414 Nicollet Mall
Minneapolis, MN 55401

March 5, 2018

—Via Electronic Filing—

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

RE: REPLY COMMENTS
ESTIMATED COSTS OF FUTURE CARBON DIOXIDE REGULATION ON ELECTRICITY GENERATION
DOCKET NOS. E999/CI-07-1199 & E999/CI-17-53

Dear Mr. Wolf:

Northern States Power Company, doing business as Xcel Energy, submits the enclosed reply comments in response to the January 23, 2018 Request for Comments by the Minnesota Public Utilities Commission and party comments received in the above mentioned dockets.

We have electronically filed this document with the Minnesota Public Utilities Commission, and copied parties on the attached service list. Please contact me at (612) 330-6255 or Nicholas.F.Martin@xcelenergy.com if you have any questions regarding this filing.

Sincerely,

/s/

NICHOLAS MARTIN
MANAGER, ENVIRONMENTAL AFFAIRS

Enclosure
c: Service Lists

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Nancy Lange	Chair
Dan Lipschultz	Commissioner
Matthew Schuerger	Commissioner
Katie J. Sieben	Commissioner
John A. Tuma	Commissioner

IN THE MATTER OF ESTABLISHING AN ESTIMATE OF THE LIKELY RANGE OF COSTS OF FUTURE CARBON DIOXIDE REGULATION ON ELECTRIC GENERATION UNDER MINN. STAT § 216H.06	Docket No. E999/CI-07-1199 Docket No. E999/CI-17-53 **REPLY COMMENTS**

Northern States Power Company, doing business as Xcel Energy, submits these comments in response to comments filed by parties in the above-referenced docket.

A. Otter Tail Power, Great River Energy and Minnesota Power

The utilities in general accept the Agencies' recommended CO_2 regulatory costs range from $5 to $25 per ton, applied beginning in 2025. Otter Tail Power supports the range and date of application, while noting their belief that 2028 may be a more realistic estimate for the start of CO_2 regulation.[1] Great River Energy accepts the range and date of application, as well as the underlying methodology of using current and forecast allowance prices as a proxy for CO_2 regulatory costs.[2] Only Minnesota Power disagrees with the range, urging the Commission instead to use third-party vendor forecasts such as those from IHS or Wood Mackenzie. Minnesota Power recommends 2026 as the date of application.[3]

While acknowledging Minnesota Power's perspective, we continue to support the Agencies' $5-25 range. We acknowledged in our comments that recent CO_2 price forecasts such as those performed for the EPA's Clean Power Plan (CPP) generally do not support an allowance price as high as $25; however, considering the current

[1] Otter Tail Power comments at page 2.

[2] Great River Energy comments at page 2. The Agencies' proposed range uses recent Regional Greenhouse Gas Initiative allowance prices as the basis for its Low end of $5, and a March 2016 national CO_2 price forecast by Synapse Energy Economics as the basis for its High end of $25. Agencies' Analysis and Recommendations *In the Matter of Establishing an Updated 2018 Estimate of the Costs of Future Carbon Dioxide Regulation on Electricity Generation under Minn. Stat. § 216H.06*. Docket No. E999/CI-07-1199, Docket No. E999/CI-17-53.

[3] Minnesota Power comments at pages 1-2.

uncertainty around federal and state climate policy, we believe a broad range is reasonable and can be updated when more information becomes available.

Indeed, more information will likely be available soon. The comment period on EPA's *Advance Notice of Proposed Rulemaking* for a potential CPP replacement closed on February 26. Xcel Energy and many other utilities urged EPA to replace the CPP with a rule that provides a basic federal framework and allows states the flexibility to design cost-effective compliance plans using any combination of measures that achieve or exceed the required reductions. If EPA implements such a rule, we believe Minnesota will design a plan that achieves significant CO_2 reductions at a reasonable cost.

We believe 2025 is a reasonable date to assume CO_2 regulatory costs may be incurred. The CPP was finalized in late 2015 and would have required state plans in late 2018 and compliance in 2022. If EPA were to propose a replacement rule in 2018 – three years after the CPP – considering the time to finalize the rule, states to develop compliance plans, EPA to approve those plans, and compliance to begin, it seems reasonable to move three years later the expected time when utilities and their customers might incur CO_2 regulatory costs. This decision can be updated if regulation appears to be moving more quickly or slowly than expected.

B. Minnesota Large Industrial Group (MLIG)

MLIG does not comment on the Agencies' range or date of application. MLIG urges the Commission not to alter its established guidance that regulatory or externality costs, but not both, should be applied in any given planning year. We agree.

MLIG opposes what they call Xcel Energy's "blended" approach, and says "to apply both [regulatory and externality values] simultaneously would effectively double-count the cost of CO_2 emissions, which would adversely impact ratepayers while the blended approach proposed by Xcel inappropriately mixes the two concepts."[4]

Our proposed approach does not blend regulatory and externality values in any given planning year, so does not double-count costs. Our Reference Case applies an externality value only up until the year we begin applying the regulatory midpoint. Our sensitivities apply various values – the high CO_2 externality, low CO_2 regulatory, and zero. We propose not running additional sensitivities using the high CO_2 regulatory or low CO_2 externality values merely because these would be duplicative and not provide significant added value for decision-making.

[4] MLIG comments at page 3.

C. Clean Energy Organizations

1. Proposed range and date of application

The CEO oppose the Agencies' recommended range and date of application, arguing that this would represent the first downward adjustment and that 2025 is too long a delay. They also argue that too much of the proposed range lies below the allowance price floors and ceilings used by the Regional Greenhouse Gas Initiative (RGGI) and Western Climate Initiative (WCI) programs.[5]

The range under Minn. Stat. §216H.06 is intended to represent the *likely range of costs* of future CO_2 regulation on electricity generation, applied when those costs are expected to be incurred. As such the range should reflect current realities, not what the CEO might prefer regulatory costs or timelines to be. In recent years it has become increasingly affordable to reduce CO_2 emissions, due to persistently low natural gas prices, historic declines in the cost of wind and solar, and coal retirements. Most expect this trend to continue, with renewable energy costs continuing to decline and energy storage becoming more economic as well. It is reasonable to expect that CO_2 regulatory compliance may be more affordable for our customers than earlier expected. This makes a downward adjustment entirely appropriate.

Of course, if currently unanticipated technological, market, or regulatory developments make CO_2 regulatory costs higher or cause them to be incurred sooner, that should also be reflected – by revising the range when such information becomes available, not by setting it now in ways that do not reflect current realities.

This need not raise a concern that utilities will not reduce CO_2 emissions until regulatory costs are higher, or until 2025. Utilities are dramatically reducing their CO_2 emissions even without regulations. Indeed, by the end of 2024, Northern States Power Company will have added 1,550 MW and possibly as much as 1,850 MW of new wind to its portfolio and retired Sherco unit 2. These actions are expected to lower the CO_2 emissions associated with energy to serve our customers by about 56 percent below 2005 by 2024 – significantly exceeding the CPP's national goal of 32 percent by 2030 – all without any CO_2 regulation yet in effect.

2. Proposed alternate method

The CEO propose that the Commission set as the low end of its range the average of the allowance price floors from RGGI and WCI, and as its high end the average of

[5] CEO comments at pages 1-6.

their allowance price ceilings. This would result in a range from $12.56 to $41.86 per ton in 2022, escalating to $20.98 to $69.71 per ton in 2030.[6]

We believe this approach misunderstands the function of the allowance price ceilings and floors in RGGI and WCI. These do not represent an estimate of likely regulatory costs or even a forecast of likely allowance prices. Rather, they are legislative mechanisms – in essence political compromises – incorporated into the design of the programs to ensure that allowance prices do not become "too expensive" such that they impose an unacceptable burden on state economies, or "too cheap" to provide the desired incentive for reductions.

In the 2017 *RGGI Model Rule*, the price ceiling (termed CO_2 Cost Containment Reserve Trigger Price) is a price that if reached, triggers the release of additional allowances from the CO_2 Cost Containment Reserve – a pool of allowances additional to regular allowance budgets – to increase allowance supply and bring prices back down.[7] This ceiling is not an expected price, but rather a safety valve mechanism to prevent allowances from becoming too expensive. The price floor (CO_2 Emissions Containment Reserve Trigger Price) works the opposite: if allowance price bids at RGGI auctions do not reach this price, allowances are withheld to decrease supply and cause prices to rise.[8] This floor is likewise not an expected price, but rather a mechanism to reduce allowance supply and force additional emission reductions.

In practice, RGGI auction prices have generally settled near the allowance price floor. The auction results of RGGI's 38 quarterly auctions to date show that clearing prices have ranged from $1.86 to $7.50 per ton, with an average of $3.07 per ton, since 2008. In only two of the 38 auctions – Auction 23 in 2014 and Auction 29 in 2015 – did the clearing price exceed the CO_2 Cost Containment Reserve Trigger Price and cause allowances to be released from the CO_2 Cost Containment Reserve.[9]

The WCI program has a similar design. The California cap and trade regulation creates an Allowance Price Containment Reserve, a pool of extra allowances released into the market if auction prices rise to specified Reserve Tier Prices, set at $40, $45 and $50 beginning in 2013 and escalated at 5 percent plus inflation.[10] As in RGGI, these Reserve Tier Prices do not represent forecasted costs, but rather safety valves to release more allowances and bring prices down. In practice, WCI auction prices have

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[6] CEO comments, Tables 2 and 3.

[7] See definitions on page 6 of the 2017 *RGGI Model Rule*, available at https://rggi.org/program-overview-and-design/program-review. Table 1 on that page corresponds to the fourth column in Table 2 of the CEO comments.

[8] See definitions on pages 6-7 of the 2017 *RGGI Model Rule*. Table 2 on page 7 corresponds to the second column in Table 2 of the CEO comments.

[9] See https://rggi.org/Auctions/Auction-Results/Prices-Volumes for data on all RGGI auctions to date.

[10] The current California cap and trade regulation is at https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm. See §95913, Sale of Allowances from the Allowance Price Containment Reserve, at pages 233-235.

never approached the Reserve Tier Prices. Published results from the 22 WCI auctions since 2012 show that prices have ranged from $9.15 to $13.66, and averaged $11.56, per short ton.[11]

The fact that allowance prices in both programs have remained low reflects that it has been relatively affordable to reduce CO_2 emissions and achieve compliance. This is in part due to external factors, such as economic recession, low natural gas prices, falling renewable energy costs, and coal plant retirements, and in part due to policy design mechanisms (e.g. CO_2 offsets, an additional cost containment mechanism). However, both programs are meeting their goal of reducing emissions. The fact that they have been able to do so relatively cheaply means the environmental objective is being achieved at a lower cost to consumers.

Again, Minnesota's regulatory cost range under Minn. Stat. §216H.06 is meant to reflect *likely* regulatory costs. It would not be reasonable to reject the Agencies' range and instead set a range based on political compromises (regarding what allowance price is too high to be acceptable, or low enough that greater emission reductions should be sought) in programs in which Minnesota does not participate.

3. Carbon taxes

The CEO further justify a higher CO_2 price by citing examples of several CO_2 tax proposals, including a tax in Sweden set at $140 per ton; six bills introduced in the 113th Congress that would have imposed a CO_2 tax ranging from $20 to $118.75 per ton; H.R. 4962, a proposal for a $50 per ton CO_2 tax beginning in 2019; and the 2017 *Conservative Case for Carbon Dividends* proposal for a CO_2 tax of $40 per ton.[12]

While both are colloquially referred to as carbon "prices," a CO_2 tax is a fundamentally different program design from CO_2 cap and trade. A CO_2 cap and trade program like RGGI or WCI does not set an initial CO_2 price, but rather sets a cap, allows trading, and allows the CO_2 allowance price to emerge from markets balancing supply and demand for CO_2 reductions. A CO_2 tax, in contrast, sets a price administratively and often escalates it over time. The tax level may be based on various considerations, but does not emerge from trading – so does not reflect the actual cost of achieving CO_2 reductions in a market system in which those who can reduce emissions more cheaply can sell allowances to those who need them. Cap and trade, in theory and arguably in practice, encourages the lowest-cost reductions because the CO_2 allowance price eventually reflects the marginal cost of CO_2

[11] See https://www.arb.ca.gov/cc/capandtrade/auction/results_summary.pdf for data on WCI auctions to date. We have converted the Current Auction Settlement Prices, denominated in dollars per metric ton, to dollars per short ton to match the way CO_2 emissions are denominated in Minnesota.

[12] CEO comments at pages 9-10.

abatement (since any entity would only purchase allowances if doing so is cheaper than reducing emissions directly). As it becomes cheaper to reduce emissions – due to low natural gas and renewable energy costs, etc. – allowance prices reflect this, whereas a CO_2 tax would not.

None of the CO_2 tax proposals cited by the CEO has so far proved viable. Of course, there is no guarantee that future federal or state climate policy might not take the form of a CO_2 tax. If this were to occur, it would be reasonable to adopt a CO_2 regulatory cost reflecting the expected tax, rather than one based on expected allowance prices in CO_2 trading markets. However, because existing programs (RGGI and WCI), as well as regulatory proposals that came nearest to being enacted (the 2009 Waxman Markey bill and the Clean Power Plan), represent CO_2 cap and trade rather than CO_2 taxes, it seems more supportable at present to use cap and trade as the basis.

4. Escalation of CO_2 regulatory costs

The CEO propose that the CO_2 regulatory range escalate at 5 percent above inflation, based on the allowance price floors and ceilings in RGGI and WCI.[13] Again, we do not believe it is supportable to use these allowance price floors and ceilings as the basis for the CO_2 regulatory range. As shown above, actual prices in those markets have generally remained flat and in some cases declined from one auction to the next.

Regardless what basis the Commission selects for CO_2 regulatory costs, we do not see a clear rationale to escalate these at 7 percent when other key model variables are escalated for inflation only. The CEO themselves note that "the regulatory values are predictions of costs that utilities, and ratepayers, will have to pay. They are similar to any other cost prediction; for example, the cost of natural gas or the cost of solar."[14]

5. Requirements for utility modeling

The CEO urge the Commission to require that utilities use the CO_2 regulatory costs midpoint as a base assumption in their reference case.[15] We do not object to this recommendation, which matches what we have proposed.

The CEO also urge the Commission to require that utilities run sensitivities using the low and high regulatory costs.[16] We concur on running the Agencies' low regulatory cost as a sensitivity. We have proposed not to run a sensitivity using the Agencies'

[13] CEO comments at pages 10-11.
[14] CEO comments at page 12.
[15] CEO comments at pages 12-13.
[16] CEO comments at page 13.

high regulatory cost, because this would yield intermediate results in Present Value of Societal Cost (PVSC) terms between the Reference Case and our proposed high CO_2 externality sensitivity, and we thus question its added decisional value.[17]

6. "Stacking" of CO_2 regulatory and externality values

Finally, the CEO propose that the Commission require utilities to run a sensitivity using the increment of CO_2 externality costs in excess of CO_2 regulatory costs, in any year when the high CO_2 externality value exceeds the CO_2 regulatory cost midpoint.[18] In effect, this would mean the high CO_2 externality cost is used in all years.

The CEO's rationale is that until the recent update in Docket No. CI-14-643, the CO_2 externality range was below the CO_2 regulatory cost midpoint, so the latter, once applied, appeared to fully internalize the damages. The CEO contend that as a result, "it became the common practice in resource planning to exclude consideration of the external costs during those years in which a regulatory cost applied." Now that the high end of the Commission's CO_2 externality range is above the regulatory cost midpoint, "the external damages that exceed the costs internalized through regulation must be accounted for. Thus, in each year when a Commission-adopted externality value is greater than the regulatory value for that year, the utility should provide an externality sensitivity run that includes those extra societal costs."[19]

We disagree for three reasons. First, it is not merely "common practice" not to apply both externality and regulatory values in a given year; it is a Commission order:

> *While the calculation of externality values under § 216B.2422 is not directly comparable to the estimate of regulatory costs under § 216H.06, they both reflect steps to account for the burdens that CO_2 emissions impose on third parties. When a utility calculates the cost of emitting another ton of CO_2 in any given year, therefore, it would be inappropriate to use both the CO_2 externality value and the CO_2 regulatory cost estimate...*[20]

Second, there is nothing in the 2007 order, nor in subsequent deliberations in either the CO_2 regulatory costs docket or externality docket, to suggest that the Commission's rationale was tied to the dollar levels. The CO_2 regulatory and externality values simply represent different things. The former is an estimate of

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[17] See Xcel Energy's comments in this docket at pages 5-7.

[18] CEO comments at page 15, Table 5, which shows the high CO_2 externality cost in years prior to the regulatory cost period, and during the regulatory cost period, the sum of the CO_2 regulatory cost midpoint plus the increment between the regulatory cost midpoint and the high CO_2 externality value.

[19] CEO comments at pages 13-14.

[20] *In the Matter of Establishing an Estimate of the Costs of Future Carbon Dioxide Regulation on Electricity Generation Under Minnesota Statutes § 216H.06*, Commission Docket No. E999/CI-07-1199, ORDER ESTABLISHING ESTIMATE OF FUTURE CARBON DIOXIDE REGULATION COSTS, at 4 (December 21, 2007).

expected regulatory costs, which have declined over time due to falling costs of clean technology; this should be adjusted downward if the expected cost of reducing CO_2 emissions and complying with regulations has declined, as is presently the case. The latter is an estimate of climate damages to the year 2100 or 2300, which has increased as these damages become better understood. The CEO's rationale that the relationship should change because one is now higher than the other in not supported by any Commission determination to date.

Third, it seems possible to achieve the result the CEO seek – a sensitivity using the high CO_2 externality value in all years – without the somewhat tortured logic of applying the increment of the high externality value minus of the regulatory midpoint. Simply running a sensitivity using the high CO_2 externality value in all years – as Xcel Energy has proposed – would appear to achieve the same result, and give the Commission its desired result of "gain[ing] insight into the magnitude of the CO_2-related stakes in any resource choice."[21]

CONCLUSION

Xcel Energy appreciates the opportunity to provide these reply comments.

Dated: March 5, 2018

Northern States Power Company

[21] Commission's January 3, 2018 Order in Docket No. E999/CI-14-643, page 32.

CERTIFICATE OF SERVICE

I, Lynnette Sweet, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

DOCKET NOS. E999/CI-07-1199
E999/CI-17-53

Dated this 5th day of March 2018

/s/

Lynnette Sweet
Regulatory Administrator

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jon	Brekke	jbrekke@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_7-1199_1
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_7-1199_1
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	No	OFF_SL_7-1199_1
Carl	Cronin	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_7-1199_1
Leigh	Currie	lcurrie@mncenter.org	Minnesota Center for Environmental Advocacy	26 E. Exchange St., Suite 206 St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_7-1199_1
Stacy	Dahl	sdahl@minnkota.com	Minnkota Power Cooperative, Inc.	1822 Mill Road PO Box 13200 Grand Forks, ND 58208-3200	Electronic Service	No	OFF_SL_7-1199_1
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_7-1199_1
Curt	Dieren	curt.dieren@dgr.com	L&O Power Cooperative	1302 S Union St Rock Rapids, IA 51246	Electronic Service	No	OFF_SL_7-1199_1
Ian	Dobson	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_7-1199_1
Brian	Draxten	bhdraxten@otpco.com	Otter Tail Power Company	P.O. Box 496 215 South Cascade Street Fergus Falls, MN 565380498	Electronic Service	No	OFF_SL_7-1199_1

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	Yes	OFF_SL_7-1199_1
Karlene	Fine	kfine@nd.gov	Industrial Commission of North Dakota	14th Floor 600 E. Boulevard Avenue, Dept. 405 Bismarck, ND 58505	Electronic Service	No	OFF_SL_7-1199_1
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_7-1199_1
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_7-1199_1
Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP	Suite 1750 220 South Sixth Street Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_7-1199_1
Kimberly	Hellwig	kimberly.hellwig@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_7-1199_1
Casey	Jacobson	cjacobson@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 58501	Electronic Service	No	OFF_SL_7-1199_1
Joel	Larson	jlarson@minnkota.com	Minnkota Power Cooperative, Inc.	1822 Mill Road Grand Forks, ND 58203	Electronic Service	No	OFF_SL_7-1199_1
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_7-1199_1

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Dalene	Monsebroten	dalene@mncable.net	Northern Municipal Power Agency	123 2nd St W Thief River Falls, MN 56701	Electronic Service	No	OFF_SL_7-1199_1
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_7-1199_1
Peter	Nelson	peter.nelson@americanexperiment.org	Center of the American Experiment	8441 Wayzata Boulevard Suite 350 Golden Valley, MN 55426	Electronic Service	No	OFF_SL_7-1199_1
David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_7-1199_1
Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company	200 1st Street SE PO Box 351 Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_7-1199_1
Russell	Olson	rolson@hcpd.com	Heartland Consumers Power District	PO Box 248 Madison, SD 570420248	Electronic Service	No	OFF_SL_7-1199_1
Mary Beth	Peranteau	mperanteau@wheelerlaw.com	Wheeler Van Sickle & Anderson SC	44 E. Mifflin Street, 10th Floor Madison, WI 53703	Electronic Service	No	OFF_SL_7-1199_1
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_7-1199_1
Craig	Rustad	crustad@minnkota.com	Minnkota Power	1822 Mill Road PO Box 13200 Grand Forks, ND 582083200	Electronic Service	No	OFF_SL_7-1199_1

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Robert K.	Sahr	bsahr@eastriver.coop	East River Electric Power Cooperative	P.O. Box 227 Madison, SD 57042	Electronic Service	No	OFF_SL_7-1199_1
Christopher	Schoenherr	cp.schoenherr@smmpa.org	SMMPA	500 First Ave SW Rochester, MN 55902-3303	Electronic Service	No	OFF_SL_7-1199_1
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_7-1199_1
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_7-1199_1
David	Thornton	J.David.Thornton@state.mn.us	MN Pollution Control Agency	520 Lafayette Road St. Paul, MN 55101	Electronic Service	No	OFF_SL_7-1199_1
Pat	Treseler	pat.jcplaw@comcast.net	Paulson Law Office LTD	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_7-1199_1
Elizabeth	Wefel	eawefel@flaherty-hood.com	Missouri River Energy Services	3724 W Avera Drive PO Box 88920 Sioux Falls, SD 57109-8920	Electronic Service	No	OFF_SL_7-1199_1
Cam	Winton	cwinton@mnchamber.com	Minnesota Chamber of Commerce	400 Robert Street North Suite 1500 St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_7-1199_1
Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company	200 First St SE Cedar Rapids, IA 52401	Electronic Service	No	OFF_SL_7-1199_1
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	No	OFF_SL_7-1199_1

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jon	Brekke	jbrekke@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 553694718	Electronic Service	No	OFF_SL_17-53_17-53
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_17-53_17-53
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_17-53_17-53
Carl	Cronin	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_17-53_17-53
Leigh	Currie	lcurrie@mncenter.org	Minnesota Center for Environmental Advocacy	26 E. Exchange St., Suite 206 St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_17-53_17-53
Stacy	Dahl	sdahl@minnkota.com	Minnkota Power Cooperative, Inc.	1822 Mill Road PO Box 13200 Grand Forks, ND 58208-3200	Electronic Service	No	OFF_SL_17-53_17-53
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_17-53_17-53
Curt	Dieren	curt.dieren@dgr.com	L&O Power Cooperative	1302 S Union St Rock Rapids, IA 51246	Electronic Service	No	OFF_SL_17-53_17-53
Ian	Dobson	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_17-53_17-53
Brian	Draxten	bhdraxten@otpco.com	Otter Tail Power Company	P.O. Box 496 215 South Cascade Street Fergus Falls, MN 565380498	Electronic Service	No	OFF_SL_17-53_17-53

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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_17-53_17-53
Karlene	Fine	kfine@nd.gov	Industrial Commission of North Dakota	14th Floor 600 E. Boulevard Avenue, Dept. 405 Bismarck, ND 58505	Electronic Service	No	OFF_SL_17-53_17-53
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_17-53_17-53
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_17-53_17-53
Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP	Suite 1750 220 South Sixth Street Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_17-53_17-53
Kimberly	Hellwig	kimberly.hellwig@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-53_17-53
Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	OFF_SL_17-53_17-53
Casey	Jacobson	cjacobson@bepc.com	Basin Electric Power Cooperative	1717 East Interstate Avenue Bismarck, ND 58501	Electronic Service	No	OFF_SL_17-53_17-53
Joel	Larson	jlarson@minnkota.com	Minnkota Power Cooperative, Inc.	1822 Mill Road Grand Forks, ND 58203	Electronic Service	No	OFF_SL_17-53_17-53

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Eric	Lindberg	elindberg@mncenter.org	Minnesota Center for Environmental Advacacy	26 E Exchange St Ste 206 Saint Paul, MN 55101	Electronic Service	No	OFF_SL_17-53_17-53
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	OFF_SL_17-53_17-53
Dalene	Monsebroten	dalene@mncable.net	Northern Municipal Power Agency	123 2nd St W Thief River Falls, MN 56701	Electronic Service	No	OFF_SL_17-53_17-53
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_17-53_17-53
Peter	Nelson	peter.nelson@americanexperiment.org	Center of the American Experiment	8441 Wayzata Boulevard Suite 350 Golden Valley, MN 55426	Electronic Service	No	OFF_SL_17-53_17-53
David	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	220 South Sixth Street Suite 1300 Minneapolis, Minnesota 55402	Electronic Service	No	OFF_SL_17-53_17-53
Samantha	Norris	samanthanorris@alliantenergy.com	Interstate Power and Light Company	200 1st Street SE PO Box 351 Cedar Rapids, IA 524060351	Electronic Service	No	OFF_SL_17-53_17-53
Russell	Olson	rolson@hcpd.com	Heartland Consumers Power District	PO Box 248 Madison, SD 570420248	Electronic Service	No	OFF_SL_17-53_17-53
Mary Beth	Peranteau	mperanteau@wheelerlaw.com	Wheeler Van Sickle & Anderson SC	44 E. Mifflin Street, 10th Floor Madison, WI 53703	Electronic Service	No	OFF_SL_17-53_17-53

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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_17-53_17-53
Susan	Romans	sromans@allete.com	Minnesota Power	30 West Superior Street Legal Dept Duulth, MN 55802	Electronic Service	No	OFF_SL_17-53_17-53
Craig	Rustad	crustad@minnkota.com	Minnkota Power	1822 Mill Road PO Box 13200 Grand Forks, ND 582083200	Electronic Service	No	OFF_SL_17-53_17-53
Robert K.	Sahr	bsahr@eastriver.coop	East River Electric Power Cooperative	P.O. Box 227 Madison, SD 57042	Electronic Service	No	OFF_SL_17-53_17-53
Christopher	Schoenherr	cp.schoenherr@smmpa.org	SMMPA	500 First Ave SW Rochester, MN 55902-3303	Electronic Service	No	OFF_SL_17-53_17-53
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_17-53_17-53
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_17-53_17-53
David	Thornton	J.David.Thornton@state.mn.us	MN Pollution Control Agency	520 Lafayette Road St. Paul, MN 55101	Electronic Service	No	OFF_SL_17-53_17-53
Pat	Treseler	pat.jcplaw@comcast.net	Paulson Law Office LTD	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_17-53_17-53
Andrew	Twite	twite@fresh-energy.org	Fresh Energy	408 St. Peter Street, Ste. 220 St. Paul, MN 55102	Electronic Service	No	OFF_SL_17-53_17-53

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Elizabeth	Wefel	eawefel@flaherty-hood.com	Missouri River Energy Services	3724 W Avera Drive PO Box 88920 Sioux Falls, SD 57109-8920	Electronic Service	No	OFF_SL_17-53_17-53
Cam	Winton	cwinton@mnchamber.com	Minnesota Chamber of Commerce	400 Robert Street North Suite 1500 St. Paul, Minnesota 55101	Electronic Service	No	OFF_SL_17-53_17-53
Robyn	Woeste	robynwoeste@alliantenergy.com	Interstate Power and Light Company	200 First St SE Cedar Rapids, IA 52401	Electronic Service	No	OFF_SL_17-53_17-53
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_17-53_17-53