

Before the North Dakota Public Service Commission
State of North Dakota

In the Matter of the Application of Otter Tail Power Company
For Authority to Increase Rates for Electric Utility
Service in North Dakota

Case No. PU-17-398
OAH File No. 20170622

Exhibit ____

RATE DESIGN

Rebuttal Testimony and Schedules of

David G. Prazak

June 22, 2018

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ATTACHED SCHEDULES

Schedule 1 – Low Income Customer Bill Impacts

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1 **I. INTRODUCTION**

2 Q. PLEASE DATATE YOUR NAME AND BUSINESS ADDRESS.

3 A. My name is David G. Prazak. My business address is 215 S. Cascade St., Fergus Falls,
4 MN 56538-0496.

5

6 Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

7 A. I am employed by Otter Tail Power Company (OTP or the Company) as its Supervisor of
8 Pricing and Tariff Administration.

9

10 Q. DID YOU PREPARE DIRECT TESTIMONY AND SUPPLEMENTAL DIRECT
11 TESTIMONY IN THIS PROCEEDING?

12 A. Yes.

13

14 Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

15 A. My Rebuttal Testimony replies to the Direct Testimony of Dr. David E. Dismukes filed
16 on behalf of North Dakota Public Service Commission (the Commission) Advocacy Staff
17 (Staff), the Direct Testimony of Ms. Kavita Maini and Mr. Larry L. Schedin filed on
18 behalf of the Midwest Large Energy Consumers Group (MLEC) and the Direct
19 Testimony of Mr. Steve W. Chriss filed on behalf of Walmart Inc. (Walmart).

20 **II. SUMMARY OF REBUTTAL TESTIMONY**

21 Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY

22 A. Consistent with prior cases and North Dakota policy, OTP proposed a rate design that is
23 based on marginal costs, which promotes efficient use of resources and ultimately gives
24 OTP a reasonable opportunity to achieve its revenue requirement. OTP continues to
25 support its proposed rate design: it is a continuation of how we have designed rates in
26 North Dakota for decades, it is supported by sound economic theory and it is aligned with
27 Commission policy.

1 Q. DOES DR. DISMUKES RECOMMEND THE COMMISSION DEVIATE FROM
2 LONG-STANDING NORTH DAKOTA POLICY?

3 A. Yes. Dr. Dismukes recommends the Commission depart from its long-standing policy of
4 relying on costs to guide the rate design process and rather design rates so as to
5 incentivize distributed generation.¹ Ultimately, Dr. Dismukes recommends the
6 Commission conform its rate design policies to those of other states.²

7
8 Q. SHOULD THE COMMISSION ADOPT THE RECOMMENDATIONS OF DR.
9 DISMUKES?

10 A. No. Dr. Dismukes provides no compelling reason for the Commission to change its
11 policy. Further, as discussed below and in the Direct Testimony of OTP witnesses Ms.
12 Gina S. Ice and Ms. Amparo Nieto, several of Dr. Dismukes criticisms are based on
13 faulty arguments regarding OTP's embedded Class Cost of Service Study (CCOSS) and
14 Marginal Cost of Service Study (MCOSS).

15
16 Q. IS THERE A LOGICAL INCONSISTENCY IN DR. DISMUKES'S
17 RECOMMENDATIONS?

18 A. Yes. In many cases, Dr. Dismukes recommends changing rate elements by the system
19 average increase, which results in maintaining the existing rate design and only reflecting
20 the higher required revenues. Yet, Dr. Dismukes fails to recognize that the existing rate
21 design is based on OTP's CCOSS and MCOSS from the 2008 Rate Case – studies that
22 were performed using the same basic methodologies as the CCOSS and MCOSS
23 presented in this case. Dr. Dismukes asks the Commission to ignore underlying changes
24 in cost that have occurred since the 2008 Rate Case. This is not reasonable and should not
25 be adopted.

¹ Dismukes Direct, p. 63-67, 73.

² Dismukes Direct, p. 72-73.

III. CONTESTED ISSUES

A. Fixed Charges [MLEC-Schedin; Staff-Dismukes]

PLEASE COMPARE THE FIXED CHARGES RECOMMENDED BY DR. DISMUKES TO THE FIXED CHARGES RECOMMENDED BY OTP.

Table 1 below compares the fixed charges recommended by Dr. Dismukes to the fixed charges recommended by OTP.

**Table 1
Comparison of Fixed Charge Recommendations
(\$/Month)**

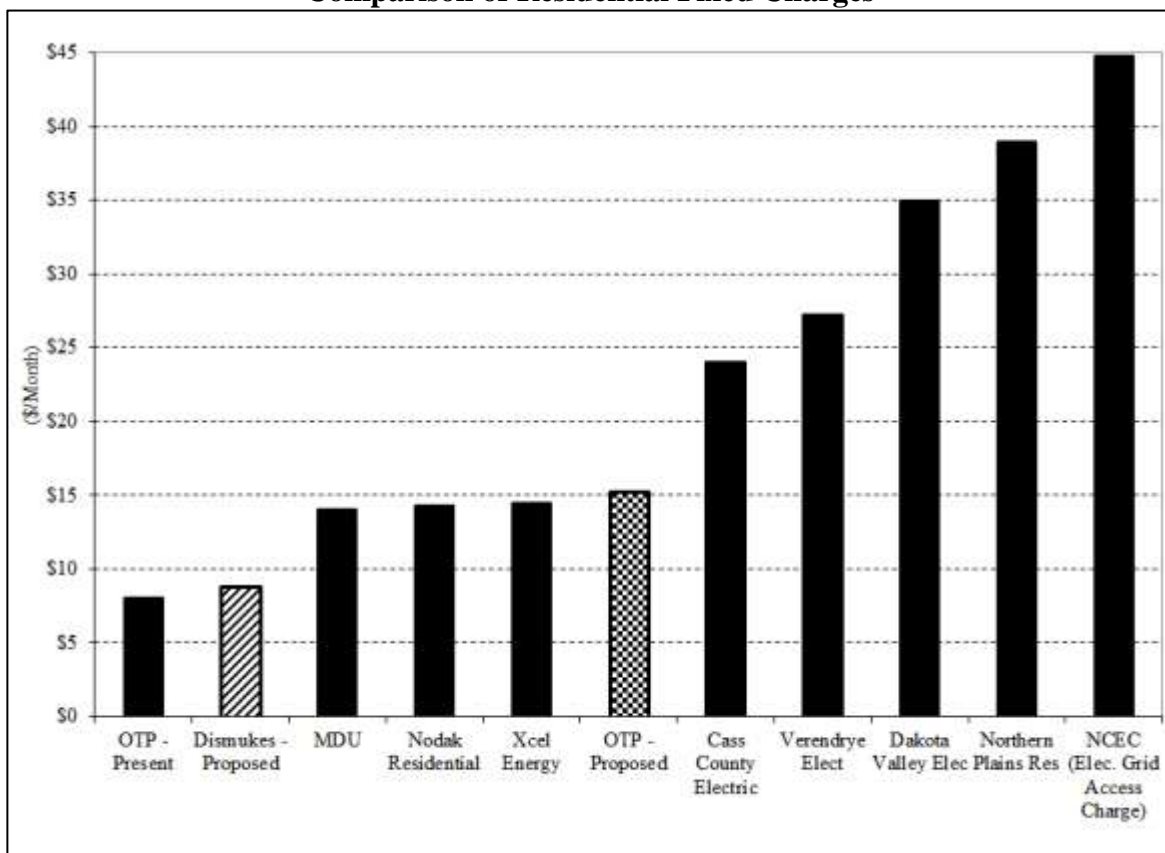
<u>Class</u>	<u>Present</u>	<u>OTP Proposed</u>	<u>Dismukes Proposed</u>
Residential	\$8.00	\$15.23	\$8.85
Residential – Demand Control	\$18.38	\$20.10	\$20.10
Farm Service – Single Phase	\$12.00	\$17.40	\$13.27
Farm Service – Three Phase	\$12.00	\$17.40	\$13.27
Small General Service	\$13.00	\$24.90	\$14.38
General Service (Secondary)	\$12.00	\$31.90	\$13.27
General Service – Time of Use	\$16.00	\$219.00	\$17.70
Large General Service (Secondary)	\$40.00	\$215.90	\$44.25
Large General Service – Time of Day (Primary)	\$60.00	\$282.00	\$66.37
Standby (Secondary)	\$199.00	\$242.24	\$220.13
Irrigation – Option 1	\$1.00	\$24.30	\$1.11
Irrigation – Option 2	\$5.00	\$24.30	\$5.53
Outdoor Lighting – Metered	\$2.00	\$2.00	\$2.00
Outdoor Lighting – Non-metered	\$0.00	\$0.00	\$0.00
Municipal Pumping (All)	\$4.00	\$26.50	\$4.42
Civil Defense	\$1.00	\$1.22	\$1.11
Water Heating	\$1.00	\$4.00	\$1.11
Real Time Pricing Rider	\$199.00	\$282.00	\$220.13
Controlled Service – Interruptible- Large #1	\$4.00	\$20.20	\$4.42
Controlled Service – Interruptible- Large #2	\$5.00	\$20.20	\$5.53
Controlled Service – Interruptible - Small	\$2.00	\$8.50	\$2.21
Deferred Load Service	\$3.00	\$8.80	\$3.32
Fixed Time of Service (Secondary)	\$1.00	\$6.70	\$1.11

1 **1. North Dakota Customer Charges**

2 Q. PLEASE COMPARE THE RESIDENTIAL FIXED CHARGE RECOMMENDED BY
3 DR. DISMUKES TO THE RESIDENTIAL FIXED CHARGES OF OTHER NORTH
4 DAKOTA UTILITES.

5 A. Figure 1 below compares the Residential fixed charge recommended by Dr. Dismukes to
6 the Residential fixed charges of other North Dakota utilities.

7
8 **Figure 1**
9 **Comparison of Residential Fixed Charges**



10
11
12 Q. DO YOU HAVE ANY OBSERVATIONS REGARDING FIGURE 1?

13 A. Yes. OTP's recommended Residential customer charge is generally comparable to the
14 Residential customer charges of North Dakota's other investor-owned utilities (IOUs).

1 This fact demonstrates that OTP's recommendation is not unreasonable. Dr. Dismukes
2 also apparently recognizes that uniformity within a state can be a policy consideration.³
3

4 Q. ARE THERE REASONS FOR OTP'S RESIDENTIAL CUSTOMER CHARGE TO BE
5 HIGHER THAN THOSE OF NORTH DAKOTA'S OTHER INVESTOR OWNED
6 UTILITIES?

7 A. Yes. As discussed in my Direct Testimony,⁴ OTP is smaller than North Dakota's other
8 investor-owned utilities and therefore has fewer customers over which to spread
9 customer-related costs. Unlike North Dakota's other investor owned utilities, OTP does
10 not serve North Dakota's major cities and this lack of density also can contribute to
11 higher fixed charges.
12

13 Q. DOES DR. DISMUKES'S OWN DATA CONFIRM THAT THERE IS A COST-BASIS
14 FOR OTP TO HAVE A HIGHER RESIDENTIAL CUSTOMER CHARGE THAN
15 XCEL ENERGY?

16 A. Yes. Exhibit DED-1 shows that OTP has more substation capacity per customer and more
17 transformers per customer than does Xcel Energy. This data supports OTP having a
18 higher (\$15.23) Residential customer charge than Xcel Energy (\$14.50).

19 2. Low-Income Customers

20 Q. DID DR. DISMUKES PRESENT ANY OTP-SPECIFIC DATA TO SUPPORT HIS
21 ARGUMENTS REGARDING LOW-INCOME CUSTOMERS?

22 A. No. The data and studies relied upon by Dr. Dismukes are not specific to OTP's
23 customers.⁵ For example, Exhibit DED-10, which Dr. Dismukes asserts shows a positive
24 relationship between electricity consumption and income, is based on all households in
25 North Dakota and all households in Alabama, Kentucky, Mississippi and Tennessee.⁶

³ Dismukes Direct, p. 28.

⁴ Prazak Direct, p. 20.

⁵ Dismukes Direct, p. 68-70 and Exhibits DED-10 and DED-11.

⁶ Dismukes Direct, p. 69 and Exhibit DED-10.

1 Exhibit DED-11 is not even labeled as including any North Dakota households or being
2 limited to North Dakota households.

3
4 Q. DOES OTP-SPECIFIC DATA INDICATE THAT OTP'S LOW-INCOME
5 CUSTOMERS HAVE HIGHER-THAN-AVERAGE USAGE?

6 A. Yes. Table 2 below, which is a recreation of Table 5 from my Direct Testimony, shows
7 that the average usage of OTP's low-income Residential customers is greater than the
8 average usage of the OTP Residential population overall and is greater than the average
9 usage of the OTP non-low income Residential customer population.

10
11 **Table 2**
12 **Comparison of Residential Service (Section 9.01) Usage**
13 **(2016 Usage Data)**

	Residential Customers	Low-Income ⁷ Customers	Non-Low Income Customers
Average Monthly Usage (kWh / Month)	786	1,184	774
Percentage of Customers with Usage in Excess of 750 kWh / Month ⁸	41%	58%	40%
Number of Customers with Usage in Excess of 750 kWh / Month	15,241	617	14,624

14
15 Q. IS THERE ANY OTP-SPECIFIC DATA INDICATING THAT OTP'S LOW-INCOME
16 CUSTOMERS ARE MORE LIKELY TO BE IN THE GROUP OF CUSTOMERS
17 HARMED BY KEEPING FIXED CHARGES ARTIFICIALLY LOW?

18 A. Yes. Table 2 shows that 58% of low-income customers have usage that exceeds the
19 Residential class average usage, while only 40% of non-low income customers have
20 usage that exceeds the class average. Customers with usage that exceeds the class average
21 end up paying more than their fair share of the cost of service when fixed charges are
22 kept artificially low.

⁷ Low-income is defined as those customers receiving LIHEAP assistance.

⁸ The true breakeven point for full recovery of marginal costs is the class average, or approximately 786 kWh. For analytical purposes, we have used 750 kWh as the breakeven point.

1 Q. CAN YOU QUANTIFY THE IMPACT OF DR. DISMUKES’S RATE DESIGN
2 RECOMMENDATION ON THE AVERAGE LOW-INCOME OTP CUSTOMER?

3 A. Yes. As shown in Exhibit___(DGP-3), Schedule 1, the average OTP low-income
4 customer’s bill would be approximately 36% (approximately \$405 / year) higher under
5 Dr. Dismukes’s rate design than under OTP’s proposed rate design.
6

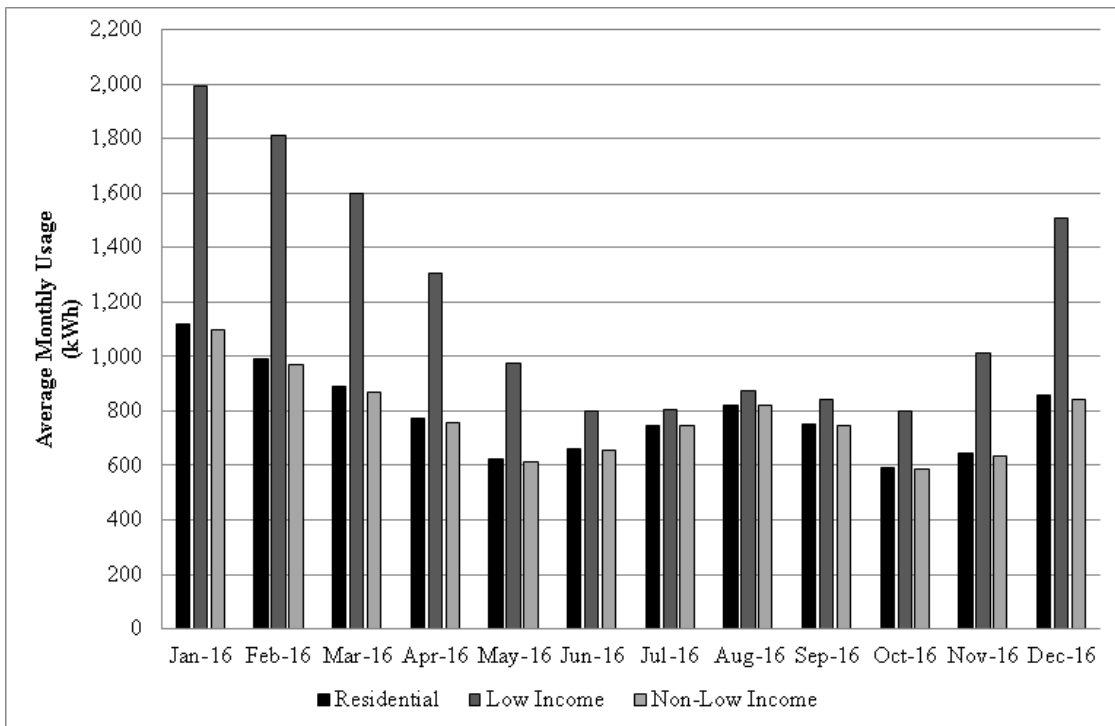
7 Q. DOES ANY OTP-SPECIFIC DATA HELP EXPLAIN THIS?

8 A. Yes. Again, as discussed in my Direct Testimony⁹ and shown in Figure 2, OTP-specific
9 data shows that low-income customers’ winter usage is significantly higher than the
10 usage of the Residential population overall and of non-low income customers. The
11 differential in usage being so much more pronounced in the winter months indicates that
12 OTP’s low-income population relies more on electricity for heating purposes than does
13 the non-low income and Residential populations overall. It seems especially problematic
14 to adopt a rate design that harms low-income customers who rely on electricity to heat
15 their homes.

⁹ Prazak Direct, p. 17-18.

1
2
3

Figure 2
Comparison of Monthly Residential Service (Section 9.01) Customer Usage
(2016 Usage Data)



4

3. Distributed Generation and Energy Efficiency

5

6 Q. DOES OTP'S PROPOSED CUSTOMER CHARGE ACT AS A DISINCENTIVE TO
7 CONSERVATION?

8 A. No. As discussed in my Direct Testimony, OTP's proposed fixed charges do not harm
9 *efficient* conservation initiatives.¹⁰

10

11 Q. DOES DR. DISMUKES CONSIDER THE EFFICIENCY OF CONSERVATION
12 ACTIVITIES?

13 A. No. Dr. Dismukes takes the position that reducing the volumetric portion of the bill is
14 inherently negative because it reduces economic incentives to control monthly utility bills
15 through energy efficiency and conservation efforts.¹¹

¹⁰ Prazak Direct, p. 21-22.

¹¹ Dismukes Direct, p. 64.

1 Q. DO YOU BELIEVE DR. DISMUKES’S POSITION IS CONSISTENT WITH SOUND
2 PUBLIC POLICY?

3 A. No. Again, as discussed in my Direct Testimony,¹² conservation at any cost is not
4 consistent with public policy. If it was, energy charges should be at an unrealistically
5 high level above marginal costs (e.g. \$100.00 / kWh), which would have a significant
6 conservation signal, but would result in significant harm to those customers that derive a
7 lot of value from the efficient use of electricity. But we know this simplistic view does
8 not guide the rate design process; rather, a number of factors are considered, including,
9 but not limited to, economically efficient conservation. Ultimately, conservation is best
10 achieved through smart, targeted conservation programs like OTP’s Water Heating –
11 Controlled Service Rider that provide cost effective benefits to all customers.¹³
12

13 Q. HAS STAFF PREVIOUSLY RECOGNIZED THE IMPORTANCE OF ALIGNING
14 THE FIXED COST OF SERVICE WITH FIXED RATES?

15 A. Yes. In Case No. PU-12-813, Staff and Xcel Energy executed a Revised Second
16 Amended Comprehensive Settlement Agreement that “implement[ed] a framework to
17 reflect North Dakota’s energy policy priorities as expressed by the Commission.”¹⁴ That
18 framework included an agreement as to monthly customer charges:

19 The Parties believe it would be prudent to make significant steps toward
20 better matching of the fixed costs of providing electric service with fixed
21 rates. Assigning fixed electric customer service costs (costs that are not
22 driven by electric usage, such as metering and billing) to the fixed
23 monthly Customer Charge is consistent with the bills that customers are
24 familiar with when paying for other services. The Parties agree, therefore,
25 to replace the four distinct Customer Charges for non-time of day
26 residential electric service (regular overhead, overhead space heating,
27 regular underground, and underground space heating) with a single,
28 common Customer Charge of \$14.00. The Small General Service
29 Customer Charge will be set at \$16.00. This will reduce the amounts of
30 customer-related fixed costs recovered through the Energy Charge. The
31 Energy Charges for the various residential and small general service rate

¹² Prazak Direct, p. 21-22.

¹³ Prazak Direct, p. 22.

¹⁴ Case No. PU-12-813, Revised Second Amended Comprehensive Settlement Agreement, p. 2 (Feb. 25, 2014).

1 codes will be reduced accordingly, such that the overall class increase is
2 appropriately derived.¹⁵
3

4 The Commission approved this agreement on February 26, 2014, noting the
5 proposed rate design was reasonable.¹⁶
6

7 Q. DID CASE NO. PU-12-813 RESULT IN CUSTOMER CHARGES BEING SET AT
8 APPROXIMATELY 100% OF THE FIXED COST OF SERVICE?

9 A. Yes. Xcel Energy identified its (embedded) customer-related cost as being \$14.08 /
10 month.¹⁷
11

12 Q. WHAT IS THE EMBEDDED CUSTOMER-RELATED COST FOR THE
13 RESIDENTIAL CLASS IN DR. DISMUKES'S ALTERNATIVE CCROSS?

14 A. As shown in Dr. Dismukes's response to OTP information request ND-OTP-100, a copy
15 of which is included as Exhibit__(DGP-3), Schedule 2, embedded customer-related
16 costs for the Residential class are \$16.09 / month under Dr. Dismukes's class cost of
17 service study. If the same methodology from Case No. 12-813 is applied to OTP's rates,
18 the customer charges would be significantly higher than what OTP has proposed because
19 embedded customer-related costs are higher than marginal customer-related costs. I also
20 note that Dr. Dismukes proposal to set the customer charge at 55% of his calculation of
21 embedded customer-related costs is entirely inconsistent with the resolution of Case No.
22 PU-12-813 that it is prudent to make significant steps toward better matching of the fixed
23 costs of providing electric service with fixed rates. Even Dr. Dismukes acknowledges his
24 recommendation is not consistent with fixed charges for electric utilities.¹⁸

¹⁵ Case No. PU-12-813, Revised Second Amended Comprehensive Settlement Agreement, p. 26 (Feb. 25, 2014).
The \$14.00 residential customer charge was an increase from Xcel Energy's then existing weighted average
customer charge of \$10.07. The \$16.00 Small General Service customer charge was an increase from Xcel Energy's
then existing customer charge of \$12.00. Case No. PU-12-813, Huso Direct, p. 8 (Dec. 18, 2012).

¹⁶ Case No. PU-12-813, Order Adopting Settlement, p. 7 (Feb. 26, 2014).

¹⁷ Case No. PU-12-813, Huso Rebuttal, p. 6 (Aug. 12, 2013).

¹⁸ Dismukes Direct, p. 77-78.

1 Q. DOES ALIGNING THE FIXED COST OF SERVICE WITH FIXED RATES ALSO
2 IMPACT THE ECONOMICS OF DISTRIBUTED GENERATION?

3 A. Yes. Several states, including Nevada, California and Arizona, have experienced
4 problems when distributed generation expanded rapidly, in part, because of miss-aligned
5 rates. Dr. Dismukes appears to recognize this issue, though he apparently sees
6 misalignment as a virtue of his proposal.¹⁹

7
8 Q. IS THERE EVIDENCE THAT INCREASED ADOPTION OF DISTRIBUTED
9 GENERATION COULD NEGATIVELY IMPACT LOW-INCOME CUSTOMERS?

10 A. Yes. Research shows that distributed generation is predominately adopted by higher-
11 income customers.²⁰ If these patterns hold into the future and rates are not properly
12 aligned, it means lower-income customers will bear a relatively larger burden of the cost
13 of service.

14
15 Q. ARE THERE OTHER CONSEQUENCES OF MISALIGNED RATES?

16 A. Yes. When discussing distributed generation, it is important to remember that the issue is
17 how customers' needs are going to be met: through the utility system or with distributed
18 resources. If rates are not properly aligned, customers are artificially incentivized to meet
19 their needs with distributed generation, ultimately increasing the overall cost of providing
20 service to all customers.²¹ Rates should be designed so as to not artificially favor one
21 generating technology over another or one group of customers (distributed generators)
22 over others.

¹⁹ Dismukes Direct, p. 66.

²⁰ James A. Mueller and Amit Ronen, *Bridging the Solar Income Gap*, p. 2 (Jan. 2015), available at https://solar.gwu.edu/sites/g/files/zaxdzs2391/f/image/GWSI-Bridging%20the%20Solar%20Income%20Gap%20Working%20Paper_0.pdf
Kevela Analytics, *Income Distribution of Rooftop Solar Customers*, p. 1-3 (Nov. 2015), available at <https://kevalaanalyticsstaging.blog/wp-content/uploads/2015/11/Kevala-CA-Residential-Solar-Income-Analysis-011116a.pdf>

²¹ This would constitute uneconomic bypass, an outcome Dr. Dismukes states should be avoided. Dismukes Direct, p. 60.

1 Q. WHAT IS NORTH DAKOTA’S POLICY REGARDING SOLAR RESOURCES?
2 A. North Dakota’s energy policy focuses on commercial scale solar, as noted in Dr.
3 Dismukes’s response to ND-OTP-103, which is included as Exhibit___(DGP-3),
4 Schedule 3. This is further confirmation that Dr. Dismukes recommendation is not
5 consistent with North Dakota energy policy.

6 **4. Rate Continuity**

7 Q. PLEASE DESCRIBE DR. DISMUKES’S RATE CONTINUITY ARGUMENT.
8 A. Dr. Dismukes contends that because OTP has not filed a rate case since 2008, “it is
9 highly likely that ratepayers have become accustom to a relatively stable set of electric
10 rates since they have not changed in close to a decade.”²²

11
12 Q. DID DR. DISMUKES PROVIDE ANY SUPPORT FOR HIS ASSESSMENT OF OTP’S
13 RATEPAYERS?

14 A. No.

15
16 Q. IS DR. DISMUKES’S POSITION CONSISTENT WITH THE HISTORY OF OTP’S
17 RATE CHANGES IN NORTH DAKOTA?

18 A. No. OTP’s 2008 Rate Case (Case No. PU-08-862) was OTP’s first rate case since 1983.
19 Yet, even with rate design having been in place for approximately 25 years, the
20 Commission approved increases in all customer charges that exceed those recommended
21 by Dr. Dismukes.²³ Additionally, in the outcome of OTP’s 2008 Rate Case, rate
22 structures were improved to reflect seasonality, time differentiation, and separation of
23 facility charges from demand charges. Dr. Dismukes contention regarding rate continuity
24 should be rejected.²⁴

²² Dismukes Direct, p. 62.

²³ See Case No. PU-08-862, Order on Settlement (Nov. 25, 2009). For example, Residential customer charges increased by 42% and 69% depending on customer location.

²⁴ Dismukes Direct, p. 62-63.

1 **5. Distribution Costs**

2 Q. DOES OTP RECOVER DISTRIBUTION COSTS FROM COMMERCIAL AND
3 INDUSTRIAL CUSTOMERS THROUGH FIXED MONTHLY CHARGES?

4 A. No. As discussed in my Direct Testimony, OTP is proposing to set virtually all customer
5 charges at approximately 100% of marginal customer-related costs.²⁵ Marginal customer-
6 related costs are those that vary with the number of customers on the system and do not
7 include distribution costs.²⁶ Our current and proposed rates for the General Service and
8 Large General Service classes (including all rate classes) include facilities charges that
9 vary by the size of the customer and by voltage level. We are therefore in agreement
10 with Mr. Schedin on this topic.²⁷

11 **B. Intra-LGS Class Revenue Allocation [MLEC-Maini]**

12 Q. PLEASE DESCRIBE MS. MAINI’S REVENUE ALLOCATION PROPOSAL.

13 A. Ms. Maini focused her proposal on two of the six LGS rate sub classes. Ms. Maini states
14 the rate increase for the LGS Primary class should be lower compared to the LGS
15 Secondary class because the Company’s Equal Percent Marginal Cost (EPMC) analysis
16 shows that the LGS Primary sub class is more efficient than the LGS Secondary sub
17 class.

18
19 Q. DO YOU AGREE WITH MS. MAINI’S RECOMMENDED REVENUE
20 ALLOCATION PROPOSAL?

21 A. Yes. Ms. Maini’s recommended intra-LGS revenue allocation, as shown in her Table 9, is
22 a reasonable refinement of our original proposal.²⁸

²⁵ Prazak Direct, p. 14, Table 4.

²⁶ Prazak Direct, p. 12-13.

²⁷ Schedin Direct, p. 9 (“Also, distribution costs are size related and properly expressed in \$ per kW-mos. rather than fixed monthly charges.”).

²⁸ Maini Direct, p. 9.

1 **C. Individual Rate Proposals**

2 Q. WHAT DO YOU ADDRESS IN THIS SUBSECTION OF YOUR REBUTTAL
3 TESTIMONY?

4 A. I address the comments provided by parties on the components of each individual rate.
5

6 Q. ARE THERE OVER-ARCHING THEMES IN THE COMMENTS ON EACH RATE
7 PROPOSAL THAT ARE ADDRESSED ELSEWHERE?

8 A. Yes. I address parties' positions on fixed charges in Section III.A., above. Also, Ms.
9 Nieto addresses those comments that relate to the MCOSS and its use in designing rates.
10 Ultimately, parties positions on fixed charges and the MCOSS do not justify their
11 recommendations and are not reasons reject OTP's proposed rate design.

12 **1. Residential Class [Staff-Dismukes]**

13 Q. DO YOU AGREE WITH DR. DISMUKES'S RECOMMENDED RESIDENTIAL (9.01)
14 RATE DESIGN?

15 A. No. Dr. Dismukes Residential rate design flows from his views regarding customer
16 charges, which, as discussed above, are based upon a departure from cost-based
17 ratemaking and North Dakota policy. His positions on customer charges for the
18 Residential class are not supported by his own data and his rate design harms, rather than
19 helps low-income Residential customers.

20 A significant component of Dr. Dismukes criticism rests on his claims that OTP's
21 MCOSS is not reliable for ratemaking. Dr. Dismukes is incorrect. The MCOSS was
22 prepared using the same general methodology as was used in OTP's last North Dakota
23 rate case (Case No. PU-08-862) and in OTP's other jurisdictions. Further, Ms. Nieto
24 explains Dr. Dismukes criticisms of OTP's MCOSS are unfounded.

25 Dr. Dismukes acknowledges OTP's proposal to remove declining block rates but
26 does not make a recommendation to retain or remove. OTP's 2008 Rate Case Direct
27 Testimony proposed removing declining blocks. Later OTP agreed to diminish the

1 differential for gradualism purposes and to propose a removal in our next case.²⁹

2 Dr. Dismukes Residential rate design should be rejected.

3
4 Q. DO YOU AGREE WITH DR. DISMUKES'S RECOMMENDED RESIDENTIAL
5 CONTROLLED DEMAND (9.02) RATE DESIGN?

6 A. No. Dr. Dismukes agrees with OTP's proposed Residential Controlled Demand (RDC)
7 customer charges, but does not support OTP's proposed demand charges.³⁰

8
9 Q. WHY ARE OTP'S PROPOSED RDC DEMAND CHARGES APPROPRIATE?

10 A. Dr. Dismukes fails to acknowledge OTP's system peaks in the winter, while MISO peaks
11 in the summer. Reducing usage at both times has value and an equal demand charge
12 sends that signal to customers. Dr. Dismukes correctly identifies our other proposed rate
13 structures move toward alignment with the MISO Module E resource planning
14 requirements, except for the RDC demand charges. The reason for this approach is two-
15 fold. First, this rate provides the greatest interruptible benefits in the winter, due to the
16 high penetration of electric heating. In order to preserve this interruptible resource rate
17 class, the demand charges are set equal because the coincident demand charge
18 measurement occurs in the winter, not in the summer, and is used for the demand charge
19 in the summer. Second, because the current MISO Module E resource planning
20 requirements are expected to change in the near future, the rate is in transition. Because
21 of the expected near-term changes in the MISO Model E construct, OTP believes setting
22 the demand charge in this manner is a form of gradualism, and an important signal to
23 customers their coincident demand levels achieved in the winter are applied in the
24 summer

²⁹ Case No. PU-08-862, Staff Memorandum in Support of Settlement Agreement, p. 10-11 (July 23, 2009).

³⁰ Dismukes Direct, p. 79.

1 **2. Farm [Staff-Dismukes]**

2 Q. DO YOU AGREE WITH DR. DISMUKES’S RECOMMENDED FARM SERVICE
3 (9.03) RATE DESIGN?

4 A. No. Dr. Dismukes’s recommended rate design is based on his faulty recommendation
5 regarding customer charges. His recommendation falls short of the movement toward
6 costs for the customer charge, and even further away from the energy charges.

7 **3. General Service [Staff-Dismukes]**

8 Q. DO YOU AGREE WITH DR. DISMUKES’S RECOMMENDED SMALL GENERAL
9 SERVICE (10.01) RATE DESIGN?

10 A. No. Dr. Dismukes’s recommended rate design is based on his faulty recommendation
11 regarding customer charges. Similar to the Farm Service, his recommendation falls short
12 of the movement toward costs for the customer charge, and even further away from the
13 energy charges.

14
15 Q. DO YOU AGREE WITH DR. DISMUKES’S RECOMMENDED GENERAL SERVICE
16 (10.02) RATE DESIGN?

17 A. No.
18

19 Q. PLEASE EXPLAIN THE COST DIFFERENTIAL BETWEEN PRIMARY AND
20 SECONDARY SERVICE.

21 A. In a MCOSS, the cost differential between primary and secondary service is given by
22 additional and different types of delivery equipment and losses. Primary service is at a
23 higher voltage (further upstream from the customer) than secondary (closer to the
24 customer). Secondary customers require additional poles, electrical line, and secondary
25 line transformers, all of which increases facility costs for these customers as well as
26 losses.

1 Q. WHY IS THE MCOSS THE APPROPRIATE MEASURE OF THE COST
2 DIFFERENTIAL BETWEEN PRIMARY AND SECONDARY SERVICE?

3 A. The MCOSS calculates the marginal cost difference between these two service voltages.
4 It allows setting the appropriate price signals for both new and existing customers,
5 associated with the cost of adding load at primary voltage versus at secondary voltage,
6 and/or shifting load from primary to the secondary network and vice versa.

7
8 Q. WHY IS IT APPROPRIATE TO REFLECT THE PRIMARY/SECONDARY
9 DISTINCTION IN RATE 10.02 AND NOT RATE 10.01?

10 A. Small customers utilizing Rate 10.01 are much less likely to own their own service drop,
11 transformer and line extension to the Company's primary voltage level facilities than
12 larger 10.02 customers.

13
14 Q. DO YOU AGREE WITH DR. DISMUKES'S RECOMMENDED GENERAL
15 SERVICE-TIME OF USE (10.03) RATE DESIGN?

16 A. No. Dr. Dismukes proposal retains marginal cost-based time differentiated structures
17 from our last rate case and ignores the benefits of adjusting these important price signals
18 as developed in the MCOSS.

19 **4. Large General Service Rate Proposal [MLEC-Maini; Staff-Dismukes;**
20 **Walmart-Chriss]**

21 Q. DOES MR. CHRISS OPPOSE OTP'S LARGE GENERAL SERVICE RATE DESIGN?

22 A No, he does not.³¹

23

24 Q. DO YOU AGREE WITH DR. DISMUKES'S RECOMMENDED LARGE GENERAL
25 SERVICE RATE DESIGN?

26 A. No. Dr. Dismukes provides no justification for his recommendation other than
27 disagreement with the MCOSS and how it was applied.³² Ms. Nieto explains why Dr.

³¹ Chriss Direct p. 22.

³² Dismukes Direct, p. 83.

1 Dismukes’s criticisms of the MCOSS should be disregarded in this proceeding. Without
2 further justification, his recommendation should be given no weight.

3
4 Q. DO YOU AGREE WITH MS. MAINI’S RECOMMENDED ADJUSTMENTS TO THE
5 LGS CLASS RATE DESIGN?

6 A. Yes, I conditionally agree with Ms. Maini’s refined adjustments to the LGS Secondary
7 and Primary rate classes as long as the LGS TOD rate classes will be adjusted to achieve
8 revenue neutrality upon final revenue requirements, and the sum of the on, shoulder and
9 off-peak demand charges reflect marginal costs and sum to the final LGS demand
10 charges.

11 **5. Irrigation Service [Staff-Dismukes]**

12 Q. DO YOU AGREE WITH DR. DISMUKES’S RECOMMENDED IRRIGATION
13 SERVICE (11.02) RATE DESIGN?

14 A. No. Dr. Dismukes proposal retains marginal cost-based time differentiated structures
15 from our last rate case and ignores the benefits of adjusting these important price signals
16 as developed in the MCOSS

17
18 Q. WHAT DO THE PEAK PERIODS OF THE IRRIGATION CLASS HAVE TO DO
19 WITH CUSTOMER CHARGES?

20 A. Nothing.³³ Customer-related costs are not dependent on when Irrigation usage is the
21 highest; rather, Irrigation customer-related costs, like all customer-related costs, are the
22 costs of services that are *unrelated* to usage. Dr. Dismukes appears to make this statement
23 as a red herring intended to obscure the fact his entire criticism is dependent on
24 disagreement with the MCOSS – disagreement, which Ms. Nieto explains is unfounded.

³³ Dismukes Direct, p. 84.

1 **6. Other Public Authority [Staff-Dismukes]**

2 Q. DO YOU AGREE WITH DR. DISMUKES’S RECOMMENDED MUNICIPAL
3 PUMPING SERVICE (11.05) RATE DESIGN?

4 A. No. Our proposal to increase customer charges and move from fixed facility charges to
5 \$/kW facilities charges provides greater equity among this rate class by introducing more
6 cost causation for customer costs and of varying size of load. Currently all customers pay
7 the same customer, facility and energy charges. Our proposal will improve customer
8 equity by charging customers how they utilize the system.

9
10 Q. DO YOU AGREE WITH DR. DISMUKES’S RECOMMENDED CIVIL DEFENSE –
11 FIRE SIREN SERVICE (11.06) RATE DESIGN?

12 A. No. OTP’s proposal provides a rate increase for customer charges and collects the
13 remaining revenue requirement from the horsepower (energy) rate.

14 **D. Other Rate Design Issues**

15 **1. Super Large General Service Rate Proposal [MLEC-Maini; Staff-
16 Dismukes]**

17 Q. PLEASE SUMMARIZE THE POSITIONS OF MS. MAINI AND DR. DISMUKES.

18 A. Ms. Maini makes three comments regarding the Company’s SLGS proposal. She
19 recommends an initial cap³⁴ that is tied to the excess capacity the Company expects to
20 have and an initial contract term of 10 years. Lastly, Ms. Maini generally believes the
21 Company would not likely require a SLGS rate if it would design its other rates closely
22 aligned with a proper CCOSS.³⁵

23 Dr. Dismukes notes two deficiencies of the OTP SLGS proposal. He believes the
24 prospective customer must quantify any economic benefits before receiving a discount
25 and the use of the MCCOSS in developing the SLGS rate.³⁶

³⁴ OTP assumes Ms. Maini reference to a “cap” means the use of the SLGS rate would be initially limited to available company-owned excess generation. OTP requests Ms. Maini to provide a definition of the “cap” proposal in the record.

³⁵ Maini Direct, p. 31-32.

³⁶ Dismukes Direct, p. 110.

1 Q. DO YOU AGREE WITH MS. MAINI AND DR. DISMUKES?

2 A. No, I do not.

3

4 Q. PLEASE DISCUSS THE COMMENTS FROM MS. MAINI.

5 A. My understanding of Ms. Maini's cap proposal is to initially limit the amount of available
6 capacity for eligible customers to OTP's surplus capacity after the Company builds the
7 proposed Astoria plant, which is scheduled to be online by 2021.³⁷ Her proposal
8 essentially puts the SLGS proposal on hold until the Astoria plant is on-line and removes
9 any potential for OTP to add net benefits to North Dakota ratepayers for a successful
10 SLGS candidate. These limitations do not appear to be pro-business and are not akin to
11 the North Dakota Department of Commerce efforts³⁸ to bring top companies to North
12 Dakota. Today, OTP is willing and able to utilize current excess and purchase capacity
13 (and energy) to serve eligible SLGS customers.

14 Next, Ms. Maini recommends a 10-year initial term. OTP's proposed SLGS term
15 is at least 5 years.³⁹ OTP views a 10-year term as unnecessarily limiting because any term
16 needs to be approved by the Commission.

17 Finally, Ms. Maini provides a general comment that if rates were closely aligned
18 with a proper CCOSS, OTP's SLGS proposal would not likely be needed. Even if rates
19 were aligned as suggested by Ms. Maini, that should not preclude OTP from being as
20 competitive as it can be to attract and grow its business to further serve its customers.
21 Both the SLGS and Economic Development Rider⁴⁰ provide the ability for OTP to
22 accomplish this.

23

24 Q. PLEASE DISCUSS THE COMMENTS FROM DR. DISMUKES.

25 A. My understanding of Dr. Dismukes's requirement⁴¹ is for the prospective customer to
26 quantify any economic benefits in order to demonstrate to OTP and its ratepayers they

³⁷ <https://www.otpc.com/about-us/how-we-generate-electricity/natural-gas/>.

³⁸ <https://www.business.nd.gov/about/>.

³⁹ Section 10.06, Terms and Conditions, Item 4.

⁴⁰ Case No. PU-17-238, filed May 31, 2017.

⁴¹ Dismukes Direct, p. 110.

1 will increase economic activity in the area. OTP agrees with Dr. Dismukes, to the extent
2 economic benefits must be greater than economic costs. OTP’s view is this – the most
3 important economic activity is the prospective customer meeting the purpose and scope
4 of SLGS rate schedule: namely providing net benefits to customer and communities
5 served by OTP. OTP does not believe additional “itemized” economic indicators on
6 prospective customers are necessary to produce acceptable net benefits to OTP and its
7 ratepayers.

8 Second, Dr. Dismukes asserts, but does not identify, a potential conflict between
9 the SLGS and the Economic Development Rider.⁴² Both rate offerings have a similar
10 basis – providing OTP the ability to be competitive and attract businesses that provide
11 benefits to OTP, its communities and customers.

12 Third, Dr. Dismukes continues to assert OTP’s MCOSS model is flawed.⁴³ Ms.
13 Nieto addresses Dr. Dismukes assertion.

14 Lastly, Dr. Dismukes states the SLGS does not provide a penalty for customers
15 who would fail to meet the minimum specified requirements.⁴⁴ Granted, OTP did not
16 outright propose a penalty in the sense of a specific dollar amount within the SLGS rate.
17 On the contrary, OTP purposely designed the rate for customers who do not meet the
18 criteria to be moved to the most applicable rate schedule. This approach makes it
19 abundantly clear to the prospective SLGS customer that they shall meet the criteria to
20 obtain and maintain service on the SLGS rate. Movement to another applicable
21 Commission-approved rate will, all else being equal, increase revenues and margins to
22 the Company, and/or provide potential interruptible benefits which will also benefit
23 customers.

24 **2. Residential Time-of-Day Pilot Proposal [Staff-Dismukes]**

25 Q. PLEASE SUMMARIZE THE POSITIONS OF DR. DISMUKES.

26 A. Dr. Dismukes recommends the Commission reject OTP’s proposed Residential Time-of-
27 Day (TOD) Pilot due to lack of definitive evidence and because the Residential TOD

⁴² Dismukes Direct, p. 111.

⁴³ Dismukes Direct, p. 113.

⁴⁴ Dismukes Direct, p. 116.

1 Pilot is based upon OTP’s MCOSS.⁴⁵ Dr. Dismukes further adds that if the Commission
2 accepts the proposal, OTP should provide a pilot results report six months after its
3 conclusion, and that the Company’s proposed meter fee removal be omitted.⁴⁶
4

5 Q. DO YOU AGREE WITH THE POSITIONS OF DR. DISMUKES REGARDING THE
6 RESIDENTIAL TOD PILOT PROPOSAL?

7 A. Not entirely. I find the term “definitive evidence”⁴⁷ unclear and not useful for critiquing a
8 pilot program that is designed with Company load research data and to be revenue neutral
9 to the standard Residential rate. Dr. Dismukes criticism of OTP’s MCOSS is being
10 addressed by Ms. Nieto.

11 Regarding Dr. Dismukes rejection of our proposal to charge a \$20 removal fee, he
12 failed to mention the removal charge would only occur after a 3-month trial period. We
13 believe customers should sign up and be fully engaged in the 2-year pilot. If customers
14 are not able to be engaged in the first 3 months, they have the ability to move to an
15 applicable rate schedule without the proposed fee.

16 And finally, Dr. Dismukes recommends filing the results of the Pilot program
17 within 6 months of its conclusion. His recommendation is reasonable.

18 **3. LED Street and Area Lighting Proposal [Staff-Dismukes]**

19 Q. PLEASE SUMMARIZE THE POSITION OF DR. DISMUKES.

20 A. Dr. Dismukes supports approval of the Company’s LED offering, but recommends
21 keeping the current outdoor lighting offerings open to all customers. He believes no
22 customers should be forced to take LED service, primarily due to cost.⁴⁸

⁴⁵ Dismukes Direct, p. 4.

⁴⁶ Dismukes Direct, p. 91-92.

⁴⁷ Dismukes Direct, p. 104.

⁴⁸ Dismukes Direct, p. 104.

1 Q. DO YOU AGREE WITH THE POSITIONS OF DR. DISMUKES REGARDING THE
2 LED STREET AND AREA LIGHTING PROPOSAL?

3 A. No. Despite his support for approving the Company's LED proposal, I disagree with Dr.
4 Dismukes's recommendation of continuing of the current outdoor lighting tariff and the
5 offered fixtures because of the rising expense of these fixtures and their declining
6 availability. The transition to state of the art LED lighting as proposed is reasonable, per
7 the benefits I describe in my Direct Testimony.⁴⁹

8

9 Q. ARE OTP'S LED FIXTURE PROPOSALS COST BASED?

10 A. Yes.

11

12 Q. DID OTP PERFORM A LED COST OF SERVICE ANALYSIS?

13 A. Yes. Our cost of service analysis was based on 2017 costs. Since OTP does not have a
14 material amount of LED fixtures in its territory, the analysis could only be an analysis of
15 most recent costs, i.e. marginal cost, not one from an embedded approach.

16

17 Q. WHAT WOULD HAPPEN IF OTP CONTINUED TO OFFER LED & NON-LED
18 LIGHTS?

19 A. The largest concern would be to identify and secure a supply chain that would continue to
20 supply non-LED lighting fixtures etc. on a similar cost basis that aligns with the non-
21 LED rates. Because of this, we believe our proposed transition is reasonable for both
22 customers and the Company.

23 **4. Air Conditioning Rider Proposal [Staff-Dismukes]**

24 Q. PLEASE SUMMARIZE THE POSITION OF DR. DISMUKES.

25 A. Dr. Dismukes supports the Company's Air Conditioning Control Rider for Commercial
26 customers, which is based on the results of the MCOSS.⁵⁰

⁴⁹ Prazak Direct, p. 65.

⁵⁰ Dismukes Direct, p. 103.

1 **IV. CONCLUSION**

2 Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.

3 A. My Rebuttal Testimony has addressed the parties' issues related to customer fixed
4 charges, low income equity and concerns, intra-LGS class revenue, including revised and
5 new individual rate proposals. OTP continues to be consistent with prior cases and North
6 Dakota policy, developed rate designs that are based on marginal costs, which promote
7 efficient use of resources and ultimately provides OTP a reasonable opportunity to
8 achieve its revenue requirement, and provided meaningful consideration to bill impacts
9 and gradualism, to improve and expand our service offerings. OTP's proposals should be
10 approved because our proposals are based on sound economic theory, aligned with
11 Commission policy, and are reasonable for our customers.

12
13 Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

14 A. Yes.

Average Montly Usage - Low-Income Customers ¹	
January	1,993
February	1,810
March	1,598
April	1,303
May	976
June	801
July	805
August	874
September	841
October	800
November	1,014
December	1,510

Proposed Rates				
	OTP		Dismukes	
	Summer	Winter	Summer	Winter
Customer Charge	\$15.23	\$15.23	\$8.85	\$8.85
Energy Charge – Tier 1	\$0.08155	\$0.06255	\$0.10833	\$0.10088
Energy Charge – Tier 2	N/A	N/A	\$0.10833	\$0.09202

Annual Bill						
	OTP			Dismukes		
	Summer	Winter	Total	Summer	Winter	Total
Customer Charge	\$60.92	\$121.84	\$182.76	\$35.40	\$70.80	\$106.20
Energy Charge	\$270.83	\$688.30	\$959.13	\$359.76	\$1,081.48	\$1,441.25
<i>Total</i>			<i>\$1,141.89</i>			<i>\$1,547.45</i>

Notes

1. Prazak Direct, Figure 1

OTTER TAIL POWER COMPANY

Case No: PU-17-398

ATTN: Matthew J. Olsen, Manager,
Regulatory Proceedings and Compliance
215 South Cascade Street
PO Box 496
Fergus Falls MN 56538-0496
molsen@otpc.com

Requested From: North Dakota Public Service Commission
Requested By: Matthew J. Olsen, Manager, Regulatory Proceedings and Compliance - 218-739-8657
Date of Request: 05/23/2018
Response Due Date: 06/07/2018

If you feel your responses are trade secret or privileged, please indicate this on your response.

OTP Information Request No.: ND-OTP-100

Please refer to the Direct Testimony and schedules of Dr. David E. Dismukes. Please provide a version of DED-13 that reflects Dr. Dismukes's Alternative CCOSS.

RESPONSE:

Please refer to the attached excel file ND-OTP-100 Comparison of Customer Related Costs-Alternative CCOSS Results Final CONFIDENTIAL.xlsx.

Response by Dr. David E. Dismukes
Title _____
Department _____
Telephone _____
Date of Response _____

Analysis of Company Customer-Related Costs-Alternative CCOSS

	Residential	Farm Service	General Service	Large General Service	Irrigation	Outdoor Lighting	OPA	Controlled Water Heating	Controlled Service Interrupt	Controlled Service Deferred
<u>Customer-Related Costs per Company CCOSS</u>										
Total Customer-Related Costs	\$8,919,550	\$227,252	\$3,140,870	\$99,536	\$14,674	\$20,423	\$127,428	\$323,579	\$487,766	\$74,865
Average Number of	46,204	937	11,164	261	35	82	554	35	246	39
Monthly Customer-Related Costs/Customer	\$16.09	\$20.21	\$23.44	\$31.78	\$34.94	\$20.76	\$19.17	\$770.43	\$165.23	\$159.97
Customer Charge Revenues	\$ 4,975,773	\$ 160,541	\$ 1,848,558	\$ 138,625	\$ 893	\$ 2,281	\$ 28,532	\$ 68,012	\$ 198,502	\$ 28,544
Monthly Customer Charge Revenue/Customer	\$ 8.97	\$ 14.28	\$ 13.80	\$ 44.26	\$ 2.13	\$ 2.32	\$ 4.29	\$ 161.93	\$ 67.24	\$ 60.99
Relationship of Customer Charge Revenues to Customer-Related Costs	56%	71%	59%	139%	6%	11%	22%	21%	41%	38%

Source: Alternative CCOSS Results; Company's Exhibit DGP-1, Schedule E-2.

Prepared by: JAM 5/10/18
 Checked by: TEM 5/11/2018

OTTER TAIL POWER COMPANY

Case No: PU-17-398

ATTN: Matthew J. Olsen, Manager,
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Date of Request: 05/23/2018
Response Due Date: 06/07/2018

If you feel your responses are trade secret or privileged, please indicate this on your response.

OTP Information Request No.: ND-OTP-103

Please refer to the Direct Testimony and schedules of Dr. David E. Dismukes. Please provide copies of North Dakota Public Service Commission Orders indicating that it is the policy of the State of North Dakota to use rate design to promote distributed generation.

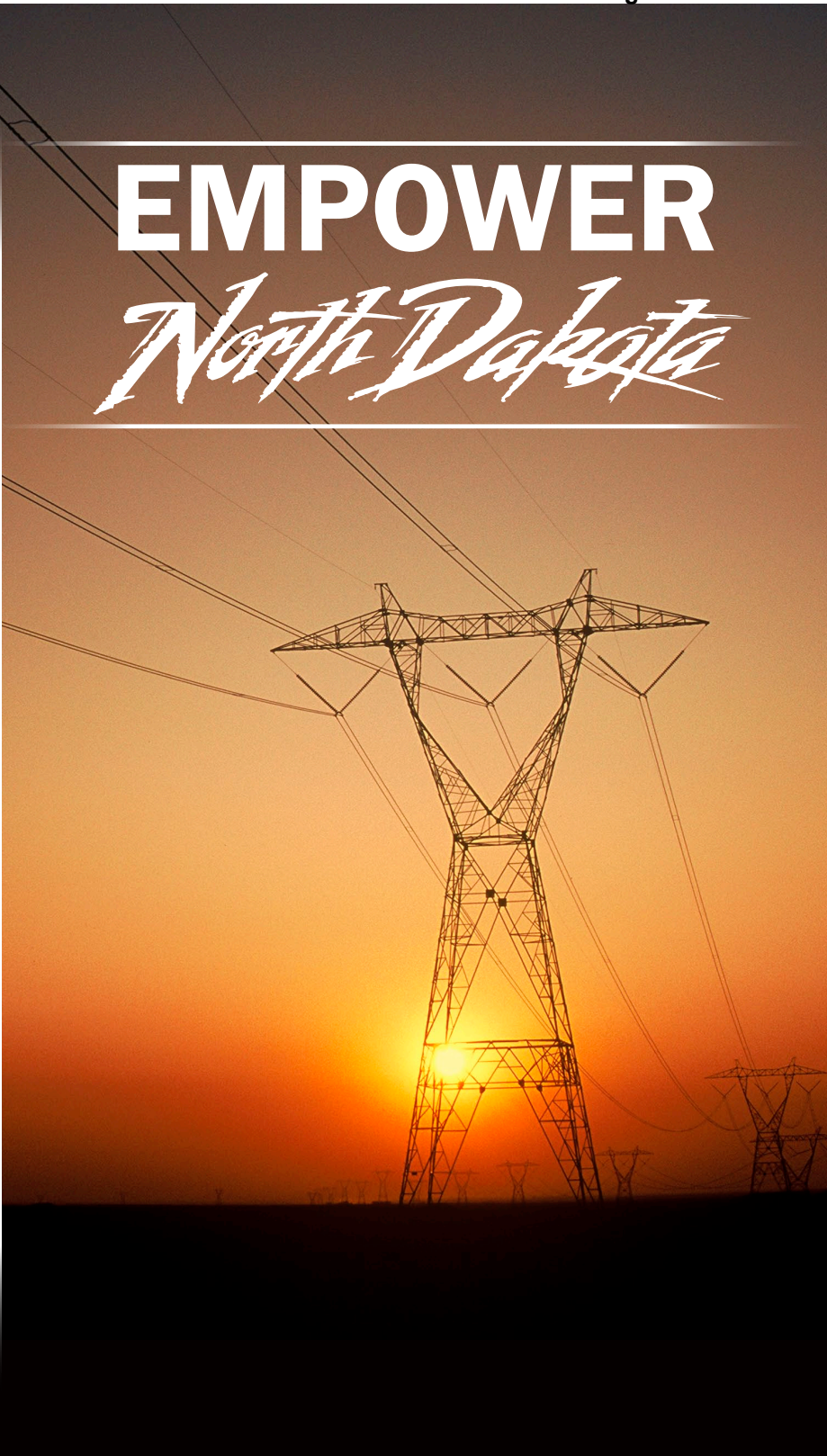
RESPONSE:

Dr. Dismukes is not aware of any North Dakota Commission orders that indicate a policy to use rate design to promote distributed generation. However, Dr. Dismukes is aware that the state of North Dakota has implemented an energy policy entitled “EmPower North Dakota”, which has been attached as Attachment ND-OTP-103 EmPower North Dakota. The EmPower North Dakota energy policy provides details on overall state energy goals including to further support the development of wind, biomass, and solar generation in the state. The Commission appears to have acknowledged this state goal in its 2010 approval of Otter Tail’s Renewable Resource Cost Recovery Adjustment Factor where the Commission found that “Otter Tail Power has responded appropriately to the desires of the North Dakota legislature encouraging investment in energy conversion facilities in North Dakota.” (See Attachment ND-OTP-103 Case No. PU-10-18). Designing rates that promote and encourage the development of distributed energy resources by commercial and residential customers will assist in meeting State energy goals as outlined in the EmPower North Dakota plan.

Response by Dr. David E. Dismukes
Title _____
Department _____
Telephone _____
Date of Response _____

EMPOWER

North Dakota



COMPREHENSIVE STATE ENERGY POLICY

2010-2025



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EXECUTIVE SUMMARY

North Dakota is poised to be a model for America in the development of innovative, long-term energy resources to meet our nation's growing demand for energy produced in a clean, environmentally friendly, and sustainable way.

North Dakota's energy resources are more diverse than any other state in the nation. North Dakota:

- ✦ Is home to the largest deposit of lignite coal in the world.
- ✦ Is the fourth largest oil-producing state in the nation.
- ✦ Is the top producer of 14 different agricultural commodities.
- ✦ Has great wind energy potential.
- ✦ Boasts the nation's only National Center for Hydrogen Technology and National Energy Center of Excellence.
- ✦ Has a university system with world-class energy research and training programs.
- ✦ Has a positive business climate and fair regulatory environment for energy development.
- ✦ Has a talented workforce with a strong work ethic.

Recognizing the incredible potential of these energy assets, in 2001 Gov. John Hoeven initiated the development of the state's first multi-resource state energy policy as part of his statewide economic development strategy.

The foundation of the governor's energy policy has been to grow North Dakota's diverse energy resources in tandem. State policy makers have promoted growth in this industry by creating an attractive business climate, providing targeted incentives for each energy sector, and investing in research and development to generate new ideas and technologies for the future.



A New Approach

Partnerships between traditional energy industries and the emerging renewable industries are a central component of North Dakota's approach to energy development. This strategy recognizes that meeting our nation's long-term energy needs in an environmentally and sustainable way requires all players in the energy industry to be engaged and successful.

Examples abound of these partnerships at work in North Dakota. Blue Flint Ethanol joined forces with Great River Energy to use waste energy from a coal-fired power plant to produce ethanol. There is potential for North Dakota oil companies to use captured CO₂ from facilities such as coal-fired power plants, coal gasification and liquefaction facilities, and ethanol plants to enhance oil recovery.

North Dakota's broad-based energy policies have helped trigger more than \$12 billion in new energy-related investments since 2005.

- ♦ In May 2010, oil production hit an all-time record high of nearly 291,000 barrels per day. At the same time there were 4,905 producing wells, another all-time record.
- ♦ As of May 2010, North Dakota had five ethanol plants with a rated capacity of 350 million gallons of ethanol per year.
- ♦ Wind production capacity is greater than 1,200 megawatts with another 6,000 megawatts in planning.
- ♦ Three major projects are under construction or being planned as a result of the state's Lignite Vision 21 program. Construction is underway on a combined-use energy plant in Spiritwood and planning is occurring for a coal-to-hydrogen plant near South Heart and a coal liquefaction facility in McLean County.
- ♦ Great River Energy recently completed a coal-drying system at its Coal Creek Station power plant that will significantly increase the efficiency of lignite and reduce emissions.
- ♦ Basin Electric is undertaking a major CO₂ capture and sequestration front end engineering and design study in North Dakota at its Antelope Valley Station.
- ♦ Thirteen natural gas processing plants are operating in western North Dakota, located near Arnegard, Ambrose, Killdeer, Knudson, Lignite, Marmarth, Midway, New Town, Ray, Rhame, Stanley, Tioga, and Trotters.
- ♦ From 2006 to 2010, natural gas processing companies have more than doubled their ability to turn North Dakota's valuable natural gas resources into a safe and clean energy source for America.
- ♦ Crude oil transporters have proposed and planned new expansion projects that will increase takeaway capacity from the United States Williston Basin to meet oil production forecasts.
- ♦ A feasibility study regarding a potential biomass supply for the Spiritwood Energy Park has been completed.
- ♦ More than 150 blender pumps have been or are being installed statewide.



In 2007, the North Dakota Legislature approved legislation to formalize energy policy development. Gov. John Hoeven appointed the 14-member EmPower ND Commission, which includes representatives from all sectors of the energy industry. Shane Goettle, Commissioner of Commerce, chairs the commission.

The commission conducted work on its first EmPower ND policy prior to the 2009 Legislative session. This provided the framework for strategic policy changes

and initiatives that have helped drive substantial growth throughout the state's energy sector.

The 2009 Legislature also extended the work of the EmPower ND Commission, making it a permanent policy development body in the state (North Dakota Century Code Chapter 17-07). The commission met throughout 2010 and re-examined every energy sector. The findings provide the substance for this updated EmPower ND Comprehensive State Energy Policy.

EmPower ND Commission Members



Chairman
 Shane Goettle,
Commissioner of Commerce



Refining Industry
 Ron Day,
Tesoro



Agriculture Industry
 Terry Goerger,
Farmer



Petroleum Marketers
 Mike Rud,
North Dakota Petroleum Marketers Association



Biodiesel Industry
 Eric Mack,
Archer Daniels Midland



Oil and Gas Industry
 Ron Ness,
North Dakota Petroleum Council



Generation/Transmission Electric Coops
 Curtis Jabs,
Basin Electric Power Cooperative



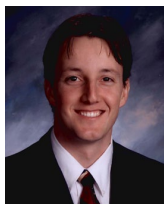
Wind Industry
 Mark Nisbet,
Xcel Energy



Ethanol Industry
 Randy Schneider,
North Dakota Ethanol Producer's Association



Investor-Owned Utilities
 Andrea Stomberg,
MDU



Lignite Coal Industry
 David Straley,
North American Coal Corporation



Transmission
 Sandi Tabor,
North Dakota Transmission Authority



Biomass Industry
 John Weeda,
Great River Energy



Ex officio member
 Chuck MacFarlane,
Ottertail Power Company



EMPOWER ND GOALS

The EmPower ND Energy Policy includes 20 goals, 51 policy statements and 98 action items. The policy offers a balanced approach to encourage growth in all energy sectors. It strongly supports research and development of cleaner technologies and includes energy efficiency initiatives and environmentally friendly policies and practices.

In this document, the EmPower ND Commission outlines 51 policy statements that reflect positions the state needs to take in order to achieve these 20 energy goals. Action items provide a roadmap for getting there and include items that require immediate attention, issues that should be addressed in the next legislative session and long-term initiatives that may require further policy development and/or study. The EmPower ND Commission also makes recommendations for actions at the federal level that will require attention from our state's Congressional delegation.

Overall Goals

1. Double North Dakota's energy production from all sources by the year 2025 in an environmentally friendly way to drive economic growth and help the nation achieve greater energy independence. (Baseline figure 2007)
2. Support the nation's 25 X 25 initiative to derive at least 25 percent of all energy produced in America from renewable sources by 2025.
3. Provide a fair and responsible regulatory environment that promotes energy development.

Wind

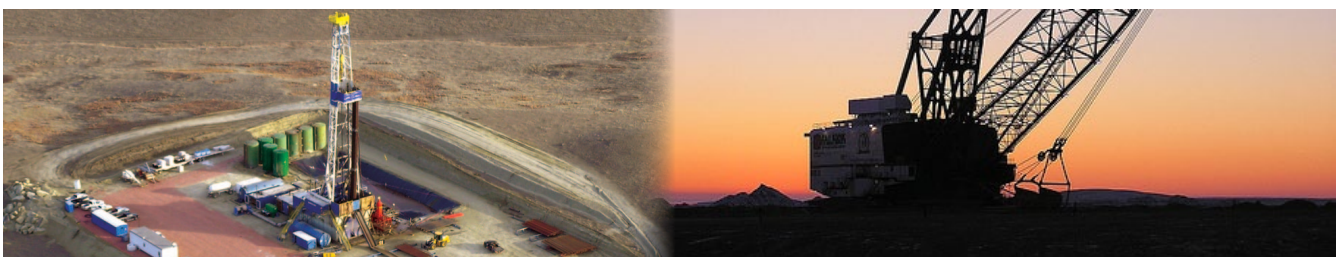
4. Develop an export market to increase installed capacity of wind generation to 5,000 megawatts by 2020 conditioned upon a prior commensurate increase in North Dakota transmission export capacity and cost-effective and equitable allocation of the associated cost to North Dakota customers.

Transmission

5. Increase North Dakota's energy export capacity to 7,500 megawatts in coordination with other states and regional planning entities to facilitate permitting, construction and upgrading transmission systems by 2020 provided acceptable cost allocation methodology is developed and approved by FERC.

Lignite and Coal Conversion Facilities

6. Support the retrofit of existing electric generation units in an economically feasible manner to meet new environmental standards.
7. Build clean-coal electric generation plants in North Dakota.
8. Build lignite gasification and liquefaction facilities in North Dakota to produce synthetic natural gas, lignite-to-liquid fuels, hydrogen, and other chemicals and co-products.



Ethanol

9. Produce 450 million gallons of ethanol by 2015 and develop in-state and out-of-state markets for ethanol and associated co-products while continuing to provide a healthy business environment for existing facilities.

Biodiesel

10. Promote the retention and expansion of existing production facilities while working to expand the industry in the state with new facilities by the year 2015. Develop in-state and out-of-state markets for biodiesel while continuing to provide a healthy business environment for all biodiesel facilities.

Biomass

11. Develop commercial biomass production and use in North Dakota and become a national leader in the development of economically viable, production-scale cellulosic ethanol production facilities.

Energy Efficiency

12. Increase energy efficiency in North Dakota through education and promotion of energy savings best practices and programs, as well as conservation measures.

Refining

13. Encourage the development of economically feasible oil refining and processing projects in North Dakota.

Natural Gas Processing

14. Expand oil and gas gathering, processing, and export capacity infrastructure to minimize flaring while ensuring industry has adequate time to evaluate and plan infrastructure needs.

Oil and Gas

15. Provide a responsible regulatory environment that promotes oil and gas development and maintains the industry's ability to access resources.

Petroleum Marketing

16. Support the marketing of transportation fuels based on consumer demand.

Solar, Geothermal, Hydrogen and Hydropower

17. Support commercial-scale research and development programs for solar, geothermal, hydrogen, hydropower, pumped storage and other alternative energy resources.

Workforce

18. Train more students for energy industry and energy research jobs by building stronger connections between industry and education and improving awareness of energy career opportunities among teachers and career counselors.

19. Attract a sufficient number of workers to fill energy-related jobs due to retirements, attrition and growth within the industry.

Infrastructure

20. Ensure adequate water, power, and infrastructure for energy development and for the communities in which energy development exists.



OVERALL POLICY GOALS AND INITIATIVES

Goal: Double North Dakota's energy production from all sources by the year 2025 in an environmentally friendly way to drive economic growth and help the nation achieve greater energy independence. (Baseline figure 2007)

Policy: Ensure adequate resources for state agencies directly involved in energy development including the Department of Health, the Department of Mineral Resources, and the Public Service Commission.

- ♦ Determine the requirement for additional resources needed and communicate that to the Legislature.

Policy: Encourage state and federal policies that ensure the state business climate is predictable and stable.

- ♦ Avoid laws and regulations that place new barriers on investment and development.
- ♦ Enact and preserve state laws and regulations that facilitate investment and avoid uncertainty.
- ♦ (Federal) Structure federal energy policy on a long-term versus short-term basis.
- ♦ (Federal) Encourage Congress to base any legislation impacting North Dakota's energy industries on sound science and sound economics.

- ♦ (Federal) Provide sufficient lead time for industry to adapt to new statutory requirements and regulatory standards affecting production or products.

Goal: Support the nation's 25 X 25 initiative to derive at least 25 percent of all energy produced in America from renewable sources by 2025.

Policy: Educate the people of North Dakota and their representatives on the impact of the state's energy industry.

- ♦ Develop aggregate impacts of each sector and the industry as a whole to serve as an education, marketing and recruitment tool for North Dakota.

Policy: The EmPower ND Commission does not support state energy mandates.

Goal: Provide a fair and responsible regulatory environment that promotes energy development.

Policy: Maintain state and federal laws that encourage responsible energy development.





ENERGY FACT: North Dakota's wind resources are among the most abundant in the nation.

Accomplishments:

In the last eight years, North Dakota's wind generation capacity has grown to 1,200 megawatts, with another 6,000 megawatts in the planning stage. State policies have helped drive this growth, including a comprehensive package of tax incentives. Several of the EmPower Commission's wind policy recommendations were approved in the 2009 session including:

- Improving siting standards for transmission lines to encourage growth of transmission infrastructure. Today, North Dakota has one of the most progressive policies in the nation.
- Legislation to allow for taxation of wind farms based on installed capacity and production.
- Improvements to the tax structure and extension of some key tax credits.

Opportunities:

North Dakota's wind resources have been documented as the most abundant in the nation. Advantages for growing this industry include:

- Wind offers an unlimited energy source.
- North Dakota is home to experienced manufacturers of wind generation equipment and has the potential to expand this manufacturing niche.
- North Dakota has experienced wind farm construction companies.
- Opportunities exist to form diverse coalitions by combining wind development with other energy or economic development projects.
- The state has a comprehensive package of attractive incentives.
- Spin-off industries offer potential for industrial growth and new jobs.

Challenges:

Despite all the opportunities and strengths of wind energy development, the industry faces investment hurdles, transmission and export challenges, and questions concerning the economic viability of the industry without government support. Other challenges include:

- Potential resistance from landowners to large-scale wind development threatens the availability of suitable locations.
- There is a short window of opportunity (three to four years) to take advantage of market conditions to secure a wind generation equipment manufacturing base in North Dakota.
- The resource is variable and difficult to store, which creates challenges for dispatching.
- The long distance to markets where demand is strong requires costly high-voltage transmission infrastructure, which is challenged by current cost allocation and economic business models.
- Inconsistent federal incentives affect the demand and development rate.
- A number of complicated siting issues exist including: aesthetics, environmental impacts, equity among landowners, microwave corridors, migratory bird flyways and cultural issues.

Goal: Develop an export market to increase installed capacity of wind generation to 5,000 megawatts by 2020 conditioned upon a prior commensurate increase in North Dakota transmission export capacity and cost-effective and equitable allocation of the associated cost to North Dakota customers that:

- Maintains grid stability.
- Preserves affordability for North Dakota electric rate payers.
- Maintains and expands opportunities for North Dakota lignite coal and natural gas industries, including offering base-load, peaking, and other services for large-scale export of energy.

Policy: Maintain a fair regulatory environment for wind development that encourages companies to transform the state's extensive wind resources into energy in a way that protects the state's scenic beauty and the rights of property owners.

- Develop separate provisions in the North Dakota Century Code for siting commercial-scale wind facilities.

Policy: Maximize the availability of research and development funding to be a leader in cutting edge wind harnessing and storage technology.

- Support sufficient funding for the Industrial Commission Renewable Energy Program to leverage private sector dollars for wind research and development.
- Support applied technology research efforts for storage technology.

Policy: Maintain existing federal and state incentives to encourage investment in renewable wind resources that can play a vital role in addressing our nation's energy needs.

- Study the use and effectiveness of existing incentives and the costs associated with proposed tax incentives.
- Make permanent the sales and use tax exemptions for building materials, production equipment, and other tangible personal property used in the construction of a wind-powered facility. Current exemption sunsets in 2015.
- (Federal) Support the extension of the wind energy production tax credit.



TRANSMISSION

TRANSMISSION

ENERGY FACT: Constructing new high voltage transmission facilities is estimated to cost \$1 million per mile.

Accomplishments:

Gov. John Hoeven and the 2005 state Legislature created a North Dakota Transmission Authority to promote new investments in transmission lines. To incentivize construction, the state also offers property tax exemptions for new or expanded-capacity electric transmission lines. There are 250 miles of transmission either under construction or recently completed at an estimated investment of \$81.8 million. Overall, the estimated investment in planned, under construction, and completed transmission projects is \$463 million.

Opportunities:

Despite the significant needs and challenges surrounding the transmission in our state and nation, North Dakota has some positive factors working in its favor.

- The state has a reliable and adequate transmission system for serving current load.
- A favorable regulatory environment, favorable terrain for new transmission lines, and reasonable landowners are conducive to the construction of new transmission lines.
- Renewable Energy Portfolio Standards in neighboring states are increasing demand.
- The state has the capability to fund projects through tax-exempt bonds.

Challenges:

Exporting additional energy demands enhancements and/or expansion of transmission systems across a complicated network of multijurisdictional authorities including North Dakota, South Dakota, Montana, Minnesota, and Wisconsin. Challenges include:

- Renewable energy development is occurring in areas with limited access to markets.
- Strategies for addressing the intermittent and largely uncontrollable nature of wind generation are evolving.
- Cost recovery for transmission expansion is in flux.
- Renewable project developers must consider the cost or timing of interconnection to transmission infrastructure.

- The presence of two independent transmission systems increases the complexity of the transfer of electricity.
- Access to Western Interconnection load centers is extremely limited.
- Public policy in other states may inhibit the ability to build new transmission facilities.

Goal: Increase North Dakota's energy export capacity to 7,500 megawatts in coordination with other states and regional planning entities to facilitate permitting, construction, and upgrading transmission systems by 2020 provided acceptable cost allocation methodology is developed and approved by the Federal Energy Regulatory Commission (FERC).

Policy: The Transmission Authority will facilitate and coordinate new transmission initiatives to benefit North Dakota.

- The Transmission Authority will continue to take an active role in working with regional transmission owners, state and federal regulatory agencies and regional transmission operators.
- The Transmission Authority will assess the value of any regional transmission initiative and support those that will actually benefit North Dakota.
- The Transmission Authority will continue to participate in regional and national transmission planning initiatives.
- *(Federal)* The state needs to encourage Congress to support a tax exempt status for revenue bonds issued by the North Dakota Transmission Authority.

Policy: The Transmission Authority shall serve as a resource to help state policy makers understand transmission issues, including cost allocation, planning, and impacts on system reliability.

- The Transmission Authority will continue to work with regional transmission owners, state and federal regulatory agencies, and regional transmission operators on cost allocation and planning issues.
- The Transmission Authority should encourage cooperation between energy producers and transmission owners about the future of transmission.



LIGNITE AND COAL CONVERSION FACILITIES

ENERGY FACT: North Dakota has an 800-year supply of lignite reserves.

Accomplishments:

North Dakota's lignite industry is an innovative and vital part of the state's economy. Three major projects are under construction or being planned as a result of the state's Lignite Vision 21 program. These include a combined-use energy plant in Spiritwood, a coal-to-hydrogen plant near South Heart, and a coal liquefaction facility in McLean County. Other innovative projects include:

- Great River Energy recently completed a coal-drying system at its Coal Creek Station power plant that will significantly increase the efficiency of lignite and reduce emissions.
- Basin Electric is undertaking a major CO₂ capture and sequestration front end engineering and design study in North Dakota at its Antelope Valley Station.

During the 2009 Legislative session, lawmakers approved six of the EmPower ND Commission's lignite policy recommendations. These include:

- Making permanent the tertiary extraction tax exemption for any projects using CO₂ for enhanced oil recovery.
- Long-term sequestration proposals developed by the North Dakota CO₂ Storage Workgroup.
- Legislation to clarify the definition of coal in statute and to amend the current coal severance tax exemption to include beneficiated coal.
- Legislation to address tax issues for repowering generation facilities due to new environmental changes.

In addition, the North Dakota Tax Department completed an evaluation of the traditional tax framework for lignite and electric generation projects, which was another recommendation of the EmPowerND Commission.

Opportunities:

North Dakota has an 800-year supply of lignite reserves, the largest in the world, offering an economical and reliable domestic source of energy and fuel.

- The industry has a positive environmental record and history of developing clean coal technologies.
- Research and development (beneficiated coal, CO₂ sequestration, saline aquifer storage, etc.) is reducing the environmental footprint, improving efficiency, and creating new uses for lignite and its byproducts.
- The North Dakota Transmission Authority, North Dakota Pipeline Authority, the Lignite Research Council (public-private partnership) and cooperation between lignite and oil and gas industries provide unlimited potential for collaboration and innovation.
- Geologic formations in North Dakota offer strategic advantages for CO₂ storage and are a short distance from CO₂ producers.
- Enhanced oil recovery offers a strong, in-state market for captured CO₂.

- The public and political leaders support CO₂ research and development.
- Progress is being made on CO₂ management and joint projects through Plains CO₂ Reduction Partnership (PCOR).
- Favorable tax incentives, proactive state CO₂ regulations, favorable state regulatory environment, and cooperative state officials create a positive environment for business.

Challenges:

North Dakota's lignite industry faces pressures from environmental and emission standards that will increase costs and jeopardize existing and future coal-based power generation.

- North Dakota lignite has low BTU value and high moisture content resulting in higher CO₂ emissions per kilowatt hour than higher grade coals.
- The timing of climate change legislation is not synchronized with the availability of technology to meet the new standards.
- North Dakota has limited growth for in-state electric demand.
- Construction of new coal-powered plants or retrofitting of existing plants is expensive and subject to legal challenges.
- The federal regulatory environment is focusing on significantly more stringent air quality standards and the elimination of coal-based generation.
- The Environmental Protection Agency (EPA) is considering regulating coal combustion byproducts as hazardous waste.
- Production costs will increase due to parasitic power requirements associated with pollution control technology.
- CO₂ capture and storage technologies for power generation are not mature or ready for commercial deployment and the cost to sequester, transport or capture are significant.
- Commercially viable and economically feasible technologies to capture CO₂ are lacking as are infrastructure to transport it and federal CO₂ sequestration regulations.
- The public is uninformed about CO₂ uses and the risks and potential liabilities of long-term storage are unknown.



LIGNITE AND COAL CONVERSION FACILITIES

Goal: Support the retrofit of existing electric generation units in an economically feasible manner to meet new environmental standards.

Goal: Build clean-coal electric generation plants in North Dakota.

Goal: Build lignite gasification and liquefaction facilities in North Dakota to produce synthetic natural gas, lignite-to-liquid fuels, hydrogen, and other chemicals and co-products.

Policy: Promote public education on energy policy including CO₂ sequestration.

- Incorporate the tools already created by the Energy and Environmental Research Center (EERC).

Policy: Federal environmental regulation and federal legislation should be based on sound science and the capacity of current technology.

- The state, through the state Department of Health, should support reasonable federal air quality standards.
- (Federal) Encourage Congress to oppose any cap and trade legislation that fails to recognize the need to time the implementation of law with the development of cost-effective and deployable CO₂ capture and sequestration technology.
- (Federal) Encourage Congress to support pre-emption of EPA, state and local regulation of CO₂ emissions.
- (Federal) Encourage Congress to support equitable funding for each coal type to encourage research, development, demonstration, and deployment of CO₂ capture and sequestration technologies.
- (Federal) Support allocating federal funds derived from climate legislation to clean coal technology development.
- (Federal) Encourage the passage of federal legislation requiring the federal government to assume long-term stewardship of CO₂ sequestration projects.

- (Federal) Encourage the EPA to adopt rules allowing the states to regulate coal combustion byproducts as nonhazardous wastes.

Policy: Promote the balanced development of power generation in the state.

- The impact of the state's wind generation goal on existing base-load generation should be evaluated.

Policy: Support legislation for programs that encourage the long-term sequestration of CO₂.

- Support efforts of PCOR to expedite research efforts on the long-term impacts associated with CO₂ sequestration.
- Continue to engage political leaders in other states in discussions regarding the regional economic impact of generation standards on the North Dakota lignite industry and consumers of lignite-based electric generation.
- (Federal) Support a regional demonstration approach to CO₂ sequestration that can help prove the viability of CO₂ sequestration across multiple states.

Policy: Incorporate coal-to-liquids and other emerging technologies into the tax code.

- Ensure the coal conversion tax addresses hybrid plants (plants that may be comprised of more than one type of coal conversion facility).
- Initiate legislation to provide tax certainty for new facilities using new technologies. Current statutes need to clarify how new processes will be taxed so they can build business plans and provide a clear financial picture to potential investors.



ETHANOL

ENERGY FACT: North Dakota has 42,000 flexible fuel vehicles, a nearly 50 percent increase since 2008.

Accomplishments:

As of May 2010, North Dakota has five ethanol plants with a rated capacity of 350 million gallons of ethanol per year. One of the key state initiatives encouraging growth of this industry is the state's Counter-Cyclical Ethanol Production Incentive, which was created in 2003. The state also supports a Biofuels PACE program, which provides interest buy-down for ethanol and biodiesel facilities, livestock operations, renewable fuel pumps, and grain storage.

In the 2009 session, the Legislature approved ethanol policy recommendations advanced by the EmPower Commission. These include:

- Cost-sharing grants for fuel marketers to install blender pumps.
- An ethanol check-off program to fund the North Dakota Ethanol Utilization Council.

Opportunities:

As the first widely used renewable fuel in the United States, ethanol has created sufficient critical mass to contribute to the energy security of the United States. Advantages for producing ethanol in North Dakota are:

- North Dakota has more than 42,000 flex fuel vehicles. Automakers are looking at providing a wider range and higher concentrations of flex fuel vehicles in their production fleet.
- The Federal Renewable Fuel Standards requiring the production of 36 billion gallons of biofuels by 2022 will provide strong demand for ethanol produced by current North Dakota ethanol plants as well as those under construction.
- State incentives encourage ethanol production, development and diversification.
- Distribution innovations within the industry promise to increase the sale and use of ethanol. These include higher blends of ethanol fuels (E-15, E-20, E-30, E-50, and E-85) and the installation of blender pumps that allow gas stations to blend and sell directly at the pump.
- Through research partnerships with the North Dakota University System and other state entities, facilities are becoming more innovative in producing co-products that provide opportunities for high-value spin-off industries.

- Diversification of feedstock to the ethanol production process promises to lead to additional ethanol production in the state from non-traditional feedstocks.

Challenges:

In order to take advantage of these opportunities, the ethanol industry faces a number of ongoing challenges both in North Dakota and globally.

- Existing pipeline infrastructure makes it difficult for ethanol to be transported, so ethanol producers in North Dakota and throughout the Midwest struggle to move their product to urban population centers that offer the greatest market potential.
- Potential new ethanol pipelines in the Midwest are too great a distance from North Dakota and will put the local ethanol industry at a logistical disadvantage.
- The federal government does not currently provide effective support for improving the blending and distribution infrastructure.
- Uncertainty of feedstock supply is a challenge facing the future of cellulosic production.
- Public education is needed to improve understanding of the ethanol industry and ethanol's use.



ETHANOL

Goal: Produce 450 million gallons of ethanol by 2015 and develop both in-state and out-of-state markets for ethanol and associated co-products while continuing to provide a healthy business environment for existing facilities.

Policy: Maintain a balanced package of incentives and policies to remain a competitive and attractive location for ethanol production.

- Maintain continuing appropriations and support for the state's innovative Counter-Cyclical Ethanol Production Incentive program that helps producers during adverse times.

Policy: Support initiatives to improve the marketing, distribution and use of ethanol.

- Support efforts to educate the public on the use of mid-level ethanol blends.
- *(Federal)* Support the Renewable Fuels Reinvestment Act (RFRA) that provides needed long-term extensions for major federal tax incentives.
- *(Federal)* Support extension of the Volumetric Ethanol Excise Tax Credit (VEETC) of 45 cents per gallon available to oil and gas refiners for each gallon of ethanol blended, which is set to expire the end of 2010.
- *(Federal)* Support streamlining the certification process for flex fuel vehicle conversion kits.

Policy: Examine and improve state and federal programs for developing infrastructure to transport and blend ethanol.

- Support studying and improving the state's transportation infrastructure to maintain high quality roadways for transporting feedstock, ethanol and co-products.
- *(Federal)* Encourage the building of blending facilities across the nation to significantly expand the markets for selling ethanol in population-dense areas.
- *(Federal)* Support federal research and tax policy to improve the transportation of ethanol via pipeline and ensure that North Dakota secures access to ethanol pipelines.

Policy: Support research to improve the use of ethanol co-products.

- Support increased research into potential products derived from ethanol co-products.
- Study the permitting process for livestock feeding facilities to evaluate ways to streamline it and consider ways to expand the use of ethanol co-products as a feedstock.

Policy: Support research for ethanol production technology and feedstocks development.



BIODIESEL

ENERGY FACT: A wide variety of feedstocks will position the state as a leading producer of biodiesel.

Accomplishments:

State funding through the Centers of Excellence initiative has fostered a partnership between NDSU and Monsanto to increase acreage and oil content of canola. The release of these new canola lines in the near future will expand acreage and yields, increasing the available feedstock for biodiesel production in North Dakota.

Investments from the Renewable Energy Development Fund have enabled the Energy and Environmental Research Center to develop a bio-based diesel with traits identical to petroleum-based diesel. This has enabled the development of a demonstration plant hosted by Tesoro and allows Tesoro to consider placing this renewable fuel directly in its pipeline for export. The Biofuels PACE Program remains available as a financing incentive for new biofuel production facilities in North Dakota.

Opportunities:

- Biodiesel (B100) is an environmentally friendly fuel with a favorable carbon foot print, lowering GHG emissions by 78 percent.
- Biodiesel reduces dependence on high-priced foreign crude oil and offers opportunities for international trade.
- Consumers support the availability of domestically made fuels.
- Federal Renewable Fuel standard RFS2 will increase demand.
- BQ 9000, the National Biodiesel Accreditation program, will help improve consistency.
- Engine manufacturers accept and warranty biodiesel blends in their engines.
- North Dakota has good business venture support programs.
- Biodiesel projects offer value-added agriculture opportunities in rural areas and can help stabilize the economics of production agriculture.
- New diesel technology is bringing increased efficiency for diesel engines, which may increase diesel engine use.
- Biodiesel is the only domestically produced advanced biofuel recognized by the EPA.

- North Dakota is an excellent feedstock supplier. The state leads the nation in canola production and three North Dakota counties are the top soybean producing counties in the nation.
- The availability of high-value co-products can help build North Dakota's livestock and feed industry.

Challenges:

- Lack of adequate distribution and blending infrastructure exists.
- More education of cold temperature flow issues and storage properties is needed.
- Existing production capacity is under used.
- Production and tax incentives in other states are attractive to potential investors.
- The lack of a North Dakota certified lab may restrict small biodiesel plants from being ASTM compliant.
- Meeting the industry quality standard of ASTM D6751 is imperative as is BQ 9000 approved biodiesel.
- The North Dakota market for meal co-product is small.
- Federal incentives offer a short-term guarantee.



BIODIESEL

Goal: Promote the retention and expansion of existing production facilities while working to expand the industry in the state with new facilities by the year 2015. Develop in-state and out-of-state markets for biodiesel while continuing to provide a healthy business environment for all biodiesel facilities.

Policy: Improve tax policy and incentives for producing, blending and transporting biodiesel.

- Initiate a Tax Department analysis of the use of biodiesel tax credits to determine their effectiveness.
- Evaluate and develop alternative incentive programs instead of income tax credits to support infrastructure for blending, transport, retail, and production facilities.
- Continue the sales tax exemption on biodiesel equipment.
- Consider developing a Biodiesel Counter-Cyclical Production Incentive, similar to the Ethanol Counter-Cyclical Production Incentive, to provide a safety net for producers.
- Consider developing a state production incentive program structured to encourage new biodiesel facilities, such as a fixed production incentive on the first 30 million gallons of biodiesel produced annually for the first five years of production of ASTM-quality biodiesel.
- *(Federal)* Lengthen the time-span on federal incentives to provide long-term security for investors in the industry. Support the long-term continuation of the blender/producer tax credit at the federal level and the continuation of the Commodity Credit Corporation program in the farm bill.

Policy: Increase the use of biodiesel in North Dakota to an average of 5 percent of total diesel used per year by 2015 through market development and state consumer incentives with the support of a federal blender/producer tax credit.

- Consider a temporary reduction or temporary elimination of state taxes on biodiesel blends sold in North Dakota to lower the cost to consumers and encourage more consumption of biodiesel blends.
- Continue to fund the blender pump promotion program in North Dakota to assist petroleum retailers in having biodiesel blends available throughout the state.



BIOMASS



ENERGY FACT: North Dakota's climate and soil are suitable for producing energy crops such as perennial grasses. An Oak Ridge National Laboratory study identified North Dakota as having the greatest potential for dedicated energy crops and crop residues.

Accomplishments:

The state has developed programs to support renewable energy research. The Bank of North Dakota has established a Biofuels PACE program to help finance potential biomass projects. During the 2007-2009 biennium, the Legislature appropriated \$2 million to the Industrial Commission for biomass research and approved a \$3 million Renewable Energy Development Fund to be administered by the Industrial Commission that could be used to fund biomass research.

During the 2009-2011 biennium, the Legislature combined these two programs into one Renewable Energy Development Fund with \$3 million in funding. During the 2007-2009 biennium, two biomass projects were completed: a feasibility study of the biomass supply for the Spiritwood Energy Park and an NDSU study titled "Developing a Biomaterials Industry in North Dakota." Ongoing biomass projects currently being funded by the Industrial Commission include:

- Evaluation of North Dakota perennial herbaceous biomass crops
- A biomass enhanced refined lignite demonstration project
- Development of a biomass testing laboratory at NDSU

Opportunities:

North Dakota is the top producer of 14 different commodities and has been identified as having the greatest potential resource for switch grass and other dedicated energy crops. These natural resources offer an opportunity for biomass development. Other advantages include:

- Federal energy policy mandates production of 16 billion gallons of cellulosic-based ethanol by 2022 as well as programs promoting green power and carbon neutral or renewable fuel premiums.
- North Dakota offers a favorable regulatory environment for energy development.
- Land suitable for biomass crops is available in abundance in North Dakota.
- North Dakota has an excellent research and development base for developing new biomass crop and fuel technologies, including demonstration projects.
- North Dakota's lignite power plants and extensive lignite resources offer opportunities for co-firing/co-generation that can significantly improve the economics of biomass.
- A diverse package of state and federal incentives for biomass development exists.
- Biomass offers value-added agriculture opportunities for rural areas that can help expand businesses, create jobs, grow population, and expand the tax base.
- Biomass crops offer environmental and economic advantages including low input costs, suitability for marginal land and CRP, and the creation of wildlife habitat.
- The public along with political and conservation groups support biomass development.
- The negative carbon footprint of perennial grasses creates the possibility to sell carbon credits for those using biomass.

Challenges:

- Biomass is not currently cost-competitive with other alternatives such as fossil fuels and therefore lacks a market.
- Current economics do not support the significant infrastructure investments required for biomass including transmission for electrical production, pipelines for liquid fuels, roads, and year-round facilities for storing low-density biomass in remote rural areas.
- Significant technological advancements are necessary to make biomass fuel production economically feasible.
- State and federal incentives are limited and the private sector is not currently investing in the research necessary to develop biomass technology.
- North Dakota has a short growing season, dry climate, inhospitable climate for trees, and is a long distance to major markets.
- Premium lands are needed for higher return food crops forcing biomass crops to marginal lands.
- Biomass faces stiff competition in North Dakota from a broad array of other renewable and non-renewable energy resources.

Goal: Develop commercial biomass production and use in North Dakota and become a national leader in the development of economically viable, production-scale cellulosic ethanol production facilities.

Policy: Support increased funding for state and federal biomass research and development programs.

- Encourage market studies on the development possibilities of biomass.
- *(Federal and State)* Continue federal and state programs that promote renewable energy development and renewable fuels.
- *(Federal and State)* Support federal and state funding for basic and applied research on biomass feedstock and conversion technology.

Policy: Support policies aimed at improving the long-term economic feasibility of biomass production.

- Examine funding sources for a producer incentive program.
- Support continuation of sales tax reductions for value-added agriculture expenditures.
- Support continuation of Biofuels PACE.



ENERGY EFFICIENCY

ENERGY EFFICIENCY

ENERGY FACT: Energy efficiency is the most cost-effective method of reducing the environmental effect of energy production.

Accomplishments:

More than \$44 million in federal stimulus dollars have been invested in North Dakota to improve energy efficiency in homes, businesses, and public facilities. These initiatives include public education efforts, weatherizing approximately 4,000 homes, improving the efficiency of public buildings in 97 communities, and replacing 3,800 old refrigerators with newer, energy-efficient models.

Opportunities:

- Using energy efficiently is the most cost-effective method of protecting the environment and reducing energy costs for North Dakota families, farms, and businesses.
- Federal funding through the stimulus program has provided significant short-term funding to support energy efficiency programs and evaluate their cost effectiveness.
- Modifications in regulatory structure could remove disincentives for regulated utilities to pursue cost-effective energy efficiency actions.
- Vocational training programs see opportunity in incorporating energy efficiency practices and procedures into their curriculums.
- Existing measures at state facilities provide positive examples of energy efficiency benefits and allow state government to lead by example.

Challenges:

- Energy efficiency is not considered a high priority due to the state's abundant supply of relatively low-cost energy.
- The public is reluctant to accept some new energy efficiency measures particularly if the quality is not on par with their expectations (i.e. incandescent light bulbs).
- State funding for energy efficiency and low-income home weatherization programs could be enhanced.
- The upfront cost of energy efficiency measures to the customers can be high.
- North Dakota's low population density limits the effectiveness of mass transportation.
- Energy auditors are in short supply.

Goal: Increase energy efficiency in North Dakota through education and promotion of energy savings best practices and programs, as well as conservation measures.

Policy: Initiate state policies that encourage and increase energy efficiency.

- Incorporate energy provisions into the state building code.
- Encourage North Dakota state agencies and their employees to seek ways to improve energy efficiency.
- Support and promote the use of public transportation.
- Create a program to provide recognition to businesses that employ energy efficiency measures.

Policy: Create incentives and education programs that promote energy efficiency.

- Consider recommending that the Resources Trust Fund, originally created for water and energy conservation projects, be used to promote energy conservation while maintaining a priority for water projects.
- Support education programs to teach consumers how to save energy and consider providing financial incentives for businesses and individuals who adapt successful energy efficiency efforts.
- Promote energy efficiency education in high school and higher education construction programs.
- Encourage the Public Service Commission to approve energy efficiency programs that are cost effective and initiated by the utilities. The programs should include cost recovery and a return on investment comparable to supply-side investment.
- (Federal) Use federal funds as available to promote energy efficiency and increase federal energy efficiency incentives.

Policy: Support tax incentives to encourage the installation of commercial and residential geothermal HVAC systems.



REFINING

REFINING

ENERGY FACT: A study is being conducted to evaluate the economic viability of increased refining capacity in North Dakota.

Accomplishments:

Several refining projects have been initiated in recent years in North Dakota:

- Tesoro completed an expansion in 2010 to increase their capacity to manufacture low-sulfur diesel and to ensure reliability of gasoline production at its Mandan refinery. The refinery's current capacity is 60,000 barrels/day.
- American Lignite Energy, LLC is conducting a front end engineering and design (FEED) study on a 10.9 million barrels/year synthetic coal-to-liquid fuels facility.
- Three Affiliated Tribes, Makoti is considering a refinery that would produce 15,000 barrels per day of Canadian synthetic crude.
- Dakota Oil Processing, LLC near Williston is considering a 20,000 barrel per day diesel topping plant.

Challenges:

- Large economies of scale are necessary to be competitive and sustainable long term.
- Profit margins in refining are cyclical and historically tight due to high crude oil prices, volatility of the market, and costs associated with the refining process.
- Expansion of existing refining capacity beyond current capacity requires a substantial capital investment and the timeframes for developing new projects are lengthy.
- North Dakota currently produces more refined product than it consumes.
- Gasoline demand has dropped and is expected to remain flat as the United States moves to a diesel-driven market.
- Refining expansions are occurring in North Dakota's key export markets.
- Investors are cautious about investing in new projects because of uncertainty in the market and uncertainty in state and federal policies and mandates that significantly affect the market.

Goal: Encourage the development of economically feasible oil refining and processing projects in North Dakota.

Policy: The state's role in the development of future refining capacity through Industrial Commission programs is to cost-share in feasibility and FEED studies and to support and fund research and development.

- Continue sufficient funding for the Industrial Commission research programs.

Policy: Maintain North Dakota's existing tax and regulatory structure that supports refining growth.

- Continue the sales tax exemption for new or expanded refining capacity.
- Continue the sales tax exemption for environmental upgrades.

Policy: Support and assist in pipeline infrastructure development as needed through the North Dakota Pipeline Authority.



NATURAL GAS PROCESSING

NATURAL GAS PROCESSING

ENERGY FACT: During 2009, North Dakota produced 92.5 billion cubic feet of natural gas and processed 56.4 billion cubic feet of natural gas. This compares to 70.7 billion cubic feet produced in 2007.

Accomplishments:

More than \$400 million has been invested in natural gas pipelines and gathering systems in the last two years. As a result, 13 natural gas processing plants are operating in western North Dakota. Two more are being developed in Tioga and near Watford City. Both will create up to 100 long-term, high-tech jobs in rural North Dakota.

From 2006 to 2010, natural gas processing companies have more than doubled their ability to turn North Dakota's valuable natural gas resources into a safe and clean energy source for America. The Alliance Pipeline System transports North Dakota natural gas to local and distant markets, adding value to rich, high-quality Bakken and Three Forks natural gas that offers many co-product opportunities.

In 2009, the Legislature approved several EmPower ND Commission recommendations for natural gas processing including:

- Clarifying a sales tax exemption to include gas gathering systems from oil wells in order to eliminate flaring.
- Streamlining the permitting process for upgrading petroleum and natural gas pipelines.
- Increasing funding for the Oil and Gas Research Fund. A portion of those dollars is funding a project that will demonstrate the commercial viability of using otherwise wasted associated natural gas as fuel for on-site electrical power generation as an alternative to gas flaring.

Opportunities:

- North Dakota's natural gas production is increasing rapidly, creating new opportunities for investment.
- Bakken and Three Forks natural gas is a top-quality product with high natural gas liquids content, which creates many appealing investment opportunities for co-product development.
- Excess capacity on the export pipelines exists.
- Production growth has created interest in expanding existing and building new natural gas processing facilities.

- Eastern North Dakota contains shallow gas reservoirs that could have production potential.
- The industry has an excellent environmental record, is a significant tax payer, and offers good-paying jobs for highly skilled people in rural areas.
- A natural gas liquids pipeline will allow for the capture and sale of additional natural gas liquids (ethane).

Challenges:

- Rail car and truck services for NGL and sulfur take away are limited.
- Qualified operating personnel (mechanics, instrument techs, operators, etc.) are in short supply.
- Infrastructure and resources limitations:
 - No high-end ethane NGL pipeline infrastructure.
 - Limited pipeline/compressor capacities to sell additional natural gas volumes.
 - New equipment delivery delays.
- Low-volume natural gas wells cost too much to connect to existing pipelines.

Goal: Expand oil and gas gathering, processing, and export capacity infrastructure to minimize flaring while ensuring industry has adequate time to evaluate and plan infrastructure needs.

Policy: Continue to promote and provide tax incentives for shallow-well gas production.

- Encourage research and development through the Oil and Gas Research Council for shallow natural gas exploration and production in eastern North Dakota. Possibilities include connecting wells to ethanol plants, other commercial facilities, or communities or farms for use in heating homes or facilities.

Policy: Regulators and industry should conduct a study and develop short, medium, and long-range plans for gathering and processing natural gas in fields that have reached development stage.

- Appoint a task force to spearhead the study.
- Fund a study that culminates with a report to the Industrial Commission and the Legislature.



OIL AND GAS

ENERGY FACT: North Dakota is the fourth largest oil producing state. The Bakken and Three Forks formations have potentially recoverable reserves of 4 billion barrels of oil.

Accomplishments:

Oil exploration and extraction has exploded in western North Dakota in recent years. Rising prices and continued strong demand for domestic oil has helped drive this growth. State leaders have also helped fuel the growth with a number of key policies and incentives. These include:

- Reauthorizing a tax agreement with the Three Affiliated Tribes that provides business certainty and has spurred development on Fort Berthold Reservation.
- Creating the Oil and Gas Research Fund to stimulate the production and development of oil and gas in North Dakota.
- A tax exemption for the first two years on any new shallow natural gas well developed in North Dakota to stimulate the production of natural gas.
- An expanded tax incentive for tertiary recovery of oil and gas using CO₂ gas. The incentive provides a use and sales tax exemption for carbon dioxide that is used for enhanced oil recovery.
- Creating a pipeline authority to help private industry construct additional capacity to ship crude oil, natural gas, carbon dioxide ethanol, biodiesel and other energy products to market.
- Tax reductions for new horizontal drilling in the Bakken and Three Forks formations.
- Sales tax exemption for costs associated with gas gathering.
- Two studies, completed by the Industrial Commission Department of Mineral Resources and Geological Survey, identifying and quantifying the oil and gas resources in the Bakken and Three Forks formations.

Opportunities:

North Dakota has the biggest continuous oil deposit in the lower 48 states, estimated at approximately 4 billion barrels of oil in the Bakken and Three Forks formations that is recoverable using current technology. In addition, the use of new technology has the potential to make many other formations in the state more productive. North Dakota's advantages and opportunities include:

- The resource offers a significant source of revenue for the state and counties.

- The industry has high growth potential in North Dakota.
- The state can protect air, water, wildlife, and other natural resources while allowing for oil and gas development.
- Oil industry job growth offers opportunities to develop additional skilled professionals and the overall labor force.
- Best management practices can help minimize environmental impacts.
- Recovery and sales of ethane as a liquid offers a spin-off opportunity.
- Stranded or flared natural gas creates opportunities for new business development.
- New pipelines will eliminate flaring.
- A natural gas pipeline will allow for the capture and sales of natural gas liquids.

Challenges:

- The number of restrictive federal government regulations is increasing.
- Maintaining a state legal and regulatory environment that allows for timely exploration and development activities is important.
- Lack of qualified employees for the industry restricts growth.
- Punitive Federal laws and regulations restrict or slow development (taxes, hydraulic fracturing regulations, air quality standards, access to federal land).
- Commodity prices fluctuate significantly and threaten the economic stability of development.
- Large natural gas shale plays result in oversupply/depressed prices.
- Lack of pipeline/compressor capacities restricts the sale of additional natural gas volumes.
- Transportation limitations such as rail car, truck and shipping, restrict the ability to transport product to markets.



OIL AND GAS

Goal: Provide a responsible regulatory environment that promotes oil and gas development and maintains the industry's ability to access resources.

Policy: Develop a competitive and simplified oil tax structure.

- Establish a simplified, competitive, and predictable oil tax structure.
- Maintain the stripper well and secondary and tertiary recovery tax exemptions.

Policy: Continue support for the oil tax agreement between the state and tribe.

- Ensure that the tribal tax agreement is followed and that the state maintains a consistent and predictable tax and regulatory structure on tribal lands.

Policy: Ensure efficient extraction and responsible development of the mineral resources with effective regulations regarding permitting, well spacing, reservoir development, and other key regulatory issues.

- Provide adequate funding that anticipates future staffing and resources needed for the Department of Mineral Resources.

Policy: Support policies and research that protect the state's natural resources including air and water.

- Provide funding for research using sound scientific findings to support environmental regulations.
- Evaluate the opportunities for creating water depots for local and industrial use at key locations along major access routes.
- Maintain the existing gas flaring regulations to allow resource development.
- Provide adequate resources to the State Health Department to ensure they can manage air quality.

Policy: Support the allocation of adequate state resources to counties, cities, and townships to address the impacts from energy development.

- Continually evaluate and adjust the funding formula for distribution of oil and gas tax revenues to address the impact of energy development on infrastructure.
- Increase funding and streamline the process for obtaining funds for long-term, strategic, and sustainable improvements to road infrastructure, water development, housing, local services, and other essential needs that are impacted by oil development.

Policy: Ensure that policies, laws, and regulations do not impede industry's ability to access minerals or private property.

- Avoid passing laws that subjugate private contracts, rights, and negotiations between private parties or that restrict timely exploration and development activities.
- Ensure that the State Lands Department follows approved processes and procedures in order to eliminate de facto policy development.

Policy: Develop and fund transportation planning and road infrastructure that is designed to accommodate industry activity for state and local infrastructure.

- Implement the recommendations of the housing, workforce, and local infrastructure studies and support ongoing, long-term local infrastructure planning.
- Provide funding for engineering studies for counties with significant Bakken and Three Forks activity to facilitate long-term planning for transportation that helps manage vehicle safety, routing, load requirements, and maintenance.



PETROLEUM MARKETING

PETROLEUM MARKETING

ENERGY FACT: In 2009, 373.4 million gallons of gasoline and 476.1 million gallons of diesel were sold in North Dakota.

Accomplishments:

North Dakota leaders followed the recommendation of the EmPower ND Commission during the 2009 session and approved an initiative to provide state grants to petroleum marketers to help underwrite the cost of installing new blender pumps. The pumps allow marketers to sell new varieties of fuel as they become available, providing an important part of the infrastructure needed to help the United States incorporate alternative fuels into mainstream use and reduce our reliance on foreign oil. More than 150 blender pumps have been or are being installed statewide.

Opportunities:

In 2009, 373.4 million gallons of gasoline and 476.1 million gallons of diesel were sold in North Dakota. Of the total gasoline sold, 206 million gallons (55 percent) included some blend of ethanol. North Dakota's petroleum marketing industry is poised to be a partner in delivering alternative fuels and fuel blends that benefit the environment and help our nation address energy challenges.

- North Dakota petroleum marketers are locally owned, civic-minded businesses.
- The industry provides steady employment for thousands of North Dakotans.
- North Dakota petroleum marketers have an excellent environmental record.
- The state's growing economy offers growth potential for the industry.

Challenges:

- The public perceives that petroleum marketers are responsible for the high price of fuel.
- Investors receive a low return compared to the risk involved.
- Government mandates and regulations are increasing.
- The industry is consolidating (i.e. fewer number of brands).
- Market volatility results in distribution delays.

Goal: Support the marketing of transportation fuels based on consumer demand.

Policy: Support energy education programs that help consumers make informed fuel purchase decisions.

- Consider authorizing legislation to allow petroleum marketing to access Industrial Commission research funds to enhance innovation in safety, environment, and education.

Policy: (Federal) If the federal government establishes national fuel standards, those standards need to be consistent and have clearly identified timeframes that allow industry to make the infrastructure investments needed to support the standards.

Policy: (Federal) Support federal legislation to address potential petroleum retailer liability issues associated with selling fuels with a higher blend of renewable content.



SOLAR, GEOTHERMAL, HYDROGEN & HYDRO POWER

SOLAR, GEOTHERMAL, HYDROGEN & HYDRO POWER

ENERGY FACT: In 2009, the Legislature passed a 15 percent tax credit (3 percent over five years) on the cost of installing geothermal for commercial or residential use.

Accomplishments:

The state of North Dakota has invested generously in research for hydrogen, solar and geothermal applications. This includes \$2.5 million for a Centers of Excellence project at the EERC's National Center for Hydrogen Technology, which is attracting hydrogen-based business to the state; funding for research at UND for commercial application of geothermal; and funding for research at NDSU on solar energy. In the private sector, Basin Electric completed research on wind-to-hydrogen technologies.

Goal: Support commercial-scale research and development programs for solar, geothermal, hydrogen, hydropower, pumped storage and other alternative energy resources.

Policy: Continue to support tax incentives to encourage the installation of commercial or residential geothermal.

Policy: Continue to support funding for Centers of Excellence and Renewable Energy Council initiatives to support public education about and research and development of renewable energy technologies.



WORKFORCE

WORKFORCE

ENERGY FACT: Energy growth is creating thousands of new job opportunities in North Dakota.

Accomplishments:

Careers in North Dakota's energy industry offer promising job opportunities for young, skilled workers in our state. North Dakota's higher education system has made progress toward developing education and training programs in response to the needs of the state's energy industry. For example:

- Lake Region Community College's wind energy worker training program
- Williston State College's petroleum training
- University of North Dakota's petroleum engineering degree
- Bismarck State College's Energy Center of Excellence
- Minot State University's energy economics degree

Goal: Train more students for energy industry and energy research jobs by building stronger connections between industry and education and improving awareness of energy career opportunities among teachers and career advisors.

Policy: Encourage the North Dakota Commerce Department to create a biannual summary of energy industry workforce needs to facilitate the necessary programmatic decisions and changes by educators.

Policy: Establish an advisory board appointed by the governor with representatives from the industry to meet with the board of higher education to outline a plan for educating and training the workforce needed for the energy industry.

- Continue, enhance and fund state career promotion efforts that direct students to both vocational and degree programs.
- Continue, enhance and fund Operation Intern.
- Continue, enhance and fund demand-driven education and training programs at two-year post-secondary institutions.

Goal: Attract a sufficient number of workers to fill energy-related jobs due to retirements, attrition and growth within the industry.

Policy: Expand the state's workforce recruitment and marketing strategy to include other talent pools to serve the extraordinary needs of North Dakota's energy industry.

- Support the continued development and implementation of a comprehensive state workforce strategy, including potential recommendations of the Interim Workforce Committee.
- Consider increasing the funding for workforce marketing efforts in the next biennium.

Policy: Further enhance the state's online presence to provide a one-stop location for job seekers to find job information as well as resources regarding relocation issues such as housing, community information, and job training programs.

- Continue the use of an industry-led task force organized by the Department of Commerce, as needed, to recommend improvement to state workforce recruitment strategies and streamline the jobsnd.com process for energy-related jobs.
- *(Federal and State)* Support federal and state funding for the establishment of and maintenance of dynamic workforce recruitment tools.



INFRASTRUCTURE

INFRASTRUCTURE

ENERGY FACT: Energy growth is creating thousands of new job opportunities in North Dakota.

Accomplishments:

During the 2009 Legislative session, state leaders removed the caps for the formula funding and increased funding for oil-producing counties to a projected \$165 million in order to address the infrastructure needs relating to energy development. Additionally, the state is investing unprecedented funds on transportation infrastructure including improvements on Highway 85 in western North Dakota.

Gov. John Hoeven has also initiated financing programs to help stimulate housing development in oil-producing counties. At the recommendation of the EmPower ND Commission, the state's Water Commission has completed a study of the water resource needs to support future energy growth. The state is supporting studies on workforce, housing, and infrastructure and is providing technical assistance to help local leaders develop plans for long term infrastructure needs.

Goal: Ensure adequate water, power, and infrastructure for energy development and for the communities in which energy development exists.

Policy: Provide funding assistance to communities to develop a comprehensive infrastructure plan to accommodate energy development.

Policy: Evaluate the impact energy development is having on North Dakota's water and power supplies.

- Evaluate North Dakota's infrastructure needs related to energy development.
- Increase the effectiveness of state funding mechanisms to address growing local needs for water and power related to energy development.

Policy: Increase state funding for local jurisdictions to offset the infrastructure costs related to growth in the energy industry.

- Evaluate the adequacy of the oil tax distribution formula to meet the infrastructure needs of oil and gas producing counties through a comprehensive needs assessment.
- Establish a fund using oil tax revenues to alleviate upfront infrastructure needs related to oil and gas development.
- Create an upfront funding mechanism for roads and other infrastructure needs associated with energy development in other sectors of the energy industry.



EMPOWER NORTH DAKOTA



COMPREHENSIVE STATE ENERGY POLICY

2010-2025



North Dakota
DEPARTMENT OF COMMERCE

2010 N.D. PUC LEXIS 36

North Dakota Public Utility Commission

August 04, 2010

Case No. PU-10-18

Reporter

2010 N.D. PUC LEXIS 36 *

Otter Tail Power Company 2010 Renewable Resource Cost Recovery Adj. Factor Tariff

Core Terms

tail, wind, renewable, energy, customer, cost recovery, rider, fuel, farm, calculate, amortize, reply, staff, kwh, recalculate, accredit, advocacy, prudent

Panel: [*1] Tony Clark, Commissioner; Kevin Cramer, Chairman; Brian P. Kalk, Commissioner

Opinion

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

Preliminary Statement

On December 31, 2009, Otter Tail Power Company filed an Application for approval of its 2010 Renewable Resource Cost Recovery Adjustment Factor under the company's Renewable Resource Cost Recover Rider (Renewable Rider) .

On January 18, 2010, the company filed an Amendment to that Application removing a Request for an Advanced Determination of Prudence for the Luverne Wind Project and correcting an error from the original Application. The company's Amendment removing the Request for an Advanced Determination of Prudence for the Luverne Wind Project was made because the Luverne Project was already in service at that time and, therefore, no advanced determination was necessary.

On February 24, 2010, the Commission issued a Notice of Opportunity for Hearing, which provided until April 2, 2010, for petitions to intervene and May 12, 2010, for receiving written comments or requests for a hearing. The Notice identified the following issues to be considered:

1. Is Otter Tail Power's investment in the Luverne Wind Project used and useful [*2] for the service and convenience of the public in North Dakota?
2. Should costs associated with the Luverne Wind Project be included in the Factor (i.e., Renewable Resource Cost Recovery Adjustment)?
3. What factor is necessary to provide a just and reasonable rate of return on Otter Tail Power's commission-approved investment in wind farms, used and useful, for the service and convenience of the public in North Dakota?

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On March 12, 2010, Goodrich Cooperation, Cargill Corporation, Cavendish Farms, Inc., Archer Daniels Midland Company, ComDel Innovation, Tharaldson Ethanol, LLC, Bobcat Company, and PrimeWood, Inc. (the North Dakota Large Industrial Group) filed a Petition to Intervene.

On March 24, 2010, the Commission issued an Order granting intervention to the North Dakota Large Industrial Group. On May 12, 2010, the North Dakota Large Industrial Group filed Comments. Those Comments raised four issues:

1. Whether Otter Tail Power should review the calculation of the North Dakota Investment Tax Credits associated with the Luverne Wind Project to determine if the project might qualify for a larger credit;
2. Whether the North Dakota Investment Tax Credits associated with [*3] the wind project should be credited to the Renewable Rider, as those credits are used in Otter Tail Power's tax returns instead of amortizing them over the life of the project -- or, in the alternative, whether the unamortized balance of the North Dakota Investment Tax Credits should be reflected as a reduction to rate base;
3. Whether Otter Tail Power should continue to review the inter- and intra-class allocations for the Renewable Rider; and
4. Whether Otter Tail Power should provide information on the Otter Tail Power website explaining the components of the resource adjustment line of customer bills.

On June 23, 2010, Otter Tail Power filed Reply Comments and on June 29, 2010, Otter Tail Power filed a Supplement to its Reply Comments. In its Reply Comments and Supplement Comments Otter Tail Power explained that all issues raised in the Comments of the North Dakota Large Industrial Group had been resolved among the Parties, specifically, Otter Tail Power agreed to recalculate the North Dakota Investment Tax Credits based on the total value of the Luverne Project (North Dakota Large Industrial Group issue No. 1). Otter Tail Power also agreed it will continue to consider and [*4] discuss in its future annual rider filings the MISO capacity accreditation and any changes thereto, as that accreditation currently forms the basis for the inter- and intra-class allocations for the Rider (North Dakota Large Industrial Group issue No. 3). Finally, Otter Tail Power agreed it will make available on its company website information on the components of the energy and renewable adjustment line of customer bills (North Dakota Large Industrial Group issue No. 4).

Otter Tail Power more fully explained in its Supplement to its Reply Comments the calculation of the amortization and timing used for reflecting the North Dakota Investment Tax Credit in Otter Tail Power's RRA. The North Dakota Large Industrial Group informed the Commission that it accepted Otter Tail Power's proposed amortization (North Dakota Large Industrial Group issue No. 2). Additionally, Otter Tail Power explained in its Supplemental filing that the Parties had agreed to an implementation period beginning September 1, 2010, and running until March 31, 2012, for a total of 19 months.

On July 15, 2010, Advocacy Staff analyst Mike Diller filed a confirmation in this case stating that he had reviewed the information [*5] filed by Otter Tail Power and agrees that the documents sufficiently support the recalculated Renewable Resource Adjustment rider in conformity with the consensus of the parties. He also confirmed that staff supports the revised rider for deployment beginning September 1, 2010 through March 31, 2012.

On June 30, 2010, the Commission held an informal hearing to discuss Otter Tail Power's Application, and the Comments, Reply Comments, and other information supplied during the course of this case. During the informal hearing Otter Tail Power provided a history of the Renewable Rider and the Langdon, Ashtabula, and Luverne Wind Projects. Otter Tail Power also discussed the consensus resolution that was reached among the Parties and described in Otter Tail Power's Reply Comments and Supplemental Comments. At the hearing the North Dakota Large Industrial Group and Advocacy Staff confirmed that they are in agreement with the resolution described by Otter Tail Power. Advocacy Staff asked Otter Tail Power to file the detailed financial information upon which its recalculated rate is based so that Advocacy Staff could independently verify the rate calculations. Otter Tail Power filed the requested [*6] information on July 9, 2010.

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On July 30, 2010, the Commission received a letter stating that the North Dakota Large Industrial Group intervenors agree to the settlement as proposed and discussed by Otter Tail Power and Advocacy Staff at the Commission's June 30, 2010 informal hearing.

Otter Tail Power's Renewable Rider was approved by the Commission by Order dated May 21, 2008 in Case No. PU-06-466 (May 21, 2008 Order). In that Order the Commission explained that under the Commission's policy at that time (prior to the Order) "purchased power costs are immediately passed through to customers via the fuel adjustment clause and therefore absent a rider there would be little incentive for Otter Tail Power to invest in a North Dakota wind farm without a rider to ensure the same kind of immediate cost recovery." (May 21, 2008 Order at page 1). Also in that Order, the Commission approved cost recovery through the Rider for Otter Tail Power's investment in the 40.5 MW Langdon wind farm, which became operational in January 2008. The Commission made the following findings in support of its approval:

"The Commission finds that Otter Tail Power acted prudently in investing in the Langdon [*7] Wind Energy Center. It would have been easy for Otter Tail Power to simply purchase power at market prices and automatically pass through the costs to consumers in its cost of energy adjustment. Instead, the Company took on additional risk when investing in the wind farm in hopes that the Commission would agree with its decision. Because of Otter Tail Power's efforts, its customers have access to additional energy at a 10% discount."

(May 21, 2008 Order at page 2).

In an Order dated January 14, 2009, in Case No. PU-08-742 (2009 Renewable Resource Cost Recovery Adjustment Factor case), the Commission approved, on an interim basis, Otter Tail Power's 2009 update to its Renewable Resource Cost Recovery Adjustment Factor (January 14, 2009 Order). The January 14, 2009 Order included approval of cost recovery for Otter Tail Power's investment in the 48 MW Ashtabula wind generation project. The January 14, 2009 Order also combined the hearing on the case with the hearing on Otter Tail Power's then-pending general rate increase application in Case No. PU-08-862. In an Order dated November 25, 2009, in Cases No. PU-08-742 and PU-08-862, the Commission approved a settlement reached by the [*8] parties in which all rate case and Renewable Rider issues were resolved, including that Otter Tail Power's recoveries for its investments in renewable generation should continue through the Rider. It was also agreed that Otter Tail Power's investment in the Ashtabula wind project was prudent, and the 2009 Renewable Resource Cost Recovery Adjustment Factor should be approved with adjustments. One of the agreed to adjustments was to remove from the 2009 RRA Factor, recoveries for the remaining amount of a specified unrecovered balance of 2008 costs for the purpose of recovering those costs over 48 months, beginning with the implementation of Otter Tail Power's 2010 Annual Renewable Resource Cost Recovery Adjustment Rate (November 25, 2009 Order at page 14). Otter Tail Power's request in this case includes the commencement of recovery of these amounts amortized over 48 months as required by the Commission's November 25, 2009, Order.

Having allowed all interested persons an opportunity to be heard, and having heard, reviewed and considered all testimony and evidence presented, the Commission makes the following:

Findings of Fact

Based upon the record herein, the Commission finds that [*9] the Luverne Wind Generation Project is located in Steele County, North Dakota, approximately six miles north of Luverne, North Dakota. Otter Tail Power's Luverne Project comprises approximately 29 percent of the capacity of the Luverne Wind Energy Center, which consists of a total of 113 General Electric wind turbines, each of which has a nameplate capacity of 1.5 megawatts, for an aggregate of 169.5 megawatt nameplate capacity. The Luverne Wind Energy Center has been jointly developed by Otter Tail Power and NextEra (formally known as FPL Energy). Otter Tail Power's Luverne Project consists of 33 wind turbines with an aggregate nameplate capacity of 49.5 megawatts, tower foundations, operational equipment, electric collection circuit lines, project substation, approximately 13 miles of 230 kV line, and real property interests. The Luverne Project was permitted for in 2008 and construction began in the second quarter of 2009. Construction was completed and the turbines became operational in mid-September 2009, ahead of schedule.

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The Commission finds that Otter Tail Power has acted prudently in investing in and constructing its Luverne Wind Project. As Otter Tail Power demonstrated [*10] at the hearing, Otter Tail Power has historically served its customers' energy needs using both native generating resources and purchased energy, and Otter Tail Power's customers' energy needs have been growing as demonstrated in Otter Tail Power's resource plans and energy forecasts. The energy generated by Otter Tail Power's wind projects partially displaces the amount of purchased energy Otter Tail Power requires to serve its retail customers, and therefore it partially displaces the higher cost energy that customers have paid through increasing Fuel Clause Adjustment charges over the past several years. The cost savings of the wind projects can be seen in diminishing Fuel Clause Adjustment charges. As explained by Otter Tail Power at the hearing, the costs of the wind projects are reflected in the Rider Renewable Resource Cost Recovery Adjustment Factor, but the energy produced by the wind projects is reflected in the Company's Fuel Clause Adjustment at zero cost to the Fuel Clause Adjustment. This wind energy in the Fuel Clause Adjustment displaces the need for purchased energy or fuel that would be reflected in the Fuel Clause Adjustment at its purchase price.

One alternative [*11] way to fulfill load requirements was for Otter Tail Power to purchase power at market prices and pass through the costs to consumers in its Fuel Clause Adjustment. Instead, the Company on behalf of ratepayers, with a presumption of prudence, took on risk when investing in the Luverne Wind Project, with the expectation that it would recover the costs of the investment through its Renewable Rider. No party challenged the prudence of the project. Furthermore, Otter Tail Power's construction of the Luverne Wind Project was successful in that it was completed ahead of schedule and approximately 7 percent under budget. These cost savings are being passed through to customers. The Luverne project's contribution to Otter Tail Power's customer's energy needs reflects that the project is used and useful for the service and convenience of the public in North Dakota.

The Commission finds that the unit cost (per kWh) of the Luverne project is lower than the cost of Otter Tail Power's last approved project, the Ashtabula project. Additionally, the project qualified for a federal grant, made available through the American Recovery and Reinvestment Act that further reduced the capital cost of the [*12] project by 30 percent. Otter Tail Power applied this grant as a reduction to this rate base investment when it was received. In addition to reducing the rate associated with this project, the grant allowed Otter Tail Power to successfully finance this low-cost project during possibly the most difficult time in memory for financing such projects. By doing so, Otter Tail Power was able to procure turbines and equipment at low prices and qualify for other incentives such as bonus tax depreciation.

The Commission finds that Otter Tail Power has responded appropriately to the desires of the North Dakota legislature encouraging investment in energy conversion facilities in North Dakota. Besides declaring that there is a rebuttable presumption that an energy conversion facility built in North Dakota is prudent, the State of North Dakota offers a significant investment tax credit for wind energy development of 3 percent per year for five years of dollars invested in North Dakota. In addition to the undisputed facts, described in the findings above, that demonstrate that the Luverne project is used and useful to Otter Tail Power's North Dakota customers, the Commission also finds that the prudence [*13] of Otter Tail Power's investment in the Luverne project has not been challenged by any party. Since it is a generation facility constructed in the State of North Dakota, the project satisfies [North Dakota Century Code § 49-05-16](#), which provides a rebuttable presumption that generation facilities located in the State of North Dakota are prudent.

The Commission finds that the recalculated RRA Factor resulting from this case, and as described below, provides a just and reasonable rate of return on Otter Tail Power's commission-approved investments in wind farms, including the Langdon, Ashtabula and Luverne wind farm investments. Specifically, the Commission finds that the RRA Factor includes the commencement of recovery of the amounts amortized over 48 months as required by the Commission's November 25, 2009, Order in Case No. PU-08-742; that the Renewable Resource Cost Recovery Adjustment Factor has been based on a recalculated North Dakota Investment Tax Credit based on the total value of the Luverne Project; that the amortization and timing used for reflecting the North Dakota Investment Tax Credit in the RRA Factor is appropriate; that the [*14] rate design and other calculations used for the Renewable Resource Cost Recovery Adjustment Factor are consistent with the Commission's prior Orders on how Otter Tail

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Power is to calculate its Renewable Resource Cost Recovery Adjustment Factor. The Commission also finds that the parties' proposal for a nineteen month recovery period for the Renewable Resource Cost Recovery Adjustment calculation is reasonable and appropriate. Using that period will result in a more consistent rate over a longer time-frame and will allow the "catch up" recoveries for the Luverne investment (those that have built up while this matter has been pending) to be spread over a longer period, thus mitigating their impact to customers.

The RRA Factor for customers other than large general service customers is currently \$ 0.00369 per kWh. The proposed RRA factor for customers other than large general service customers is \$ 0.00551 per kWh. For a residential customer using 750 kWh per month, the proposed increase in RRA Factor represents an increase in the monthly bill of \$ 1.37.

Finally, the Commission finds that it is reasonable for Otter Tail Power to continue to consider and discuss in its future annual rider [*15] filings the MISO capacity accreditation and any changes thereto or another appropriate methodology for allocating capacity and energy, as that accreditation currently forms the basis for the inter- and intra-class allocations for the Renewable Resource Cost Recovery Adjustment Factor. It is also reasonable to require Otter Tail Power to make available on its company website information on the components of the energy and renewable adjustment line of customer bills as doing so will provide information from which customers may gain a greater understanding as to the costs and credits that make up their bills.

Order

The Commission orders:

1. That Otter Tail Power's investment in the Luverne Wind Project is used and useful for the service and convenience of the public in North Dakota.
2. That the costs associated with the Luverne Wind Project should be included in Otter Tail Power's Renewable Resource Cost Recovery Adjustment Factor (RRA Factor).
3. That Otter Tail Power's RRA Factor to be implemented beginning September 1, 2010, should be \$ 0.212 per kW and \$ 0.00473 per kWh for the large general service customer class; and \$ 0.00551 per kWh for all other customer classes; this [*16] Renewable Resource Cost Recovery Factor will be in effect until a new factor is established by the Commission, and Otter Tail Power will make its next Renewable Resource Cost Recovery Factor update filing on or before December 31, 2011, with an expected implementation of April 1, 2012, to March 31, 2013.
4. Otter Tail Power shall continue to provide information in future Renewable Resource Cost Recovery Factor filings on capacity accreditation for wind projects.
5. Otter Tail Power shall make information available to its North Dakota customers on the Otter Tail Power website to explain the components of the energy and renewable resource adjustment line on customer bills.

PUBLIC SERVICE COMMISSION

Tony Clark

Commissioner

Kevin Cramer

Chairman

Brian P. Kalk

Commissioner

