



Northern Natural Gas Company  
P.O. Box 3330  
Omaha, NE 68103-0330  
402 398-7200

January 11, 2021

***Via eFiling***

Ms. Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Re: OEP/DPC/CB-2  
Northern Natural Gas Company  
Docket No. CP20-503-000  
Northern Lights 2021  
§ 375.308(x)(3)

Dear Ms. Bose:

Northern Natural Gas Company (Northern) hereby submits for filing with the Federal Energy Regulatory Commission (FERC) in the above-referenced docket Northern's responses to the data request issued by FERC staff January 6, 2021. FERC's requests and Northern's responses are below. An Excel file is being submitted directly to staff via email with the formulas necessary to calculate the AFUDC. Northern is filing its response, including spreadsheets in PDF format.

**FERC Request 1:** Exhibit K, Northern Natural Gas Company (Northern) estimates total capitalized Allowance for Funds Used During Construction (AFUDC) to be \$1,707,245. Please provide the following in Microsoft Excel:

- i. The worksheet computations on a monthly basis to support the \$1,707,245 of AFUDC. Separately identify the debt/equity components.
- ii. The computation and methodology to support the debt/equity cost rates used to derive the AFUDC rate.

The worksheets and/or files should retain all notes and any formulas supporting the calculation. If the project components as identified in EXHIBIT K of the Application have varying construction start and in-service dates, please provide the calculations in separate worksheets so that the AFUDC start and end dates are clear for each component.

**Northern's Response:**

i. For project estimation purposes, Northern estimated AFUDC capitalized as a percentage of the project estimate based on actual AFUDC percentages capitalized on similar projects. For the new Viking Interconnect Branch Line project with estimated construction costs of \$490,000, an AFUDC rate of 2.08% was applied for an estimate of AFUDC capitalized of \$10,000. For the Pierz and Hinckley compressor projects, with estimated construction costs of \$43,813,000, an AFUDC rate of 3.52% was assumed for estimated AFUDC capitalized of \$1,490,000. For the balance of the estimated construction costs pipeline additions of \$12,877,755, an AFUDC rate of 1.61% was assumed for estimated AFUDC capitalized of \$207,245. The sum of these three AFUDC estimates equal the AFUDC amount shown in Exhibit K of \$1,707,245 (see Exhibit 1).

For examples of how AFUDC will be calculated for the Northern Lights 2021 compressor stations and pipeline extensions and loop line please see Exhibits 2 and 3 of the attached Excel file. The amounts shown by month are for demonstration purposes only and are not a prediction of when actual amounts will be charged to the projects.

Northern will calculate AFUDC based on actual costs paid. All accruals and retention charges as well as all other non-construction costs paid, such as land and property rights, that are charged to the project will be excluded from the AFUDC base. During construction, the AFUDC base will be equal to the sum of the prior month's project to-date payments, including AFUDC, plus one-half of the current month's payments. See the formula below.

AFUDC base = Prior month project to-date payments + AFUDC +  $\frac{1}{2}$  (current month payments)

For the month assets are placed in-service, the AFUDC base is the sum of one-half of the prior month project to-date payments, including AFUDC, plus one-fourth of the current month's payments. See the formula below.

AFUDC base for in service month =  $\frac{1}{2}$  (prior month project to-date payments + AFUDC) +  $\frac{1}{4}$  (current month payments)

Monthly AFUDC debt and equity accrual amounts are determined by multiplying the monthly debt and equity rates derived using the methodology provided in response to item (ii) times the AFUDC base for the month.

ii. Please see Exhibits 4 and 5 of the attached Excel file for Northern's AFUDC monthly rate calculation for years 2020 and 2021. Northern does not have any short-term debt instruments; therefore, the proration calculation for short-term and long-term debt is not applicable.

As shown on Exhibits 4 and 5, Northern first calculates its annual AFUDC rate for the current year based on its capital structure as of December 31 of the prior year. Northern's capital structure is based on its total proprietary capital reported on page 112 of its FERC Form 2, line 15 less line 14, accumulated other comprehensive income, and the sum of long-term debt also reported on page 112 on lines 17 and 20.

For 2020, Northern uses an equity rate of 12% for its AFUDC calculation, which is the imputed return on equity from Northern's consolidated rate case settlement (Docket Nos. RP03-398 and RP04-155), which was approved by the Commission. Northern's RP19-1353 rate case settlement approved by the Commission did not stipulate an allowed return on equity. Therefore, beginning with the AFUDC rate for 2021, Northern will use its actual three-year average return on equity. Northern's debt rate is its weighted average cost of debt per the calculations shown on the attached schedules, which was 4.469% as of December 31, 2019, and was estimated to be unchanged for December 31, 2020. For future years, Northern will update the implied equity and debt rates accordingly.

Once Northern has determined its annual AFUDC rate, it uses the formula below to determine its monthly AFUDC rate, compounded semi-annually.

$$\text{Monthly AFUDC Rate} = [(1 + \text{annual AFUDC rate}/2)^{2 \times (1/12)}] - 1$$

On May 14, 2019, FERC staff filed in Docket No. PA16-2-000 its findings of an audit to evaluate Northern's compliance with accounting regulations of the Uniform System of Accounts (USofA) under 18 CFR. Part 201 among other items. The audit tested Northern's calculation of AFUDC debt and equity rates, monthly accruals, frequency of compounding, and accounting for a select sample of capital projects. FERC staff examined inputs to each component of debt and equity, compared them with Form No. 2 data and traced the amounts to the general ledger and source documents. As part of this review, FERC staff recalculated the yield to maturity used to derive the cost rate for long-term debt, traced the equity rate to Northern's last approved rate case, and ensured that Northern considered short-term debt as the first source of financing construction as required by GPI 3(17) and Commission Order 561. There were no audit findings or recommendation for change to Northern's calculation of AFUDC. The audit covered January 1, 2013, to December 31, 2017.

**FERC Request 2:** Northern estimates contingency costs to be \$3,042,754, please provide details explaining how the estimate of capitalized contingency costs was developed.

**Northern's Response:** Northern utilizes a contingency of between 5% and 15% of total estimated project costs; the contingency rate reflects the value of various risk, depending on the perceived difficulty of the project. These values have been calibrated against historical project trends where contingency is added to accommodate unforeseen or unaccountable risks or changes that may occur during construction. The contingency used for each project listed in the Exhibit K was between 5% and 15%.

**FERC Request 3:** In Exhibit N page 5 of 7 on line 3, Northern adds Accumulated Deferred Income Tax (ADIT) balances as a part of its rate base.

- i. Please provide the accounts and their description that are included in the ADIT line item.

Illustrate the calculation of the ADIT balances to support the addition to rate base of such ADIT balances.

**Northern's Response:** The FERC account for the deferred taxes on line 3 of the Exhibit N, page 5 of 7, is Account 282 accumulated deferred income taxes – other (arising from the

Kimberly D. Bose, Secretary  
Page 4 of 4

difference between book and tax depreciation). The illustration of the ADIT balance calculation of the Exhibit N, page 5 of 7, line 3, is found on the Exhibit N page 6 of 7.

Any questions regarding the filing should be directed to the undersigned at (402) 398-7103.

Respectfully submitted,

/signed/ Michael T. Loeffler

Michael T. Loeffler  
Senior Director, Certificates and External Affairs

cc: Parties of record

**Exhibit 1**

**Northern Natural Gas Company  
Northern Lights 2021  
Docket No. CP20-503-000**

<b>Project Descriptions</b>	<b>Total Project Estimate</b>	<b>Estimated AFUDC Percent</b>	<b>Estimated AFUDC</b>	<b>Total Estimated Cost</b>
<b>Viking Interconnect Branch Line</b>	<b>\$ 480,000</b>	<b>2.08%</b>	<b>\$ 10,000</b>	<b>\$ 490,000</b>
<b>Pierz Compressor Station &amp; Interconnect</b>	<b>\$ 11,035,000</b>	<b>3.53%</b>	<b>\$ 390,000</b>	<b>\$ 11,425,000</b>
<b>Hinckley Compressor Station and Interconnect</b>	<b>\$ 31,288,000</b>	<b>3.52%</b>	<b>\$ 1,100,000</b>	<b>\$ 32,388,000</b>
<b>Total Compression</b>	<b>\$ 42,323,000</b>	<b>3.52%</b>	<b>\$ 1,490,000</b>	<b>\$ 43,813,000</b>
<b>Willmar D Branch Line Extension</b>	<b>\$ 6,396,450</b>	<b>1.62%</b>	<b>\$ 103,550</b>	<b>\$ 6,500,000</b>
<b>Carlton Interconnect Loop</b>	<b>\$ 6,481,305</b>	<b>1.60%</b>	<b>\$ 103,695</b>	<b>\$ 6,585,000</b>
<b>Total Pipeline</b>	<b>\$ 12,877,755</b>	<b>1.61%</b>	<b>\$ 207,245</b>	<b>\$ 13,085,000</b>
<b>Total Project Cost</b>	<b>\$ 55,680,755</b>	<b>3.07%</b>	<b>\$ 1,707,245</b>	<b>\$ 57,388,000</b>

Exhibit 2

Northern Natural Gas Company  
 Northern Lights 2021  
 Docket No. CP20-503-000  
 AFUDC Calculation

Description	Total Cost	Right of Way	Other Construction Cost		AFUDC
Pierz compressor station and interconnect	\$11,425,000	\$275,000	\$10,760,000		\$390,000
Hinckley compressor station	\$32,388,000	\$1,123,000	\$30,165,000		\$1,100,000
<b>Total</b>	<b>\$43,813,000</b>	<b>\$1,398,000</b>	<b>\$40,925,000</b>		<b>\$1,490,000</b>

Method: AFUDC Reduced Rate (Compensates for inclusion of accrued AFUDC in base to prevent compounding more frequently than semiannually)  
 Monthly AFUDC Rate Formula: = [(1+annual AFUDC rate/2)<sup>2</sup>(1/12)]-1  
 Frequency of Compounding: Semiannually

Work Order Number	Project	AFUDC Month	In Service Monh	Construction Charges Paid	Land And Land Rights		AFUDC Base Additions	Beginning AFUDC Base	1/2 Month		AFUDC Compound Amount	AFUDC Base	Monthly AFUDC Debt Rate	Monthly AFUDC Equity Rate	AFUDC Debt	AFUDC Equity	Total AFUDC	Ending AFUDC Base	
					Adjustment	AFUDC Base			Beginning Base	Half Current Month									Base Addition
2 Projects	Northern Lights 2021	Apr-20		\$ 1,200	\$ -	\$ 1,200	\$ -	\$ -	\$ 600	\$ -	\$ -	\$ 600	0.1384%	0.6097%	\$ 1	\$ 4	\$ 4	\$ 1,200	
2 Projects	Northern Lights 2021	May-20		\$ 8,000	\$ -	\$ 8,000	\$ 1,200	\$ 4,000	\$ -	\$ 4	\$ 5,204	\$ 5,204	0.1384%	0.6097%	\$ 7	\$ 32	\$ 39	\$ 9,204	
2 Projects	Northern Lights 2021	Jun-20		\$ 12,000	\$ -	\$ 12,000	\$ 9,204	\$ 6,000	\$ -	\$ 39	\$ 15,243	\$ 15,243	0.1384%	0.6097%	\$ 21	\$ 93	\$ 114	\$ 21,243	
2 Projects	Northern Lights 2021	Jul-20		\$ 25,000	\$ -	\$ 25,000	\$ 21,243	\$ 12,500	\$ -	\$ 114	\$ 33,857	\$ 33,857	0.1384%	0.6097%	\$ 47	\$ 206	\$ 253	\$ 46,357	
2 Projects	Northern Lights 2021	Aug-20		\$ 15,000	\$ -	\$ 15,000	\$ 46,357	\$ 7,500	\$ -	\$ 253	\$ 54,111	\$ 54,111	0.1384%	0.6097%	\$ 75	\$ 330	\$ 405	\$ 61,611	
2 Projects	Northern Lights 2021	Sep-20		\$ 17,250	\$ -	\$ 17,250	\$ 61,611	\$ 8,625	\$ -	\$ 405	\$ 70,641	\$ 70,641	0.1384%	0.6097%	\$ 98	\$ 528	\$ 528	\$ 79,266	
2 Projects	Northern Lights 2021	Oct-20		\$ 150,000	\$ -	\$ 150,000	\$ 79,266	\$ 75,000	\$ -	\$ 528	\$ 154,794	\$ 154,794	0.1384%	0.6097%	\$ 214	\$ 944	\$ 1,158	\$ 229,794	
2 Projects	Northern Lights 2021	Nov-20		\$ 120,000	\$ -	\$ 120,000	\$ 229,794	\$ 60,000	\$ -	\$ 1,158	\$ 290,952	\$ 290,952	0.1384%	0.6097%	\$ 403	\$ 1,774	\$ 2,177	\$ 350,952	
2 Projects	Northern Lights 2021	Dec-20		\$ 300,000	\$ -	\$ 300,000	\$ 350,952	\$ 150,000	\$ -	\$ 2,177	\$ 503,129	\$ 503,129	0.1384%	0.6097%	\$ 697	\$ 3,068	\$ 3,764	\$ 653,129	
2 Projects	Northern Lights 2021	Jan-21		\$ 530,161	\$ -	\$ 530,161	\$ 653,129	\$ 265,080	\$ -	\$ 3,764	\$ 921,973	\$ 921,973	0.1266%	0.6929%	\$ 1,168	\$ 6,389	\$ 7,556	\$ 1,187,054	
2 Projects	Northern Lights 2021	Feb-21		\$ 916,000	\$ -	\$ 916,000	\$ 1,187,054	\$ 458,000	\$ -	\$ 7,556	\$ 1,652,610	\$ 1,652,610	0.1266%	0.6929%	\$ 2,093	\$ 11,452	\$ 13,545	\$ 2,110,610	
2 Projects	Northern Lights 2021	Mar-21		\$ 1,050,000	\$ (1,123,000)	\$ (73,000)	\$ 2,110,610	\$ (36,500)	\$ -	\$ 13,545	\$ 2,087,654	\$ 2,087,654	0.1266%	0.6929%	\$ 2,644	\$ 14,466	\$ 17,110	\$ 2,051,154	
2 Projects	Northern Lights 2021	Apr-21		\$ 2,500,000	\$ (275,000)	\$ 2,225,000	\$ 2,051,154	\$ 1,112,500	\$ -	\$ 17,110	\$ 3,180,764	\$ 3,180,764	0.1266%	0.6929%	\$ 4,028	\$ 22,041	\$ 26,069	\$ 4,293,264	
2 Projects	Northern Lights 2021	May-21		\$ 8,000,000	\$ -	\$ 8,000,000	\$ 4,293,264	\$ 4,000,000	\$ -	\$ 26,069	\$ 8,319,333	\$ 8,319,333	0.1266%	0.6929%	\$ 10,536	\$ 57,648	\$ 68,184	\$ 12,319,333	
2 Projects	Northern Lights 2021	Jun-21		\$ 7,000,000	\$ -	\$ 7,000,000	\$ 12,319,333	\$ 3,500,000	\$ -	\$ 68,184	\$ 15,887,517	\$ 15,887,517	0.1266%	0.6929%	\$ 20,121	\$ 110,090	\$ 130,211	\$ 19,387,517	
2 Projects	Northern Lights 2021	Jul-21		\$ 7,350,000	\$ -	\$ 7,350,000	\$ 19,387,517	\$ 3,675,000	\$ -	\$ 130,211	\$ 23,192,729	\$ 23,192,729	0.1266%	0.6929%	\$ 29,373	\$ 160,711	\$ 190,084	\$ 26,867,729	
2 Projects	Northern Lights 2021	Aug-21		\$ 6,300,000	\$ -	\$ 6,300,000	\$ 26,867,729	\$ 3,150,000	\$ -	\$ 190,084	\$ 30,207,812	\$ 30,207,812	0.1266%	0.6929%	\$ 38,257	\$ 209,321	\$ 247,578	\$ 33,357,812	
2 Projects	Northern Lights 2021	Sep-21		\$ 4,000,005	\$ -	\$ 4,000,005	\$ 33,357,812	\$ 2,000,003	\$ -	\$ 247,578	\$ 35,605,393	\$ 35,605,393	0.1266%	0.6929%	\$ 45,093	\$ 246,723	\$ 291,816	\$ 37,605,393	
2 Projects	Northern Lights 2021	Oct-21		\$ 2,546,500	\$ -	\$ 2,546,500	\$ 37,605,393	\$ 1,273,250	\$ -	\$ 291,816	\$ 39,170,461	\$ 39,170,461	0.1266%	0.6929%	\$ 49,608	\$ 271,426	\$ 321,034	\$ 40,443,711	
2 Projects	Northern Lights 2021	Nov-21	Nov-21	\$ 644,400	\$ -	\$ 644,400	\$ 40,443,711	\$ (20,221,855)	\$ 322,200	\$ (161,100)	\$ 160,517	\$ 20,543,473	\$ 20,543,473	0.1266%	0.6929%	\$ 26,018	\$ 142,353	\$ 168,371	\$ 41,248,628
2 Projects	Northern Lights 2021	Dec-21		\$ 837,484	\$ -	\$ 837,484	\$ 41,248,628	\$ (41,248,628)	\$ 418,742	\$ (418,742)	\$ -	\$ -	\$ -	0.1266%	0.6929%	\$ -	\$ -	\$ -	\$ 42,086,112
2 Projects	Northern Lights 2021	Jan-22		\$ -	\$ -	\$ -	\$ 42,086,112	\$ (42,086,112)	\$ -	\$ -	\$ -	\$ -	\$ -	0.1266%	0.6929%	\$ -	\$ -	\$ -	\$ 42,086,112
2 Projects	Northern Lights 2021	Feb-22		\$ -	\$ -	\$ -	\$ 42,086,112	\$ (42,086,112)	\$ -	\$ -	\$ -	\$ -	\$ -	0.1266%	0.6929%	\$ -	\$ -	\$ -	\$ 42,086,112
2 Projects	Northern Lights 2021	Mar-22		\$ -	\$ -	\$ -	\$ 42,086,112	\$ (42,086,112)	\$ -	\$ -	\$ -	\$ -	\$ -	0.1266%	0.6929%	\$ -	\$ -	\$ -	\$ 42,086,112
2 Projects	Northern Lights 2021	Apr-22		\$ -	\$ -	\$ -	\$ 42,086,112	\$ (42,086,112)	\$ -	\$ -	\$ -	\$ -	\$ -	0.1266%	0.6929%	\$ -	\$ -	\$ -	\$ 42,086,112
2 Projects	Northern Lights 2021	May-22		\$ -	\$ -	\$ -	\$ 42,086,112	\$ (42,086,112)	\$ -	\$ -	\$ -	\$ -	\$ -	0.1266%	0.6929%	\$ -	\$ -	\$ -	\$ 42,086,112
2 Projects	Northern Lights 2021	Jun-22		\$ -	\$ -	\$ -	\$ 42,086,112	\$ (42,086,112)	\$ -	\$ -	\$ -	\$ -	\$ -	0.1266%	0.6929%	\$ -	\$ -	\$ -	\$ 42,086,112
<b>Project to Date Cost As of Month of In Service</b>				<b>\$ 42,323,000</b>	<b>\$ (1,398,000)</b>	<b>\$ 40,925,000</b>											<b>Total AFUDC</b>		
<b>Construction Charges Paid After In Service Date</b>				<b>\$ 0</b>															
<b>Total Project Cost</b>				<b>\$ 42,323,000</b>										<b>0.74814%</b>	<b>0.8196%</b>			<b>\$ 1,490,000</b>	<b>\$ 43,813,000</b>
				<b>\$ 42,323,000</b>														<b>Exhibit K Amount</b>	<b>\$ 43,813,000</b>
																		<b>Variance</b>	<b>\$ 0</b>

Exhibit 3

Northern Natural Gas Company  
 Northern Lights 2021  
 Docket No. CP20-503-000  
 AFUDC Calculation

Exhibit K

Description	Total Cost	Right of Way	Other Construction Cost	AFUDC
Viking interconnect branch line	\$ 490,000	\$ 45,000	\$ 435,000	\$ 10,000
Willmar D branch line extension	\$ 6,500,000	\$ 400,000	\$ 5,996,450	\$ 103,550
Carlton interconnect loop	\$ 6,585,000	\$ 1,349,552	\$ 5,131,753	\$ 103,695
<b>Total</b>	<b>\$13,575,000</b>	<b>\$1,794,552</b>	<b>\$11,563,203</b>	<b>\$217,245</b>

Method: AFUDC Reduced Rate (Compensates for inclusion of accrued AFUDC in base to prevent compounding more frequently than semiannually)  
 Monthly AFUDC Rate Formula: = [(1+annual AFUDC rate/2)^2\*(1/12)]-1  
 Frequency of Compounding: Semiannually

Work Order Number	Project	AFUDC Month	In Service Monh	Construction Charges Paid	Land And Land Rights Adjustment	AFUDC Base Additions	Beginning AFUDC Base	1/2 Month Beginning Base Adjustment for In Service	Half Current Month AFUDC Base Additions	Base Addition for In Service	AFUDC Compund Amount	AFUDC Base	Monthly AFUDC Debt Rate	Monthly AFUDC Equity Rate	AFUDC Debt	AFUDC Equity	Total AFUDC	Ending AFUDC Base	
39 Projects	Northern Lights 2021	Apr-20		\$ 1,200	\$ -	\$ 1,200	\$ -		\$ 600	\$ -	\$ -	\$ 600	0.1384%	0.6097%	\$ 1	\$ 4	\$ 4	\$ 1,200	
39 Projects	Northern Lights 2021	May-20		\$ 8,000	\$ -	\$ 8,000	\$ 1,200		\$ 4,000	\$ -	\$ 4	\$ 5,204	0.1384%	0.6097%	\$ 7	\$ 32	\$ 39	\$ 9,204	
39 Projects	Northern Lights 2021	Jun-20		\$ 12,000	\$ -	\$ 12,000	\$ 9,204		\$ 6,000	\$ -	\$ 39	\$ 15,243	0.1384%	0.6097%	\$ 21	\$ 93	\$ 114	\$ 21,243	
39 Projects	Northern Lights 2021	Jul-20		\$ 25,000	\$ -	\$ 25,000	\$ 21,243		\$ 12,500	\$ -	\$ 114	\$ 33,857	0.1384%	0.6097%	\$ 47	\$ 206	\$ 253	\$ 46,357	
39 Projects	Northern Lights 2021	Aug-20		\$ 15,000	\$ -	\$ 15,000	\$ 46,357		\$ 7,500	\$ -	\$ 253	\$ 54,111	0.1384%	0.6097%	\$ 75	\$ 330	\$ 405	\$ 61,611	
39 Projects	Northern Lights 2021	Sep-20		\$ 17,250	\$ -	\$ 17,250	\$ 61,611		\$ 8,625	\$ -	\$ 405	\$ 70,641	0.1384%	0.6097%	\$ 98	\$ 431	\$ 528	\$ 79,266	
39 Projects	Northern Lights 2021	Oct-20		\$ 75,000	\$ -	\$ 75,000	\$ 79,266		\$ 37,500	\$ -	\$ 528	\$ 117,294	0.1384%	0.6097%	\$ 162	\$ 715	\$ 878	\$ 154,794	
39 Projects	Northern Lights 2021	Nov-20		\$ 100,000	\$ -	\$ 100,000	\$ 154,794		\$ 50,000	\$ -	\$ 878	\$ 205,672	0.1384%	0.6097%	\$ 285	\$ 1,254	\$ 1,539	\$ 255,672	
39 Projects	Northern Lights 2021	Dec-20		\$ 125,000	\$ -	\$ 125,000	\$ 255,672		\$ 62,500	\$ -	\$ 1,539	\$ 319,710	0.1384%	0.6097%	\$ 443	\$ 1,949	\$ 2,392	\$ 382,210	
39 Projects	Northern Lights 2021	Jan-21		\$ 25,000	\$ (445,000)	\$ (420,000)	\$ 382,210		\$ (210,000)	\$ -	\$ 2,392	\$ 174,602	0.1266%	0.6929%	\$ 221	\$ 1,210	\$ 1,431	\$ (35,398)	
39 Projects	Northern Lights 2021	Feb-21		\$ 50,000	\$ (1,349,552)	\$ (1,299,552)	\$ (35,398)		\$ (649,776)	\$ -	\$ 1,431	\$ (683,743)	0.1266%	0.6929%	\$ (866)	\$ (4,738)	\$ (5,604)	\$ (1,333,519)	
39 Projects	Northern Lights 2021	Mar-21		\$ 100,000	\$ -	\$ 100,000	\$ (1,333,519)		\$ 50,000	\$ -	\$ (5,604)	\$ (1,289,123)	0.1266%	0.6929%	\$ (1,633)	\$ (8,933)	\$ (10,565)	\$ (1,239,123)	
39 Projects	Northern Lights 2021	Apr-21		\$ 75,000	\$ -	\$ 75,000	\$ (1,239,123)		\$ 37,500	\$ -	\$ (10,565)	\$ (1,212,188)	0.1266%	0.6929%	\$ (1,535)	\$ (8,400)	\$ (9,935)	\$ (1,174,688)	
39 Projects	Northern Lights 2021	May-21		\$ 9,173,450	\$ -	\$ 9,173,450	\$ (1,174,688)		\$ 4,586,725	\$ -	\$ (9,935)	\$ 3,402,102	0.1266%	0.6929%	\$ 4,309	\$ 23,574	\$ 27,883	\$ 7,988,827	
39 Projects	Northern Lights 2021	Jun-21		\$ 2,000,000	\$ -	\$ 2,000,000	\$ 7,988,827		\$ 1,000,000	\$ -	\$ 27,883	\$ 9,016,710	0.1266%	0.6929%	\$ 11,419	\$ 62,480	\$ 73,899	\$ 10,016,710	
39 Projects	Northern Lights 2021	Jul-21		\$ 1,101,150	\$ -	\$ 1,101,150	\$ 10,016,710		\$ 550,575	\$ -	\$ 73,899	\$ 10,641,185	0.1266%	0.6929%	\$ 13,477	\$ 73,737	\$ 87,213	\$ 11,191,760	
39 Projects	Northern Lights 2021	Aug-21	Aug-21	\$ 268,520	\$ -	\$ 268,520	\$ 11,191,760	\$ (5,595,880)	\$ 67,130	\$ -	\$ 43,607	\$ 5,706,616	0.1266%	0.6929%	\$ 7,227	\$ 39,543	\$ 46,770	\$ 11,503,886	
39 Projects	Northern Lights 2021	Sep-21		\$ 186,185	\$ -	\$ 186,185	\$ 11,503,886		\$ -	\$ -	\$ -	\$ 11,503,886	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Oct-21		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Nov-21		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Dec-21		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Jan-22		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Feb-22		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Mar-22		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Apr-22		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	May-22		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
39 Projects	Northern Lights 2021	Jun-22		\$ -	\$ -	\$ -	\$ 11,690,071		\$ -	\$ -	\$ -	\$ 11,690,071	0.1266%	0.6929%				\$ 11,690,071	
<b>Project to Date Cost As of Month of In Service</b>				<b>\$ 13,357,755</b>	<b>\$ (1,794,552)</b>	<b>\$ 11,563,203</b>							<b>Total AFUDC</b>	<b>\$ 33,758</b>	<b>\$ 183,488</b>	<b>\$ 217,245</b>			
<b>Construction Charges Paid After In Service Date</b>				<b>\$ -</b>															
<b>Total Project Cost</b>				<b>\$ 13,357,755</b>										<b>0.74814%</b>	<b>0.8196%</b>			<b>\$ 217,245</b>	<b>\$ 13,575,000</b>
<b>Exhibit K Amount</b>																		<b>\$ 13,575,000</b>	
<b>Variance</b>																		<b>\$</b>	<b>0</b>

Exhibit 4

Northern Natural Gas Company  
Northern Lights 2021  
Docket No. CP20-503-000

2020 AFUDC RATE CALCULATION

Line No.	Capitalization Items	Capitalization at 12/31/2017	Capitalization at 12/31/2018	Capitalization at 12/31/2019	Capitalization Percent	Rate	2020 ANNUAL	2020 SEMI ANNUAL COMPOUNDED ANNUAL AFUDC RATE	2020 SEMI ANNUAL COMPOUNDED MONTHLY AFUDC RATE
	(a)	(b)	(d)	(e)	(e)	(f)	(g)	(h)	(i)
1	DEBT CAPITAL	\$ 800,000,000	\$ 1,050,000,000	\$ 1,250,000,000	37.879%	4.469%	1.6927665%	18.51%	0.1384%
2	PREFERRED STOCK CAPT	0			0.000%				
3	COMMON STOCK EQUITY	\$ 1,580,037,816	\$ 1,776,160,549	\$ 2,050,018,087	62.121%	12.000% (1)	7.4545704%	81.49%	0.6097%
4	TOTAL CAPITALIZATION	\$ 2,380,037,816	\$ 2,826,160,549	\$ 3,300,018,087	100.000%		9.1473369%	100.00%	0.7481%

**Semiannual Compounded AFUDC Rate Formula**  
**Monthly AFUDC Rate = [(1+annual AFUDC rate/2)^2^(1/12)]-1**

Line No.	Title	Date of Issuance	Maturity	Current Interest Rate	Principal Amount of Issue	Gross Proceeds	Underwriter's Commis. Amount	% Gross Proceeds	Issuance Expense Amount	% Gross Proceeds	Issuance Premium Amount	% Gross Proceeds	Net Proceeds Amount	Per Unit	Life of Issue (Years)	Cost of Money	Debt Capital Outstanding	Annual Cost	Wghtd Avg Cost
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(rr)	(s)
1	5.800 % Due	2/15/2007	2/15/2037	5.800%	150,000,000	149,893,500	422,850	0.282%	590,076	0.394%	-	0.000%	148,880,574	99.254%	30.00	5.85%	150,000,000	8,779,627	
2	4.300 % Due	7/17/2018	1/15/2049	4.300%	450,000,000	449,923,500	3,600,000	0.800%	1,075,809	0.239%	-	0.000%	445,247,691	98.944%	30.50	4.36%	450,000,000	19,633,248	
3	4.250 % Due	4/20/2011	6/1/2021	4.250%	200,000,000	199,956,000	1,000,000	0.500%	1,026,005	0.513%	-	0.000%	197,929,995	98.965%	10.11	4.38%	200,000,000	8,754,501	
4	4.100 % Due	8/27/2012	9/15/2042	4.100%	250,000,000	249,565,000	1,625,000	0.651%	577,472	0.231%	-	0.000%	247,362,528	98.945%	30.05	4.16%	250,000,000	10,404,325	
5	4.300 % Due	6/17/2019	1/15/2049	4.300%	200,000,000	207,516,000	1,500,000	0.723%	763,675	0.368%	(7,516,000)	-3.622%	212,768,325	106.384%	29.58	4.14%	200,000,000	8,289,901	
6					<u>1,250,000,000</u>	<u>1,256,854,000</u>	<u>8,147,850</u>		<u>4,033,037</u>		<u>(7,516,000)</u>		<u>1,252,189,113</u>				<u>1,250,000,000</u>	<u>55,861,602</u> *	4.469%

Line No.	Common Stock Equity	12/31/2017	12/31/2018	12/31/2019
7	Total Shareholder's Equity per FERC Balance Sheet	1,580,037,816	1,776,160,549	2,050,018,087
	Equals: Common Stock Equity	1,580,037,816	1,776,160,549	2,050,018,087

(1) Allowed equity rate in RP03-398 and RP04-155 rate case settlement



Exhibit 5

Northern Natural Gas Company  
Northern Lights 2021  
Docket No. CP20-503-000

2021 AFUDC RATE CALCULATION

Line No.	Capitalization Items	Capitalization at 12/31/2018	Capitalization at 12/31/2019	Capitalization at 12/31/2020	Capitalization Percent	Rate	2020 ANNUAL	2021 SEMIANNUAL COMPOUNDED ANNUAL AFUDC RATE	2021 SEMIANNUAL COMPOUNDED MONTHLY AFUDC RATE		
(a)	(d)	(e)	(e)	(e)	(e)	(f)	(g)	(h)	(i)		
1	DEBT CAPITAL	\$ 1,050,000,000	\$ 1,250,000,000	\$ 1,250,000,000	34.712%	4.469%	1.5512396%	15.45%	1.5902%	15.45%	0.1266%
2	PREFERRED STOCK CAPITAL				0.000%						
3	COMMON STOCK EQUITY	\$ 1,776,160,549	\$ 2,050,018,087	\$ 2,351,094,287	65.288%	13.000%	(1) 8.4874828%	84.55%	10.2907%	100.00%	0.6929%
4	TOTAL CAPITALIZATION	\$ 2,826,160,549	\$ 3,300,018,087	\$ 3,601,094,287	100.000%		10.0387224%	100.00%	10.2907%	115.5%	0.8196%

Semiannual Compounded AFUDC Rate Formula  
Monthly AFUDC Rate = [(1+annual AFUDC rate/2)^2^(1/12)]-1

Line No.	Title	Date of Issuance	Maturity	Current Interest Rate	Principal Amount of Issue	Gross Proceeds	Underwriter's Commis. Amount	% Gross Proceeds	Issuance Expense Amount	% Gross Proceeds	Issuance Premium Amount	% Gross Proceeds	Net Proceeds Amount	Per Unit	Life of Issue (Years)	Cost of Money	Debt Capital Outstanding	Annual Cost	Wghtd Avg Cost
(a)	(b)	(c)	(d)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(rr)	(s)
1	5.800 % Due	2/15/2007	2/15/2037	5.800%	150,000,000	149,893,500	422,850	0.282%	590,076	0.394%	-	0.000%	148,880,574	99.254%	30.00	5.85%	150,000,000	8,779,627	
2	4.300 % Due	7/17/2018	1/15/2049	4.300%	450,000,000	449,923,500	3,600,000	0.800%	1,075,809	0.239%	-	0.000%	445,247,691	98.944%	30.50	4.36%	450,000,000	19,633,248	
3	4.250 % Due	4/20/2011	6/1/2021	4.250%	200,000,000	199,956,000	1,000,000	0.500%	1,026,005	0.513%	-	0.000%	197,929,995	98.965%	10.11	4.38%	200,000,000	8,754,501	
4	4.100 % Due	8/27/2012	9/15/2042	4.100%	250,000,000	249,565,000	1,625,000	0.651%	577,472	0.231%	-	0.000%	247,362,528	98.945%	30.05	4.16%	250,000,000	10,404,325	
5	4.300 % Due	6/17/2019	1/15/2049	4.300%	200,000,000	207,516,000	1,500,000	0.723%	763,675	0.368%	(7,516,000)	-3.622%	212,768,325	106.384%	29.54	4.14%	200,000,000	8,289,901	
6	Projected Debt Capital at December 31, 2020				1,250,000,000	1,256,854,000	8,147,850		4,033,037		(7,516,000)		1,252,189,113				1,250,000,000	55,861,602 *	4.469%

	12/31/2018	12/31/2019	Estimated 12/31/2020
Common Stock Equity			
7 Total Shareholder's Equity per FERC Balance Sheet	1,776,160,549	2,050,018,087	2,351,094,287
Equals: Common Stock Equity	1,776,160,549	2,050,018,087	2,351,094,287

(1) The rate of return on equity of 13% is the estimated average rate of return earned by Northern for the preceding three years.

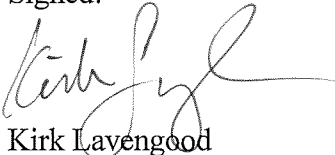
**VERIFICATION**

**STATE OF NEBRASKA** )

**COUNTY OF DOUGLAS** )

Kirk Lavengood, being duly sworn, on oath, states that he is Vice President, General Counsel and Regulatory Affairs, for Northern Natural Gas Company and is duly authorized to make this affidavit; that he has read the foregoing Data Response of such Company and is familiar with the contents thereof; that all the facts therein are true and correct to the best of his knowledge, information and belief.

Signed:

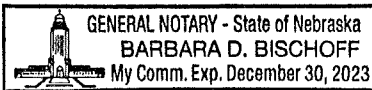


Kirk Lavengood  
Vice President, General Counsel and Regulatory Affairs

**SUBSCRIBED AND SWORN TO**, before me, this *11* day of *January* 2021.

*Barbara D. Bischoff*  
Notary Public in and for  
Douglas County, Nebraska

My commission expires:



**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 11 day of *January* 2021.



Michael T. Loeffler

Sr. Director of Certificates and External Affairs

P.O. Box 3330

Omaha, Nebraska 68103-0330

Telephone: (402) 398-7103