



# ENVIRONMENTAL COST RECOVERY RIDER (PU-17-122)

NORTH DAKOTA  
PUBLIC SERVICE COMMISSION

June 27, 2017 Informal Hearing

# AGENDA

- Background information and filing summary
- Summary of existing projects in rider
- Calculation of the Revenue Requirement
- Summary of Revenue Requirement and Request

# BACKGROUND ON OTTER TAIL'S ENVIRONMENTAL COST RECOVERY RIDER (ECRR)

ECRR History	Case No.	Commission Approved	Effective Date	Approved Rate
<b>Initial ECRR Rates and Mechanism</b>	PU-13-79 and PU-13-84	December 28, 2013	January 1, 2014	4.319%
<b>First Update</b>	PU-14-142	July 15, 2014	July 1, 2014	7.531%
<b>Second Update</b>	PU-15-131	June 17, 2015	July 1, 2015	9.193%
<b>Third Update</b>	PU-16-148	June 22, 2016	July 1, 2016	7.904%
<b>Fourth Update</b>	PU-17-122		8/1/2017* <sup>1</sup>	7.633%*

\*Proposed.

<sup>1</sup> Initial filing proposed the updated rate be implemented July 1, 2017.

# SUMMARY OF FILING

- Seeking continued recovery of the Hoot Lake Plant Mercury and Air Toxics Standards (MATS) and Big Stone Plant Air Quality Control System (AQCS) projects.
- No new projects proposed for recovery.
- Proposed rate drops from 7.904% to 7.633% of bill

# BIG STONE PLANT – MILBANK, SOUTH DAKOTA



# OVERVIEW OF BIG STONE PLANT

- Located by Big Stone City near Milbank, SD

## Jointly owned by:

- Otter Tail Power Company, operating agent (53.9%)
  - NorthWestern Energy (23.4%)
  - Montana-Dakota Utilities Co. (22.7%)
- 
- Baseload resource for all three companies
  - On line since 1975
  - 474 megawatts of capacity

# OVERVIEW OF BIG STONE PLANT AQCS

- Upgrades were necessary to comply with Federal regulations.
  - Clean Air Act – Regional Haze
  - Mercury and Air Toxics Standard
- Received Advanced Determination of Prudence in Case No. PU-11-165

# OVERVIEW OF BIG STONE PLANT AQCS

- **Equipment Installed:**
  - Flue gas desulphurization system (FGD)
  - Baghouse for particulate control
  - Selective catalytic reduction system (SCR)
  - Activated Carbon Injection system (ACI)
- **Safety Record:**
  - Project required over 2.3 million man hours
  - Only one lost time incident and an OSHA rate of approximately 0.88.





# OVERVIEW OF BIG STONE PLANT AIR QUALITY CONTROL SYSTEM

- Project Economics

- Original project cost estimate: \$491 million
- Current project cost estimate: \$366 million
  - Otter Tail project management
  - Project delivery method, timing and market conditions
  - Prudent Design/Engineering modifications
  - Cost reduction of \$125 million – 25%

- Commercial Operation on December 29, 2015

# HOOT LAKE PLANT – FERGUS FALLS, MINNESOTA



# OVERVIEW OF HOOT LAKE PLANT

- Located in Fergus Falls, Minnesota
- 100% owned by Otter Tail
- Baseload resource
  - On line since 1959
  - 144 MWs of capacity

# OVERVIEW OF HOOT LAKE PLANT MATS

- Upgrades were necessary to comply with Federal regulations.
  - Clean Air Act
    - Mercury and Air Toxics Standards
- Otter Tail explored various compliance options:
  - Installing near-term upgrades and planning for a 2020-timeframe retirement was the least cost option.

# OVERVIEW OF HOOT LAKE PLANT MATS

- Equipment Installed:
  - Upgraded Hoot Lake Units #2 and #3 electrostatic precipitators
  - Powdered activated carbon injection system
- Initial budget was \$10 million.
- Final actual projects costs under \$7 million
- In service October 2014

# CALCULATION OF REVENUE REQUIREMENT

Revenue Requirement: The determination of the total amount of revenue required by the regulated utility to recover expenses and earn a fair rate of return on investment.

# REVENUE REQUIREMENTS FORMULA

$$\text{Revenue Requirement, RR} = \underbrace{O + T + d}_{\text{Expenses}} + \underbrace{r (RB)}_{\text{Return on Rate Base}}$$

O = Operating Expenses

T = Taxes

d = Annual Depreciation Expense

r = Overall Rate of Return

RB = Rate Base

# REVENUE REQUIREMENTS FORMULA

## - RATE BASE

$$\text{Revenue Requirement, RR} = \underbrace{O + T + d}_{\text{Expenses}} + \underbrace{r}_{\text{Return on Rate Base}} (\text{RB})$$

Rate Base (RB) -- value of facilities and investments used to provide service and upon which the utility is allowed an opportunity to earn a fair rate of return.

Example Rate Base:

Average Rate Base = \$142,727,279 (from AQCS for Recovery Period)

# REVENUE REQUIREMENTS FORMULA

## - *RATE OF RETURN*

$$\text{Revenue Requirement, RR} = \underbrace{O + T + d}_{\text{Expenses}} + \underbrace{r}_{\text{Return on Rate Base}} (\text{RB})$$

Overall Rate of Return (r) -- weighted average cost of capital (Debt & Equity) used for investment & operations

### Rate of Return Example

Capital Structure	Weighting	Cost	WACC
Debt	43.11%	6.30%	2.72%
Preferred Equity	3.60%	4.75%	0.17%
Equity	53.30%	10.75%	5.73%
Total Capital			<b>8.62% ROR</b>

\*Approved in Otter Tail's last general rate case (Case No. PU-08-862)



# REVENUE REQUIREMENTS FORMULA

## - EXPENSES

$$\begin{aligned}
 \text{Revenue Requirement, RR} &= \overbrace{O + T + d}^{\text{Expenses}} + \overbrace{r (RB)}^{\text{Return on Rate Base}} \\
 &= \$10,986,593
 \end{aligned}$$


---

### Expenses

Operating Expenses	\$613,409
Property Taxes	\$0
<u>Depreciation Expense</u>	<u>\$5,412,542</u>
Total Expenses (Total Company)	\$6,025,951
Income Tax	<u>\$4,960,642</u>
Total Company Retail Expenses	<u>\$10,986,593</u>

# REVENUE REQUIREMENTS FORMULA

$$\begin{array}{r} \text{Expenses} \qquad \text{Return on} \\ \qquad \qquad \qquad \text{Rate Base} \\ \text{Revenue Requirement, } RR = \overbrace{O + T + d} + \overbrace{r (RB)} \\ \underline{\$23,261,139} \quad = \quad \underline{\$10,986,593} + \underline{\$12,274,546} \end{array}$$

The Total Company revenue required to recover expenses incurred and provide an opportunity to earn a fair return.



# REVENUE REQUIREMENT SUMMARY

## Summary of Revenue Requirements

Line No.	Revenue Requirements	July 2017 - June 2018
1	AQCS	\$9,390,057
2	Hoot Lake Plant MATS	\$617,019
3	Carrying Cost	3,966
4	True-Up	(93,776)
5	Total	<u>\$9,917,266</u>

# IMPACT OF PROJECT EXECUTION ON REVENUE REQUIREMENTS

- Big Stone AQCS:

Total Project Budget Reduction: \$125 million

Otter Tail share (53.9%) of Reduction: \$67.4 million

North Dakota Share (40.368%) of Reduction: \$27.2 million

Savings to North Dakota Customers: \$3.2 million annually

- Hoot Lake MATS:

Total Project Budget Reduction: \$3 million

North Dakota Share (40.368%) of Reduction: \$1.2 million

Savings to North Dakota Customers: \$141 thousand annually

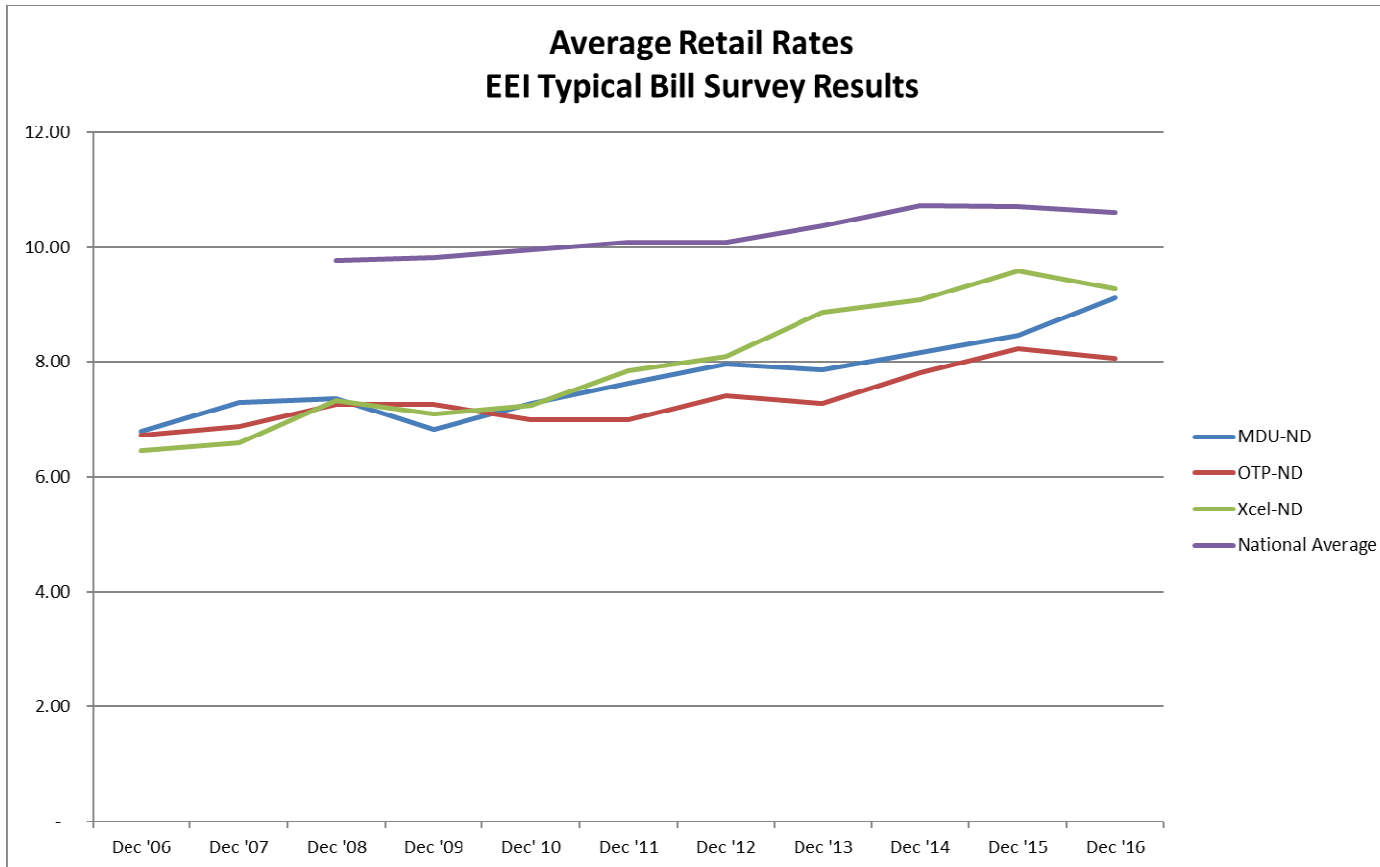
# OTTER TAIL POWER RATES

TABLE 1

<u>Average Retail Rates</u>											
<u>EEl Typical Bill Survey Results</u>											
	Dec '06	Dec '07	Dec '08	Dec '09	Dec '10	Dec '11	Dec '12	Dec '13	Dec '14	Dec '15	Dec '16
MDU-ND	6.79	7.30	7.36	6.83	7.28	7.62	7.96	7.86	8.16	8.46	9.11
<b>OTP-ND</b>	<b>6.72</b>	<b>6.87</b>	<b>7.26</b>	<b>7.26</b>	<b>6.99</b>	<b>7.00</b>	<b>7.41</b>	<b>7.28</b>	<b>7.81</b>	<b>8.23</b>	<b>8.06</b>
Xcel-ND	6.46	6.59	7.33	7.10	7.24	7.85	8.10	8.86	9.08	9.59	9.28
National Average			9.77	9.83	9.96	10.09	10.09	10.37	10.72	10.71	10.61

Source: EEl Typical Bill Survey Results

# OTTER TAIL POWER RATES



Source: EEI Typical Bill Survey Results

# SUMMARY OF OTTER TAIL REQUEST

In this Case, Otter Tail is requesting Commission approval of:

- Annual update of costs and collections associated with the two previously approved projects
- Proposed Rate of 7.633% of bill, a reduction from the current rate of 7.904%
- An August 1, 2017 effective date for implementing updated rate

