesota Value of Solar Methodology
Minnesota Department of Commerce Division of Energy Resources**

Stakeholder Workshop 1 (September 17, 2013):

Objectives:

- Learn about Value of Solar concepts and work to date around the country;
- Develop a shared understanding of the range and complexity of Value of Solar methods;
- Prepare stakeholders to be actively engaged in the VOS methodology development.

Agenda:

- 8:30 Welcome**.....Commissioner Mike Rothman (Commerce)
- 8:45 Opening Remarks**..... Deputy Commissioner Bill Grant (Commerce DER)
A Review of Solar PV Benefit and Cost Studies
– Rocky Mountain Institute, Lena Hansen & Virginia Lacy
- 9:15 Framing the Need & Setting the Stage**..... RMI
- National dialogue, overview of distributed energy resources, emerging market & structural issues
 - Categories of benefit and cost, stakeholder perspectives, flow of benefits & cost to stakeholders
- 9:45 Overview of Studies** RMI
- Introduction, results, key implications & insights
- 10:30 Break**
- 10:45 Key Findings about the Benefits and Costs** RMI
- Benefit/cost category definitions, why & how values differ across studies, insights & implications
- 12:00 Lunch**
- 1:15 Key Findings about the Benefits and Costs (continued)**
- 2:45 Takeaways and Implications to Consider**..... RMI
- MN VOS legislation (context), key considerations and choices for Minnesota’s process
- 3:45 Next Steps**..... Commerce DER
- 4:00 Adjourn**

Presenters:

RMI is an independent nonprofit “think-and-do tank” working with industry, government and other market leaders to drive the efficient and restorative use of resources. Through its Electricity

Innovation Lab (eLab) project, RMI has developed and recently released a meta-analysis of solar PV benefit and cost studies, available at www.rmi.org/elab_empower.

Lena Hansen is a Principal with RMI's electricity practice. Lena co-leads the Electricity Innovation Lab (eLab), a consortium of ~40 leading institutions including utilities, customers, developers, and regulators focused on collaborative innovation to address critical institutional, regulatory, business, economic, and technical barriers to the economic deployment of distributed resources. She coauthored the electricity chapter of RMI's recent book *Reinventing Fire: Bold Business Solutions for a New Energy Era*. In her work at RMI, Lena specializes in design innovation, pricing & business models, and energy strategy in the electricity sector. Lena holds a Master of Environmental Management in Environmental Economics and Policy from Duke University, with a focus on energy, and a Bachelor of Arts, Physics and Astronomy, from the University of North Carolina at Chapel Hill.

Virginia Lacy is a Senior Consultant with RMI's electricity practice. She specializes in electric utility resource planning and corporate energy and climate strategy. Virginia manages RMI's DOE SunShot funded project, Innovative Solar Business Models, which is aimed to partner with key electricity sector actors and pilot-test new solar business models that recognize and create value for multiple stakeholders. She is a member of the senior team that leads RMI's Electricity Innovation Lab, and is managing eLab's work in new business models. Virginia holds Master of Environmental Management, Yale University and a Bachelor of Arts, Government, University of Virginia.

Stakeholder participants (number attending if more than one per organization) included:

Abengoa Solar, Aladdin Solar, Allco Renewable Energy, Alliant Energy, Applied Energy Innovations, Baker Associates, Best Power International, Center for Energy and Environment (2), CenterPoint Energy, City of Saint Paul, Connexus Energy, CR Planning, Dairyland Power Cooperative, DThayer and Associates, EDF Renewable Energy, Flaherty & Hood, Franklin Ecos Energy, Energy Services, Fresh Energy (4), Geronimo Energy (2), Great River Energy, Geronimo Energy (2), Gexpro, Ideal Energies, IEER, Innovative Power Systems (3), Institute for Local Self Reliance, IWLA, Kandiyohi County EDC, LHB, LLS Resources, Metropolitan Council, MN Community Solar, MN Solar Sales, MN Valley Electric Cooperative, MCEA, Minnesota Chamber of Commerce, Minnesota Municipal Utility Association, Minnesota Power (45), MnSEIA (4), MRETS (2), MRES, Novel Energy Solutions, NP Solar Development, Otter Tail Power (5), Owatonna Public Utilities, PAR Energy Solutions, Powerfully Green (2), Renewable Energy Services, Rochester Public Utilities, Runestone Electric Association, Silent Power, Solar Integration, Solart, SMMPA, Stoel Rives, Sundial Solar, TenkSolar (2), The Energy Source, The Minnesota Project, TruNorth Solar, University of Minnesota, Viking Electric Supply, Werner Electric, WindLogics, Wright-Hennepin Cooperative Electric, Xcel Energy (7)

Stakeholder Written Comments - Initial (September 20, 2013)

These initial comments were used to frame the Stakeholders Perspectives portion of Workshop 2.

Stakeholder Workshop 2 (October 1, 2013):**Objectives:**

- Introduce the Department 's proposed approach to the methodology;
- Hear the responses and perspectives of stakeholders and investor owned utilities;
- Identify key issues for further discussion and development.

Agenda:

8:30 Welcome & Opening Remarks..... Deputy Commissioner Bill Grant (Commerce DER)

Workshop Facilitator..... Matt Schuerger (Commerce DER)

8:45 Commerce Proposed Approach to Methodology

- Presentation by Clean Power Research..... Tom Hoff and Ben Norris (CPR)

10:15 Break

10:30 Investor Owned Utility Responses to Commerce/CPR & Perspectives on Methodology

- Presentation by Xcel Energy (Steve Wishart)
- Perspectives of Minnesota Power (Tina Koecher) and Otter Tail Power (Brian Draxton)

11:15 Minnesota Stakeholder Responses & Perspectives

- Perspectives of Geronimo Energy, CR Planning (Brian Ross), WindLogics (Mark Ahlstrom), and Community Solar LLC (Ken Bradley)

12:00 Lunch

1:15 National Stakeholder Responses to Commerce/CPR & Perspectives on Methodology

- Presentations by the Interstate Renewable Energy Council (Joe Wiedman) and by the Vote Solar Initiative/Environmental Law & Policy Center (Rick Gilliam)
- Perspectives of The Alliance for Solar Choice (Tim Lindl) and Union of Concerned Scientists (Steve Clemmer)

2:15 Minnesota Stakeholder Responses & Perspectives

- Presentations by the Institute for Local Self-Reliance (John Farrell) and Fresh Energy (Erin Stojan Ruccolo)
- Perspectives of the MN Solar Energy Industries Association (Lynn Hinkle), Solar Rate Reform Group/MN Chamber of Commerce (Larry Schedin), and Izaak Walton League of America (Eric Jensen)

3:45 Next StepsCommerce DER

4:00 Adjourn

Presenters:

Clean Power Research has 15 years of experience providing consulting and commercial software products designed to solve problems associated with PV asset design and management for federal government and state energy agencies, and investor-owned and municipal utilities. Clean Power

Research has been performing Value of Solar studies since the company was founded in 1998. In the past two years alone, Clean Power Research has performed or supported more than ten value of solar studies, including studies in Arizona, San Diego, Utah, New Jersey, San Antonio and Pennsylvania. Clean Power Research also conducted the value of solar study that led to the introduction of Austin Energy's ground-breaking value of solar tariff. For more information, visit www.cleanpower.com.

Tom Hoff is the Founder of Clean Power Research and President of its Research and Consulting Group. Tom pioneered the science of valuing distributed solar generation, and holds several patents in the area of PV fleet power estimation. His research in areas such as the value of PV, risk management and renewables, and methods to characterize PV intermittency are integrated into the company's commercial-grade software services. Tom began his career at Pacific Gas and Electric Company. He holds a Ph.D. from Stanford University's School of Engineering.

Ben Norris is a Senior Consultant and manager of the Clean Power Research Consulting Group. Ben's expertise in the areas of distributed generation are applied to technical analyses and development of new solar analysis tools. Subject areas include economic valuation of distributed PV, output variability and forecasting, energy storage technology, and incentive program design. After earning a degree in Mechanical Engineering from Stanford University in 1985, Ben worked as a research engineer at PG&E, later as an independent consultant.

Stakeholder participants (number attending if more than one per organization) included:

Abengoa Solar, Array Solar, Applied Energy Innovations, Baker Associates, Barr Engineering, Best Power International, Bevarra Advisors, City of Minneapolis, City of Saint Paul, CMMPA, Connexus Energy, CR Planning, Dairyland Power Cooperative, Dakota Electric Association, DT Renewables, Dorsey & Whitney, EDF Renewable Energy (2), ELPC, Franklin Energy Services, Fresh Energy (2), Geronimo Energy (3), Great River Energy (2), Harvest Energy Solutions, Ideal Energies, IEER, IREC, IWLA, Innovative Power Systems (2), Institute for Local Self Reliance, JJR Power, Kandiyo Consulting, LHB, Metropolitan Council, LLS Resources, Minnesota Chamber of Commerce, MN Community Solar, MCTC, Minnesota Municipal Utility Association (2), Minnesota Power (4), Minnesota Rural Electric Association, MnSEIA (3), MN Solar Sales, MN Valley Electric Cooperative, MRETS (2), MRES, Otter Tail Power (4), NP Solar Development, Powerfully Green (2), Provectus Energy Development, Rai Energy, Renewable Energy Services, Rochester Public Utilities, Runestone Electric Association, Schwickerts Tecta America, Solart, Solscient Energy Sundial Solar, tenKsolar (2), The Alliance for Solar Choice, SolarPod, SunEdison, TruNorth Solar, SMMPA, Union of Concerned Scientists, Viking Electric Supply, Vote Solar, University of Minnesota, Westwood, Werner Electric, WindLogics, Windustry, Xcel Energy (13), Zinniel Electric

Stakeholder Written Comments – Key Issues (October 8, 2013)

These comments were used to frame the October 15th Stakeholder Workshop

Stakeholder Workshop 3 (October 15, 2013):**Objectives:**

- Review and discuss key issues identified by stakeholders;
- Prioritize key unresolved issues;
- Discuss options for resolution.

Agenda:

- 8:30 Welcome, Opening Remarks, Follow Up** Deputy Commissioner Bill Grant,
Commerce DER
- 8:50 Presentations – perspectives on components, methodologies, expected range**
- Perspective of Xcel Energy (30 minutes)
 - Perspective of Environmental Law and Policy Center / Fresh Energy /
Interstate Renewable Energy Council / Vote Solar Initiative (30 minutes)
 - Q & A (after each presentation) Matt Schuerger, Commerce DER
- 10:15 Break**
- 10:30 Presentations on Key Methodologies**
- Distribution Capacity Value (20 minutes) Ben Norris, Clean Power Research
 - Fuel Price Guarantee Value (20 minutes) Tom Hoff, Clean Power Research
 - Environmental Value (20 minutes) Karl Rabago, Rabago Energy LLC
 - Q & A (after each presentation) Matt Schuerger, Commerce DER
- 12:00 Lunch**
- 1:15 Facilitated Stakeholder Discussion** Commerce DER
- 2:45 Wrap Up and Next Steps** Bill Grant, Commerce DER
- 3:00 Adjourn**

Presenters:

Clean Power Research has 15 years of experience providing consulting and commercial software products designed to solve problems associated with PV asset design and management for federal government and state energy agencies, and investor-owned and municipal utilities. Clean Power

Research also conducted the value of solar study that led to the introduction of Austin Energy's ground-breaking value of solar tariff. For more information, visit www.cleanpower.com.

Tom Hoff is the Founder of Clean Power Research and President of its Research and Consulting Group. Tom pioneered the science of valuing distributed solar generation, and holds several patents in the area of PV fleet power estimation. His research in areas such as the value of PV, risk management and renewables, and methods to characterize PV intermittency are integrated into the company's commercial-grade software services. Tom began his career at Pacific Gas and Electric Company. He holds a Ph.D. from Stanford University's School of Engineering.

Ben Norris is a Senior Consultant and manager of the Clean Power Research Consulting Group. Ben's expertise in the areas of distributed generation are applied to technical analyses and development of new solar analysis tools. Subject areas include economic valuation of distributed PV, output variability and forecasting, energy storage technology, and incentive program design. After earning a degree in Mechanical Engineering from Stanford University in 1985, Ben worked as a research engineer at PG&E, later as an independent consultant.

Karl Rábago is the Principal of Rábago Energy, LLC. Karl is an attorney with more than 20 years of experience in utility regulation and clean energy, including as a former utility executive with Austin Energy and the AES Corporation, Commissioner for the Texas Public Utility Commission, and Deputy Assistant Secretary for the U.S. Department of Energy. For more information visit: <http://rabagoenergy.com/>.

Stakeholder participants (number attending if more than one per organization) included:

Abengoa Solar, Applied Energy Innovations, Array Solar, Baker Associates Consultants, Barr Engineering, Center for Energy and Environment, Connexus Energy, Dairyland Power, DT Renewables, City of Minneapolis, City of Saint Paul, CR Planning, EDF Renewable, ELPC, Eutectics Consulting, Flaherty & Hood, Franklin Energy, Fresh Energy (4), Geronimo Energy (3), Innovative Power Systems, Institute for Local Self-Reliance, IREC, Gexpro, Great River Energy (2), Harvest Energy Solutions, Ideal Energies, IWLA, JJR Power, MCEA, MCES, MN Chamber of Commerce, MNCS, MN Municipal Utilities Association (2), Minnesota Rural Electric Association, Minnesota Power (4), MN Solar Sales, MN Valley Electric Cooperative, MRETS, LLS Resources, MnSEIA (3), NP Solar Development, Larkin Hoffman, Otter Tail Power (2), PRC, RENEW Wisconsin, Renewable Energy Services, Rochester Public Utilities, Runestone Electric Association, Silent Power, SolarPod, SMMPA, Stoel Rives, Sundial Solar, SunEdison, The Alliance for Solar Choice, The Energy Source, University of Minnesota, Viking electric Supply, Werner Electric, WindLogics, Windustry, Xcel Energy (10)

Stakeholder Workshop 4 (November 19, 2013):Objectives:

- Present draft methodology;
- Answer clarification questions regarding the methodology;
- Review timeline for stakeholder written comments.

Agenda:

8:30 Welcome and Opening Remarks.....Deputy Commissioner Bill Grant, Commerce DER

8:45 Presentation of Draft Methodology.....Commerce DER and Clean Power Research

10:15 Break

10:30 Facilitated Stakeholder Q&A – Clarification of Draft Methodology Matt Schuerger,
Commerce DER

11:50 Wrap Up and Next Steps.....Bill Grant, Commerce DER

Noon Adjourn

Stakeholder participants (number attending if more than one per organization) included:

Abengoa Solar, Alladin Solar, Applied Energy Innovations, Array Solar, Blue Horizon Energy, Center for Energy and Environment, City of Minneapolis, City of Saint Paul, CMMPA, Connexus Energy, Cooperative Energy Futures, DTrenewables, EDF Renewable Energy, Dairyland Power Cooperative, Dorsey & Whitney, ELPC, Evergreen Energy, Flaherty & Hood, Franklin Energy, Fresh Energy (3), Geronimo Energy (2), Great River Energy (2), Ideal Energies, IEER, Innovative Power Systems, IREC, JJR Power, Kandiyo Consulting, Minnesota Chamber of Commerce, MnSEIA Moorhead Public Service, Novel Energy Solutions, Institute for Local Self Reliance, LHB, MN Valley Electric Cooperative, MRES, MRETS (2), MnSEIA (3), Minnesota Municipal Power Association, Minnesota Power (3) NorthTek Services, Otter Tail Power (2), Peak Power MN, Powerfully Green, Rochester Public Utilities, Runestone Electric Association, SMMPA, Solar Integration, SolarPod, Sundial Solar, tenKsolar (2), The Minnesota Project, University of Minnesota, Viking Electric Supply, Vote Solar, Werner Electric, WindLogics, Wright Hennepin Electric, Xcel Energy (8)

Stakeholder Written Comments – Draft Methodology (December 10, 2013)

These comments were used to inform the final draft VOS Methodology

CERTIFICATE OF SERVICE

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**Minnesota Department of Commerce
Comments**

Docket No. E999/M-14-65

Dated this 31st day of **January 2014**

/s/Sharon Ferguson

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Ross	Abbey	abbey@fresh-energy.org	Fresh Energy	408 Saint Peter St Ste 220 St. Paul, MN 55102-1125	Electronic Service	No	SPL_SL_14-65_Interested Parties
Michael	Allen	michael.allen@allenergysolar.com	All Energy Solar	721 W 26th st Suite 211 Minneapolis, Minnesota 55405	Electronic Service	No	SPL_SL_14-65_Interested Parties
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	SPL_SL_14-65_Interested Parties
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	SPL_SL_14-65_Interested Parties
John	Aune	johna@bluehorizonsolar.com	Blue Horizon Energy	7246 Washington Ave S Eden Prairie, MN 55344	Paper Service	No	SPL_SL_14-65_Interested Parties
Kenneth	Baker	N/A	Wal-Mart Stores, Inc.	2001 SE 10th St. Bentonville, AZ 72716-5530	Paper Service	No	SPL_SL_14-65_Interested Parties
Gail	Baranko	gail.baranko@xcelenergy.com	Xcel Energy	414 Nicollet Mall 7th Floor Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Peter	Beithon	pbeithon@otpc.com	Otter Tail Power Company	P.O. Box 496 215 South Cascade Street Fergus Falls, MN 565380496	Electronic Service	No	SPL_SL_14-65_Interested Parties
Sara	Bergan	sebergan@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
James J.	Bertrand	james.bertrand@leonard.com	Leonard Street & Deinard	150 South Fifth Street, Suite 2300 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Derek	Bertsch	derek.bertsch@mrenergy.com	Missouri River Energy Services	3724 West Avera Drive PO Box 88920 Sioux Falls, SD 57109-8920	Electronic Service	No	SPL_SL_14-65_Interested Parties
Thor	Bjork	Thor.S.Bjork@xcelenergy.com	Xcel Energy	414 Nicollet Mall Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
William A.	Blazar	bblazar@mnchamber.com	Minnesota Chamber Of Commerce	Suite 1500 400 Robert Street North St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties
Kenneth	Bradley	ken@mncommunitysolar.com	Minnesota Community Solar	4000 Minnehaha Ave Minneapolis, MN 55406	Electronic Service	No	SPL_SL_14-65_Interested Parties
Michael	Bradley	mike.bradley@lawmoss.com	Moss & Barnett	Suite 4800 90 S 7th St Minneapolis, MN 55402-4129	Electronic Service	No	SPL_SL_14-65_Interested Parties
Jon	Brekke	jbrekke@greenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	SPL_SL_14-65_Interested Parties
Mark B.	Bring	mbring@otpc.com	Otter Tail Power Company	215 South Cascade Street PO Box 496 Fergus Falls, MN 565380496	Electronic Service	No	SPL_SL_14-65_Interested Parties
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson & Byron, P.A.	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	SPL_SL_14-65_Interested Parties
Michael J.	Bull	N/A	Center for Energy and Environment	212 Third Avenue North, Suite 560 Minneapolis, MN 55401	Paper Service	No	SPL_SL_14-65_Interested Parties
Jessica	Burdette	jessica.burdette@state.mn.us	Department of Commerce	85 7th Place East Suite 500 St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Joel	Cannon	jcannon@tenksolar.com	Tenk Solar, Inc.	9549 Penn Avenue S Bloomington, MN 55431	Electronic Service	No	SPL_SL_14-65_Interested Parties
Tammie	Carino	tcarino@GREnergy.com	Great River Energy	12300 Elm Creek Blvd. Maple Grove, MN 55369-4718	Electronic Service	No	SPL_SL_14-65_Interested Parties
Douglas M.	Carnival		McGrann Shea Anderson Carnival	Straugn & Lamb 800 Nicollet Mall, Suite 2600 Minneapolis, MN 554027035	Paper Service	No	SPL_SL_14-65_Interested Parties
John J.	Carroll	jcarroll@newportpartners.com	Newport Partners, LLC	9 Cushing, Suite 200 Irvine, California 92618	Electronic Service	No	SPL_SL_14-65_Interested Parties
Aakash	Chandarana	Aakash.Chandara@xcelenergy.com	Xcel Energy	414 Nicollet Maill 5th Floor Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Steve W.	Chriss	Stephen.chriss@walmart.com	Wal-Mart	2001 Southeast 10th St. Bentonville, AZ 72716-5530	Paper Service	No	SPL_SL_14-65_Interested Parties
Kenneth A.	Colburn	kcolburn@symbioticstrategies.com	Symbiotic Strategies, LLC	26 Winton Road Meredith, NH 32535413	Electronic Service	No	SPL_SL_14-65_Interested Parties
Steve	Coleman	scoleman@appliedenergyinnovations.org	Applied Energy Innovations	4000 Minnehaha Ave S Minneapolis, MN 55406	Paper Service	No	SPL_SL_14-65_Interested Parties
George	Crocker	gwillc@nawo.org	North American Water Office	PO Box 174 Lake Elmo, MN 55042	Electronic Service	No	SPL_SL_14-65_Interested Parties
Mark F.	Dahlberg	markdahlberg@nweco.com	Northwestern Wisconsin Electric Company	P.O. Box 9 104 South Pine Street Grantsburg, WI 548400009	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Lisa	Daniels	lisadaniels@windustry.org	Windustry	201 Ridgewood Avenue Minneapolis, MN 55403	Paper Service	No	SPL_SL_14-65_Interested Parties
Jeffrey A.	Daugherty	jeffrey.daugherty@centerpointenergy.com	CenterPoint Energy	800 LaSalle Ave Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Chris	Davis	christopher.davis@state.mn.us	Department of Commerce	Suite 500 85 Seventh Place East St. Paul, MN 551012198	Electronic Service	No	SPL_SL_14-65_Interested Parties
Dustin	Denison	dustin@appliedenergyinnovations.org	Applied Energy Innovations	4000 Minnehaha Ave S Minneapolis, MN 55406	Electronic Service	No	SPL_SL_14-65_Interested Parties
James	Denniston	james.r.denniston@xcelenergy.com	Xcel Energy Services, Inc.	414 Nicollet Mall, Fifth Floor Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Curt	Dieren	cdieren@dgrnet.com	L&O Power Cooperative	1302 South Union Street PO Box 511 Rock Rapids, IA 51246	Electronic Service	No	SPL_SL_14-65_Interested Parties
Ian	Dobson	ian.dobson@ag.state.mn.us	Office of the Attorney General-RUD	Antitrust and Utilities Division 445 Minnesota Street, BRM Tower St. Paul, MN 55101	Electronic Service	Yes	SPL_SL_14-65_Interested Parties
Dan	Donkers	N/A	Saint Paul - Ramsey County Public Health	Environmental Health Section 2785 White Bear Ave. Suite 350 Maplewood, MN 55109	Paper Service	No	SPL_SL_14-65_Interested Parties
Bill	Droessler	N/A	Izaak Walton League of America-MWO	1619 Dayton Ave Ste 202 Saint Paul, MN 55104	Paper Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Mike	Eggl	smeier@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 58503	Paper Service	No	SPL_SL_14-65_Interested Parties
Kristen	Eide Tollefson	HealingSystems@earthlink.net	R-CURE	P O Box 129 Frontenac, MN 55026	Paper Service	No	SPL_SL_14-65_Interested Parties
Rebecca	Eilers	rebecca.d.eilers@xcelenergy.com	Xcel Energy	414 Nicollet Mall, 7th Floor Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Betsy	Engelking	betsy@geronimoenergy.com	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	SPL_SL_14-65_Interested Parties
Oncu	Er	oncu.er@avantenergy.com	Avant Energy, Agent for MMPA	220 S. Sixth St. Ste. 1300 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Rick	Evans	Rick.Evans@xcelenergy.com	Xcel Energy	404 Nicollet Mall Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
John	Farrell	jfarrell@ilsr.org	Institute for Local Self-Reliance	1313 5th St SE #303 Minneapolis, MN 55414	Electronic Service	No	SPL_SL_14-65_Interested Parties
Pam	Fergen		Hennepin County Government Center CAO	A2000 300 S. Sixth Street Minneapolis, MN 55487	Paper Service	No	SPL_SL_14-65_Interested Parties
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	No	SPL_SL_14-65_Interested Parties
Cathy	Fogale	cfogale@otpc.com	Otter Tail Power Company	215 South Cascade Street PO Box 496 Fergus Falls, MN 56537	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Nathan	Franzen	nathan@geronimoenergy.com	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	SPL_SL_14-65_Interested Parties
Amy	Fredregill	amy@mrets.org	Midwest Renewable Energy Tracking System, Inc.	1885 University Avenue West, #315 St. Paul, MN 55104	Paper Service	No	SPL_SL_14-65_Interested Parties
Lori	Frisk Thompson	lorift@cmpa.org	Central MN MPA	459 S Grove St Blue Earth, MN 56013	Electronic Service	No	SPL_SL_14-65_Interested Parties
Lee	Gabler	Lee.E.Gabler@xcelenergy.com	Xcel Energy	404 Nicollet Mall Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Gary	Garbe	Gary.Garbe@avantenergy.com	Minnesota Municipal Power Agency	200 South Sixth Street Suite 300 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Paper Service	No	SPL_SL_14-65_Interested Parties
Darrell	Gerber		Clean Water Action Alliance of Minnesota	308 Hennepin Ave. E. Minneapolis, MN 55414	Paper Service	No	SPL_SL_14-65_Interested Parties
Benjamin	Gerber	bgerber@mnchamber.com	Minnesota Chamber of Commerce	400 Robert Street North Suite 1500 St. Paul, Minnesota 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties
Bruce	Gerhardson	bgerhardson@otpc.com	Otter Tail Power Company	PO Box 496 215 S Cascade St Fergus Falls, MN 565380496	Electronic Service	No	SPL_SL_14-65_Interested Parties
Allen	Gleckner	agleckner@elpc.org	Environmental Law & Policy Center	2356 University Ave W. Suite 403 St. Paul, Minnesota 55114	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Elizabeth	Goodpaster	bgoodpaster@mncenter.org	MN Center for Environmental Advocacy	Suite 206 26 East Exchange Street St. Paul, MN 551011667	Electronic Service	No	SPL_SL_14-65_Interested Parties
Bryan	Gower	N/A	APX, Inc.	224 Airport Parkway Suite 600 San Jose, CA 95110	Paper Service	No	SPL_SL_14-65_Interested Parties
Bill	Grant	Bill.Grant@state.mn.us	Minnesota Department of Commerce	85 7th Place East, Suite 500 St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties
Lloyd	Grooms	lgrooms@winthrop.com	Winthrop and Weinstine	Suite 3500 225 South Sixth Street Minneapolis, MN 554024629	Electronic Service	No	SPL_SL_14-65_Interested Parties
Timothy	Gulden	info@winonarenewableenergy.com	Winona Renewable Energy, LLC	1449 Ridgewood Dr Winona, MN 55987	Electronic Service	No	SPL_SL_14-65_Interested Parties
Burl W.	Haar	burl.haar@state.mn.us	Public Utilities Commission	Suite 350 121 7th Place East St. Paul, MN 551012147	Electronic Service	Yes	SPL_SL_14-65_Interested Parties
Tony	Hainault	anthony.hainault@co.hennepin.mn.us	Hennepin County DES	701 4th Ave S Ste 700 Minneapolis, MN 55415-1842	Electronic Service	No	SPL_SL_14-65_Interested Parties
J Drake	Hamilton	hamilton@fresh-energy.org	Fresh Energy	408 St Peter St Saint Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties
Samuel	Hanson	N/A	Briggs And Morgan, P.A.	2200 IDS Center E 80 South Eighth Street Minneapolis, MN 55402	Paper Service	No	SPL_SL_14-65_Interested Parties
Sam	Hanson	shanson@briggs.com	Briggs and Morgan, PA	2200 IDS Center 80 South Eighth Street Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jack	Hays	jack.hays@westwoodps.com	Westwood Professional Services	7699 Anagram Drive Eden Prairie, MN 55344	Electronic Service	No	SPL_SL_14-65_Interested Parties
Bill	Heaney	billheaney@billheaney.com	IBEW Minnesota State Council	3931 Silver Lake Rd NE St. Anthony Village, MN 55421	Electronic Service	No	SPL_SL_14-65_Interested Parties
Brandon	Heath	bheath@misoenergy.org	MISO Energy	1125 Energy Park Drive St. Paul, MN 55108-5001	Electronic Service	No	SPL_SL_14-65_Interested Parties
John	Helmers	helmers.john@co.olmsted.mn.us	Olmsted County Waste to Energy	2122 Campus Drive SE Rochester, MN 55904-4744	Electronic Service	No	SPL_SL_14-65_Interested Parties
Jared	Hendricks	hendricksj@owatonnautilities.com	Owatonna Public Utilities	PO Box 800 208 S Walnut Ave Owatonna, MN 55060-2940	Electronic Service	No	SPL_SL_14-65_Interested Parties
Annete	Henkel	mui@mutilityinvestors.org	Minnesota Utility Investors	413 Wacouta Street #230 St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties
Jessy	Hennesy	jessy.hennesy@avantenergy.com	Avant Energy	220 S. Sixth St. Ste 1300 Minneapolis, Minnesota 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Lynn	Hinkle	lhinkle@mnseia.org	Minnesota Solar Energy Industries Association	2512 33rd Ave South #2 Minneapolis, MN 55406	Electronic Service	No	SPL_SL_14-65_Interested Parties
Holly	Hinman	holly.r.hinman@xcelenergy.com	Xcel Energy	414 Nicollet Mall, 6th Floor Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Margaret	Hodnik	mhodnik@mpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
David	Horneck	david.g.horneck@xcelenergy.com	Xcel Energy	1800 Larimer Street Denver, CO 80202	Electronic Service	No	SPL_SL_14-65_Interested Parties
Ashley	Houston			120 Fairway Rd Chestnut Hill, MA 24671850	Paper Service	No	SPL_SL_14-65_Interested Parties
Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	SPL_SL_14-65_Interested Parties
Jan	Hubbard	Jan@AppliedEnergyInnovations.org	Applied Energy Innovations, LLC	4000 Minnehaha Avenue South Minneapolis, MN 55406	Paper Service	No	SPL_SL_14-65_Interested Parties
Jan	Hubbard	jan.hubbard@comcast.net		7730 Mississippi Lane Brooklyn Park, MN 55444	Electronic Service	No	SPL_SL_14-65_Interested Parties
Anne	Hunt	anne.hunt@ci.stpaul.mn.us	City of Saint Paul	390 City Hall 15 West Kellogg Boulevard Saint Paul, MN 55102	Electronic Service	No	SPL_SL_14-65_Interested Parties
Steve	Huso	steve.huso@xcelenergy.com	Xcel Energy	G.O. 7th Floor 414 Nicollet Mall Minneapolis, MN 554011993	Electronic Service	No	SPL_SL_14-65_Interested Parties
Casey	Jacobson	cjacobson@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 58501	Electronic Service	No	SPL_SL_14-65_Interested Parties
Ralph	Jacobson	N/A	Innovative Power Systems, Inc.	1413 Hunting Valley Rd Ste 1 Saint Paul, MN 55109-1555	Paper Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Dwight	Jelle	dkjelle@gmail.com	Best Power International, LLC	P.O. 5126 Hopkins, MN 55343	Electronic Service	No	SPL_SL_14-65_Interested Parties
Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law	2265 Roswell Road Suite 100 Marietta, GA 30062	Electronic Service	No	SPL_SL_14-65_Interested Parties
Eric	Jensen	ejensen@iwla.org	Izaak Walton League of America	Suite 202 1619 Dayton Avenue St. Paul, MN 55104	Electronic Service	No	SPL_SL_14-65_Interested Parties
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street St. Paul, MN 551012134	Electronic Service	No	SPL_SL_14-65_Interested Parties
Richard	Johnson	Rick.Johnson@lawmoss.com	Moss & Barnett	90 South 7th Street Suite #4800 Minneapolis, MN 554024129	Electronic Service	No	SPL_SL_14-65_Interested Parties
Larry	Johnston	lw.johnston@smmpa.org	SMMPA	500 1st Ave SW Rochester, MN 55902-3303	Paper Service	No	SPL_SL_14-65_Interested Parties
Nate	Jones	njones@hcpd.com	Heartland Consumers Power	PO Box 248 Madison, SD 57042	Electronic Service	No	SPL_SL_14-65_Interested Parties
Michael	Kampmeyer	mkampmeyer@a-e-group.com	AEG Group, LLC	260 Salem Church Road Sunfish Lake, Minnesota 55118	Electronic Service	No	SPL_SL_14-65_Interested Parties
Mark J.	Kaufman	mkaufman@ibewlocal949.org	IBEW Local Union 949	12908 Nicollet Avenue South Burnsville, MN 55337	Electronic Service	No	SPL_SL_14-65_Interested Parties
Nancy	Kelly	bademailnancyk@eurekarecycling.org	Eureka Recycling	2828 Kennedy Street NE Minneapolis, MN 55413	Paper Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Julie	Ketchum	N/A	Waste Management	20520 Keokuk Ave Lakeville, MN 55044	Paper Service	No	SPL_SL_14-65_Interested Parties
Kerry	Klemm	kerry.r.klemm@xcelenergy.com	Xcel Energy Services, Inc	414 Nicollet Mall Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
John	Kluempke	jkluempke@winlectric.com	Elk River Winlectric	12777 Meadowvale Rd Elk River, MN 55330	Electronic Service	No	SPL_SL_14-65_Interested Parties
Thomas G.	Koehler	N/A	Local Union #160, IBEW	2909 Anthony Ln Minneapolis, MN 55418-3238	Paper Service	No	SPL_SL_14-65_Interested Parties
Mara	Koeller	mara.n.koeller@xcelenergy.com	Xcel Energy	414 Nicollet Mall 5th Floor Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Jon	Kramer	jk2surf@aol.com	Sundial Solar	4708 york ave. S Minneapolis, MN 55410	Electronic Service	No	SPL_SL_14-65_Interested Parties
Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Allen	Krug	allen.krug@xcelenergy.com	Xcel Energy	414 Nicollet Mall-7th fl Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Scott	Kurtz	Scott.J.Kurtz@xcelenergy.com	Xcel Energy	825 Rice Street St. Paul, MN 55117	Electronic Service	No	SPL_SL_14-65_Interested Parties
Douglas	Larson	dlarson@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Deborah Fohr	Levchak	dlevchak@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 585030564	Paper Service	No	SPL_SL_14-65_Interested Parties
Amy	Liberkowski	amy.a.liberkowski@xcenergy.com	Xcel Energy	414 Nicollet Mall 7th Floor Minneapolis, MN 554011993	Electronic Service	No	SPL_SL_14-65_Interested Parties
John	Lindell	agorud.ecf@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	SPL_SL_14-65_Interested Parties
Mark	Lindquist	N/A	The Minnesota Project	57107 422nd St New Ulm, MN 56073-4321	Paper Service	No	SPL_SL_14-65_Interested Parties
Matthew P	Loftus	matthew.p.loftus@xcenergy.com	Xcel Energy	414 Nicollet Mall FL 5 Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Bob	Long	rlong@larkinhoffman.com	Larkin Hoffman (Silicon Energy)	1500 Wells Fargo Plaza 7900 Xerxes Ave S Bloomington, MN 55431	Paper Service	No	SPL_SL_14-65_Interested Parties
Rebecca	Lundberg	rebecca.lundberg@powerfullygreen.com	Powerfully Green	11451 Oregon Ave N Champlin, MN 55316	Electronic Service	No	SPL_SL_14-65_Interested Parties
Paula	Maccabee	Pmaccabee@justchangelaw.com	Just Change Law Offices	1961 Selby Avenue St. Paul, MN 55104	Paper Service	No	SPL_SL_14-65_Interested Parties
Casey	Maccullum	casey@appliedenergyinnovations.org	Applied Energy Innovations	4000 Minnehaha Ave S Minneapolis, MN 55406	Paper Service	No	SPL_SL_14-65_Interested Parties
Susan	Mackenzie	susan.mackenzie@state.mn.us	Public Utilities Commission	Suite 350121 7th Place East St. Paul, MN 551012147	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Kavita	Maini	kmaini@wi.rr.com	KM Energy Consulting LLC	961 N Lost Woods Rd Oconomowoc, WI 53066	Electronic Service	No	SPL_SL_14-65_Interested Parties
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Electronic Service	No	SPL_SL_14-65_Interested Parties
Mary	Martinka	mary.a.martinka@xcelenergy.com	Xcel Energy Inc	414 Nicollet Mall 7th Floor Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Mike	McDowell		Heartland Consumers Power District	PO Box 248 Madison, SD 570420248	Paper Service	No	SPL_SL_14-65_Interested Parties
Natalie	McIntire	natalie.mcintire@gmail.com	Wind on the Wires	570 Asbury St Ste 201 St. Paul, MN 55104-1850	Paper Service	No	SPL_SL_14-65_Interested Parties
Dave	McNary	N/A	Hennepin County DES	701 Fourth Avenue South suite 700 Minneapolis, MN 55415-1842	Paper Service	No	SPL_SL_14-65_Interested Parties
John	McWilliams	jmm@dairy.net	Dairyland Power Cooperative	3200 East Ave SPO Box 817 La Crosse, WI 54601-7227	Electronic Service	No	SPL_SL_14-65_Interested Parties
Valerie	Means	valerie.means@lawmoss.com	Moss & Barnett	Suite 4800 90 South Seventh Street Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Brian	Millberg	Brian.Millberg@minneapolismn.gov	City of Minneapolis	350 South 5th St, #315 Minneapolis, MN 55415	Paper Service	No	SPL_SL_14-65_Interested Parties
Stacy	Miller	stacy.miller@state.mn.us	Department of Commerce	State Energy Office 85 7th Place East, Suite 500 St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	SPL_SL_14-65_Interested Parties
Andrew	Moratzka	apmoratzka@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Martin	Morud	mmorud@trunorthsolar.com	Tru North Solar	5115 45th Ave S Minneapolis, MN 55417	Electronic Service	No	SPL_SL_14-65_Interested Parties
Ben	Nelson		CMMPA	459 South Grove Street Blue Earth, MN 56013	Paper Service	No	SPL_SL_14-65_Interested Parties
David W.	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	Suite 300 200 South Sixth Street Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Michael	Noble	noble@fresh-energy.org	Fresh Energy	Hamm Bldg., Suite 220 408 St. Peter Street St. Paul, MN 55102	Electronic Service	No	SPL_SL_14-65_Interested Parties
Rolf	Nordstrom	rnordstrom@gpisd.net	Great Plains Institute	2801 21ST AVE S STE 220 Minneapolis, MN 55407-1229	Electronic Service	No	SPL_SL_14-65_Interested Parties
Kate	O'Connell	kate.oconnell@state.mn.us	Department of Commerce	Suite 50085 Seventh Place East St. Paul, MN 551012198	Electronic Service	No	SPL_SL_14-65_Interested Parties
Nick	Paluck	nick.paluck@xcelenergy.com	Xcel Energy	7th Floor 414 Nicollet Mall Minneapolis, MN 554011993	Electronic Service	No	SPL_SL_14-65_Interested Parties
James	Pearson	james.g.pearson@xcelenergy.com	Xcel Energy	414 Nicollet Mall Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Mary Beth	Peranteau	mperanteau@wheelerlaw.com	Wheeler Van Sickle & Anderson SC	Suite 801 25 West Main Street Madison, WI 537033398	Electronic Service	No	SPL_SL_14-65_Interested Parties
Donna	Pickard	dpickard@aladdinsolar.com	Aladdin Solar	1215 Lilac Lane Excelsior, MN 55331	Electronic Service	No	SPL_SL_14-65_Interested Parties
Charlie	Pickard	cpickard@aladdinsolar.com	Aladdin Solar	1215 Lilac Lane Excelsior, MN 55331	Electronic Service	No	SPL_SL_14-65_Interested Parties
Joseph V.	Plumbo		Local Union 23, I.B.E.W.	932 Payne Avenue St. Paul, MN 55130	Paper Service	No	SPL_SL_14-65_Interested Parties
Gayle	Prest	gayle.prest@minneapolismn.gov	City of Mpls Sustainability	350 South 5th St, #315 Minneapolis, MN 55415	Paper Service	No	SPL_SL_14-65_Interested Parties
Kent	Ragsdale	kentragdsdale@alliantenergy.com	Alliant Energy-Interstate Power and Light Company	P.O. Box 351 200 First Street, SE Cedar Rapids, IA 524060351	Electronic Service	No	SPL_SL_14-65_Interested Parties
Mark	Rathbun	mrathbun@grenergy.com	Great River Energy	12300 Elm Creek Blvd Maple Grove, MN 55369	Electronic Service	No	SPL_SL_14-65_Interested Parties
John C.	Reinhardt		Laura A. Reinhardt	3552 26Th Avenue South Minneapolis, MN 55406	Paper Service	No	SPL_SL_14-65_Interested Parties
Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy	26 E Exchange St, Ste 206 St. Paul, MN 551011667	Paper Service	No	SPL_SL_14-65_Interested Parties
Enio	Ricci	ericci@invenergyllc.com	Invenergy LLC	17830 New Hampshire Ave Ste 300 Ashton, MD 20861	Paper Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Trudy	Richter	trichter@rranow.com	Minnesota Resource Recovery Assn.	477 Selby Avenue St. Paul, MN 55102	Paper Service	No	SPL_SL_14-65_Interested Parties
Michelle	Rosier	michelle.rosier@sierraclub.org	Sierra Club	2327 E. Franklin Avenue Minneapolis, MN 554061024	Paper Service	No	SPL_SL_14-65_Interested Parties
Craig	Rustad	crustad@minnkota.com	Minnkota Power	1822 Mill Road PO Box 13200 Grand Forks, ND 582083200	Electronic Service	No	SPL_SL_14-65_Interested Parties
Robert K.	Sahr	bsahr@eastriver.coop	East River Electric Power Cooperative	P.O. Box 227 Madison, SD 57042	Electronic Service	No	SPL_SL_14-65_Interested Parties
Raymond	Sand	rms@dairynet.com	Dairyland Power Cooperative	P.O. Box 8173200 East Avenue South LaCrosse, WI 546020817	Electronic Service	No	SPL_SL_14-65_Interested Parties
Richard	Savelkoul	rsavelkoul@martinsquires.com	Martin & Squires, P.A.	332 Minnesota Street Ste W2750 St. Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties
Larry L.	Schedin	Larry@LLSResources.com	LLS Resources, LLC	12 S 6th St Ste 1137 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Matthew J.	Schuerger P.E.	mjsreg@earthlink.net	Energy Systems Consulting Services, LLC	PO Box 16129 St. Paul, MN 55116	Electronic Service	No	SPL_SL_14-65_Interested Parties
Kevin	Schwain	Kevin.D.Schwain@xcelenergy.com	Xcel Energy	404 Nicollet Mall Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Dean	Sedgwick	N/A	Itasca Power Company	PO Box 457 Bigfork, MN 56628-0457	Paper Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	Ste 122 9100 W Bloomington Frwy Bloomington, MN 55431	Electronic Service	No	SPL_SL_14-65_Interested Parties
Gary	Shaver	N/A	Silicon Energy	3506 124th St NE Marysville, WA 98271	Paper Service	No	SPL_SL_14-65_Interested Parties
Erin	Shea	bademaileshea@silicon-energy.com	Silicon Energy	11168 Sumter Circle Bloomington, MN 55438	Paper Service	No	SPL_SL_14-65_Interested Parties
Doug	Shoemaker	dougs@mnRenewables.org	MRES	2928 5th Avenue South Minneapolis, MN 55408	Paper Service	No	SPL_SL_14-65_Interested Parties
Mrg	Simon	mrgsimon@mrenergy.com	Missouri River Energy Services	3724 W. Avera Drive P.O. Box 88920 Sioux Falls, SD 571098920	Electronic Service	No	SPL_SL_14-65_Interested Parties
Ken	Smith	ken.smith@districtenergy.com	District Energy St. Paul Inc.	76 W Kellogg Blvd St. Paul, MN 55102	Electronic Service	No	SPL_SL_14-65_Interested Parties
Beth H.	Soholt	bsoholt@windonthewires.org	Wind on the Wires	570 Asbury Street Suite 201 St. Paul, MN 55104	Electronic Service	No	SPL_SL_14-65_Interested Parties
Chanti	Sourignavong	chantipal.sourignavong@honeywell.com	Honeywell	1985 Douglas Drive North MN10-111A Golden Valley, MN 55422-3992	Paper Service	No	SPL_SL_14-65_Interested Parties
Ron	Spangler, Jr.	rlspangler@otpc.com	Otter Tail Power Company	215 So. Cascade St. PO Box 496 Fergus Falls, MN 565380496	Electronic Service	No	SPL_SL_14-65_Interested Parties
Byron E.	Starns	byron.starns@leonard.com	Leonard Street and Deinard	150 South 5th Street Suite 2300 Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Erin	Stojan Ruccolo	ruccolo@fresh-energy.org	Fresh Energy	408 Saint Peter St Ste 220 Saint Paul, MN 55102-1125	Electronic Service	No	SPL_SL_14-65_Interested Parties
James M.	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered	470 U.S. Bank Plaza 200 South Sixth Street Minneapolis, MN 55402	Electronic Service	No	SPL_SL_14-65_Interested Parties
Deb	Sundin	deb.sundin@xcelenergy.com	Xcel Energy	414 Nicollet Mall Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	SPL_SL_14-65_Interested Parties
Thomas P.	Sweeney III	tom.sweeney@easycleanenergy.com	Clean Energy Collective	401 Tree Farm Drive Carbondale, CO 81623	Paper Service	No	SPL_SL_14-65_Interested Parties
SaGonna	Thompson	Regulatory.Records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	SPL_SL_14-65_Interested Parties
Steve	Thompson		Central Minnesota Municipal Power Agency	459 S Grove St Blue Earth, MN 56013-2629	Paper Service	No	SPL_SL_14-65_Interested Parties
Pat	Treseler	pat.jcplaw@comcast.net	Paulson Law Office LTD	Suite 325 7301 Ohms Lane Edina, MN 55439	Electronic Service	No	SPL_SL_14-65_Interested Parties
Lise	Trudeau	lise.trudeau@state.mn.us	Department of Commerce	85 7th Place East Suite 500 Saint Paul, MN 55101	Electronic Service	No	SPL_SL_14-65_Interested Parties
Darryl	Tveitbakk		Northern Municipal Power Agency	123 Second Street West Thief River Falls, MN 56701	Paper Service	No	SPL_SL_14-65_Interested Parties

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Kari L	Valley	kari.l.valley@xcelenergy.com	Xcel Energy Service Inc.	414 Nicollet Mall FL 5 Minneapolis, MN 55401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Lisa	Veith	lisa.veith@ci.stpaul.mn.us	City of St. Paul	400 City Hall and Courthouse 15 West Kellogg Blvd. St. Paul, MN 55102	Electronic Service	No	SPL_SL_14-65_Interested Parties
Roger	Warehime	warehimer@owatonnautilities.com	Owatonna Public Utilities	208 South WalnutPO Box 800 Owatonna, MN 55060	Electronic Service	No	SPL_SL_14-65_Interested Parties
Paul	White	paul.white@prcwind.com	Project Resources Corp./Tamarac Line LLC/Ridgewind	618 2nd Ave SE Minneapolis, MN 55414	Electronic Service	No	SPL_SL_14-65_Interested Parties
Scott M.	Wilensky	scott.wilensky@xcelenergy.com	Xcel Energy	7th Floor 414 Nicollet Mall Minneapolis, MN 554011993	Electronic Service	No	SPL_SL_14-65_Interested Parties
Jason	Willett	jason.willett@metc.state.mn.us	Metropolitan Council	390 Robert St N Saint Paul, MN 55101-1805	Electronic Service	No	SPL_SL_14-65_Interested Parties
Daniel	Williams	DanWilliams.mg@gmail.com	Powerfully Green	11451 Oregon Avenue N Champlin, MN 55316	Electronic Service	No	SPL_SL_14-65_Interested Parties
Steven	Wishart	steven.w.wishart@xcelenergy.com	Xcel Energy	7th Floor 414 Nicollet Mall Minneapolis, MN 554011993	Electronic Service	No	SPL_SL_14-65_Interested Parties
Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company	200 First St SE Cedar Rapids, IA 52401	Electronic Service	No	SPL_SL_14-65_Interested Parties
Thomas J.	Zaremba		WHEELER, VAN SICKLE & ANDERSON	Suite 801 25 West Main Street Madison, WI 537033398	Paper Service	No	SPL_SL_14-65_Interested Parties