CLEAN ENERGY PLAN VERIFICATION

CORE Electric Cooperative

COLORADO
Air Pollution Control Division
Department of Public Health & Environment

December 2023

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Attachments

INTRODUCTION

During the 2021 legislative session, Colorado adopted House Bill 21-1266, which is codified in part at § 25-7-105(1)(e)(VIII)(G)-(J), C.R.S. This legislation created a requirement for certain categories of electric utilities to file a voluntary Clean Energy Plan (CEP) that achieves at least an eighty percent reduction in Greenhouse Gas (GHG) emissions associated with the utility's retail sales to customers within Colorado by 2030, when compared to a 2005 baseline.

During the 2019 legislative session, Colorado adopted Senate Bill 19-236, which is codified in part at § 40-2-125.5, C.R.S. This legislation created the CEP process for resource plans submitted to the PUC and the pathway for voluntary CEPs for utilities that are not required to file resource plans with the PUC.

Also, during the 2019 legislative session, Colorado adopted House Bill 19-1261, which is codified in part at §§ 25-7-102 and -105(1)(e), C.R.S. In addition to setting economy-wide GHG pollution reduction targets for Colorado, this legislation created a mechanism by which utilities can attain regulatory certainty with the AQCC through 2030, commonly referred to as the "Safe Harbor" provision.

In developing the CEP Guidance document and associated emissions Verification Workbook, APCD engaged with a broad set of interested groups including environmental advocacy, municipal government, public policy, and utilities through a technical work group process. In January 2021, the AQCC adopted a resolution supporting the APCD's publication of the Guidance and Workbook. The documents are available on the Climate Change page of the APCD website.

The Division is utilizing the CEP Guidance and Verification Workbook developed through the stakeholder process for the verification of the CORE Electric Cooperative (CORE) voluntary CEP filing. Use of the published guidance and verification workbook ensures consistency in

the verification process for all plans submitted through PUC proceedings as well as the plans filed voluntarily by other utilities.

CORE (formerly IREA) submitted the notice of intent to file a voluntary CEP with the Division on July 30, 2021 and requested an extension to the filing date due to the ongoing proceeding at the Public Utilities Commission for Public Service Company of Colorado. This request was made due to CORE's co-ownership of Comanche Station Unit 3. APCD granted the extension request with a new filing requirement of December 31, 2023. CORE submitted its completed CEP workbook and supporting data to the Division on December 1, 2023.

APCD VERIFICATION PROCESS

In this report, APCD addresses three (3) matters necessary to verify the emissions reduction calculations in the CORE voluntary CEP filing. First, APCD is verifying that the CEP Guidance and associated Verification Workbook have been used properly to calculate emissions reduction percentages. Second, APCD is verifying that the 2005 baseline emissions are supported by historical data and accurately reflect changes to CORE customer base. Finally, APCD is verifying that the projected emissions for calendar year 2030 produced by the CORE resource planning process are consistent with the results calculated by APCD in the verification workbook. By addressing these three matters, APCD is able to verify the emissions reduction calculations for the voluntary CEP filing submitted by CORE.

USE OF CEP GUIDANCE AND WORKBOOK

The Verification Workbook is designed to provide emissions reduction calculations in a neutral and transparent way. As noted above, the emissions reduction information submitted by CORE from the resource planning process can be verified using the same evaluation methods

and tool as plans submitted through the PUC resource planning process and other voluntary CEP filings.

The workbook contains detailed instructions for how and where to enter data and allows for additional rows to be inserted into the worksheets in order to capture all of the data necessary to make the system-wide calculations. Summary data from the 2005 and 2030 worksheets are linked to the reduction calculation worksheets so that percent reduction calculations are processed automatically. Many of the cells in the "Lists and Lookups" sheet are protected to ensure that regional and market emissions factors used in the calculations are those determined for use during the Guidance development process.

To verify integrity of the calculations, APCD manually transferred data from the CEP workbook submitted by CORE into a new workbook. By doing this, APCD verified the embedded functionality of the workbook has not been modified and the calculations have been performed as published.

APCD's verification workbook is included as Attachment 1 and contains the verified information for all data tables. No differences were identified in the Division's review of the submitted workbook and supporting data.

2005 BASELINE EMISSIONS

The verification of 2005 emissions uses data provided by CORE based on company records of energy received as describe in the Attachment 2. CORE had no owned assets in 2005. APCD used the information to perform a cross-check of the data entered in the workbook to the supporting information.

APCD also reviewed information related to wholesale customer contract changes of the utility in order to ensure baseline emissions were not double counted by multiple utilities in CEP filings. Emissions associated with energy that was contracted from Public Service

Company of Colorado in 2005 are claimed in this CEP baseline of CORE. Those emissions have been previously deducted from the baseline in the Public Service Company of Colorado's CEP (under the IREA company name) and the historical values match within 0.8%. The slight variance is the result of differences in the source data utilized by each company and is consistent with CEP guidance. Therefore, APCD determines that double counting of baseline emissions has been avoided in the apportionment of 2005 generation emissions to retail sales. APCD also notes that the apportionment of emissions to retail sales does not change the total emissions reported from fossil generation sources operated in Colorado in 2005, which is utilized in determining progress toward economy-wide GHG goals.

Based on this review and integrity verification, APCD determines that data has been entered correctly for the 2005 data year. For purposes of APCD's percent reduction calculations, the 2005 baseline emissions will be **1,719,758 metric tons of CO_2e** based on Colorado retail sales.

2030 PROJECTED EMISSIONS

In order to verify CORE's 2030 emissions projections, APCD used data provided by CORE from the resource plan modeling (Attachment 2). To perform this portion of the review, APCD used the information provided by CORE to cross-check data contained in the 2030 data tab of the calculation workbook. Modeled information and associated emissions have been appropriately entered into the 2030 All Electricity tables.

VERIFICATION RESULTS

The APCD calculated results for the GHG emissions reductions are 80% below 2005 baseline levels.

Based on this review, APCD verifies that the voluntary CEP submitted by CORE will, by 2030, achieve at least an 80% reduction in GHG emissions caused by CORE's Colorado retail electricity sales relative to 2005 levels. APCD also verifies that CORE timely submitted the written notification of its intent to file a CEP and provided its CEP workbook in accordance with the deadlines set forth in § 25-7-105(1)(e)(VIII)(J), C.R.S.

ATTACHMENT 1

CEP Demonstration

No Data Entry on this tab. This tab displays the results of the evaluation.

Safe Harbor Evaluation

No Data Entry on this tab. This tab displays the results of the evaluation.

2005 All Electricity

Owned Assets

Co-owned facilities and units: Report data based on percentage of each facility or unit that is owned by the utility filing the report. If ownership is not correlated to actual energy received and associated emissions, report actual energy and emissions for baseline year assigned to the company filing the CEP. During the verification of the form by the Air Pollution Control Division, all data used to populate the form will be made available for review.

Plant: Report Plant or Unit Name of the asset

Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.

Total Heat Input: Report the actual heat input consumed in mmbtu by the unit in 2005 for fuel fired units. Report zero if asset does not combust fuel.

% Heat Input Coal: Report the percentage of total heat input associated with combusting coal to the nearest tenth of a percent.

% Heat Input Natural Gas: Report the percentage of total heat input associated with combusting natural gas to the nearest tenth of a percent.

% Heat Input Fuel Oil: Report the percentage of total heat input associated with combusting fuel oil to the nearest tenth of a percent.

% Heat Input Biomass: Report the percentage of total heat input associated with combusting biomass to the nearest tenth of a percent.

Generation: Report the actual load produced by the unit in Net MWh in 2005.

CO2 Emissions Methodology: Use the picklist to select the method of determining CO2 emissions from the asset. Use the most specific data source available. Picklist is sorted in order of most specific to least specific, followed by zero GHG.

CO2 Total: Report actual CO2 emissions determined by the emission methodology for 2005.

Contract Purchases - Use FERC Form 1 or other relavent publically available data to report 2005 contract purchases.

Counter Party: Report the entity with which the contract is established.

Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.

Purchases: Report the actual quantity of energy purchased in Net MWh.

Emission Rate Source: Use the picklist to select the most specific CO2 emission rate source for the contract. Picklist is sorted in order of most specific to least specific, followed by zero GHG.

Market Transactions - Use FERC Form 1 or other relavent publically available data to report 2005 market transactions. During the verification of the form by the Air Pollution Control Division, all data used to populate the form will be made available for review.

Market Name: Report the name each market from which transactions occurred in 2005.

System, Subregion, or Region Identification: Report the location of each market using the picklist. If sales are made into a market and the company system rate is used for emissions calculations, select Company System Rate.

Transactions: Report transactions conducted through each market with positive values indicating purchases and negative values indicating sales. Report separate lines for purchases and sales to each market if historical data is available. If separate purchase and sales data is not available, report net transactions through each market. Report energy in Net MWh.

Emission Rate Source: Use the picklist to select the most specific CO2 emission rate source for the contract. Picklist is sorted in order of most specific to least specific, followed by zero GHG.

Colorado Sales Information - Use FERC Form 1 or other relavent publically available data to report all retail electricity sales and all Colorado wholesale requirements contract sales that occurred in 2005. Report all contracts, including those that are excluded below from the baseline because they were no longer valid as of January 1, 2019 or because the customer intends to file their own CEP. Contact the Air Pollution Control Division with further questions. During the verification of the form by the Air Pollution Control Division, all data used to populate the form will be made available for review.

System Losses and SF6 Leakage - For Colorado system line losses, report all losses and SF6 emissions in the distribution row if data is not calculated separately for transmission and distribution assets.

For transmission and distribution systems that cover multiple states, report the quantity of SF6 emitted from Colorado portion of the system only.

2005 Baseline Adjustment Details - Report all contracts that are excluded from the baseline because they were no longer valid as of January 1, 2019 or because the customer intends to file their own CEP.

2030 All Electricity

Owned Assets

Co-owned facilities and units: Report data based on percentage of each facility or unit that is owned by the utility filing the report and consistent with modeling results submitted for the CEP.

Plant: Report Plant or Unit Name of the asset

Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.

Total Heat Input: Report projected heat input for each asset from the CEP resource modeling. Report zero if asset does not combust fuel.

% Heat Input Coal: Report the percentage of total heat input associated with combusting coal to the nearest tenth of a percent.

% Heat Input Natural Gas: Report the percentage of total heat input associated with combusting natural gas to the nearest tenth of a percent.

% Heat Input Fuel Oil: Report the percentage of total heat input associated with combusting fuel oil to the nearest tenth of a percent.

% Heat Input Biomass: Report the percentage of total heat input associated with combusting biomass to the nearest tenth of a percent.

Generation: Report projected load produced by the unit in Net MWh from the resource plan modeling for the CEP.

CO2 Emissions Methodology: Use the picklist to select the method of determining CO2 emissions from the asset. Use the most specific data source available. Picklist is sorted in order of most specific to least specific, followed by zero GHG.

CO2 Total: Report actual CO2 emissions determined by the emission methodology for 2030.

Contract Purchases - Report contracts that are included in the load forecast used for resoure plan modeling of the CEP.

Counter Party: Report the entity with which the contract is or will be established.

Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.

Purchases: Report the projected quantity of energy purchased in Net MWh.

Emission Rate Source: Use the picklist to select the most specific CO2 emission rate source for the contract. Picklist is sorted in order of most specific to least specific, followed by zero GHG.

Market Transactions - Report market transactions that are included in the load forecast used for resoure plan modeling of the CEP.

Market Name: Report the name each market from which transactions are expected to occur in 2030 based on current or expected market participation.

System, Subregion, or Region Identification: Report the location of each market using the picklist.

Transactions: Report transactions projected through each market with positive values indicating purchases and negative values indicating sales. Report separate lines for purchases and sales to each market if modeling data is available. If separate purchase and sales data is not modeled, report net transactions modeled through each market. Report energy in Net MWh.

Emission Rate Source: Use the picklist to select the most specific CO2 emission rate source for the contract. Picklist is sorted in order of most specific to least specific, followed by zero GHG.

Sales Information - Report projected retail and Colorado wholesale contract sales included in the load forecast used in resource plan modeling for the CEP. Report all contracts, including those that the customer intends to file their own CEP.

System Losses and SF6 Leakage - For Colorado system line losses, report anticipated losses and SF6 emissions in the distribution row if data is not calculated separately for transmission and distribution assets.

For transmission and distribution systems that cover multiple states, report the quantity of SF6 emitted from Colorado portion of the system only.

2030 Adjustment Details - Report all contracts that the customer intends to file their own CEP.

Interim Year Summary

This tab is not used for determining acceptability of a CEP, nor any compliance determination with AQCC regulations. It is submitted for information purposes only to inform GHG reduction planning activities.

Report Total Load, Beneficial Electrification Program Load, Total GHG emissions, and Total CO2 emissions for each calendar year based on forecasts submitted with resource planning activities.

Lists and Lookups

If Biomass fuels are used, enter the appropriate emission factors based on fuel type.

For long term contract transactions, enter contract specific emission rates based on all generation assets included under the contract.

For company system rate emission factors, enter the appropriate emission factors for the electricity pool supplied by the company. During the verification of the form by the Air Pollution Control Division, all data used to populate the emission factors will be made available for review.

If additional lines are necessary for contract transactions, they must be added above the line titled "LEAVE BLANK" and data must be entered in alphabetical order in the first column in order for the vlookup function to work properly.

Demonstration for 80% CO2 reduction in Retail + Colorado Wholesale sales pursuant to SB19-236

Step 1: Calculate 2005 CO2 baseline

Baseline	2005
Electricity sales CO2 (short tons)	1,882,717

Step 2: Calculate 2030 CO2 forecast

Forecast	2030
Electricity sales CO2 (short tons)	377,036

Step 3: Calculate percent CO2 reductions

CO2 Reduction Demonstration	
2005 Baseline CO2	1,882,717
2030 Projected CO2	377,036
Percent Reduction	80%

Plans that achieve 80% reduction when filed meet the minimum requirement of the statute.

Demonstration of 75% reduction in GHGs from retail sales pursuant to HB19-1261

Step 1: Calculate retail only GHG 2005 baseline

Baseline	2005
Retail electricity sales CO2e (Metric Tons)	1,719,758

Step 2: Calculate 2030 retail only GHG forecast

Forecast	2030
Retail electricity sales CO2e (Metric Tons)	344,738

Step 3: Calculate percent GHG reductions for retail sales

GHG Reduction Demonstration	
2005 Retail Baseline CO2e	1,719,758
2030 Retail Forecast CO2e	344,738
Percent Reduction	80%

Plans that achieve 80% reduction when filed meet the minimum initial requirement of the statute.

Approved plan that achieves 75% reduction meets minimum final requirement of the statute to qualify for the safe harbor provisions.

RED FONT: DATA ENTRY **BLACK FONT: Calculated**

2005 All Electricity: Historical Generation and Emissions Data for CEP Baseline

Owned Assets

Plant or Unit	Primary Generation Type	Total Heat Input (MMBtu)	% Heat Input Coal	% Heat Input Natural Gas	% Heat Input Fuel Oil	% Heat Input Biomass	Generation (Net MWh)	CO2 Emissions Methodology	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)	CO2 Intensity (Lb/Net MWh)	GHG Intensity (Metric Ton / Net MWh)
										0	0	0	0	0	0.00
TOTAL HEAT INPUT		**0**			**TOTAL GENERATION**		**0**	**TOTAL Emissions**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**

Contracted Assets

Counter Party	Primary Generation Type	Purchases (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
Xcel Energy	Coal	1,920,550	System Rate	1,959	1,881,328	1,706,712	3,384	8,395	1,718,492
WAPA LAP	Water	81,482	Zero GHG	0	0	0	0	0	0
WAPA CRSP	Water	42,971	System Rate	65	1,389	1,260	0	6	1,266
TOTAL CONTRACT PURCHASES		**2,045,003**		**TOTAL Emissions**	**1,882,717**	**1,707,972**	**3,385**	**8,401**	**1,719,758**

Market Transactions (Negative for Sales, Positive for Purchases)

Market Name	System, Subregion, or Region Identification	Transactions (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
		0		0	0	0	0	0	0
TOTAL MARKET ENERGY TRANSACTIONS		**0**		**TOTAL Emissions**	**0**	**0**	**0**	**0**	**0**

Customer Sales Information

	Net MWh	CO2 Emissions (Metric Tons)	GHG Emissions (Metric Tons CO2e)
Retail Sales	1,929,108	1,707,972	1,719,758
		0	0
Total Sales	1,929,108	1,707,972	1,719,758

System Losses and Leakage Information

			SF6 Emissions (Metric Tons CO2e)
Colorado Distribution System Losses	115,895		
Colorado Transmission System Losses			

Generation to Sales/Losses Variance Quick Check:	0.00%

CEP Baseline Emissions Summary

	Short Tons	Metric Tons
CO2 Total Emissions	1,882,717	1,707,972
GHG Total Emissions		1,719,758

These now subtract totals from below to give adjusted 2005 baseline
This now subtracts total from below to give adjusted 2005 baseline

2005 Baseline Adjustment Details

	Net MWh	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
		0	0	0	0	0	0
Total Sales	0	Total Emissions	0	0	0	0	0

RED FONT: DATA ENTRY **BLACK FONT: Calculated**

2030 All Electricity: Projected Generation and Emissions Data for CEP Compliance Year

Owned Assets

Plant or Unit	Primary Generation Type	Total Heat Input (MMBtu)	% Heat Input Coal	% Heat Input Natural Gas	% Heat Input Fuel Oil	% Heat Input Biomass	Generation (Net MWh)	CO2 Emissions Methodology	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)	CO2 Intensity (Lb/Net MWh)	GHG Intensity (Metric Ton CO2e / Net MWh)
Comanche 3	Coal	2,917,493	100.0%	0.0%	0.0%	0.0%	292,930	Generator Rate	299,984	272,141	802	1,391	274,334	2,048	0.94
TOTAL HEAT INPUT		**2,917,493**			**TOTAL GENERATION**		**292,930**	**TOTAL Emissions**	**299,984**	**272,141**	**802**	**1,391**	**274,334**	**2,048**	**0.94**

Contracted Assets

Counter Party	Primary Generation Type	Purchases (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
WAPA LAP	Water	84,049	Zero GHG	0	0	0	0	0	0
WAPA CRSP	Water	52,480	Contract Rate	20	531	482	1	2	485
Contract H	Solar	27,215	Zero GHG	0	0	0	0	0	0
Contract D	Solar	186,101	Zero GHG	0	0	0	0	0	0
Contract B	Solar	114,897	Zero GHG	0	0	0	0	0	0
Contract A	Natural Gas	67,265	Contract Rate	957	32,178	29,192	17	261	29,471
Contract G	Wind	705,833	Zero GHG	0	0	0	0	0	0
Contract F	Solar	436,275	Zero GHG	0	0	0	0	0	0
Contract C	Wind	532,035	Zero GHG	0	0	0	0	0	0
Contract E	Natural Gas	0	Contract Rate	1,319	0	0	0	0	0
2030 Solar	Solar	328,331	Zero GHG	0	0	0	0	0	0
2030 Wind	Wind	353,709	Zero GHG	0	0	0	0	0	0
TOTAL CONTRACT PURCHASES		**2,888,190**		**TOTAL Emissions**	**32,710**	**29,674**	**19**	**263**	**29,956**

Market Transactions (Negative for Sales, Positive for Purchases)

Market Name	System, Subregion, or Region Identification	Transactions (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
Imbalance Sale	Company System Rate	(303,301)	System Rate	209	(31,720)	(28,776)	(76)	(131)	(28,983)
Imbalance Purchase	WECC	338,056	Regional Factor	450	76,063	69,003	173	256	69,431
TOTAL MARKET ENERGY TRANSACTIONS		**34,755**		**TOTAL Emissions**	**44,342**	**40,227**	**97**	**125**	**40,448**

Sales Information

	Net MWh	CO2 Emissions (Metric Tons)	GHG Emissions (Metric Tons CO2e)
Retail Sales	2,959,936	342,041	344,738
Colorado Wholesale Contract #1		0	0
Colorado Wholesale Contract #2		0	0
Colorado Wholesale Contract #3		0	0
Colorado Wholesale Contract #4		0	0
Total Sales	2,959,936	342,041	344,738

System Losses and Leakage Information

		SF6 Emissions (Metric Tons CO2e)
Colorado Distribution System Losses	141,564	
Colorado Transmission System Losses	57,505	

Generation to Sales/Losses Variance Quick Check:	1.77%

Emissions Summary

	Short Tons	Metric Tons CO2e
CO2 Total Emissions	377,036	342,041
GHG Total Emissions		344,738

These now subtract total from below to give adjusted 2030 emissions based on customers who file CEF
This now subtracts total from below to give adjusted 2030 emissions based on customers who file CEF

2030 Adjustment Details

	Net MWh	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
		209	0	0	0	0	0
Total Sales	0	Total Emissions	0	0	0	0	0

Year	CO2 (Short Tons)	Total GHG (Metric Tons CO2e)	Load (Net MWh)	Beneficial Electrification Program Load (Net MWhr)	CO2 Intensity (Lb/Net MWhr)	GHG Intensity (Metric Ton CO2e / Net MWh)
2024	1,742,233	1,595,985	2,630,980		1324	0.61
2025	**1,853,956**	**1,698,179**	**2,667,440**		**1390**	**0.64**
2026	1,162,791	1,098,282	2,734,469		850	0.40
2027	874,803	814,377	2,785,158		628	0.29
2028	825,864	763,884	2,839,069		582	0.27
2029	755,220	701,838	2,894,444		522	0.24

Emission Rate Picklist
CEMS
Generator Rate
Contract Rate
System Rate
Market Rate
Regional Factor
Zero GHG

Emission Rate Picklist is in order from most specific to least specific from carbon emitting sources

Primary Resource Type
Coal
Natural Gas
Fuel Oil
Biomass
Wind
Water
Solar

Constants		
Global Warming Potential, per AR4		Sources
Methane (CH4)	25	GHG Protocol
Nitrous Oxide (N2O)	298	EPA Discussion
Sulfur Hexafluoride (SF6)	22,800	
kg/ton	0.00110231	

2005 GHG Emission Rate Lookup Table				
OWNED GENERATION				
Fuel	CO2 (kg/mmbtu)	CH4 (kg/mmbtu)	N2O (kg/mmbtu)	
Biomass				Editable
Coal	--	0.0110	0.0016	Locked
Fuel Oil	--	0.0030	0.0006	Locked
Natural Gas	--	0.0010	0.0001	Locked
PURCHASED GENERATION				
Energy Source	CO2 (lb/MWh)	CH4 (lb/MWh)	N2O (lb/MWh)	
WAPA CRSP	64.64674735	0.001	0.001	Editable
WAPA LAP	0	0.000	0.000	Editable
Xcel Energy	1959.155054	0.155	0.032	Editable
				Editable
				Editable
				Editable
				Editable
				Editable
				Editable
				Editable
				Editable
				Editable
LEAVE BLANK				
AZNM	1311.05	0.017	0.018	Locked
CAMX	724.12	0.030	0.008	Locked
Company System Rate				Editable
ERCT	1324.35	0.019	0.015	Locked
MRO	1823.69	0.028	0.031	Locked
MROW	1821.84	0.028	0.031	Locked
NWPP	902.24	0.019	0.015	Locked
RMPA	1883.08	0.023	0.029	Locked
SPNO	1960.94	0.024	0.032	Locked
SPP	1751.37	0.025	0.026	Locked
SPSO	1658.14	0.025	0.023	Locked
TRE	1324.35	0.019	0.015	Locked
WECC	1033.12	0.023	0.015	Locked

2030 GHG Emission Rate Lookup Table					
OWNED GENERATION					
Fuel	CO2 (kg/mmbtu)	CH4 (kg/mmbtu)	N2O (kg/mmbtu)		
Biomass				Editable	Company enters appropriate factor based on solid, liquid or gasous fuel type
Coal	--	0.0110	0.0016	Locked	
Fuel Oil	--	0.0030	0.0006	Locked	
Natural Gas	--	0.0010	0.0001	Locked	
PURCHASED GENERATION					
Energy Source	CO2 (lb/MWh)	CH4 (lb/MWh)	N2O (lb/MWh)		
2030 Solar	0	0.000	0.000	Editable	Company enters contract specific values here
2030 Wind	0	0.000	0.000	Editable	Company enters contract specific values here
Contract A	956.761	0.023	0.029	Editable	Company enters contract specific values here
Contract B	0	0.000	0.000	Editable	Company enters contract specific values here
Contract C	0	0.000	0.000	Editable	Company enters contract specific values here
Contract D	0	0.000	0.000	Editable	Company enters contract specific values here
Contract E	1318.5	0.023	0.029	Editable	Company enters contract specific values here
Contract F	0	0.000	0.000	Editable	Company enters contract specific values here
Contract G	0	0.000	0.000	Editable	Company enters contract specific values here
Contract H	0	0.000	0.000	Editable	Company enters contract specific values here
WAPA CRSP	20.25	0.002	0.000	Editable	Company enters contract specific values here
WAPA LAP	0	0.000	0.000	Editable	Company enters contract specific values here
LEAVE BLANK					
Company System Rate	209.1676041	0.022040663	0.003189604	Editable	
MRO	675	0.060	0.0103	Locked	
SPP	525	0.069	0.0096	Locked	
TRE	540	0.048	0.0058	Locked	
WECC	450	0.045	0.0056	Locked	

CH4 lb/GWh	N20 Lb/GWh
17.45	17.94
30.24	8.08
18.65	15.11
27.94	30.66
28.00	30.71
19.13	14.90
22.88	28.75
23.82	32.09
24.62	25.52
24.98	22.61
18.65	15.11
22.62	14.77

OUTPUT EMISSIONS RATE - eGRID 2005

ATTACHMENT 2

CORE ELECTRIC COOPERATIVE

Clean Energy Plan

Submitted December 2023

The Energy to Thrive™

Contents

Resource Planning Process Overview

CORE Electric Cooperative (CORE) is a cooperative electric association whose members elected to exempt it from the Public Utilities Law pursuant to §40-9.5-13, Colorado Revised Statutes, including for retail rate and resource planning processes. As such, CORE's Board of Directors, elected from its membership, serve as CORE's regulator for purposes of resource acquisition and contract approval. It submitted a notice of intent to file a voluntary Clean Energy Plan (CEP) on July 30, 2021, per §25-7-125.5(1)(e)(VIII(J) C.R.S. , pending the outcome of Public Service Company of Colorado's (Xcel) 2021 Electric Resource Plan, which impacts future operations and early retirement of CORE's largest existing generation resource, the Comanche Unit 3 coal plant.

CORE has engaged in an ongoing planning process over the last several years, focused on first replacing energy and capacity purchased from Xcel under an existing long-term requirements agreement and its entitlement to generation from its ownership share of Comanche Unit 3. CORE's Board has actively engaged in this process and authorized CORE to enter into several contracts to purchase output from generators located throughout Colorado, as further described herein. CORE's resource planning process has identified additional resource needs near the end of the CEP planning period, above currently contracted or planned resources. CORE expects to fill that resource need through acquisitions later in the planning period, due to expected changes in technology, transmission topology, and wholesale market structures. CORE intends to fill the specific energy and capacity needs identified consistent with the greenhouse gas reduction goals described in §40-2-125.5(3)(a)(1) C.R.S.

Retail Load Forecast

CORE uses multi-variate linear regression techniques to estimate weather-normalized average consumption for each of its major customer classes, accounting for expected and observed shifts in end-user technology adoption. These shifts include electrification of loads previously served directly by fossil fuels, such as transportation and heating, as well as trends in adoption of on-site parallel generation and storage. Meter population growth is estimated based on county-level population and econometric data forecasts sourced from third parties.

CORE's estimated energy requirements are expected to grow at an average rate of 1.8% through the planning period, compared to the most recent five-year period of 1.3%. This increase reflects continued population growth in CORE's Front Range service territory and ongoing shifts towards electrifying end uses previously served using direct fossil fuel combustion. The forecast includes continued growth in light-duty vehicle adoption from current levels. While adoption of electric space and water heating is expected to increase over the planning period, CORE believes this will primarily impact a growing share of new construction with slower adoption in building retrofits. As such, the impact of fuel switching for heating is expected to primarily impact years following the end of the current CEP planning period. The load forecast also accounts for the continued growth of retail-sited renewable generation, primarily from solar photovoltaic facilities with some increasing amount of co-located battery storage. Interconnections are expected to total between 52 and 55 megawatts (MW) by the end of 2023. Recent adoption trends are extrapolated for several years with some moderation forecast in the latter part of the planning period due to changing

market conditions. CORE is developing member-facing programs to encourage optimization of newly electrified load to minimize the need for incremental generation capacity and mitigate system wide transmission and distribution upgrades.

Table 1: CORE Load Forecast

Year	Energy (GWh)	% Change	System Peak (MW)	% Change	Data Type
2021	2,687	2.7%	649	5.5%	Actual
2022	2,690	0.1%	632	-2.6%	Actual
2023	2,610	-3.0%	628	-0.7%	10 Act/2 Fcast
2024	2,631	0.8%	686	9.2%	Forecast
2025	2,667	1.4%	711	3.6%	Forecast
2026	2,734	2.5%	713	0.3%	Forecast
2027	2,785	1.9%	732	2.7%	Forecast
2028	2,839	1.9%	750	2.5%	Forecast
2029	2,894	2.0%	766	2.2%	Forecast
2030	2,962	2.3%	785	2.4%	Forecast

Resource Summary

A summary of CORE's current and forward-looking resource portfolio is provided below for the period extending through 2030. CORE's primary focus in resource planning is maintaining reliability and affordability while meeting its compliance obligations, including the 2030 greenhouse gas targets described in §40-2-125.5(3) C.R.S.

2005 Supply and Emissions

CORE's entire energy and capacity requirements were met through long term purchase power contracts in 2005, including with Xcel and two divisions of the Western Area Power Administration (WAPA). Total energy purchases for 2005 totaled 2,037,959 MWh, as described in more in table 2. Purchases from WAPA's Colorado River Storage Projects (CRSP) include a limited volume of market purchases on CORE's behalf. Emissions estimates for 2005 are shown in Attachment 1, CORE's Verification Workbook.

Table 2: 2005 Energy Purchase by Contract

Supplier	Purchases	Measurement Point
Xcel Energy	1,920,550 MWh	CORE's PSCo Delivery Points
WAPA (Loveland Area Projects)	81,482 MWh	WAPA/PSCo Interconnection
WAPA (Colorado River Storage Projects)	42,971 MWh	WAPA/PSCo Interconnection

2024-2025 Resource Plan

CORE's energy and capacity requirements for 2024-2025 will be met primarily through energy generated from the Comanche 3 coal plant and purchases under the wholesale contracts with Xcel and WAPA, supplemented by energy from solar Qualifying Facilities (QFs) and retail-sited generation owned by CORE's members. The Xcel contract allows CORE only limited purchases or generation from other sources, including purchases from WAPA, generators that meet the requirements of Qualifying Facilities (QFs) under the Public Utilities Policy Regulatory Act, and net-metered retail generation per Colorado statute. CORE does not expect to supply any significant share of its energy needs from suppliers other than those described below until after the Xcel contract terminates at the end of 2025.

CORE has modeled its emissions for this two-year period largely based on information developed by Xcel. Projected greenhouse gas emission intensities were forecast for CORE's purchases under the Xcel wholesale contract using modeling results filed on September 18, 2021 in Docket 21M-0141E at the Colorado Public Utilities Commission (included as Attachment 2). Specifically, CORE is using Portfolio 1 results from Public Appendix T to Xcel's 120-Day Report to calculate expected carbon dioxide emissions for 2024-2025. CORE estimated emissions for its share of generation from Comanche Unit 3 based on availability projections for the period provided by the plant operator as part of the normal budgeting process, accounting for reduced offtake from the plant for planned outages, estimated forced outages, and to take energy from solar QFs. This represents a conservative estimate for emissions during this period, as the modeled availability is higher than historical actuals and does not account for the impact of Xcel's capacity factor limitations described in an approved Settlement Agreement in the abovementioned PUC docket.

CORE will continue to purchase energy and capacity from WAPA, and three solar QFs with nameplate capacity totaling 138 MW. The market purchases described for 2005 under the CRSP contract are projected to continue at reasonably comparable levels through the end of the CEP planning period. A small adjustment to emissions consistent with this level of purchases is included, based on an average emissions rate developed for 2024-2029 using estimates included in the Energy Information Administration's Annual Energy Outlook 2023 for the WECC/Rockies region.

2026-2030 Resource Plan

CORE will supply its members' electricity needs through long term purchase agreements with specific generators, generation from the Comanche Unit 3 facility, and active participation in regional wholesale energy markets beginning in 2026.

Table 3: Modeled Energy Supply (GWh) & Emissions by Year

Year	2024	2025	2026	2027	2028	2029	2030
Net Retail Load	2,631	2,667	2,734	2,785	2,839	2,894	2,960
PSCo Purchases	1,019	859	0	0	0	0	0
WAPA Purchase	111	110	136	136	137	136	137
Coal	1,271	1,470	1,020	723	610	453	293
Solar	340	337	754	748	756	776	1,093
Wind	0	0	824	1,194	1,211	1,240	1,592
Natural Gas	0	0	204	308	450	586	67
Net Battery	0	0	-27	-28	-27	-28	-57
Net Purchase/(Sale)	-109	-108	-29	-133	-121	-80	35
CO2 Emissions (000 st)	1,742	1,854	1,163	875	826	755	377

Existing Resources

Western Area Power Administration

CORE is party to two long-term power purchase agreements with divisions of the Western Area Power Administration (WAPA) for approximately 30 MW of firm capacity and approximately 105-110 GWh of annual energy. These contracts extend beyond the planning period and are assumed to supply clean energy throughout their term at levels comparable to the current volume. WAPA has transferred RECs corresponding to approximately 96% of CORE's actual purchases in recent years.

Solar Qualifying Facilities & Net Metered Generation

CORE has entered into agreements to purchase energy from 3 solar photovoltaic generators which meet the requirements of a Qualifying Facility (QF) under PURPA. These three facilities, Victory Solar, Pioneer Solar, and Hunter Solar are rated to supply 138 MW of nameplate capacity to CORE under contracts extending through the planning period.

CORE also purchases energy and capacity from small QFs totaling slightly less than 3 MW of nameplate capacity spread across 150 retail meters throughout CORE's territory. These

generators are rated above the capacity limits specified in the net metering statute applicable to CORE.

CORE provides net metering to more than 8,500 smaller renewable generators co-located with individual members' homes and businesses across CORE's service territory. Most of these generators are rooftop solar units with a slowly increasing adoption of member-owned battery facilities. Total nameplate capacity is 47.5 MW as of November 1, 2023, and has averaged growth of 1.3 MW/month in 2023.

Comanche Unit 3

CORE holds a 25.3% minority ownership interest in the supercritical 750 MW, Comanche Unit 3 coal plant in Pueblo and is entitled to 190 MW of capacity from the unit. It relies on Xcel to provide operational control of the plant consistent with the ownership agreements. CORE has modeled the unit for 2026-2030 using estimates of availability generally corresponding with the capacity factor limitations described in the Xcel Settlement Agreement. The model assumes CORE will use what it anticipates will be provided of its full entitlement of capacity from the plant to continue to meet peak seasonal needs through 2030 consistent with the proposed accelerated retirement date. This model assumes CORE will serve its retail load with what it anticipates will be provided of its full entitlement during peak summer and winter months and dispose of excess energy in the regional market based on prevailing conditions. CORE has not modeled the retirement of Comanche 3 prior to January 1, 2031, because it cannot make that decision without the consultation and agreement of the other owners of the plant. Further, given the need for capacity on the system over the CEP planning period, it is not reasonable to retire Comanche 3.

New Resources

Contracted Clean Energy Resources

CORE has entered into purchase agreements with two wind farms and a hybrid solar-storage facility, all in late stages of development or early stages of construction. Each of these facilities are expected to be operational in 2026 and will provide the bulk of CORE's energy requirements through the planning period. Table 4 below shows CORE's contracted new clean-energy resources.

Table 4: Contracted Clean Energy Resources

Name	Technology	County	Nameplate	COD
[redacted]	Wind	[redacted]	199 MW	[redacted]
[redacted]	Wind	[redacted]	150 MW	[redacted]
[redacted]	Solar	[redacted]	200 MW	[redacted]
[redacted]	Battery Storage	[redacted]	100 MW/4 hour	[redacted]

Contracted Thermal Capacity Resources

CORE has entered into tolling agreements with two existing natural gas facilities to provide firming capacity and energy as the region continues to transition to primarily rely on variable renewable generation, described in Table 5. CORE's modeling shows the expected capacity factor of these facilities declining over the term of their contracts, which extend past the end of the current CEP planning period.

Table 5: Contracted Thermal Capacity Resources

Name	Technology	County	Summer Capacity	Contract Start
[redacted]	2x1 Combined Cycle	[redacted]	120 MW	[redacted]
[redacted]	Combustion Turbine	[redacted]	300 MW	[redacted]

Market Participation

CORE expects to participate actively in the regional wholesale electricity market with significant purchases and sales of energy due to the mismatch between the availability of renewable generation and member's consumption profiles. The CEP model run reflects modest short-term purchases and sales of energy, reflecting limited expected inter-regional transmission over the planning period and high expected correlation with other regional utilities' renewable portfolios. Annual average emissions rates were used for short-term market interactions, though CORE expects to retain RECs associated with any market sales from clean energy resources and may sell excess into the market, where feasible, to provide retail rate relief. Purchases were modeled with emissions intensities based on data derived from the EIA model discussed earlier and sales were based on an annual system average intensity. Market purchases for 2030 were modeled using the intensity specified in the verification workbook for that year.

Additional Planning Period Resources

Current modeling reflects the need for additional near-term capacity resources and significant replacement energy and capacity beginning in 2030, as Comanche 3 nears its new retirement date and reduces its operations. CORE is in active discussions to add several distribution-sited storage facilities to provide system capacity and relieve transmission loading during peak months. These projects are expected to supply 50-60 MW of four-hour battery storage to CORE's portfolio, beginning before the summer of 2026. In addition, CORE is in discussions with several counterparties to provide firming capacity and energy for 2026 and 2027 prior to the effective date for the [redacted] contract. This is modeled as a market purchase for the purposes of this clean energy plan filing and reflects the average carbon dioxide intensity described for purchases under the Market Participation section above.

The model calls for the addition of substantial new resources for 2030, including 100 MW of solar, 150 MW of wind, and 200 MW of battery storage, largely due to the expected low availability of Comanche 3 in that year. However, potential changes in technology,

transmission topology, and market structure in the planning period are likely to affect the optimal combination of resources to serve CORE's load. Additional planning cycles will identify specific resources to meet its member's evolving needs. CORE will engage in a resource-specific acquisition process that will adapt to the changing pace of electrification and future shifts to Comanche 3's future operational parameters.

Portfolio Summary

CORE will begin meeting its members' electricity requirements through a portfolio of owned and directly contracted resources beginning in 2026 while meeting the emissions reductions laid out in Colorado statute. The portfolio summarized below in Table 6 shows CORE's expected portfolio composition for 2030, based on the best available information at this time. While thermal resources will still provide a significant share of CORE's capacity requirements, the amount of energy served from these facilities will decrease substantially over the planning period for this CEP.

Table 6: CORE's 2030 Resource Portfolio by Energy Source

Resource Type	Nameplate Capacity (MW)	Firm Summer Capacity (MW)	Modeled Energy (%, 2030 Gen)
Wind	481	72	51%
Solar	439	143	35%
Battery Storage	352	318	-2%
Hydro	28	28	4%
Coal	190	190	10%
Natural Gas	439	417	2%

CORE ELECTRIC COOPERATIVE

Attachment 1

Public CEP Summary & Verification Workbook

The Energy to Thrive™

CORE Electric Cooperative
2023 Clean Energy Plan - Public Summary

		2024	2025	2026	2027	2028	2029	2030
Energy Requirements, net DG	MWh	2,630,980	2,667,440	2,734,469	2,785,158	2,839,069	2,894,444	2,959,936
Modeled Energy by Resource Type								
Xcel Purchases	MWh	1,019,242	858,919	0	0	0	0	0
WAPA Purchases	MWh	110,538	109,738	136,109	136,094	136,664	136,129	136,529
Coal Generation	MWh	1,270,680	1,470,251	1,020,357	723,407	609,544	452,618	292,930
Natural Gas Generation	MWh	0	0	203,872	308,249	450,333	586,489	67,265
Wind Generation	MWh	0	0	823,730	1,193,710	1,211,468	1,239,738	1,591,577
Solar Generation (Utility Scale)	MWh	339,711	336,916	753,618	747,690	756,371	775,658	1,092,820
Net Losses from Storage	MWh	0	0	-26,883	-27,634	-26,847	-27,599	-56,871
Market Purchases	MWh	0	0	262,273	162,630	177,896	221,383	338,056
Modeled Sales	MWh	-109,191	-108,384	-291,301	-295,201	-298,501	-301,201	-303,301
Modeled RE Curtailment	MWh	0	0	100,052	150,767	130,736	77,345	119,798
Heat Input								
Coal	mmBTU	12,579,735	14,555,483	10,123,533	7,189,230	6,050,990	4,497,421	2,917,493
Natural Gas	mmBTU	0	0	1,688,658	2,698,380	4,119,263	5,362,558	550,169
Emissions								
Carbon Dioxide	short tons	1,742,233	1,853,956	1,162,791	874,803	825,864	755,220	377,036
Methane	short tons	211	238	137	93	77	61	40
Nitrous Oxide	short tons	39	40	149	69	48	57	6

CEP Demonstration
No Data Entry on this tab. This tab displays the results of the evaluation.

Safe Harbor Evaluation
No Data Entry on this tab. This tab displays the results of the evaluation.

2005 All Electricity
Owned Assets
Co-owned facilities and units: Report data based on percentage of each facility or unit that is owned by the utility filing the report. f ownership is not correlated to actual energy received and associated emissions report actual energy and emissions for baseline year assigned to the company filing the CEP. During the ver fication of the form by the Air Po lution Control Division all data used to populate the form will be made available for review.
Plant: Report Plant or Unit Name of the asset
Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.
Total Heat Input: Report the actual heat input consumed in mmbtu by the unit in 2005 for fuel fired units. Report zero if asset does not combust fuel.
% Heat Input Coal: Report the percentage of total heat input associated with combusting coal to the nearest tenth of a percent.
% Heat Input Natural Gas: Report the percentage of total heat input associated with combusting natural gas to the nearest tenth of a percent.
% Heat Input Fuel Oil: Report the percentage of total heat input associated with combusting fuel o l to the nearest tenth of a percent.
% Heat Input Biomass: Report the percentage of total heat input associated with combusting biomass to the nearest tenth of a percent.
Generation: Report the actual load produced by the unit in Net MWh in 2005.
CO2 Emissions Methodology: Use the picklist to select the method of determining CO2 emissions from the asset. Use the most specific data source available. Picklist is sorted in order of most specific to least spec fic fo lowed by zero GHG.
CO2 Total: Report actual CO2 emissions determined by the emission methodology for 2005.

Contract Purchases - Use FERC Form 1 or other relavent pub ically ava lable data to report 2005 contract purchases.
Counter Party: Report the entity with which the contract is established.
Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.
Purchases: Report the actual quantity of energy purchased in Net MWh.
Emission Rate Source: Use the picklist to select the most spec fic CO2 emission rate source for the contract. Picklist is sorted in order of most spec fic to least spec fic fo lowed by zero GHG.

Market Transactions - Use FERC Form 1 or other relavent publically available data to report 2005 market transactions. During the ver fication of the form by the Air Pollution Control Division a l data used to populate the form will be made available for review.
Market Name: Report the name each market from which transactions occurred in 2005.
System Subregion or Region Identification: Report the location of each market using the picklist. f sales are made into a market and the company system rate is used for emissions calculations select Company System Rate.
Transactions: Report transactions conducted through each market with positive values indicating purchases and negative values indicating sales. Report separate lines for purchases and sales to each market if historical data is available. If separate purchase and sales data is not ava lable report net transactions through each market. Report energy in Net MWh.
Emission Rate Source: Use the picklist to select the most spec fic CO2 emission rate source for the contract. Picklist is sorted in order of most spec fic to least spec fic fo lowed by zero GHG.

Colorado Sales Information - Use FERC Form 1 or other relavent publically available data to report all retail electricity sales and all Colorado wholesale requirements contract sales that occurred in 2005. Report all contracts including those that are excluded below from the baseline because they were no longer valid as of January 1 2019 or because the customer intends to file their own CEP. Contact the Air Pollution Control Division with further questions. During the ver fication of the form by the Air Po lution Control Division all data used to populate the form will be made available for review.

System Losses and SF6 Leakage - For Colorado system line losses report a l losses and SF6 emissions in the distribution row f data is not calculated separately for transmission and distribution assets.
For transmission and distribution systems that cover multiple states report the quantity of SF6 emitted from Colorado portion of the system only.

2005 Baseline Adjustment Details - Report all contracts that are excluded from the baseline because they were no longer va id as of January 1 2019 or because the customer intends to file their own CEP.

2030 All Electricity
Owned Assets
Co-owned facilities and units: Report data based on percentage of each facility or unit that is owned by the utility filing the report and consistent with modeling results submitted for the CEP.
Plant: Report Plant or Unit Name of the asset
Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.
Total Heat Input: Report projected heat input for each asset from the CEP resource modeling. Report zero if asset does not combust fuel.
% Heat Input Coal: Report the percentage of total heat input associated with combusting coal to the nearest tenth of a percent.
% Heat Input Natural Gas: Report the percentage of total heat input associated with combusting natural gas to the nearest tenth of a percent.
% Heat Input Fuel Oil: Report the percentage of total heat input associated with combusting fuel o l to the nearest tenth of a percent.
% Heat Input Biomass: Report the percentage of total heat input associated with combusting biomass to the nearest tenth of a percent.
Generation: Report projected load produced by the unit in Net MWh from the resource plan modeling for the CEP.
CO2 Emissions Methodology: Use the picklist to select the method of determining CO2 emissions from the asset. Use the most specific data source available. Picklist is sorted in order of most specific to least specific fo lowed by zero GHG.
CO2 Total: Report actual CO2 emissions determined by the emission methodology for 2030.

Contract Purchases - Report contracts that are included in the load forecast used for resoure plan modeling of the CEP.
Counter Party: Report the entity with which the contract is or will be established.
Primary Generation Type: Use the picklist to report the primary fuel or resource type for the asset.
Purchases: Report the projected quantity of energy purchased in Net MWh.
Emission Rate Source: Use the picklist to select the most spec fic CO2 emission rate source for the contract. Picklist is sorted in order of most spec fic to least spec fic fo lowed by zero GHG.

Market Transactions - Report market transactions that are included in the load forecast used for resoure plan modeling of the CEP.
Market Name: Report the name each market from which transactions are expected to occur in 20 0 based on current or expected market participation.
System Subregion or Region Identification: Report the location of each market using the picklist.
Transactions: Report transactions projected through each market with positive values indicating purchases and negative values indicating sales. Report separate lines for purchases and sales to each market if mode ing data is available. If separate purchase and sales data is not modeled report net transactions modeled through each market. Report energy in Net MWh.
Emission Rate Source: Use the picklist to select the most spec fic CO2 emission rate source for the contract. Picklist is sorted in order of most spec fic to least spec fic fo lowed by zero GHG.

Sales Information - Report projected retail and Colorado wholesale contract sales included in the load forecast used in resource plan modeling for the CEP.
Report a l contracts including those that the customer intends to file their own CEP.

System Losses and SF6 Leakage - For Colorado system line losses report anticipated losses and SF6 emissions in the distribution row if data is not calculated separately for transmission and distribution assets.
For transmission and distribution systems that cover multiple states report the quantity of SF6 emitted from Colorado portion of the system only.

2030 Adjustment Deta ls - Report all contracts that the customer intends to f le their own CEP.

Interim Year Summary
This tab is not used for determining acceptability of a CEP nor any compliance determination with AQCC regulations. It is submitted for information purposes only to inform GHG reduction planning activities.
Report Total Load Beneficial Electrification Program Load Total GHG emissions and Total CO2 emissions for each calendar year based on forecasts submitted with resource planning activities.

Lists and Lookups
If Biomass fuels are used enter the appropriate emission factors based on fuel type.
For long term contract transactions enter contract specific emission rates based on a l generation assets included under the contract.
For company system rate emission factors enter the appropriate emission factors for the electricity pool supplied by the company. During the verification of the form by the Air Pollution Control Division a l data used to populate the emission factors will be made available for review.
If additional lines are necessary for contract transactions they must be added above the line titled "LEAVE BLANK" and data must be entered in alphabetical order in the first column in order for the vlookup function to work properly.

Demonstration for 80% CO2 reduction in Retail + Colorado Wholesale sales pursuant to SB19-236

Step 1: Calculate 2005 CO2 baseline

Baseline	2005
Electricity sales CO2 (short tons)	1,882,717

Step 2: Calculate 2030 CO2 forecast

Forecast	2030
Electricity sales CO2 (short tons)	377,036

Step 3: Calculate percent CO2 reductions

CO2 Reduction Demonstration	
2005 Baseline CO2	1,882,717
2030 Projected CO2	377,036
Percent Reduction	80%

Plans that achieve 80% reduction when filed meet the minimum requirement of the statute.

Demonstration of 75% reduction in GHGs from retail sales pursuant to HB19-1261

Step 1: Calculate retail only GHG 2005 baseline

Baseline	2005
Retail electricity sales CO2e (Metric Tons)	1,719,758

Step 2: Calculate 2030 retail only GHG forecast

Forecast	2030
Retail electricity sales CO2e (Metric Tons)	344,738

Step 3: Calculate percent GHG reductions for retail sales

GHG Reduction Demonstration	
2005 Retail Baseline CO2e	1,719,758
2030 Retail Forecast CO2e	344,738
Percent Reduction	80%

Plans that achieve 80% reduction when filed meet the minimum initial requirement of the statute.

Approved plan that achieves 75% reduction meets minimum final requirement of the statute to qualify for the safe harbor provisions.

RED FONT: DATA ENTRY **BLACK FONT: Calculated**

2005 All Electricity: Historical Generation and Emissions Data for CEP Baseline

Owned Assets

Plant or Unit	Primary Generation Type	Total Heat Input (MMBtu)	% Heat Input Coal	% Heat Input Natural Gas	% Heat Input Fuel Oil	% Heat Input Biomass	Generation (Net MWh)	CO2 Emissions Methodology	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)	CO2 Intensity (Lb/Net MWh)	GHG Intensity (Metric Ton / Net MWh)
N/A										0	0	0	0	0	0.00
N/A										0	0	0	0	0	0.00
N/A										0	0	0	0	0	0.00
N/A										0	0	0	0	0	0.00
N/A										0	0	0	0	0	0.00
TOTAL HEAT INPUT		**0**			**TOTAL GENERATION**		**0**	**TOTAL Emissions**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**

Contracted Assets

Counter Party	Primary Generation Type	Purchases (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
Xcel Energy	Coal	1,920,550	System Rate	1,959	1,881,328	1,706,712	3,384	8,395	1,718,492
WAPA LAP	Water	81,482	Zero GHG	0	0	0	0	0	0
WAPA CRSP	Water	42,971	System Rate	65	1,389	1,260	0	6	1,266
N/A				0	0	0	0	0	0
TOTAL CONTRACT PURCHASES		**2,045,003**		**TOTAL Emissions**	**1,882,717**	**1,707,972**	**3,385**	**8,401**	**1,719,758**

Market Transactions (Negative for Sales, Positive for Purchases)

Market Name	System, Subregion, or Region Identification	Transactions (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
N/A				0	0	0	0	0	0
N/A				0	0	0	0	0	0
N/A				0	0	0	0	0	0
TOTAL MARKET ENERGY TRANSACTIONS		**0**		**TOTAL Emissions**	**0**	**0**	**0**	**0**	**0**

Customer Sales Information

	Net MWh	CO2 Emissions (Metric Tons)	GHG Emissions (Metric Tons CO2e)
Retail Sales	1,929,108	1,707,972	1,719,758
Colorado Wholesale Contract #1		0	0
Colorado Wholesale Contract #2		0	0
Colorado Wholesale Contract #3		0	0
Colorado Wholesale Contract #4		0	0
Total Sales	1,929,108	1,707,972	1,719,758

System Losses and Leakage Information

			SF6 Emissions (Metric Tons CO2e)
Colorado Distribution System Losses	115,895		
Colorado Transmission System Losses			

Generation to Sales/Losses Variance Quick Check:	0.00%

CEP Baseline Emissions Summary

	Short Tons	Metric Tons
CO2 Total Emissions	1,882,717	1,707,972
GHG Total Emissions		1,719,758

These now subtract totals from below to give adjusted 2005 baseline
This now subtracts total from below to give adjusted 2005 baseline

2005 Baseline Adjustment Details

	Net MWh	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
Excluded Wholesale Contract #1		0	0	0	0	0	0
Excluded Wholesale Contract #2		0	0	0	0	0	0
Excluded Wholesale Contract #3		0	0	0	0	0	0
Excluded Wholesale Contract #4		0	0	0	0	0	0
Total Sales	0	Total Emissions	0	0	0	0	0

RED FONT: DATA ENTRY **BLACK FONT: Calculated**

2030 All Electricity Projected Generation and Emissions Data for CEP Compliance Year

Owned Assets

Plant or Unit	Primary Generation Type	Total Heat Input (MMBtu)	% Heat Input Coal	% Heat Input Natural Gas	% Heat Input Fuel Oil	% Heat Input Biomass	Generation (Net MWh)	CO2 Emissions Methodology	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)	CO2 Intensity (Lb/Net MWh)	GHG Intensity (Metric Ton CO2e / Net MWh)
Comanche 3	Coal	2,917,493	100.0%	0.0%	0.0%	0.0%	292,930	Generator Rate	299,984	272,141	802	1,391	274,334	2,048	0.94
Plant 2										0	0	0	0	0	0.00
Plant 3										0	0	0	0	0	0.00
Plant 4										0	0	0	0	0	0.00
Plant 5										0	0	0	0	0	0.00
TOTAL HEAT INPUT		**2,917,493**			**TOTAL GENERATION**		**292,930**	**TOTAL Emissions**	**299,984**	**272,141**	**802**	**1,391**	**274,334**	**2,048**	**0.94**

Contracted Assets

Counter Party	Primary Generation Type	Purchases (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
WAPA LAP	Water	84,049	Zero GHG	0	0	0	0	0	0
WAPA CRSP	Water	52,480	Contract Rate	20	531	482	1	2	485
[redacted]	Solar	27,215	Zero GHG	0	0	0	0	0	0
[redacted]	Solar	186,101	Zero GHG	0	0	0	0	0	0
[redacted]	Solar	114,897	Zero GHG	0	0	0	0	0	0
[redacted]	Natural Gas	67,265	Contract Rate	957	32,178	29,192	17	261	29,471
[redacted]	Wind	705,833	Zero GHG	0	0	0	0	0	0
[redacted]	Solar	436,275	Zero GHG	0	0	0	0	0	0
[redacted]	Wind	532,035	Zero GHG	0	0	0	0	0	0
[redacted]	Natural Gas	0	Contract Rate	1,319	0	0	0	0	0
2030 Solar	Solar	328,331	Zero GHG	0	0	0	0	0	0
2030 Wind	Wind	353,709	Zero GHG	0	0	0	0	0	0
TOTAL CONTRACT PURCHASES		**2,888,190**		**TOTAL Emissions**	**32,710**	**29,674**	**19**	**263**	**29,956**

Market Transactions (Negative for Sales, Positive for Purchases)

Market Name	System, Subregion, or Region Identification	Transactions (MWh)	Emission Rate Source	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
Imbalance Sale	Company System Rate	(303,301)	System Rate	209	(31,720)	(28,776)	(76)	(131)	(28,983)
Imbalance Purchase	WECC	338,056	Regional Factor	450	76,063	69,003	173	256	69,431
Market 3				0	0	0	0	0	0
TOTAL MARKET ENERGY TRANSACTIONS		**34,755**		**TOTAL Emissions**	**44,342**	**40,227**	**97**	**125**	**40,448**

Sales Information

	Net MWh	CO2 Emissions (Metric Tons)	GHG Emissions (Metric Tons CO2e)
Retail Sales	2,959,936	342,041	344,738
Colorado Wholesale Contract #1		0	0
Colorado Wholesale Contract #2		0	0
Colorado Wholesale Contract #3		0	0
Colorado Wholesale Contract #4		0	0
Total Sales	2,959,936	342,041	344,738

System Losses and Leakage Information

			SF6 Emissions (Metric Tons CO2e)
Colorado Distribution System Losses	141,564		0
Colorado Transmission System Losses	57,505		

Generation to Sales/Losses Variance Quick Check	1.77%

Emissions Summary

	Short Tons	Metric Tons CO2e
CO2 Total Emissions	377,036	342,041
GHG Total Emissions		344,738

These now subtract total from below to give adjusted 2030 emissions based on customers who file CEF
This now subtracts total from below to give adjusted 2030 emissions based on customers who file CEF

2030 Adjustment Details

	Net MWh	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons CO2e)	N2O Total (Metric Tons CO2e)	CO2e Total (Metric Tons)
Excluded Wholesale Contract #1		209	0	0	0	0	0
Excluded Wholesale Contract #2		209	0	0	0	0	0
Excluded Wholesale Contract #3		209	0	0	0	0	0
Excluded Wholesale Contract #4		209	0	0	0	0	0
Total Sales	0	Total Emissions	0	0	0	0	0

Year	CO2 (Short Tons)	Total GHG (Metric Tons CO2e)	Load (Net MWh)	Beneficial Electrification Program Load (Net MWhr)	CO2 Intensity (Lb/Net MWhr)	GHG Intensity (Metric Ton CO2e / Net MWh)
2021						
2022						
2023						
2024	1,742,233	1,595,985	2,630,980		**1324**	0.61
2025	**1,853,956**	**1,698,179**	**2,667,440**		**1390**	**0.64**
2026	1,162,791	1,098,282	2,734,469		**850**	0.40
2027	874,803	814,377	2,785,158		**628**	0.29
2028	825,864	763,884	2,839,069		**582**	0.27
2029	755,220	701,838	2,894,444		**522**	0.24

Emission Rate Picklist
CEMS
Generator Rate
Contract Rate
System Rate
Market Rate
Regional Factor
Zero GHG

Emission Rate Picklist is in order from most specific to least specific from carbon emitting sources

Primary Resource Type
Coal
Natural Gas
Fuel Oil
Biomass
Wind
Water
Solar

Constants		
Global Warming Potential, per AR4		Sources
Methane (CH4)	25	GHG Protocol
Nitrous Oxide (N2O)	298	EPA Discussion
Sulfur Hexafluoride (SF6)	22,800	
kg/ton	0.00110231	

2005 GHG Emission Rate Lookup Table

OWNED GENERATION				
Fuel	CO2 (kg/mmbtu)	CH4 (kg/mmbtu)	N2O (kg/mmbtu)	
Biomass				Editable
Coal	--	0.0110	0.0016	Locked
Fuel Oil	--	0.0030	0.0006	Locked
Natural Gas	--	0.0010	0.0001	Locked
PURCHASED GENERATION				
Energy Source	CO2 (lb/MWh)	CH4 (lb/MWh)	N2O (lb/MWh)	
N/A				
WAPA CRSP	64.64674735	0.001	0.001	
WAPA LAP				Editable
Xcel Energy	1959.155054	0.155	0.032	Editable
				Editable
				Editable
				Editable
				Editable
				Editable
				Editable
				Editable
				Editable
LEAVE BLANK				
AZNM	1311.05	0.017	0.018	Locked
CAMX	724.12	0.030	0.008	Locked
Company System Rate				Editable
ERCT	1324.35	0.019	0.015	Locked
MRO	1823.69	0.028	0.031	Locked
MROW	1821.84	0.028	0.031	Locked
NWPP	902.24	0.019	0.015	Locked
RMPA	1883.08	0.023	0.029	Locked
SPNO	1960.94	0.024	0.032	Locked
SPP	1751.37	0.025	0.026	Locked
SPSO	1658.14	0.025	0.023	Locked
TRE	1324.35	0.019	0.015	Locked
WECC	1033.12	0.023	0.015	Locked

2030 GHG Emission Rate Lookup Table

OWNED GENERATION				
Fuel	CO2 (kg/mmbtu)	CH4 (kg/mmbtu)	N2O (kg/mmbtu)	
Biomass				Editable
Coal	--	0.0110	0.0016	Locked
Fuel Oil	--	0.0030	0.0006	Locked
Natural Gas	--	0.0010	0.0001	Locked
PURCHASED GENERATION				
Energy Source	CO2 (lb/MWh)	CH4 (lb/MWh)	N2O (lb/MWh)	
2030 Solar				
2030 Wind				
[redacted]	956.761	0.023	0.029	Editable
[redacted]				Editable
[redacted]				Editable
[redacted]				Editable
[redacted]	1318.5	0.023	0.029	Editable
[redacted]				Editable
[redacted]				Editable
[redacted]				Editable
WAPA CRSP	20.25	0.002	0.000	Editable
WAPA LAP				Editable
LEAVE BLANK				
Company System Rate	209.1676041	0.022040663	0.003189604	Editable
MRO	675	0.060	0.0103	Locked
SPP	525	0.069	0.0096	Locked
TRE	540	0.048	0.0058	Locked
WECC	450	0.045	0.0056	Locked

Company enters appropriate factor based on solid, liquid or gasous fuel type

Company enters contract specific values here

CH4 lb/GWh	N20 Lb/GWh
17.45	17.94
30.24	8.08
18.65	15.11
27.94	30.66
28.00	30.71
19.13	14.90
22.88	28.75
23.82	32.09
24.62	25.52
24.98	22.61
18.65	15.11
22.62	14.77

OUTPUT EMISSIONS RATE - eGRID 2005

CORE ELECTRIC COOPERATIVE

Attachment 2

Xcel Energy Portfolio Annual Costs and Emissions 120-Day Report, Appendix T, Portfolio 1

The Energy to Thrive™

Portfolio: 1 - Preferred Plan (SCC)

Year	Other Costs ($M)	Fuel Costs ($M)	Capital + O&M Costs ($M)	TOTAL PVRR ($M)	Cost of CO2 Tons ($M)	Cost of Methane Tons ($M)	TOTAL PVSC ($M)	Emissions: Carbon (tons)	Methane (tons)	NOX (tons)	SOX (tons)	HG (tons)	PM_10 (tons)	Natural Gas Burn (MMBtu)	Curtailment (GWh)	Native Load Forecast Energy (GWh)
2023	$ 761	$ 486	$ 745	$ 1,992	$ 1,184	$ 4	$ 3,180	15,314,372	2,132	6,601	6,041	0.06	405	39,888,444	558	33,906
2024	$ 831	$ 440	$ 754	$ 2,025	$ 1,212	$ 4	$ 3,241	15,119,770	1,961	6,487	6,018	0.06	400	36,693,931	764	34,410
2025	$ 866	$ 435	$ 775	$ 2,075	$ 1,208	$ 6	$ 3,289	14,538,644	2,508	6,395	5,562	0.05	394	46,931,579	624	35,028
2026	$ 946	$ 341	$ 772	$ 2,058	$ 632	$ 5	$ 2,696	7,344,649	2,346	2,440	2,240	0.02	310	43,903,651	3,678	34,760
2027	$ 989	$ 250	$ 1,211	$ 2,450	$ 482	$ 3	$ 2,935	5,409,038	1,278	2,973	1,929	0.02	395	23,913,218	5,164	35,507
2028	$ 953	$ 231	$ 1,339	$ 2,523	$ 452	$ 3	$ 2,978	4,891,454	1,370	6,504	1,783	0.01	1,031	25,643,876	5,433	36,409
2029	$ 1,012	$ 231	$ 1,336	$ 2,579	$ 312	$ 4	$ 2,895	3,262,359	1,632	8,940	1,048	0.01	1,714	30,535,897	5,444	37,260
2030	$ 1,048	$ 244	$ 1,281	$ 2,573	$ 341	$ 5	$ 2,919	3,441,987	1,785	12,139	1,222	0.01	2,318	33,402,583	5,036	38,334
2031	$ 1,193	$ 212	$ 1,218	$ 2,623	$ 201	$ 5	$ 2,828	1,957,538	1,679	7,919	448	-	1,355	31,426,243	6,488	39,475
2032	$ 1,204	$ 229	$ 1,159	$ 2,592	$ 226	$ 6	$ 2,824	2,132,131	1,848	11,120	639	-	2,027	34,576,706	6,033	40,880
2033	$ 1,266	$ 219	$ 1,117	$ 2,602	$ 213	$ 5	$ 2,821	1,943,640	1,688	9,741	583	-	1,842	31,585,138	7,572	42,045
2034	$ 1,346	$ 217	$ 1,075	$ 2,638	$ 214	$ 5	$ 2,857	1,881,511	1,614	7,708	418	-	1,199	30,193,901	7,838	43,121
2035	$ 1,403	$ 220	$ 1,081	$ 2,704	$ 216	$ 5	$ 2,925	1,837,420	1,582	9,226	527	-	1,637	29,600,537	8,103	44,105
2036	$ 1,397	$ 229	$ 1,251	$ 2,878	$ 234	$ 6	$ 3,117	1,922,835	1,629	10,250	611	-	1,824	30,477,545	7,519	45,106
2037	$ 1,654	$ 156	$ 1,541	$ 3,350	$ 119	$ 3	$ 3,472	945,682	853	4,767	292	-	849	15,961,463	18,944	46,080
2038	$ 1,631	$ 173	$ 1,621	$ 3,424	$ 146	$ 4	$ 3,574	1,120,111	990	6,868	384	-	1,073	18,528,956	17,046	47,142
2039	$ 1,657	$ 192	$ 1,626	$ 3,475	$ 174	$ 5	$ 3,654	1,290,554	1,127	8,498	529	-	1,681	21,094,959	16,384	48,169
2040	$ 1,710	$ 193	$ 1,600	$ 3,503	$ 188	$ 5	$ 3,697	1,355,889	1,119	10,209	629	-	1,948	20,931,095	14,784	49,134
2041	$ 1,809	$ 217	$ 1,555	$ 3,582	$ 176	$ 4	$ 3,762	1,227,760	856	7,913	457	-	1,456	17,789,411	13,596	49,982
2042	$ 2,054	$ 242	$ 1,421	$ 3,718	$ 165	$ 3	$ 3,885	1,109,754	657	4,766	299	-	954	15,373,605	12,444	50,856
2043	$ 2,112	$ 259	$ 1,401	$ 3,772	$ 142	$ 2	$ 3,916	928,930	475	4,238	258	-	754	12,685,263	12,871	50,342
2044	$ 2,175	$ 330	$ 1,337	$ 3,841	$ 149	$ 2	$ 3,992	943,219	417	7,291	413	-	1,268	13,017,125	10,923	51,177
2045	$ 2,250	$ 404	$ 1,307	$ 3,961	$ 146	$ 2	$ 4,108	893,307	332	9,621	524	-	1,608	12,438,388	9,707	51,941
2046	$ 2,340	$ 513	$ 1,217	$ 4,071	$ 144	$ 1	$ 4,216	851,558	255	12,107	662	-	2,111	11,951,289	7,213	52,777
2047	$ 2,451	$ 568	$ 1,190	$ 4,209	$ 115	$ 1	$ 4,324	657,852	148	16,476	910	-	3,009	9,225,236	6,556	53,637
2048	$ 2,499	$ 672	$ 1,179	$ 4,350	$ 88	$ 0	$ 4,438	487,598	73	18,362	1,023	-	3,450	6,876,146	5,947	54,542
2049	$ 2,611	$ 749	$ 1,173	$ 4,533	$ 47	$ 0	$ 4,580	254,328	19	16,377	868	-	2,744	3,616,922	5,551	55,268
2050	$ 2,986	$ 760	$ 1,093	$ 4,839	$ -	$ -	$ 4,839	-	-	26,877	1,454	-	4,836	0	5,138	56,532
2051	$ 2,986	$ 760	$ 1,093	$ 4,839	$ -	$ -	$ 4,839	-	-	26,877	1,454	-	4,836	0	5,138	56,532
2052	$ 2,986	$ 760	$ 1,093	$ 4,839	$ -	$ -	$ 4,839	-	-	26,877	1,454	-	4,836	0	5,138	56,532
2053	$ 2,986	$ 760	$ 1,093	$ 4,839	$ -	$ -	$ 4,839	-	-	26,877	1,454	-	4,836	0	5,138	56,532
2054	$ 2,986	$ 760	$ 1,093	$ 4,839	$ -	$ -	$ 4,839	-	-	26,877	1,454	-	4,836	0	5,138	56,532
2055	$ 2,986	$ 760	$ 1,093	$ 4,839	$ -	$ -	$ 4,839	-	-	26,877	1,454	-	4,836	0	5,138	56,532
				A	*B*	*C*	*A + B + C*									
NPV ($M)	$ 20,555	$ 4,893	$ 16,639	$ 42,087	$ 6,288	$ 57	$ 48,432	69,322,272	15,012	52,479	25,843	0.23	6,966	<< 2023-2030 sum		
2023-2055								93,063,889	32,373	397,196	45,043	0.23	68,772	<< 2023-2055 sum		

Notes: Costs do not include transmission network upgrades for delivery.
Other costs include PPA, Generics, Market Purchases/Sales, less Fuel.

PVRR = Present Value Revenue Requirement
PVSC = Present Value Societal Cost

ATTACHMENT 3

The Air Pollution Control Division received one (1) written comment submitted in response to the Draft CORE Electric Cooperative Voluntary Clean Energy Plan (CEP) Verification published online by the Division on December 3, 2023. The comment was submitted by Sierra Club on December 19, 2023.

Below the Division provides response to the comments submitted by Sierra Club.

Comment: First, we wish to confirm our understanding of how CORE developed the estimate of emissions from its ownership share of Comanche 3 in 2030. This is an important issue, given that the overwhelming majority of CORE's GHG emissions in 2030 come from Comanche 3. Our understanding is that the verification workbook assumes that in 2030: (1) Comanche 3 is operated at a 33% capacity factor, which is the maximum usage allowed in 2030 under the Updated Settlement that the PUC approved in Case No. 21A-0141E; and (2) all of the emissions associated CORE's ownership share of Comanche 3 are included in the verification workbook, whether as sales to CORE's retail customers or as off-system sales to third parties. Assuming that our understanding is correct, we appreciate the Division providing clarity on this issue, and we support these assumptions for purposes of the verification.

Response: The modeling conducted by CORE utilized a unit availability consistent with the capacity factor limitations described in the settlement agreement in Case No. 21A-0141E. The system was modeled this way so that adequate amount of replacement low and zero carbon resources will be contracted with sufficient lead time to be available to support the utility's expected energy needs by 2030.

All of the emissions associated with the energy modeled from this unit are included in CORE's CEP workbook. Energy shortfalls or excess generation are expected to be transacted through an organized market. This is reflected in the workbook calculations using a system emissions rate for sales and the defined market rate from the published workbook for purchases. With the filing of a CEP, CORE is required to annually report emissions from the actual operations of the system. CORE has the responsibility to plan and operate the system to meet the emissions targets established in the CEP.

The Division will continue to monitor the operations of Comanche 3 with each annual reporting cycle to ensure that all emissions from the source are accounted for properly in the CEP tracking for each utility with ownership share as well as the Colorado GHG Inventory. Emissions associated with market transactions will be accounted for in the annual reporting. If interim year progress is not being demonstrated per the requirements of § 25-7-105(1)(e)(VIII.5)(C) C.R.S, appropriate actions will be taken to require an updated Clean Energy Plan demonstrating the achievement of both the 2030 target and the cumulative reductions established by the Clean Energy Plan.

Comment: Second, we wish to point out an issue concerning CORE's planned acquisition of additional resources to replace Comanche 3. CORE states that, currently, it expects to achieve exactly an 80% reduction in GHG emissions in 2030 relative to a 2005 baseline (under both a wholesale + retail or a retail-only basis); and that CORE anticipates needing to acquire additional resources before/in 2030, beyond the resources it has currently contracted for and that are expected to come online in the coming years. If CORE's actual emissions correspond to its forecast of emissions, then the additional resources that CORE acquires before/in 2030 could emit no more than approximately 16,000 tons before CORE would fall below the 80% GHG-reduction target on a retail-only basis. With the caveat that this depends on CORE's actual emissions tracking its current forecast of emissions, the implication is that, in acquiring additional resources before/in 2030 beyond the resources identified in the CEP, CORE would need to acquire either only zero-carbon resources, or any new carbon-emitting resources would need to run extremely rarely.

To be clear, we are not alleging any defects in the Plan or requesting any changes to the draft verification. We are simply pointing out the implications of certain elements of CORE's Plan. We recognize that CORE has stated its intention to acquire these additional resources consistent with the target of reducing GHG emissions at least 80% by 2030. We further acknowledge that CORE states that its modeling selects a combination of wind, solar, and battery storage to meet the additional resource need in 2030. Nonetheless, based on CORE's current projections, the Plan has little headroom to emit more GHGs than its currently projects, which will affect CORE's acquisition of additional resources to replace its share of Comanche 3.

Response: The Division understands that there is a lot of uncertainty around the future of Unit 3 at the Comanche Station based on historical operation as well as current and future proceedings at the Public Utilities Commission. The Division intends to monitor the operation of the unit closely through the annual reporting requirements in Regulation 22 in order to ensure that all of the utilities with ownership stake in the unit remain on track with interim year projections and that future resource planning is performed consistent with the mass emissions levels established for 2030 through the CEP process. As noted in the response above, if progress is not maintained or, if future resource planning is not performed to meet the emissions levels established in this CEP, appropriate actions will be taken to require an updated Clean Energy Plan demonstrating the achievement of both the 2030 target and cumulative reductions established by the utility's CEP.