215 South Cascade Street PO Box 496 Fergus Falls, Minnesota 56538-0496 218 739-8200 www.otpco.com (web site)

June 21, 2017



Daniel P. Wolf Executive Secretary Minnesota Public Utilities Commission 121 7th Place East, Suite 350 St. Paul, MN 55101-2147

RE: In the Matter of Commission Inquiry into Grid Modernization Docket No. E999/CI-15-556 Sections A and B Comments

Dear Mr. Wolf,

Otter Tail Power Company (Otter Tail, Company) respectfully submits its Comments in response to the Commissions April 26, 2017 notice in the above referenced docket. Otter Tail appreciates the opportunity to provide these comments.

If you have any questions regarding this filing, please contact me at 218-739-8565 or at <a href="mailto:mriewer@otpco.com">mriewer@otpco.com</a>.

Sincerely,

/s/ MICHAEL RIEWER
Michael Riewer
Manager, Special Projects

jch Enclosures By electronic filing c: Service List



# STATE OF MINNESOTA BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Commission Inquiry into Grid Modernization

Docket No. E999/CI-15-556

OTTER TAIL POWER COMPANY SECTIONS A & B COMMENTS

# Section A How do Minnesota utilities currently plan their distribution systems?

Please describe the following items with respect to current distribution system planning efforts:

### 1) The distribution planning resources utilized by utilities, including:

## a. Types of modeling software used and for what specific purpose

The Company uses Synergi Electric by DNV-GL to perform load flow and distribution system analysis for voltages of 120 to 35,000 volts. As a supplement to this, Aspen Oneliner and Siemens PSSE are used. Aspen Oneliner is used to generate input data to the Synergi software and for protection coordination specifications. PSSE is used to perform load flow analysis of the lower voltage transmission and interfaces with the distribution system.

#### b. Applicable engineering standards

Otter Tail distribution planning area is continually working to improve internal standards and controls for the discipline of distribution planning. Today's standards and controls are rooted in industry practice, experience and applicable NESC Rules, IEEE/ANSI standards and guidelines. For example, Otter Tail plans, designs, and builds to Grade B construction as outlined in the latest NESC revision (2017). Also for example, IEEE 80 – Guide for Safety in AC Substation Grounding, is referenced for ensuring personnel and public safety.

## c. Personnel commitment: including utility personnel as well as contracted services and an overview of their roles and responsibilities

The Company has eight engineers who, while not dedicated solely as FTEs for distribution planning, are responsible in various forms for the planning of Otter Tail's distribution system. These roles are supported by a GIS technician to support model creation. When necessary and cost-justifiable, there are circumstances when we also explore opportunities with consultants to perform distribution planning studies.

# d. System visibility and data availability: At what circuit levels and over what time intervals is data collected? If possible, provide an example of the range of data collected and available.

Distribution system data is collected at most of Otter Tail's distribution substations. Otter Tail has distribution substation level metering in approximately 70% of the facilities. The substation metering data is collected at 15 minute intervals year around. The 30% of the remaining substation data is determined as needed through other various means such as regulator readings, calculations, or temporary equipment. The specific data collected is kW and kVAR.

### e. Percentage of substations and feeders are equipped with SCADA

Less than 5% of the distribution substations in the Otter Tail service territory have any SCADA interface. The data and control in these locations is minimal and does not extend beyond the substation.

# f. Form of hosting capacity software or analysis, if any, used in the planning process and to conduct interconnection

No formal hosting capacity software or analysis software is currently deployed. When a hosting capacity analysis is needed, it is determined by system analysis as described above.

## 2) An overview of planning schedules and process, including:

## a. Frequency in which the utility conducts distribution system planning

Otter Tail does not conduct a system-wide distribution planning within the tools described under 1.a. above on a formalized schedule and process. That said, distribution budgeting is done on an annual process and represents a form of distribution planning. Area Engineers are assigned to specific regions within the Otter Tail service territory and they are continuously aware of the system for which they have budgeting/planning accountability. The Area Engineers analyze leading indicators in reliability and system performance, solicit input from the distribution personnel, and evaluate load growth and new load additions to submit for their area as part of Otter Tail's annual capital budget process.

# b. Frequency of planning updates or revisions: Are updates dependent on a set timing frequency (i.e. every 2, 5, or 10 years) or are there events that may trigger a more frequent planning cycle or revision? If so, please explain.

As noted, above, although Otter Tail does not currently conduct a formal system-wide distribution plan within the tools described under response 1.a. on a specific schedule or process, Otter Tail's Area Engineers are constantly assessing the area under their accountability within Otter Tail's service territory. Within each Area Engineer's area of accountability, they maintain a constant awareness of the system needs and plan accordingly and reflect those needs within the annual budgeting process. There is no formalized frequency to update or revise plans other than

continuous system awareness based on leading indicators in reliability, performance, substation load reports, projected load growth, new load additions, etc.

c. Iterative updates and/or new plans: Are planning processes based on continuations of past plans, new planning cycles, or some combination? How long is each planning cycle's time horizon?

As noted above in 2a. and 2b., a formalized, system-wide distribution plan is not currently conducted within the tools described under 1.a. However, distribution planning and budgeting is part of an Area Engineer's routine system awareness. The primary driver for a localized distribution system analysis (load pocket review) is significant load additions such a large ag processing facility, grain elevator, etc. Given that retail demand load levels are generally flat, a system-wide distribution planning process is not currently employed or necessary.

d. Planning elements or considerations included (or not included) in regular updates and revisions and a description of each: For example: circuit or substation data, power flow analysis, power quality analysis, fault analysis, load and demand forecasts, external policy and regulations, etc.

Planning elements and considerations for distribution planning studies are generally based on safety, substation load data (past, present, forecast), equipment adequacy (capacity, vintage, voltage, etc.), reliability data, load flow analysis, reactive power needs, motor or large load analysis, hosting capacity, grid modernization options, economic analysis, and external policy and regulations.

e. Integration of existing planning processes: Explain to what extent existing planning processes, including resource planning, transmission planning and others studies (i.e. interconnection) are used in the formulation of distribution plans.

While internal coordination is a natural part of our comprehensive system plan, different models/tools are utilized for resource planning and transmission planning such that there is not a holistic formalized integration that culminates into one master plan. Sharing of assumptions and data is certainly part of Otter Tail's internal collaboration. For example, common assumptions such load growth, reliability statistics, system protection, GIS/network topology, etc. are all common among Otter Tail planning processes. However, Otter Tail's distribution planning utilizes separate processes from transmission planning. Additionally, distribution planning is over a shorter-term horizon than the long-term transmission plan, which culminates from and into the MISO Transmission Expansion Plan (MTEP). Lastly, because of electrical characteristics of distribution systems, distribution planning is much more localized than other planning efforts.

# f. Timing of associated distribution system budgeting processes: Is distribution system budgeting performed on an annual basis or on some other schedule?

The budget process is performed annually. Each year a five year budget is created or managed or forecasted. The final approved capital budget for distribution projects is prioritized based on reliability, need and other factors described under 2.g. below.

### g. Process of developing capital budgets for distribution infrastructure

As discussed, the Senior Area Engineer identifies the needed capital distribution investments for their respective areas. The Senior Area Engineer will then submit the projects under consideration into the Company-wide capital budget process. From there, a cross functional internal committee will evaluate the company-wide projects based on priority and available funding. Metrics considered for priority include reliability, compliance, risk of failure, and cost-effectiveness.

# h. Process for developing operating budgets for distribution operating changes or projects

The operating budget is approved annually during the Company's annual budget process. The operating budget is adjusted for known changes in expense vs. historic trends for the upcoming year. Each area or division of the company will then allocate their budgets as needed throughout the year to various efforts.

## 3) Demand and system loading forecast methodologies, including:

# a. Granularity of load forecasting: To what extent is the collected system data reflected in load forecasts; e.g., does the utility employ an 8760-hour forecast at the substation level?

Otter Tail has not generated unique distribution substation forecasts to date. As mentioned in 2.b. above, Otter Tail's Area Engineers are constantly assessing the area under their accountability within Otter Tail's service territory. This includes load forecasting. These individuals continually are interacting with Customer Service personnel on current and potential load additions. There are instances where an 8760-hour forecast at the substation level is utilized. Distribution forecasts focus primarily on peak demands to identify needed resources for a distribution system or community system.

# b. Use of company-wide peak forecasts versus aggregation of substation or other circuit-level peaks: Does the utility use a top-down forecasting approach versus a bottom-up approach, or some combination of these approaches?

We forecast on MISO EP node metering which is represented at a substation level. The system forecast is applied pro rata to the substations based on the collected actuals from the same EP nodes. When specific large load or generation additions are known, they are applied as well to substation forecasts. The system information is built up and utilized for reconciling with forecasts submitted to the MISO.

c. Comparison of actual asset loading against past forecasts: Does the utility employ back casting or ex post true-up to assess the accuracy of its forecasting process?

Yes, we look at forecasts and compare against MISO S105, load data 105 days ago, for accuracy. If we see bias either positive or negative, we will take action to make corrections.

d. Minimum load assessments and forecasts: Does the utility utilize minimum load to assess potential impacts of distributed generation on power flows? Are minimum loads measured during peak hours or during night hours?

Minimum load is looked at by the engineering group at the substation level when considering hosting capacity or screening for DER applicants. We take the actual minimum loads from a substation which typically occurs in the early hours of the day between 2:00 and 5:00 am. For the normal distribution planning process, minimum load is not considered typically.

e. Impact on load forecasts of the projected availability of DER: How is utility forecasting impacted by utility assessments on adoption and penetration of DER?

Applications and penetration of DER on the Otter Tail system has been minimal and forecasting of DER penetration is not included in planning analysis because of such. Doing so with current and estimated future applicants would create trivial differences in outcomes at a larger study cost.

#### 4) Capital investments and operational projects

a. Assessment criteria and assessment process for feeder and substation reliability, condition of grid assets, and asset loading

Otter Tail considers each of these criteria in its assessment for distribution projects (capital or operational). A higher priority is given to projects needed to address poor reliability performance. Otter Tail has a proactive equipment assessment program and the data collected as part of routine maintenance and testing is also an input into project need. Planning needs also consider capacity (voltage and amperage) in addition to applicable IEEE, ANSI, and company standards. For example, IEEE C57.91 – Guide for Loading Mineral Immersed Transformers and Step-voltage Regulators, is used to determine capacity limitations. Another example is C-84.1 – Electrical Power Systems and Equipment Voltage Ratings (60Hz), is used to determine acceptable voltage envelopes to be maintained to our customers.

#### b. Alternative analysis protocols for identified needs:

i. Capital versus operating solutions: How does the utility determine whether an assessed need is best met through a capital project or through operational solutions?

Each project or system need is individually evaluated and options explored through cost analysis, constructability, operation, timing/need, and system benefit. Most of the time operational solutions have already been implemented through day to day operations in the field to meet system deficiencies as this has generally been most cost-effective. When operational solutions will no longer meet the system need, capital investment is considered.

ii. Near-term versus long-term: Similar to the question above, with the additional factor that some less expensive capital projects may provide a shorter term solution than more comprehensive projects; how does the utility compare these alternatives?

Otter Tail's system is small in comparison with few customers per mile of line and small rural communities. Load growth curves for most cases are flat or have low percentage increases. Cost benefit analysis is always considered when comparing two alternatives. If an alternative is known to only provide a short term solution, a long term solution is added in a future year in the economic analysis to account for additional financial spend. This way, a short -term project can be evaluated on the same merits as a long term solution from a cost consideration. Through our operating regulations and tariffs, we evaluate each project for the most cost-effective option for our rate payers.

- iii. Non-monetized benefits: Apart from reliability and other traditional planning criteria, are other benefits (e.g., economic development, emission reduction) taken into account in considering alternative approaches to resolving system needs?
  - Currently, our tariffs do not provide for an economic development consideration in planning for our distribution system.
  - As far as environmental considerations, Otter Tail strives to produce and deliver electricity as reliably, economically and environmentally responsibly as possible.
- iv. Non-wires-alternative (NWA) versus traditional solutions: Does the utility consider the potential for DER or other non-wires solution to address an assessed need, to defer or eliminate the need for a traditional capital or operating solution?

Otter Tail has nearly 45,000 customers enrolled in some form of a controlled rate. Our controlled rate portfolio has been evolving since inception in the 1970s. Each of these customers are a reflection of a NWA to help reduce or

delay new capital investments on the system. Otter Tail can control up to 120 MWs in the winter and 25 MWs in the summer. In addition, we have an aggressive energy conservation program. The company has explored small generators in remote parts of the system for reliability as well but when compared to other alternatives, they are not as cost-effective. As in the past, we will continue to explore NWAs in planning analysis.

v. Assessing DER or NWA alternatives: What criteria or metrics are in assessing whether a DER or NWA can meet an identified need?

When assessing various alternatives, Otter Tail considers reliability and cost effectiveness to meet the needs of customers.

vi. Scenario analysis: In developing solutions to an assessed need, does the utility consider multiple scenarios, including factors such as load forecasts and DER penetration? If so, what scenarios are standard?

Otter Tail's distribution planning generally considers a- peak load scenario. In some instances, a low load condition alongside a peak load scenario is utilized for distribution planning.

c. Metrics for deciding among competing proposals: For any of the applicable categories described above, what specific metrics are used to conduct a comparison of alternative solutions? Are there examples of cost benefit studies or reports the utilities have conducted that can be provided with the responses?

Competing proposals are measured by total cost of ownership or cost as one metric. Future flexibility and scalability along with reliability benefits are considered as well.

d. Historical distribution system spending: Please provide historical spending over the past five years for capital projects, operating changes or projects, information technology, communications and shared services

The Asset Management area within Otter Tail has managed on average about 25 million dollars annually within the overall routine Capital budget of which anywhere from 60% to 85% is spent on the distribution system depending on the needs from year to year. These dollars have been spent on a variety of projects ranging from reliability, new load, replacing overloaded facilities, to the purchase of larger long lead time asset such as transformers. These investments are aimed at improving the overall health of our delivery system.

5) Locational assessment of DER in long-term planning

For background, Otter Tail has 56 DERs installed on the system over ten years, for 7.9 MW, which represents less than 1% of our total load. In 2016 we had six DER applications submitted, which totaled 96 kW. This very low penetration is very different than other areas within the state and thus DERs are currently not considered

in long term planning other than those already in service which are netted out from load.

- a. Describe how the utility uses analytical criteria for assessing potential alternatives to capital and operating improvements during the planning process, if at all, including:
  - i. Locational DER assessments: Whether locational DER assessments are a part of the planning process or if a DER solution is only considered once a need has arisen
  - ii. Time sensitivity of the system need: Does the system allow time to develop a potential DER solution? Are there short term traditional projects that can address imminent needs while a longer term DER solution is considered?

When considering potential alternatives to capital and operating improvements during the planning process, Otter Tail only considers DER if it already exists at a given location. If it does exist, it is currently modeled as a static generator with an expected minimum output. For example, in the instance of a wind generator, we may use a capacity factor of 30% of nameplate knowing that there are times when the generator output may be more. The capacity factor is based on wind resource maps. Our studies have to plan this way to ensure that load demands are met.

Assessments usually undertaken by Otter Tail do not consider DER as a stand-alone solution given that there is not a guarantee that the DER will be available or producing output when there is a system need.

Regardless of the time sensitivity of a system need, potential DER solutions are generally not of a magnitude to materially impact the need or schedule of a "wires based" project solution.

b. Where DER or non-wires alternatives are on par with traditional projects, based on the analytic criteria described above, is there a mapping of those geographic areas in which DER could replace or defer specific capital or operating projects?

We have not found specific DERs (outside of Energy Efficiency and Demand Response) to be on par with traditional projects.

## 6) Security

a. What controls and processes are used to secure consumer and system data, IT/communication systems, and physical infrastructure?

Otter Tail utilizes training for employees, technology, and processes to secure consumer and system data, IT/Communications, and physical infrastructure. Below are the specific examples of each:

#### People:

- Otter Tail has an Information Security Policy and Incident Response Plans for the enterprise business systems and for the CIP environment. Otter Tail trains its staff to instill a JDLR (Just Doesn't Look Right) security culture.
- Otter Tail has implemented cyber security training for all employees. This
  awareness training provides employees phishing and social engineering
  awareness and other security best practices. Otter Tail also participates in
  GridEx exercises and cyber security training information sharing. Customer
  Service Representatives are trained to verify the customer they are
  communicating with has permission to customer account information.

#### Processes:

- Otter Tail also follows a regimented process to evaluate and install security patches on devices including computers, servers and computer networking appliances. Access to applications are controlled through an approval process that is reviewed on a periodic basis.
- Password complexity criteria combined with domain authentication is implemented. Remote access is obtained through secure protocols and multifactor authentication.
- Vulnerability assessments are performed by third party security vendors to
  identify risks to internal systems. Risks are reviewed and mitigated. Physical
  access for personnel to restricted areas is controlled via an approval process
  with doors electronically controlled with dual factor authentication. The
  Company does not post any customer or DER data on our website and treats
  this data as confidential.
- In addition to the enterprise business systems the CIP systems protections have additional security requirements.

### Technology:

- Otter Tail implements industry best practices using a layered security approach to protect computer network assets and data. The external perimeter to Otter Tail's internal network utilizes next generation solutions including application aware firewall technology, intrusion protection, endpoint protection. Network segmentation will be exercised where technically feasible.
- Targeted threat protection tools are used within email to minimize threat vectors such as attachments and links.

b. What protocols and cooperative arrangements with NERC, NIST or other entities are used to identify threats and available defense measures?

Otter Tail staff subscribe to security alerts from several sources including NERC, DHS, US-CERT, E-ISAC and InfraGard. IT staff monitor and respond to critical out-of-band security patch notices from software and equipment vendors. The incident response plans identify law enforcement as a possible resource to be leveraged. Otter Tail also participates in the DataSite Project Cyber Mutual Assistance program.

#### Section B

What is the status of each utility's current distribution system plans?

Please describe information on any existing distribution system plan, including (where applicable):

1) The date initiated, completed, and the planning timeframe used: For each planning component, the number of years to which it is applicable should be specified

As stated in section A, Otter Tail does not annually perform system-wide analysis of the distribution system with modeling tools. However, Otter Tail's distribution planning/ budgeting process aligns with the Company's capital budget process. Capital projects are submitted in Q1 of the prior year, vetted and prioritized in Q2, and approved in Q3 of the prior year. For example, the projects slated for and constructed in 2017 were approved in Q3 2016. The overall capital budget plan represents a 5-year view of forecasted projects (i.e. 2017 through 2021). As described in part A, distribution analysis is also performed and projects recommended off the normal cycle when required. (i.e., new load, etc.).

2) Scenarios: the range of any scenarios that were considered should be identified, e.g. high/low load forecast, high/low DER penetration

For the current planning period peak demand scenarios were considered. As discussed above, only existing DERs were included given the low levels of DER adoption on the Otter Tail system. Further, low load scenarios are used when studying specific DER interconnection requests.

- 3) System constraints and needs:
  - a. At a high level, what system constraints and needs are anticipated to develop or occur within the planning period? (Further detail is requested below)

Known constraints are budgeted for within the 5-year plan. With low load growth, system constraints do not appear suddenly unless there is a large new load addition. In such case, new analysis will be completed and funds are reserved for addressing new load each year.

b. How have these constraints and needs been prioritized based on assessment criteria, time sensitivity, budget impact, or other criteria?

As stated in Part A, section 2g, there is a committee that prioritizes projects and allocates funding to those projects.

4) The current and forecasted extent of DER deployment by type, size, and geographic dispersion

As described above, only DERs that are in service at the time of the studies or projected to be in service were included in analysis of the current plan. Part A question number 5 describes the magnitude of DERs within the current plan.

- 5) Currently planned distribution capital projects and operating changes, including:
  - a. Capital and operating budgets over the applicable planning period, and to the extent possible, breakdowns of categories of expenses and budgets

In Figure A below is the O&M budget for the 2017 distribution plan broken into FERC categories and rounded to the nearest thousand.

Figure A – 2017 and 2016 Expense Budgets

FERC Account	2016	2017
	Distribution	Distribution
	Actuals	Plan
5800 - Distribution Expenses - Operation supervision and	277,000.00	309,000.00
engineering		
5810 - Distribution Expenses - Load Dispatching	224,000.00	252,000.00
5820 - Distribution Expenses - Station expenses	310,000.00	295,000.00
5830 - Distribution Expenses - Overhead line expenses	273,000.00	626,000.00
5840 - Distribution Expenses - Underground line expenses	1,937,000.00	1,713,000.00
5860 - Distribution Expenses - Meter expenses	840,000.00	543,000.00
5870 - Distribution Expenses - Customer installation	215,000.00	294,000.00
expenses		
5880 - Distribution Expenses - Miscellaneous distribution	3,677,000.00	3,473,000.00
expenses		
5890 - Distribution Expenses - Rents	242,000.00	260,000.00
5900 - Distribution Expenses - Maintenance supervision	824,000.00	855,000.00
and engineering		
5920 - Distribution Expenses - Maintenance of station	804,000.00	870,000.00
equipment		
5930 - Distribution Expenses - Maintenance of overhead	4,189,000.00	5,087,000.00
lines		
5940 - Distribution Expenses - Maintenance of	1,029,000.00	1,176,000.00
underground lines		
5950 - Distribution Expenses - Maintenance of line	74,000.00	54,000.00
transformers		
5960 - Distribution Expenses - Maintenance of street	1,014,000.00	1,144,000.00
lighting and signal systems		
5970 - Distribution Expenses - Maintenance of meters	736,000.00	805,000.00
5980 - Distribution Expenses - Maintenance of	123,000.00	121,000.00
miscellaneous distribution plant		
Grand Total	16,791,000	17,878,000

In Figure B below is the 2017 capital plan or budget broken into large categories and rounded to the nearest thousand.

<u>Figure B – 2017 Distribution Capital Plan</u>

2017 Distribution Capital	Plan
Category	Cost
New Load	8,692,000
Reliability	1,283,000
Replace	3,448,000
Other Specific Projects	7,081,000
Total Distribution	20,504,000

# b. Where individual budget categories contain a substantial increase or decrease from historical levels, please explain the rationale for the change

Changes to the 2017 expense plan vs 2016 expense plan outside of normal inflation were due to increased spend in 2017 for vegetation management to improve reliability on poor performing feeders.

The actual distribution capital plan in 2016 was approximately \$23M. Changes to the 2017 capital plan vs 2016 capital expenditures can be attributed to many factors. However, the large variations from year to year is due to the allocation of funds to transmission vs distribution projects based on system need. The overall spend is generally consistent between year to year as described under section A.4.d.

# c. Any analysis of alternatives, mitigation, or deferrals of capital or operating projects that were conducted

Analysis of this nature does occur as described under Part A.

## d. Identification of any future capital or operating projects that could reasonably be considered for substitution, mitigation, or deferral using DER alternatives

At this time, Otter Tail does not have any projects identified outside of demand response programs and energy efficiency programs. Otter Tail has considered remote generation in past plans but those alternatives were not chosen due to more cost effective competing proposals.

### e. Identification of any non-monetized benefits of planned projects

A few non-monetized benefits are captured throughout the project plan or budget and range from increased reliability, environmental benefits from a more efficient system (loss savings), and future flexibility.

## f. Identification of any projects that will enhance the company's future ability to integrate DER into system operations

Any project that increases the strength or operating performance of the distribution system will be able to better integrate DERs. For this reason, Otter Tail would consider nearly all projects within the plan as a benefit to future DER integration.

# g. Identification of any other projects, or investments, not specifically identified pursuant to (f) above, that support grid modernization as defined in the Staff Report on Grid Modernization (March 2016)

Other projects not contained in the figures above that would represent Grid Modernization are shown below in Table C rounded to the nearest \$100,000.

*Table C – 2017 Grid Modernization Type Projects* 

Project Name	Description	Cost
EMS Upgrade	Upgrade of existing EMS/SCADA <sup>1</sup>	\$1,900,000
Broadband Communications	Addition of new 30 mile fiber link between	\$500,000
Infrastructure	core OTP equipment	
DNP3 Conversion	All communications for EMS has been	\$1,400,000
	converted to use DNP3 protocol and	
	leverage a network interface to the EMS <sup>1</sup>	
CIS Upgrade	Upgrade Legacy CIS with Cayenta system <sup>1</sup>	\$15,600,000
Telemetric Replacement Project	Upgrade existing reliability monitoring	\$850,000
	system with bell weather AMI solution <sup>1</sup>	

<sup>&</sup>lt;sup>1</sup>multi-year projects

In addition, Otter Tail has a vision to increase business efficiency, reliability, and customer engagement through new technologies which the company and the investments considered would be considered as supporting to Grid Modernization. This vision was framed within a company initiative in 2016. The initiative is in the planning stages currently, and technologies such as AMI, OMS, mobility, and distribution visibility and control technologies are all under consideration.

Dated: June 21, 2017 Respectfully submitted,

OTTER TAIL POWER COMPANY

By: /s/ MICHAEL RIEWER

Michael Riewer Manager, Special Projects Otter Tail Power Company 215 S. Cascade Street Fergus Falls, MN 56537 (218) 739-8565

### **CERTIFICATE OF SERVICE**

# RE: In the Matter of Commission Inquiry into Grid Modernization Docket No. E999/CI-15-556

I, Jana Hrdlicka, hereby certify that I have this day served a copy of the following, or a summary thereof, on Daniel P. Wolf and Sharon Ferguson by e-filing, and to all other persons on the attached service list by electronic service or by First Class Mail.

Otter Tail Power Company Sections A and B Comments

Dated this 21st day of June, 2017

/s/ JANA HRDLICKA

Jana Hrdlicka Regulatory Filings Coordinator Otter Tail Power Company 215 South Cascade Street Fergus Falls MN 56537 (218) 739-8879

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Michael	Allen	michael.allen@allenergysol ar.com	All Energy Solar	721 W 26th st Suite 211  Minneapolis, Minnesota 55405	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St  Duluth, MN 558022191	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Julia	Anderson	Julia.Anderson@ag.state.m n.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Ellen	Anderson	ellena@umn.edu	325 Learning and Environmental Sciences	154 Buford Ave St. Paul, MN 55155	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Alison C	Archer	aarcher@misoenergy.org	MISO	2985 Ames Crossing Rd  Eagan, MN 55121	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Donna	Attanasio	dattanasio@law.gwu.edu	George Washington University	2000 H Street NW  Washington, DC 20052	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John	Bailey	bailey@ilsr.org	Institute For Local Self- Reliance	1313 5th St SE Ste 303  Minneapolis, MN 55414	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Kenneth	Baker	Kenneth.Baker@walmart.c	Wal-Mart Stores, Inc.	2001 SE 10th St.  Bentonville, AR 72716-5530	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Sara	Baldwin Auck	sarab@irecusa.org	Interstate Renewable Energy Council, Inc.	PO Box 1156 Latham, NY 12110	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Gail	Baranko	gail.baranko@xcelenergy.c om	Xcel Energy	414 Nicollet Mall7th Floor  Minneapolis, MN 55401	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
James J.	Bertrand	james.bertrand@stinson.co m	Stinson Leonard Street LLP	150 South Fifth Street, Suite 2300 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Derek	Bertsch	derek.bertsch@mrenergy.c om	Missouri River Energy Services	3724 West Avera Drive PO Box 88920 Sioux Falls, SD 57109-8920	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
William	Black	bblack@mmua.org	MMUA	Suite 400 3025 Harbor Lane Not Plymouth, MN 554475142	Electronic Service tth	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
William A.	Blazar	bblazar@mnchamber.com	Minnesota Chamber Of Commerce	Suite 1500 400 Robert Street Nor St. Paul, MN 55101	Electronic Service th	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Kenneth	Bradley	kbradley1965@gmail.com		2837 Emerson Ave S Apt CW112 Minneapolis, MN 55408	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jon	Brekke	jbrekke@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Sydney R.	Briggs	sbriggs@swce.coop	Steele-Waseca Cooperative Electric	2411 W. Bridge St PO Box 485 Owatonna, MN 55060-0485	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Mark B.	Bring	mbring@otpco.com	Otter Tail Power Company	215 South Cascade Street PO Box 496 Fergus Falls, MN 565380496	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Tony	Brunello	BADEMAIL- tbrunello@greentechleader ship.org	Greentech Leadership Group	426 17th St Ste 700  Oakland, CA 94612-2850	Paper Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Michael J.	Bull	mbull@mncee.org	Center for Energy and Environment	212 Third Ave N Ste 560  Minneapolis, MN 55401	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jessica	Burdette	jessica.burdette@state.mn. us	Department of Commerce	85 7th Place East Suite 500 St. Paul, MN 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jason	Burwen	j.burwen@energystorage.o rg	Energy Storage Association	1155 15th St NW, Ste 500 Washington, DC 20005	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Joel	Cannon	jcannon@tenksolar.com	Tenk Solar, Inc.	9549 Penn Avenue S  Bloomington, MN 55431	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Douglas M.	Carnival	dmc@mcgrannshea.com	McGrann Shea Carnival Straughn & Lamb	N/A	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Ray	Choquette	rchoquette@agp.com	Ag Processing Inc.	12700 West Dodge Road PO Box 2047 Omaha, NE 68103-2047	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Kenneth A.	Colburn	kcolburn@symbioticstrategi es.com	Symbiotic Strategies, LLC	26 Winton Road  Meredith, NH 32535413	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
George	Crocker	gwillc@nawo.org	North American Water Office	PO Box 174  Lake Elmo, MN 55042	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Carl	Cronin	Regulatory.records@xcele nergy.com	Xcel Energy	414 Nicollet Mall FL 7  Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Arthur	Crowell	Crowell.arthur@yahoo.com	A Work of Art Solar	14333 Orchard Rd.  Minnetonka, MN 55345	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Leigh	Currie	Icurrie@mncenter.org	Minnesota Center for Environmental Advocacy	26 E. Exchange St., Suite 206 St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
David	Dahlberg	davedahlberg@nweco.com	Northwestern Wisconsin Electric Company	P.O. Box 9 104 South Pine Street Grantsburg, WI 548400009	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
James	Denniston	james.r.denniston@xcelen ergy.com	Xcel Energy Services, Inc.	414 Nicollet Mall, Fifth Floor Minneapolis, MN 55401	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Curt	Dieren	curt.dieren@dgr.com	L&O Power Cooperative	1302 S Union St Rock Rapids, IA 51246	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
lan	Dobson	ian.dobson@ag.state.mn.u s	Office of the Attorney General-RUD	Antitrust and Utilities Division 445 Minnesota Street, BRM Tower St. Paul, MN 55101	Electronic Service 1400	Yes	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
lan	Dobson	Residential.Utilities@ag.sta te.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Brian	Draxten	bhdraxten@otpco.com	Otter Tail Power Company	P.O. Box 496 215 South Cascade S Fergus Falls, MN 565380498	Electronic Service treet	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Mike	Eggl	meggl@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 58503	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Kristen	Eide Tollefson	N/A	R-CURE	28477 N Lake Ave Frontenac, MN 55026-1044	Paper Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Bob	Eleff	bob.eleff@house.mn	Regulated Industries Cmte	100 Rev Dr Martin Luther King Jr Blvd Room 600 St. Paul, MN 55155	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Betsy	Engelking	betsy@geronimoenergy.co m	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Oncu	Er	oncu.er@avantenergy.com	Avant Energy, Agent for MMPA	220 S. Sixth St. Ste. 1300  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
James C.	Erickson	jericksonkbc@gmail.com	Kelly Bay Consulting	17 Quechee St Superior, WI 54880-4421	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John	Farrell	jfarrell@ilsr.org	Institute for Local Self- Reliance	1313 5th St SE #303  Minneapolis, MN 55414	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Emma	Fazio	emma.fazio@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Sharon	Ferguson	sharon.ferguson@state.mn .us	Department of Commerce	85 7th Place E Ste 280  Saint Paul,  MN  551012198	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John	Fernandes	john.fernandes@res- americas.com	RES	11101 W. 120th Ave Suite 400 Broomfield, CO 80021	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Nathan	Franzen	nathan@geronimoenergy.c om	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Amy	Fredregill	Amy.S.Fredregill@xcelener gy.com	Xcel Energy	414 Nicollet Mall  Minneapolis,  MN  55401	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John	Fuller	john.fuller@senate.mn	MN Senate	75 Rev Dr Martin Luther King Jr Blvd Room G-17 St. Paul, MN 55155	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Karen	Gados	karen@mysunshare.com	SunShare, LLC	1441 18th Street Suite 400 Denver, CO 80202	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Hal	Galvin	halgalvin@comcast.net	Provectus Energy Development IIc	1936 Kenwood Parkway  Minneapolis,  MN  55405	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Bruce	Gerhardson	bgerhardson@otpco.com	Otter Tail Power Company	PO Box 496 215 S Cascade St Fergus Falls, MN 565380496	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Allen	Gleckner	gleckner@fresh-energy.org	Fresh Energy	408 St. Peter Street Ste 220 Saint Paul, Minnesota 55102	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Bryan	Gower	bgower@apx.com	APX, Inc.	N/A	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Timothy	Gulden	info@winonarenewableene rgy.com	Winona Renewable Energy, LLC	1449 Ridgewood Dr Winona, MN 55987	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Tony	Hainault	anthony.hainault@co.henn epin.mn.us	Hennepin County DES	701 4th Ave S Ste 700  Minneapolis, MN 55415-1842	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jim	Hawley	jim.hawley@deweysquare. com	Mission:data Coalition	1020 16th Street, Suite 20 Sacramento, CA 95814	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Todd	Headlee	theadlee@dvigridsolutions.com	Dominion Voltage, Inc.	701 E. Cary Street  Richmond, VA 23219	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Duane	Hebert	duane.hebert@novelenerg y.biz	Novel Energy Solutions	1628 2nd Ave SE Rochester, MN 55904	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John	Helmers	helmers.john@co.olmsted. mn.us	Olmsted County Waste to Energy	2122 Campus Drive SE  Rochester, MN 55904-4744	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jared	Hendricks	hendricksj@owatonnautiliti es.com	Owatonna Public Utilities	PO Box 800 208 S Walnut Ave Owatonna, MN 55060-2940	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Annete	Henkel	mui@mnutilityinvestors.org	Minnesota Utility Investors	413 Wacouta Street #230 St.Paul, MN 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Shane	Henriksen	shane.henriksen@enbridge .com	Enbridge Energy Company, Inc.	1409 Hammond Ave FL 2 Superior, WI 54880	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Paul	Hernandez	Paul.Hernandez@energyce nter.org	Center for Sustainable Energy	426 17th Street, Suite 700  Oakland, CA 94612	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Michael	Норре	il23@mtn.org	Local Union 23, I.B.E.W.	932 Payne Avenue St. Paul, MN 55130	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jim	Horan	Jim@MREA.org	Minnesota Rural Electric Association	11640 73rd Ave N Maple Grove, MN 55369	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power	30 West Superior Street  Duluth,  MN  55802	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jan	Hubbard	jan.hubbard@comcast.net		7730 Mississippi Lane  Brooklyn Park, MN 55444	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Casey	Jacobson	cjacobson@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 58501	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John S.	Jaffray	jjaffray@jjrpower.com	JJR Power	350 Highway 7 Suite 236  Excelsior, MN 55331	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law	2265 Roswell Road Suite 100 Marietta, GA 30062	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Richard	Johnson	Rick.Johnson@lawmoss.co m	Moss & Barnett	150 S. 5th Street Suite 1200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Nate	Jones	njones@hcpd.com	Heartland Consumers Power	PO Box 248  Madison, SD 57042	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Michael	Kampmeyer	mkampmeyer@a-e- group.com	AEG Group, LLC	260 Salem Church Road  Sunfish Lake,  Minnesota 55118	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Mark J.	Kaufman	mkaufman@ibewlocal949.o rg	IBEW Local Union 949	12908 Nicollet Avenue South Burnsville, MN 55337	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
John	Kearney	jmkearney@MnSEIA.org	MnSEIA	2512 33rd Ave S Minneapolis, MN 55406	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jennifer	Kefer	jennifer@dgardiner.com	Alliance for Industrial Efficiency	David Gardiner & Associates, LLC 2609 11th St N Arlington, VA 22201-2825	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Julie	Ketchum	N/A	Waste Management	20520 Keokuk Ave Ste 200  Lakeville, MN 55044	Paper Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Hudson	Kingston	hkingston@mncenter.org	MN Center for Environmental Advocacy	26 East Exchange Street, Suite 206 St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Madeleine	Klein	mklein@socoreenergy.com	SoCore Energy	225 W Hubbard Street Suite 200 Chicago, IL 60654	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Brad	Klein	bklein@elpc.org	Environmental Law & Policy Center	35 E. Wacker Drive, Suite 1600 Suite 1600 Chicago, IL 60601	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John	Kluempke	BADEMAIL- jwkluempke@winlectric.co m	Elk River Winlectric	12777 Meadowvale Rd  Elk River,  MN  55330	Paper Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Thomas	Koehler	TGK@IBEW160.org	Local Union #160, IBEW	2909 Anthony Ln  St Anthony Village, MN 55418-3238	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Brian	Krambeer	bkrambeer@tec.coop	Tri-County Electric Cooperative	PO Box 626 31110 Cooperative W Rushford, MN 55971	Electronic Service ay	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jon	Kramer	sundialjon@gmail.com	Sundial Solar	3209 W 76th St Edina, MN 55435	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Michael	Krause	michaelkrause61@yahoo.c om	Kandiyo Consulting, LLC	433 S 7th Street Suite 2025 Minneapolis, Minnesota 55415	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Matthew	Lacey	Mlacey@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Douglas	Larson	dlarson@dakotaelectric.co m	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
James D.	Larson	james.larson@avantenergy .com	Avant Energy Services	220 S 6th St Ste 1300  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Dean	Leischow	dean@sunriseenergyventur es.com	Sunrise Energy Ventures	601 Carlson Parkway, Suite 1050 Minneapolis, MN 55305	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Benjamin	Lowe	ben.lowe@alevo.com	Alevo USA Inc.	2321 Concord Parkway South Concord, North Carolina 28027	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Gusan	Ludwig	sludwig@mnpower.com	Minnesota Power	30 West Superior Street  Duluth, MN 55802	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

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	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Samuel	Mason	smason@beltramielectric.c om	Beltrami Electric Cooperative, Inc.	4111 Technology Dr. NW PO Box 488 Bemidji, MN 56619-0488	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Erica	McConnell	mcconnell@smwlaw.com	Shute, Mihaly & Weinberger LLP	396 Hayes St San Francisco, California 94102-4421	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Dave	McNary	David.McNary@hennepin.u s	Hennepin County DES	701 Fourth Ave S Ste 700  Minneapolis, MN 55415-1842	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John	McWilliams	jmm@dairynet.com	Dairyland Power Cooperative	3200 East Ave SPO Box 817 La Crosse, WI 54601-7227	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Thomas	Melone	Thomas.Melone@AllcoUS.com	Minnesota Go Solar LLC	222 South 9th Street Suite 1600 Minneapolis, Minnesota 55120	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Herbert	Minke	hminke@allete.com	Minnesota Power	30 W Superior St  Duluth, MN 55802	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St  Duluth, MN 558022093	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Dalene	Monsebroten	dalene@mncable.net	Northern Municipal Power Agency	123 2nd St W Thief River Falls, MN 56701	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Andrew	Moratzka	andrew.moratzka@stoel.co m	Stoel Rives LLP	33 South Sixth St Ste 4200  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Martin	Morud	mmorud@trunorthsolar.co m	Tru North Solar	5115 45th Ave S  Minneapolis, MN 55417	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Michael	Murray	mmurray@missiondata.org	Mission:Data Coalition	1020 16th St Ste 20 Sacramento, CA 95814	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Carl	Nelson	cnelson@mncee.org	Center for Energy and Environment	212 3rd Ave N Ste 560  Minneapolis,  MN  55401	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Ron	Nelson	ron.nelson@ag.state.mn.us	Office of the Attorney General-RUD	Bremer Tower, Suite 1400 445 Minnesota Street Saint Paul, Minnesota 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Ben	Nelson	benn@cmpasgroup.org	СММРА	459 South Grove Street  Blue Earth,  MN  56013	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
David	Niles	david.niles@avantenergy.c om	Minnesota Municipal Power Agency	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Rolf	Nordstrom	rnordstrom@gpisd.net	Great Plains Institute	2801 21ST AVE S STE 220  Minneapolis, MN 55407-1229	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Samantha	Norris	samanthanorris@alliantene rgy.com	Interstate Power and Light Company	200 1st Street SE PO Box 351 Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
David	O'Brien	david.obrien@navigant.co m	Navigant Consulting	77 South Bedford St Ste 400 Burlington, MA 01803	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jeff	O'Neill	jeff.oneill@ci.monticello.mn .us	City of Monticello	505 Walnut Street Suite 1 Monticelllo, Minnesota 55362	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Russell	Olson	rolson@hcpd.com	Heartland Consumers Power District	PO Box 248  Madison, SD 570420248	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Dan	Patry	dpatry@sunedison.com	SunEdison	600 Clipper Drive  Belmont, CA 94002	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jeffrey C	Paulson	jeff.jcplaw@comcast.net	Paulson Law Office, Ltd.	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Mary Beth	Peranteau	mperanteau@wheelerlaw.c	Wheeler Van Sickle & Anderson SC	44 E. Mifflin Street, 10th Floor Madison, WI 53703	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jennifer	Peterson	jjpeterson@mnpower.com	Minnesota Power	30 West Superior Street  Duluth,  MN  55802	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Hannah	Polikov	hpolikov@aee.net	Advanced Energy Economy Institute	1000 Vermont Ave, Third Floor Washington, DC 20005	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
David G.	Prazak	dprazak@otpco.com	Otter Tail Power Company	P.O. Box 496 215 South Cascade S Fergus Falls, MN 565380496	Electronic Service treet	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Gayle	Prest	gayle.prest@minneapolism n.gov	City of Mpls Sustainability	350 South 5th St, #315  Minneapolis, MN 55415	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Gregory	Randa	granda@lakecountrypower.	Lake Country Power	2810 Elida Drive  Grand Rapids, MN 55744	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Mark	Rathbun	mrathbun@grenergy.com	Great River Energy	12300 Elm Creek Blvd Maple Grove, MN 55369	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Michael	Reinertson	michael.reinertson@avante nergy.com	Avant Energy	220 S. Sixth St. Ste 1300  Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
John C.	Reinhardt		Laura A. Reinhardt	3552 26Th Avenue South  Minneapolis, MN 55406	Paper Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy	26 E Exchange St, Ste 206  St. Paul, MN 551011667	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Craig	Rustad	crustad@minnkota.com	Minnkota Power	1822 Mill Road PO Box 13200 Grand Forks, ND 582083200	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Robert K.	Sahr	bsahr@eastriver.coop	East River Electric Power Cooperative	P.O. Box 227  Madison, SD 57042	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Richard	Savelkoul	rsavelkoul@martinsquires.c om	Martin & Squires, P.A.	332 Minnesota Street Ste W2750 St. Paul, MN 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Thomas	Scharff	thomas.scharff@versoco.c om	Verso Corp	600 High Street  Wisconsin Rapids, WI 54495	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Larry L.	Schedin	Larry@LLSResources.com	LLS Resources, LLC	332 Minnesota St, Ste W1390 St. Paul, MN 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Christopher	Schoenherr	cp.schoenherr@smmpa.or g	SMMPA	500 First Ave SW Rochester, MN 55902-3303	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Dean	Sedgwick	N/A	Itasca Power Company	PO Box 457  Bigfork, MN 56628-0457	Paper Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Maria	Seidler	maria.seidler@dom.com	Dominion Energy Technology	120 Tredegar Street  Richmond,  Virginia  23219	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
William	Seuffert	Will.Seuffert@state.mn.us		75 Rev Martin Luther King Jr Blvd 130 State Capitol St. Paul, MN 55155	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
David	Shaffer	DShaffer@MnSEIA.org	Minnesota Solar Energy Industries Project	1005 Fairmount Ave Saint Paul, MN 55105	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Patricia	Sharkey	psharkey@environmentalla wcounsel.com	Midwest Cogeneration Association.	180 N. LaSalle Street Suite 3700 Chicago, Illinois 60601	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Bria	Shea	bria.e.shea@xcelenergy.co m	Xcel Energy	414 Nicollet Mall  Minneapolis,  MN  55401	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Doug	Shoemaker	dougs@mnRenewables.or g	MRES	2928 5th Ave S  Minneapolis, MN 55408	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Mrg	Simon	mrgsimon@mrenergy.com	Missouri River Energy Services	3724 W. Avera Drive P.O. Box 88920 Sioux Falls, SD 571098920	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Anne	Smart	anne.smart@chargepoint.c om	ChargePoint, Inc.	254 E Hacienda Ave Campbell, CA 95008	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Ken	Smith	ken.smith@districtenergy.c om	District Energy St. Paul Inc.	76 W Kellogg Blvd St. Paul, MN 55102	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Joshua	Smith	joshua.smith@sierraclub.or g		85 Second St FL 2  San Francisco, California 94105	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Trevor	Smith	trevor.smith@avantenergy.	Avant Energy, Inc.	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Ken	Smith	ken.smith@ever- greenenergy.com	Ever Green Energy	1350 Landmark Towers 345 St. Peter St St. Paul, MN 55102	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Beth H.	Soholt	bsoholt@windonthewires.or	Wind on the Wires	570 Asbury Street Suite 201 St. Paul, MN 55104	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Sky	Stanfield	stanfield@smwlaw.com	Shute, Mihaly & Weinberger	396 Hayes Street  San Francisco, CA 94102	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Tom	Stanton	tstanton@nrri.org	NRRI	1080 Carmack Road Columbus, OH 43210	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Byron E.	Starns	byron.starns@stinson.com	Stinson Leonard Street LLP	150 South 5th Street Suite 2300 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
James M.	Strommen	jstrommen@kennedy- graven.com	Kennedy & Graven, Chartered	470 U.S. Bank Plaza 200 South Sixth Stree Minneapolis, MN 55402	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Thomas P.	Sweeney III	tom.sweeney@easycleane nergy.com	Clean Energy Collective	P O Box 1828 Boulder, CO 80306-1828	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Steve	Thompson	stevet@cmpasgroup.org	Central Minnesota Municipal Power Agency	459 S Grove St  Blue Earth, MN 56013-2629	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Stuart	Tommerdahl	stommerdahl@otpco.com	Otter Tail Power Company	215 S Cascade St PO Box 496 Fergus Falls, MN 56537	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Pat	Treseler	pat.jcplaw@comcast.net	Paulson Law Office LTD	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Lise	Trudeau	lise.trudeau@state.mn.us	Department of Commerce	85 7th Place East Suite 500 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Karen	Turnboom	karen.turnboom@versoco.c om	Verso Corporation	100 Central Avenue  Duluth,  MN  55807	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
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	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Roger	Warehime	warehimer@owatonnautiliti es.com	Owatonna Public Utilities	208 South WalnutPO Box 800 Owatonna, MN 55060	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jenna	Warmuth	jwarmuth@mnpower.com	Minnesota Power	30 W Superior St  Duluth, MN 55802-2093	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Paul	White	paul.white@prcwind.com	Project Resources Corp./Tamarac Line LLC/Ridgewind	618 2nd Ave SE  Minneapolis, MN 55414	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Jason	Willett	jason.willett@metc.state.m n.us	Metropolitan Council	390 Robert St N Saint Paul, MN 55101-1805	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Cam	Winton	cwinton@mnchamber.com	Minnesota Chamber of Commerce	400 Robert Street North Suite 1500 St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Robyn	Woeste	robynwoeste@alliantenerg y.com	Interstate Power and Light Company	200 First St SE  Cedar Rapids, IA 52401	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Thomas J.	Zaremba	TZaremba@wheelerlaw.com	WHEELER, VAN SICKLE & ANDERSON	44 E. Mifflin Street, 10th Floor Madison, WI 53703	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List
Christopher	Zibart	czibart@atcllc.com	American Transmission Company LLC	W234 N2000 Ridgeview Pkwy Court Waukesha, WI 53188-1022	Electronic Service	No	OFF_SL_15- 556_OFF_SL_15- 556_Official Service List