ANNUAL COST RECOVERY MECHANISM SHIPPER MEETING

Northwest Pipeline LLC

January 25, 2024

Agenda

1. M&ERP 2023 Eligible Facilities - *Completed*
   Turbine Upgrades:
   - Pegram #1 & Lava #1
2. M&ERP 2024 Eligible Facilities – *In Construction*
   Turbine Upgrades:
   - Pleasant View #1 & #2 and Meacham #1 & #2

   Horsepower Replacements:
   - Green River Compressor Station
   - Sumas Compressor Station
3. M&ERP 2025 Eligible Facilities
   Turbine Upgrades:
   - Cisco #1 & #2, Muddy Creek #2, and Pegram #2

   Horsepower Replacement:
   - Soda Springs Compressor Station
4. M&ERP 2026/2027 Upcoming Eligible Facilities
5. Anticipated Outages
6. Illustrative CRM Surcharge

2023 - Pegram #1 & Lava #1 – [Idaho] Turbine Upgrades

Project Scope:

Exchange conventional combustion gas turbine engines with low emission SoLoNOx gas turbines (142 ppm NOx to 25 ppm NOx), convert the compressor wet seal system to a dry gas seal system, install seal gas recovery and process vent recovery equipment, and replace gas pneumatic starter(s) with electric start motors. Upgrade the existing single phase electric utility service to 3-phase power and install standby generator.

Original Estimated Capital Expenditures:

- Pegram #1: $3.89 MM (+15% Limit = $4.47 MM)
- Lava #1: $3.96 MM (+15% Limit = $4.55 MM)

Updated Cost Estimate as of January 2024:

- Pegram #1: $8.05 MM
- Lava #1: $9.42 MM

Included in Surcharge Effective on April 1, 2025

Anticipated Emissions Reductions:

- NOx Emissions
  - Pegram #1 - ~86% (26.5 tons/yr)
  - Lava #1 - ~71% (20.6 tons/yr)
- Methane (CH_4) Emissions
  - Pegram #1 - ~64% (9.9 tons/yr)
  - Lava #1 - ~87% (76.7 tons/yr)

Status:

- Units in service and available for heating season

Lava Compressor Station Unit #1

2024 - Pleasant View #1 & #2 [Colorado] and Meacham #1 & #2 [Oregon] Turbine Upgrades

Project Scope:

Exchange conventional combustion gas turbine engines (Units #1 and #2 at both facilities) with low emission SoLoNOx gas turbines, convert compressor wet seal systems to dry gas seals systems, install seal gas recovery and process vent recovery equipment, and replace gas pneumatic devices that can be converted to electric or air.

Original Estimated Capital Expenditures:

- Pleasant View #1 & #2: $7.33 MM (+15% Limit = $8.43 MM)
- Meacham #1 & #2: $7.33 MM (+15% Limit = $8.43 MM)

Updated Cost Estimate as of January 2024:

- Pleasant View #1 & #2: $8.95 MM
- Meacham #1 & #2: $8.70 MM

Timeline:

- **Construction Start:** June 24, 2024
- **In-Service Date:** October 31, 2024

Anticipated Outages: June 24, 2024 – October 15, 2024

Included in Surcharge Effective on April 1, 2025

Anticipated Emissions Reductions:

- NOx emissions
  - Pleasant View #1 & #2 – ~85% (40.6 tons/yr)
  - Meacham #1 & #2 – ~79% (33.8 tons/yr)
- Methane (CH_4) emissions
  - Pleasant View #1 & #2 – ~65% (19.8 tons/yr)
  - Meacham #1 & #2 – ~64% (19.8 tons/yr)

Pleasant View Compressor Station

2024 - Green River [Wyoming] Compressor Station Horsepower Replacement

Project Scope:

Replacement of the existing Cooper GMWC-6 (Units 1-4) reciprocating engines, and the Centaur 50 HS T6120S (Unit 5) Solar Turbine with the installation of one (1) Solar Taurus 60 Turbine and one (1) Solar Centaur 50 Turbine, both with SoLoNOx low-emission technology and controls.

Original Estimated Capital Expenditures:

- Green River: $57.99 MM (+15% Limit = $66.69 MM)

Updated Cost Estimate as of January 2024:

- Green River: $77.8 MM

Timeline:

- **Received 2.55(b) Advanced Notification:** June 2023
- **Completed Site Prep Activities:** December 2023
- **Main Construction Start**: January 2024
- **Anticipated Outages:** July 20 – September 03, 2024
  - Final tie-in of new equipment
- **Target In-Service Date:** October 31**,** 2024

Included in Surcharge Effective April 1, 2025

Anticipated Efficiencies:

- **Operations & Maintenance Costs:** -$342,080 per year
- **Anticipated Emissions Reductions:**
  - NOx emissions - ~98% (479.0 tons/yr)
  - Methane (CH_4) emissions - ~94% (189.7 tons/yr)

2024 - Sumas [Washington] Compressor Station Horsepower Replacement

Project Scope:

Replacement of the existing Ingersoll - Rand KVS (Units 1-4), Clark TCV-12 (Units 5-6) with the installation of one (1) Solar Mars 100 turbine with SoLoNOx low-emission technology and controls.

Original Estimated Capital Expenditures:

- Sumas: $63.48 MM (+15% Limit = $73.00 MM)

Updated Cost Estimate as of January 2024:

- Sumas: $65.50 MM

Timeline:

- **Received County and Air Permits:** October 2023
- **Received 2.55(b) Advanced Notification:** August 2023
- **Construction Start:** November 2023
- **Anticipated Outages:**
  - September 4 – October 1, 2024
    - Final tie-ins of new equipment
- **In-Service Date:** October 31, 2024

Included in Surcharge effective on April 1, 2025

Anticipated Efficiencies:

- **Operations & Maintenance Costs:** -$363,349 per year
- **Anticipated Emissions Reductions:**
  - NOx emissions - ~77% (200.4 tons/yr)
  - Methane (CH4) emissions - ~91% (277.5 tons/yr)

2025 – Muddy Creek #2 [Wyoming] and Pegram #2 [Idaho] Turbine Upgrades

Project Scope:

Exchange conventional combustion gas turbine engines with low emission SoLoNOx gas turbines, convert the existing compressor wet seal system to a dry gas seal system, install seal gas recovery and process vent recovery equipment, replace gas pneumatic devices that can be converted to electric or air. Note: Muddy Creek will need to upgrade the existing single phase electric utility service to 3-phase.

Original Estimated Capital Expenditures:

- Muddy Creek #2 & Pegram #2:
  $7.59 MM (+15% Limit = $8.73 MM)

Updated Cost Estimate as of January 2024:

- Muddy Creek #2 & Pegram #2: $9.61 MM

Timeline:

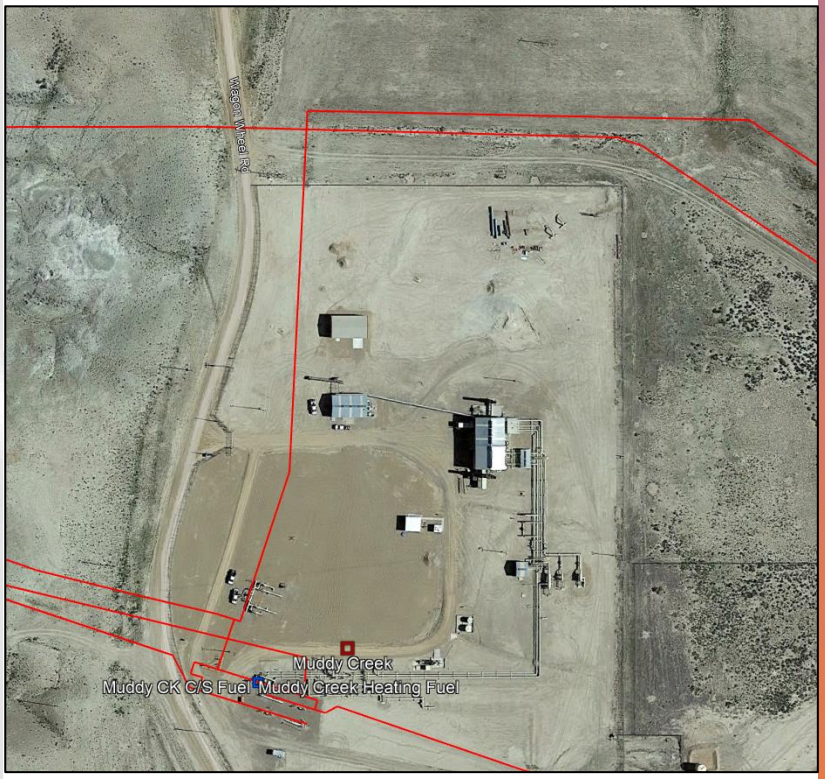
- **Construction Start**: July 2025
- **In-Service Date**: October 31, 2025

Included in Surcharge Effective on April 1, 2026

Anticipated Emissions Reductions:

- NOx Emissions
  - Muddy Creek #2 – ~79% (23.5 tons/yr)
  - Pegram #2 – ~89% (22.4 tons/yr)
- Methane (CH_4) Emissions
  - Muddy Creek #2 – ~64% (9.9 tons/yr)
  - Pegram #2 – ~64% (9.9 tons/yr)

Muddy Creek Compressor Station



2025 - Cisco #1 & #2 [Utah] Turbine Upgrades

Project Scope:

Exchange conventional combustion gas turbine engines with low emission SoLoNOx gas turbines, convert the compressor wet seal system to a dry gas seal system, install seal gas recovery and process vent recovery equipment, replace gas pneumatic devices that can be converted to electric or air

Original Estimated Capital Expenditures:

Cisco #1 & #2: $6.84 MM (+15% Limit = $7.87 MM)

Updated Cost Estimate as of January 2024:

Cisco #1 & #2: $6.86 MM

Timeline:

- **Construction Start:** July 2025
- **In-Service Date:** October 31, 2025

Included in Surcharge Effective on April 1, 2026

Anticipated Emissions Reductions:

- NOx Emissions - ~63% (11.7 tons/yr)
- Methane (CH_4) Emissions - ~65% (19.8 tons/yr)

Cisco Compressor Station

2025 - Soda Springs [Idaho] Compressor Station Horsepower Replacement

Project Scope:

Replacement of the existing Clark TLA-6 (Units 1-3), Clark TCVA-6 (Unit 4) with the installation of one (1) Taurus 70 and one (1) Centaur 40 turbine both with SoLoNOx low-emission technology and controls

Original Estimated Capital Expenditures:

- Soda Springs: $65.20 MM (+15% Limit = $74.98 MM)

Updated Cost Estimate as of January 2024:

- Soda Springs: $68.4 MM

Timeline:

- **Engineering Complete:** April 2024
- **File 2.55(b) Advanced Notification:** June 2024
- **Receive Air Permit:** July 2024
- **Construction Start:** July 2024
- **Anticipated Outages:** September 2025
- **Target In-Service Date:** October 5, 2025

Included in Surcharge Effective April 1, 2026

Anticipated Efficiencies:

- **Operational & Maintenance Costs:** -$148,769 per year
- **Anticipated Emission Reductions:**
  - NOx Emissions - ~99% (499.0 tons/yr)
  - Methane (CH_4) Emissions - ~95% (227.8 tons/yr)

M&ERP 2026/2027 Eligible Facilities

2026 - Buhl #1 [Idaho]

Project Scope and Status:

- Exchange the conventional high hour turbine engines with SoLoNOx gas turbines, convert compressor wet seal systems to dry gas seals, install seal gas recovery and process vent recovery equipment, replace gas pneumatic devices that can be converted to electric or air
- Project Engineering and Scoping to begin Q1/Q2 2025

Original Estimated Capital Expenditures:

- $3.43 MM (+15% Limit = $3.94 MM)

Target In-Service Date: October 31, 2026

Included in Surcharge Effective on April 1, 2027

2026 - McMinnnville #1 [Oregon]

Project Scope and Status:

- Exchange the conventional high hour turbine engines with SoLoNOx gas turbines, convert the compressor wet seal systems to dry gas seals, install seal gas recovery and process vent recovery equipment, replace gas pneumatic devices that can be converted to electric or air
- Project Engineering and Scoping to begin Q1/Q2 2025

Original Estimated Capital Expenditures:

- $3.71 (+15% Limit = $4.27 MM)

Target In-Service Date: October 31, 2026

Included in Surcharge Effective on April 1, 2027

2026 - Pocatello Compressor Station [Idaho]

Project Scope and Status:

- Replacement of the existing Clark TLA-6 (Units 1-3), Clark TCVA-6 (Unit 4) with the installation of two (2) Centaur 50 turbines
- Engineering scheduled to begin April 2024

Original Estimated Capital Expenditures:

- $58.49 MM (+15% Limit = $67.26 MM)

Target In-Service Date: October 31, 2026

Included in Surcharge Effective on April 1, 2027

2027 - Kemmerer Compressor Station [Wyoming]

Project Scope and Status:

- Replacement of the existing Cooper GMWC-6 (Units 1-4) and mobile unit with the installation of one Solar Taurus 60 Compressor Package, or equivalent
- Front End Development to begin Q1 2024
- FERC 7(c) Application to be filed in Q1 2025

Original Estimated Capital Expenditures:

- $49.41 MM (+15% Limit = $56.82 MM)

Target In-Service Date: October 31, 2027

Rolled into the new rates to be effective no later than April 1, 2028, as required by Northwest's Docket No. RP22-1155 Settlement Agreement

Anticipated Outages*

Green River Compressor Station

July 20 – September 3, 2024

- Final tie-ins of new equipment
- Free flow: 294k Dth/d NB, no impact SB (Design: 467k / 759k))

Sumas Compressor Station

September 4 – October 1, 2024

- Final tie-ins of new equipment
- D Plant outage: 1,261k Dth/d SB (Design: 1,298k)
- Commissioning: 1,182 Dth/d SB (Oct 1 – Oct 31)

Pleasant View #1 & #2 Compressor Station

June 24, 2024 – October 15, 2024

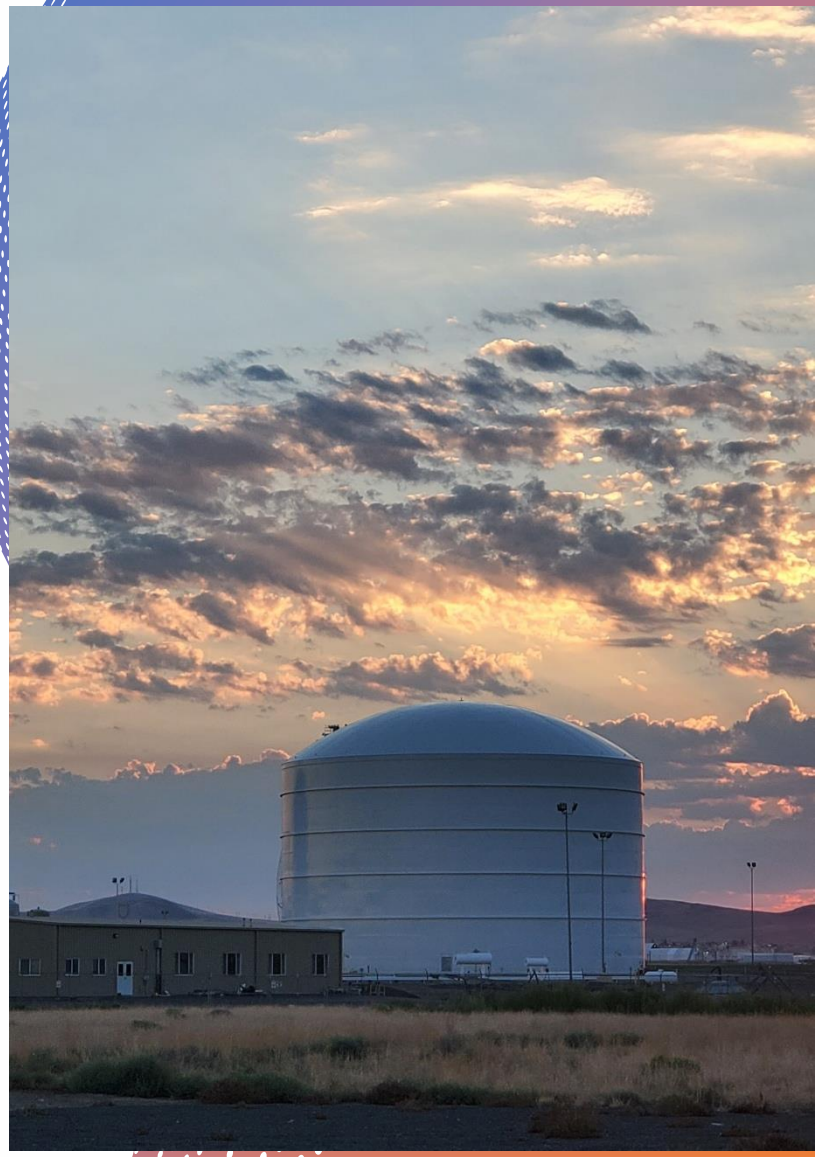
- Engine Exchange (SoLoNOx Conversion), Compressor seal conversion (wet to dry), installation of the new recompression equipment, and equipment / piping tie-ins
- Free flow: 259k Dth/d NB, 277k Dth/d SB (Design: 281k / 351k)

Meacham #1 & #2 Compressor Station

June 24, 2024 – October 15, 2024

- Engine Exchange (SoLoNOx Conversion), Compressor seal conversion (wet to dry), installation of the new recompression equipment, and equipment / piping tie-ins
- Free flow: 415k Dth/d NB, 469k Dth/d SB (Design: 445k / 500k)

*All updates to the anticipated outage schedule will be communicated via standard shipper communications and postings on Northwest's EBB (Informational Postings Site).



Illustrative Derivation of CRM Surcharge based on Updated Cost Estimates

NORTHWEST PIPELINE LLC
Illustrative Derivation of CRM Surcharge Rate
Modernization and Emissions Reduction Program

Estimated Rate Base, Revenue Requirement and Rate Calculation

Line No.	Description			2023 CapEx (B) $	1/	2023-2024 CapEx Surcharge Estimate 4/1/2025 (C) $	Description
	Surcharge Effective Date						
	(A)						
1	Gas Plant In Service at 10/31/2024			9,000,000		165,500,000	Actual
2	Reserve for Depreciation at 10/31/2024			(112,500)		(2,293,750)	Actual
3	Net Plant at 10/31/20xx			8,887,500		163,206,250	Line 1 minus Line 2
4	Deferred Income Taxes at 10/31/2024			(81,000)		(1,640,700)	Actual
5	Rate Base			8,806,500		161,565,550	Line 3 plus Line 4
6	Rate Base Multiplier (Pre-Tax Return & Ad Valorem Adder)		11.50%	1,012,748		18,580,038	Line 5 times Rate Base Multiplier
7	Depreciation Expense	2/		225,000		4,137,500	(Line 1 less retirement gross plant) times 2.5%
8	O&M Savings			0		(705,429)	Per Settlement
9	Total Revenue Requirement			1,237,748		22,012,109	Line 7 plus Line 8
10	Over/Under Recovered Revenue Requirement	3/		0		0	Actual
11	Total Revenue Requirement for Surcharge			1,237,748		22,012,109	Line 9 plus Line 10
12	Billing Determinants	4/				917,816,031	Prior Year Actual or Billing Determinant Floor
13	**Estimated Cumulative Surcharge per dt/d**					**0.02398**	Line 11 divided by Line 12

1/ First surcharge will begin April 1, 2025 and will include facilities placed in-service by October 31, 2024.
2/ Transmission depreciation rate of 2.5% will be utilized. When calculating depreciation expense, Gas Plant in Service will be adjusted to reflect the retirement of the horsepower replacement project's gross plant at the time of demolition.
3/ The roll forward of over/under Recovered Revenue Requirement will be subject to the billing determinants floor.
4/ Billing Determinants will be based on actual billing determinants, adjusted for discounts, for Rate Schedule TF-1 (Large) including Evergreen and Rate Schedule TF-2.

Rangely Compressor Station Update

Before:

After:

THANK YOU!!

Appendix

Modernization & Emission Reduction Program (M&ERP) Section 30 of the GT&C

- Northwest's Rate Case (Docket No. RP22-1155) effective January 1, 2023.
- M&ERP is designed to strengthen the safety, efficiency, reliability, and flexibility of Northwest's system while reducing Northwest's air emissions.
  - The program replaces 22 vintage 1956 natural gas reciprocating engines and upgrades 12 natural gas turbines with low-emissions technology.
- Cost Recovery Mechanism allows Northwest to recover capital investment for Eligible Facilities placed into service after January 1, 2023.
  - Applicable to Shippers under Rate Schedules TF-1 (Large Customers), TF-1 (25-year Evergreen Expansion) and TF-2 with base contracts that have a primary term of one year or more.
  - Total amount of capital investment for the 5-year program eligible for recovery is $389.4 MM ($338.65 MM plus 15%).
  - Section 30.3(e) of the GT&C provides Annual Eligible Capital Investment Limit for each year in the 5-year program.
  - Northwest is allowed to adjust the Eligible Facilities, subject to conditions:
    - Northwest can unilaterally remove any Eligible Facilities.
    - Northwest can substitute or add facilities as long as it fits within the objective of the program, as long as Northwest receives approval of 75% of the reservation billing determinants responsible for the costs.
  - Each year's Eligible Facilities placed in-service by October 31 will be included in the surcharge effective April 1 of the following year:

Surcharge Effective Date	Description
April 1, 2025	Surcharge will include Eligible Facilities placed in-service by October 31, 2024
April 1, 2026	Surcharge will include Eligible Facilities placed in-service by October 31, 2024 and October 31, 2025
April 1, 2027	Surcharge will include Eligible Facilities placed in-service by October 31, 2024; October 31, 2025; and October 31, 2026
2028	With a 5-year, 3-month comeback provision, there would be no surcharge this year because the 2027 Eligible Facilities will be included in the next rate case

Eligible Facilities
Appendix F-1 of NWP Settlement (RP22-1155)

Appendix F-1

Northwest Pipeline LLC
Modernization and Emissions Reduction Program (M&ERP)
Eligible Facilities Plan (EFP)
Scope and Cost Estimates ($ MM)

Target In-Service: 10/31/2023	
Turbine Exchange	
Pegram #1	3.89
Lava #1	3.96
Subtotal	*7.85*
Horsepower Replacement	
None	
Subtotal	*0*
Annual Capital Expenditures	**7.85**
Annual Eligible Capital Investment Limit	**9.00**

Target In-Service: 10/31/2024	
Turbine Exchange	
Pleasant View #1 & #2	7.33
Meacham #1 & #2	7.33
Subtotal	*14.66*
Horsepower Replacement	
Sumas	63.48
Green River	57.99
Subtotal	*121.47*
Annual Capital Expenditures	**136.13**
Annual Eligible Capital Investment Limit	**156.50**

Target In-Service: 10/31/2025	
Turbine Exchange	
Cisco #1 & #2	6.84
Muddy Creek #2 & Pegram #2	7.59
Subtotal	*14.43*
Horsepower Replacement	
Soda Springs	65.20
Subtotal	*65.20*
Annual Capital Expenditures	**79.63**
Annual Eligible Capital Investment Limit	**91.60**

Target In-Service: 10/31/2026	
Turbine Exchange	
Buhl #1	3.43
McMinnville #1	3.71
Subtotal	*7.13*
Horsepower Replacement	
Pocatello	58.49
Subtotal	*58.49*
Annual Capital Expenditures	**65.63**
Annual Eligible Capital Investment Limit	**75.50**

Target In-Service: 10/31/2027	
Turbine Exchange	
None	
Subtotal	*0*
Horsepower Replacement	
Kemmerer	49.41
Subtotal	*49.41*
Annual Capital Expenditures	**49.41**
Annual Eligible Capital Investment Limit	**56.80**

Total Cumulative Capital Expenditures	**338.65**
Total Cumulative Eligible Capital Investment Limit	**389.40**

Illustrative Derivation of CRM Surcharge Rate
Appendix F-2 of NWP Settlement (RP22-1155)

Appendix F-2

NORTHWEST PIPELINE LLC
Illustrative Derivation of CRM Surcharge Rate
Modernization and Emissions Reduction Program

Estimated Rate Base, Revenue Requirement and Rate Calculation

Line No.	Description			2023 CapEx	1/ 2023-2024 CapEx Surcharge Estimate 4/1/2025	2023-2025 CapEx Surcharge Estimate 4/1/2026	2023-2026 CapEx Surcharge Estimate 4/1/2027	2023-2027 CapEx 2/	
	Surcharge Effective Date								
	(A)			(B)	(C)	(D)	(E)	(F)	
				$	$	$	$	$	
1	Gas Plant In Service at 10/31/20xx			7,847,600	143,976,000	223,607,200	289,238,800	338,648,800	Actual
2	Reserve for Depreciation at 10/31/20xx			(74,083)	(1,870,477)	(5,968,555)	(11,415,934)	(18,068,478)	Actual
3	Net Plant at 10/31/20xx			7,773,517	142,105,523	217,638,645	277,822,866	320,580,322	Line 1 minus Line 2
4	Deferred Income Taxes at 10/31/20xx			(76,391)	(1,457,723)	(4,694,519)	(8,928,577)	(13,701,265)	Actual
5	Rate Base			7,697,126	140,647,800	212,944,126	268,894,289	306,879,057	Line 3 plus Line 4
6	Rate Base Multiplier (Pre-Tax Return & Ad Valorem Adder)		11.50%	885,169	16,174,497	24,488,575	30,922,843	35,291,092	Line 5 times Rate Base Multiplier
7	Depreciation Expense	3/		148,167	3,444,621	4,751,534	6,143,224	7,161,864	(Line 1 less retirement gross plant) times 2.5%
8	O&M Savings			0	(705,429)	(854,198)	(1,279,492)	(1,781,144)	Per Settlement
9	Total Revenue Requirement			1,033,336	18,913,689	28,385,911	35,786,576	40,671,812	Line 7 plus Line 8
10	Over/Under Recovered Revenue Requirement	4/		0	0	0	0	0	Actual
11	Total Revenue Requirement for Surcharge			1,033,336	18,913,689	28,385,911	35,786,576	40,671,812	Line 9 plus Line 10
12	Billing Determinants	5/			917,816,031	917,816,031	917,816,031		Prior Year Actual or Billing Determinant Floor
13	Estimated Cumulative Surcharge per dt/d				0.02061	0.03093	0.03899		Line 11 divided by Line 12

1/ First surcharge will begin April 1, 2025 and will include facilities placed in-service by October 31, 2024.
2/ Facilities placed in-service by October 31, 2027 will be included in the base rates of the first post moratorium rate case.
3/ Transmission depreciation rate of 2.5% will be utilized. When calculating depreciation expense, Gas Plant in Service will be adjusted to reflect the retirement of the horsepower replacement project's gross plant at the time of demolition.
4/ The roll forward of over/under Recovered Revenue Requirement will be subject to the billing determinants floor.
5/ Billing Determinants will be based on actual billing determinants, adjusted for discounts, for Rate Schedule TF-1 (Large) including Evergreen and Rate Schedule TF-2.