

Rebuttal Testimony and Schedules  
Kari Chilcott Clark

Before the North Dakota Public Service Commission  
State of North Dakota

In the Matter of the Application of  
Northern States Power Company, a Minnesota Corporation  
for Advance Determination of Prudence for a  
200 MW Prairie Rose Wind Generation Project and  
Power Purchase Agreement with Geronimo Wind Energy, LLC

Case No. PU-12-059  
Exhibit\_\_\_\_(KCC-1)

**Renewable Energy Credits (RECs)**

October 4, 2012

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**SCHEDULES**

Resume	Schedule 1
REC Forecast	Schedule 2





1 Q. WHY DOES THE COMPANY BELIEVE IT WILL BE ABLE TO MAXIMIZE THE VALUE OF  
2 ITS RECs PORTFOLIO IN THE FUTURE?

3 A. The Company believes that the primary opportunity for increasing the value of  
4 the RECs in the North Dakota portfolio is to take advantage of out-of-state REC  
5 markets driven by the disparity in various states' renewable portfolio standards  
6 (RPS). In addition, we believe that the ultimate expiration of the PTCs could  
7 create a shift in the supply and demand for RECs and potentially increase REC  
8 prices due to the immaturity of the market.

9

10 Q. YOU MENTIONED THAT THE PRIMARY OPPORTUNITY TO SELL RECs AT A  
11 PREMIUM COULD ARISE FROM REC MARKETS IN OTHER STATES OR REGIONS.  
12 COULD YOU PLEASE EXPLAIN FURTHER?

13 A. Currently, REC markets are very regionalized, mainly because different states  
14 have different RPS requirements. This creates the situation where a REC created  
15 in the Midwest Renewable Tracking System (M-RETS) from generation located  
16 in Midwest Independent Transmission System Operator (MISO) might have a  
17 low value in the MISO REC market but a higher value in a non-MISO market.  
18 There is currently no standardized clearinghouse for the sale of RECs, but the  
19 Company has had experience and success in finding bi-lateral opportunities  
20 across regional REC markets, and executing transactions for prices well above  
21 those of the in-state REC market.

22

23 As REC markets mature and regional REC tracking systems continue to develop  
24 their import and export requirements, additional markets could materialize to  
25 allow even more RECs to be transacted across regions. As this collaboration  
26 continues, additional opportunities have and should continue to make RECs  
27 more valuable.

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Q. WHY WOULD THE EXPIRATION OF THE PTC AFFECT REC PRICES?

A. The expiration of the PTC would likely have the concomitant effect of making the development of wind energy more expensive, and therefore reduce the amount of new wind development. Even if the PTC is extended, it is highly probable that it will be a short-term extension. In addition, in the next couple of years state-based renewable portfolio standards throughout the region and nation will be requiring more energy to be produced by renewable sources. The combination of the reduced supply of new wind and increased demand through RES requirements is likely to increase the need for the renewable attributes represented by RECs. Increased demand and limited incremental supply typically results in higher prices.

Q. HOW HAS THE COMPANY CAPITALIZED ON CROSS-REGIONAL REC OPPORTUNITIES?

A. As an example, the Company was the first entity to achieve approval from the North Carolina Utilities Commission for an out-of-state multi-fuel biomass facility as an eligible resource for the North Carolina Renewable Energy and Energy Efficiency Portfolio Standards (REPS). This extensive effort resulted in a premium price for RECs allocated to North Dakota. We intend to credit North Dakota customers with the proceeds from that sale.

Q. ARE THERE OTHER MARKETS FOR RECS IN ADDITION TO THE MARKETS FOR RES COMPLIANCE?

A. Yes. Several entities purchase RECs to achieve self-imposed voluntary renewable energy goals. These “voluntary” purchases are often made by large corporations or brokerage firms. The demand in the voluntary REC market has increased over the last several years, but the prices in this market tend to be

1 lower than in compliance markets and have tighter restrictions on eligible  
2 vintages.

3  
4 **III. MANAGEMENT OF THE REC PORTFOLIO**

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6 Q. WHAT DOES THE COMPANY DO WITH RECS IT ACCRUES?

7 A. As I mentioned earlier, the Company actively manages its REC portfolio and  
8 continues to seek out opportunities to sell RECs at advantageous pricing.

9  
10 Q. WHAT DO YOU MEAN BY “THE COMPANY ACTIVELY MANAGES ITS REC  
11 PORTFOLIO”?

12 A. The Company takes steps to ensure that it can maximize the value of its multi-  
13 jurisdictional REC portfolio while ensuring full compliance with the RPS  
14 requirements within all of our jurisdictions. To accomplish this, the Company  
15 focuses on two activities: retiring the oldest RECs first, and searching for above-  
16 market REC sale opportunities.

17  
18 Q. WHAT DOES THE COMPANY ACCOMPLISH BY RETIRING THE OLDEST RECS FIRST?  
19 The Company seeks to retain the intrinsic value of its REC portfolio by retiring  
20 the oldest RECs first. The Company accomplishes this by evaluating the shelf-  
21 life rules and compliance requirements particular to each jurisdiction's RPS, and  
22 strategically re-assigning RECs between jurisdictions accordingly.

23  
24 Q. WHAT DO YOU MEAN BY “SHELF-LIFE RULES” PARTICULAR TO EACH STATE’S RPS?

25 A. Most states, including Minnesota, have implemented a shelf-life, or time-frame,  
26 during which a REC can be retired to count toward compliance with its  
27 respective RPS, and any RECs older than that vintage year are no longer eligible

1 for compliance in that jurisdiction. For example, Minnesota requires that a REC  
2 be no older than year of generation plus four years in order for it to be retired for  
3 RPS compliance. Consequently, to comply with 2011 requirements, a REC must  
4 have been created no earlier than 2007. By exchanging older, less valuable RECs  
5 in North Dakota and newer Minnesota-allocated RECs, we maintain the value of  
6 the North Dakota REC portfolio while using the older RECs to comply with the  
7 Minnesota RPS before their shelf-life expires.

8  
9 Q. HAS THE COMPANY ENGAGED IN THIS ACTIVE MANAGEMENT OF ITS REC  
10 PORTFOLIO IN THE PAST?

11 A. Yes. Last year, as manager of our REC portfolio, I exchanged 2007 vintage  
12 RECs allocated to North Dakota with 2008 vintage RECs allocated to Minnesota  
13 so that I could retire the 2007 vintage RECs in Minnesota and maintain the value  
14 of the North Dakota portfolio with newer, and therefore more valuable, RECs.  
15 Through this active management, we have maintained the intrinsic value of the  
16 North Dakota REC portfolio while still complying with our other jurisdictional  
17 requirements.

18  
19 Q. CAN THE COMPANY RETIRE RECS FROM OLDER VINTAGES FOR 2015  
20 COMPLIANCE WITH THE NORTH DAKOTA RENEWABLE ENERGY OBJECTIVE?

21 A. Yes. Based on the current voluntary Renewable Energy Objective (REO) statute,  
22 there is no requirement to have a certain level of energy produced by a renewable  
23 source. Nor is there a point in time when a REC can no longer be retired to  
24 show the REO has been achieved. However, discussions with Staff indicate that  
25 the Commission's preference is to sell all RECs assigned to North Dakota and  
26 retire none for purposes of demonstrating the REO has been met. More

1 guidance is needed from the Commission on this topic so we can manage the  
2 REC portfolio in the most economic way.

3  
4 Q. WHAT HAS THE COMPANY DONE TO OBTAIN ABOVE-MARKET REC PRICING?

5 A. The Company continues to search for opportunities to transact RECs at above-  
6 market prices. The recent REC sale into North Carolina is a good example of  
7 the Company’s proactive measures and efforts to find premium REC markets. If  
8 the Company had historically sold the RECs as soon as they were created, this  
9 opportunity would not have been available. **[TRADE SECRET BEGINS**

10  
11  
12 **TRADE**

13 **SECRET ENDS]** The Company also continues to search for additional  
14 opportunities through Request for Proposals (RFPs). The Company has recently  
15 made offers into three separate RFPs with North Dakota-allocated RECs, but  
16 the winning offers were less than the price the Company offered or the RFP  
17 failed to proceed.

18  
19 Q. MR. HAHN BELIEVES THAT LIQUIDATING INTO THE CURRENT MARKET PRICE IS A  
20 SUPERIOR STRATEGY TO ACTIVELY MANAGING THE REC PORTFOLIO VALUE  
21 WHILE SEEKING PREMIUM MARKET OPPORTUNITIES. DO YOU AGREE?

22 A. No. Mr. Hahn appears to believe that our efforts to search for optimal market  
23 opportunities are attempts to “time the market.” However, the Company’s  
24 management of its REC portfolio is not an effort to time the market. Instead,  
25 the Company is seeking to maximize value while the REC market matures, in  
26 compliance with the Commission order to do so in Case No. PU-10-019. In that  
27 case, the Company sought permission to sell RECs allocated to our North

1 Dakota customers, proposing to return 85 percent of revenues back to our  
2 customers and retain 15 percent of value (the Commission ultimately approved a  
3 90 percent/10 percent split, respectively). We proposed a sharing of the  
4 proceeds to incentivize the Company to maximize value primarily for our  
5 customers and secondarily for our shareholders. The Commission agreed with  
6 the concept, and ordered us to maximize the value of the RECs we sell.

7  
8 We continue to seek those opportunities to maximize value in the ways I have  
9 described. In the future, as REC markets mature and are more predictable and  
10 stable, Mr. Hahn’s suggestion to liquidate RECs as they are created may make  
11 sense. However, the Company strongly believes that the passage of time will  
12 provide additional opportunities for above-market REC prices and that its active  
13 management of its REC portfolio will allow the Company to capture attractive  
14 pricing when it is available.

15  
16 **IV. REC PRICING FOR MODELING**

17  
18 Q. PLEASE DESCRIBE WHAT YOU THINK APPROPRIATE REC PRICING WOULD BE TO  
19 USE FOR MODELING THE BENEFITS OF THE PRAIRIE ROSE PROJECT.

20 A. Attached to my testimony as Exhibit (KCC-1), Schedule 2 is a REC forecast that  
21 was recently developed using the indicative market prices at the time the  
22 Company entered into the Power Purchase Agreement (PPA) with Prairie Rose  
23 Wind (PRW). This forecast estimated the 2013 REC market at \$1.29, climbing to  
24 \$2.05 in 2016, and escalated with a 1.9% inflation factor in the subsequent years.

25  
26 Q. DO YOU BELIEVE IT IS REASONABLE TO RELY ON THESE FORECASTS?

1 A. Yes. These estimates represent the best available information at the time the  
2 Company entered into the PRW PPA. They were developed from indicative  
3 estimates provided by three independent REC brokers who transact in the REC  
4 market on a regular basis.

5  
6 I do note, however, that since there is no central market for RECs there is no  
7 guarantee that the Company would obtain the listed prices for its RECs. Instead,  
8 the brokers have provided “indicative prices,” which is in essence a snapshot of  
9 the market at the time of their publication. It is reasonable to rely on such  
10 indicative pricing since there is no central market where actual prices are posted.  
11 However, should the Company seek to sell its RECs, it would have to enter into  
12 a bi-lateral transaction at a price acceptable to both buyer and seller,  
13 notwithstanding the indicative market pricing.

14  
15 **VI. CONCLUSION**

16  
17 Q. PLEASE SUMMARIZE YOUR TESTIMONY.

18 A. The Company has demonstrated historically that we can provide a benefit to  
19 North Dakota rate payers by actively managing the REC portfolio, and that we  
20 seek to continue to provide this benefit. We are committed to making our  
21 management of the portfolio transparent to the Commission and are open to  
22 discussion as to the best way to achieve such transparency.

23  
24 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

25 A. Yes, it does.

## KARI CHILCOTT CLARK

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**Summary:** Successful portfolio manager with responsibility for Renewable Energy Credit (REC) portfolio of thirty million RECs across eight states. Proven ability to successfully lead and manage multiple projects simultaneously. Sixteen years experience exceeding clients' expectations while supporting their management and analytical needs. Strong modeling and computer background developed from experience with a wide range of projects and computer software. Enjoy working with others to integrate diversity of ideas.

### EXPERIENCE AND ACCOMPLISHMENTS

**2008 – Present**                      *Renewable Energy Portfolio Manager*  
Xcel Energy, Denver, Colorado

- Managed the Xcel Energy Renewable Energy Credit (REC) portfolio to maximize opportunity while minimizing risk by providing strategic direction for the acquisition and disposition of RECs for compliance and revenue generation.
- Responsible for compliance with Renewable Portfolio Standards in eight states. Developed compliance plans, retirement plans and inventory reports for the various Public Utility Commissions and ensured proper compliance requirements are met.
- Represented Xcel Energy interests in the development of renewable portfolio standards, rules and protocols on a state, regional and national level. Elected as the Midwest Renewable Energy Tracking System (M-RETS) Subscribers' Group Chair and served on the Western Renewable Energy Generation Information System (WREGIS) Stakeholder Advisory, Change Control and Policy Subcommittees to promote policy changes within the regional REC tracking systems. Led a national effort to import/export RECs between the regional markets.

**1998 – 2008**                      *Statistician/Senior Load Research Analyst/Senior Quantitative Risk Analyst*  
Xcel Energy, Denver, Colorado

- Lead responsibility for load research sampling and analysis for all Xcel Energy jurisdictions.
- Analyzed data and determined best regression model for Gas Temperature Factor Case. Testified in Public Utilities Commission (PUC) hearing as Xcel Energy's statistical expert and filed written testimony for the case. PUC ruled in company's favor which saved Xcel Energy over \$160 million.
- Developed experimental design for Residential Time-of-Use Pilot to effectively measure load impact of three different rates and two technology combinations. Responsible for all decisions affecting design and analysis of this pilot program.
- Led merged staff in improving and standardizing our practices using process management tools. Team was selected as top process improvement team in Retail business unit.
- Promoted three salary grade levels in eight years.

**1996 - 1998**                      *Senior Statistical Consultant, Quality and Process Improvement*  
Boeing Commercial Airplane Group, Wichita, Kansas

- Facilitated verification teams to determine reliability of service and manufacturing processes and wrote technical reports to summarize the findings.
- Worked with customers to document their current processes determine beneficial measurements and identify process improvements. Developed spreadsheets and databases to track and analyze the data.
- Promoted to Senior Statistical Consultant after one year.

**COMPUTER EXPERIENCE:**                      SAS, Microsoft Excel, Access, Word, PowerPoint, Project and Outlook,  
Metrix ND, Visio, HTML, Fortran, C, SQL

**EDUCATION:**                                      M.S., Applied Mathematics, University of Colorado  
BSEd, Mathematics, Pittsburgh State University

**MISO RECs - Broker Quotes**

Vintage	Front Half / Back Half	ICAP 1/31/11			AMEREX 1/14/2011			TFS Energy End January 2011			January 2011 Average		
		MRO Wind (Green-e Applicable)			National Green-E Any National Green-E Wind MISO Biomass MISO Wind			National Green-E Wind MISO WIND - MRETS Delivered					
		[Begin Trade Secret]			[Begin Trade Secret]			[Begin Trade Secret]					
		Bid	Ask	Mid	Bid	Ask	Mid	Bid	Ask	Mid	Bid	Ask	Mid
2011	FH										0.82	1.00	<b>0.91</b>
2011	BH										0.88	1.17	<b>1.03</b>
2012	FH										0.90	1.23	<b>1.07</b>
2012	BH										0.93	1.30	<b>1.11</b>
2013	FH										1.00	1.50	<b>1.25</b>
2013	BH										1.05	1.60	<b>1.33</b>
2014	FH										1.15	1.75	<b>1.45</b>
2014	BH										1.25	2.00	<b>1.63</b>
2015	FH										1.30	2.00	<b>1.65</b>
2015	BH										1.40	2.25	<b>1.83</b>
2016	FH										1.50	2.50	<b>2.00</b>
2016	BH										1.60	2.60	<b>2.10</b>
		End Trade Secret]			End Trade Secret]			End Trade Secret]					

**MISO REC Forecast**

Escalation Rate 1.90%

Year	MISO REC (\$/MWh)
2011	0.97
2012	1.09
2013	1.29
2014	1.54
2015	1.74
2016	2.05
2017	2.09
2018	2.13
2019	2.17
2020	2.21
2021	2.25
2022	2.30
2023	2.34
2024	2.38
2025	2.43
2026	2.47
2027	2.52
2028	2.57
2029	2.62
2030	2.67
2031	2.72

