

CLEAN ENERGY PLAN GUIDANCE

**Colorado Department of Public Health and
Environment – Air Pollution Control Division**

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INTRODUCTION

During the 2019 legislative session, Colorado adopted Senate Bill 19-236 which is contained in 40-2-125.5 C.R.S. This legislation directed Qualifying Retail Utilities (QRU) to submit a Clean Energy Plan (CEP) as part of their next Electric Resource Plan (ERP) filing with the Colorado Public Utilities Commission (PUC). The legislation also allows for voluntary CEP filings by electric cooperatives, municipals, and small investor owned utilities that do not meet the customer size threshold of a QRU. As part of the CEP process, the Air Pollution Control Division (APCD) is required to participate in the PUC proceeding and provide a verification of the CO₂ emissions reductions projected by the CEP in calendar year 2030, when compared to the 2005 baseline.

Also during the 2019 legislative session, Colorado adopted House Bill 19-1261 which is contained in section 25-7-105 C.R.S. In addition to setting economy-wide Greenhouse Gas (GHG) emissions reduction targets for Colorado, this legislation created a mechanism by which utilities with an approved CEP can attain regulatory certainty with the Air Quality Control Commission (AQCC) through 2030, commonly referred to as the "Safe Harbor" provision. Because the output from the PUC process becomes the verification point for the safe harbor determination, these two pieces of legislation must be considered together during any emissions reduction verification process.

In developing the information contained within this 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. This guidance document outlines APCD's plan, after considering the input of the workgroup participants, for conducting the required verification from a neutral perspective using a thorough and transparent process. The following sections of this document outline specific elements of the participation and verification process for CEPs.

CONSULTATION WITH AQCC

40-2-125.5(4)(VIII) C.R.S. requires that the APCD consult with the AQCC prior to participating in the CEP proceedings at the PUC and submitting the emissions verification reports, although the requirements for the consultation are not described in the statute. To demonstrate the consultation requirement, the APCD has developed this guidance document and verification workbook through a collaborative process, is holding a public comment period on the draft documents, and will brief the AQCC and consider its feedback and input prior to publishing the final documents and implementing the process for a CEP filing.

It is important for the AQCC consultation activity related to the emissions verification process to occur proactively. This is necessary to avoid any possible delays in the PUC proceedings that may be caused if consultation did not occur until after a CEP has been filed. Publication of the final guidance and verification form prior to CEP submissions is also necessary so that the utilities understand the process by which their plan(s) will be evaluated while they are preparing them.

The initial consultation briefing occurred on October 22, 2020 at which time the AQCC requested additional consultation at a future scheduled meeting. This additional consultation occurred on January 23, 2021 at which time the AQCC considered a proposed resolution supporting the publication of the CEP Guidance by the APCD. A second proposed resolution related to a comprehensive safe harbor policy, including resolution of baseline overlap issues, was also considered during the January 23, 2021 consultation.

The APCD recognizes that the AQCC may ask to receive additional update briefings while the CEP process is ongoing before the PUC related to the emissions verification reports in order to better understand the scope of emissions reductions anticipated from the portfolios being considered. The APCD can provide this type of

ongoing update to the AQCC, but does not intend for these briefings to occur prior to filing the verification reports to the PUC due to the design of a neutral, transparent verification process that relies on publically available data and the published verification workbook. Providing updates in this way will allow the PUC process to proceed without delays that may be caused due to scheduling agenda items with the AQCC.

PARTICIPATION IN CEP PROCEEDINGS

40-2-125.5(4)(VIII) C.R.S. requires the APCD to participate in the CEP proceedings held by the PUC. APCD intends to file a motion at the onset of a CEP proceeding to request participation status and define the submission requirements of the verification reports to the PUC early in both the Phase I and Phase II portions of the proceeding. It is important for the APCD verification to be submitted early in each phase so that the process can move forward efficiently, the PUC and their staff have access to the information while evaluating the plans, and this new APCD verification requirement can fit as seamlessly as possible into the existing PUC processes.

Appendix A includes milestones in the PUC process where APCD may become involved. Participation at different milestones is dependent on the status that is requested and granted for each individual CEP proceeding.

VERIFICATION METHODOLOGY

40-2-125.5(4)(VIII) C.R.S. requires the APCD to describe the methods that will be used to verify the emissions reductions projected by a CEP. Publication of this guidance including the workbook that will be used for the verification process fulfills this requirement and creates

transparency in the process. The verification workbook is attached as Appendix B to this published document.

The workbook will be available for use by utilities while preparing their CEP filings and will be included in the information submitted with the filing to the PUC. The APCD will review the submitted information and sources of the data to produce a verification report for generic portfolios submitted in Phase I, as well as the detailed portfolios submitted during Phase II. Additionally, the APCD will verify the final plan approved by the PUC at the end of the proceeding to determine if the safe harbor requirements have been achieved.

Any cooperative or municipal utility filing a voluntary plan will also use the same workbook for calculating emissions reductions and the APCD will verify those calculations. For these plans, a single verification will be performed prior to the submission of the plan to the PUC rather than during a PUC proceeding. The APCD will work with PUC staff to determine timing and mechanism for filing of voluntary plans not associated with an ERP docket.

EMISSIONS VERIFICATION WORKBOOK

The following items describes the content of the emissions verification workbook. The workbook has been designed to provide emissions reduction calculations for both CEP requirements and safe harbor determinations under HB 19-1261 in a neutral and transparent way.

Individual sheets in the workbook include:

Instructions: This sheet describes the content of each of the sheets and the data input requirements. There is no data entry on this sheet.

CEP Demonstration: This sheet calculates the percent reduction in CO2 emissions from 2005 baseline levels based on Colorado electricity sales. All emissions values are linked to other sheets and there is no data entry on this sheet.

Safe Harbor Evaluation: This sheet calculates the percent reduction in GHG emissions from 2005 baseline levels based on Colorado **retail** electric sales. All emissions values are linked to other sheets and there is no data entry on this sheet.

2005 All Electricity: This sheet is used to enter all data associated with the utility's 2005 baseline operations and sales. The sheet includes pre-populated equations for calculating and aggregating electricity and emissions. The utility will use previously collected, and publically reported, if available, information to populate all generation assets that provided electricity into their system. These assets include owned generation sources, contracted generation sources, as well as electricity market transactions. Also included in this sheet are information on Colorado retail sales, Colorado wholesale contract sales, market transactions, and Colorado transmission and distribution systems, including SF6 releases.

2030 All Electricity: This sheet is used to enter all data associated with the utility's 2030 projected operations and sales. The sheet includes pre-populated equations for calculating and aggregating emissions. The utility will use information from the resource plan modeling conducted to develop the CEP to populate all generation assets that are proposed to provide electricity into their system. These assets include owned generation sources, contracted generation sources, as well as electricity market transactions. Also included in this sheet are information on projected Colorado retail sales, projected Colorado wholesale contract sales, market transactions, and Colorado transmission and distribution systems, including projected SF6 releases.

Interim Year Summary: This sheet is an informational data set intended to help facilitate statewide planning of GHG reduction programs. It provides estimations of annual load, beneficial electrification load, CO2 emissions, and GHG emissions based on the modeling conducted for the CEP filing.

Lists and Lookups: This sheet includes picklists, emissions factors, and conversion constants linked to the equations in the 2005 All Electricity and 2030 All Electricity sheets.

Throughout the development of this guidance document and verification workbook, a number of topics were raised by the workgroup participants seeking clarification on how specific data or scenarios would be handled in the verification. The following sections describe how the APCD intends to address each of these items during the CEP verification process.

RESOLUTION OF RETAIL AND WHOLESALE DOUBLE COUNTING

In Colorado there are multiple instances where one utility supplies electricity through a wholesale requirements contract to another utility who then sells it to specific retail customers. When both members of this type of contract intend to file a CEP, this creates a potential duplication of electricity and emissions in the corresponding evaluations. In response to this issue, one of the environmental organizations and one of the utility participants in the guidance development working group created a process describing how the overlap could be resolved and brought it to the group as a proposal. The process removes from the wholesale utility's 2005 baseline all emissions associated with contracts that no longer existed as of January 1, 2019, which is consistent with the statute. Further, the proposal also removes from the wholesale utility's baseline all emissions associated with current contracts for which the retail utility has given the wholesale utility notice that they intend to file their own CEP. The workgroup agreed with these two methods for resolving potential overlap situations and APCD has included them as part of this guidance and verification workbook. An illustrative example of the approach to resolve the baseline overlap is included in Appendix C.

The proposal also requested AQCC approval of a comprehensive safe harbor, that is, one that applies to emissions from generation that

serves both retail and wholesale sales as part of the AQCC review and input on this APCD guidance document. APCD determined that this aspect of the proposal was beyond the scope of the CEP guidance document, which addresses how the verification is performed.

As part of ongoing discussions after the initial AQCC consultation, the proposal was transformed into a proposed Comprehensive Safe Harbor policy resolution for consideration by the AQCC.

DEFINITION OF AS FILED

Both statutes contain the language “as filed” for determining whether or not a CEP has met applicable emissions reduction thresholds, however neither define this term. Through the workgroup discussions, it was decided that as filed means the detailed portfolios provided in Phase II of the PUC proceeding for utilities subject to the PUC ERP process. These represent actual generation portfolios being considered for approval and actionable plans that can be verified by the APCD. As described above, verifications are also being performed on the generic portfolios as part of Phase I so this process can remain intact if either commission decides to define as filed in their rules. For voluntary filings by a cooperative or municipal utility, there is a single filing to the PUC to be verified.

MARKET TRANSACTIONS

To be consistent with existing data collection and reporting practices, market transactions are reported based on the annual purchases and sales in each applicable market, if that data is available. Where that data is not available historically, or as part of the resource modeling performed for the CEP, net aggregate data for each market is used. For sales into a market, the energy value reported is negative and for purchases the value reported is positive. It is important to understand that with market transactions, the counter party is unknown and therefore the source of the energy or the final delivery location are

also unknown to the Colorado utility making the transaction. If a Colorado utility sells into a market and that electricity is ultimately purchased by another Colorado utility, double counting is avoided because only the buyer has included the emissions associated with that electricity transaction in their baseline or projected emissions totals.

MARKET EMISSIONS INTENSITY RATES

2005 Baseline: APCD intends to use the Emissions & Generation Resource Integrated Database (eGRID) Total Output Emission Rates published by EPA for the baseline emissions calculations and have included them for regions and sub-regions of the western United States in the lists and lookups sheet in the verification workbook. These emission rates represent the annual system-wide emissions intensity rates from all generation sources that supplied electricity in the region or sub-region. APCD believes this is the most representative rate for energy that was available for market transactions in 2005 because sales into the markets were made from each utility's system, which include fossil and non-fossil energy sources, not individual generation assets.

2030 Projections: To estimate the market emissions intensity rates for 2030, APCD used the historical eGRID Total Output Emission Rates from 2005 through 2018 and created a polynomial trend extending through 2050. The trend assumes the western grid achieves 80% GHG reduction by 2040 and 90% GHG reductions by 2050, both from 2005 levels. APCD believes this creates a realistic, yet conservative approach to estimating future emissions. The approach is realistic because of the continued downward trend in actual utility GHG emissions due to fossil unit retirements, technological advances and cost reductions of renewable generation and energy storage, consumer preference, and increased regulatory requirements. The approach is conservative because it is anticipated that most of the energy available for real time market purchases in 2030 will be from renewable

resources that would have otherwise been curtailed in the absence of energy imbalance markets or other types of regional organization.

Market emissions intensity rates are locked in the published verification workbook so that they cannot be modified other than by the APCD. APCD will continue to follow market emissions trends and review published data associated with emissions intensity of the electric system and may update these factors as new data becomes available.

RENEWABLE ENERGY CERTIFICATES (REC)

2005 All Electricity: In this sheet, information about REC creation, retirement, and sales are not required as part of the data entry or calculations. Electricity that was publically reported by the utility as zero GHG in 2005, even if the RECs were unbundled and eventually sold separately or retired in a later year, will be treated in the same manner as part of this evaluation. The Division believes that assigning an emissions intensity of something greater than zero to that energy as part of this verification process would incorrectly increase the baseline emissions levels above what the utility has previously reported.

2030 All Electricity: In this sheet, information about REC creation, retirement, and sales are not required as part of the data entry or calculations. The sheet is designed this way for two reasons. First, there is no way to verify retirement of RECs in a future year that have not yet been created. Second, 40-2-125.5(3)(III) C.R.S. requires that all RECs used for compliance with a CEP be retired in the year in which they are created. Therefore, in the 2030 compliance year, which is the only year for which emissions reductions are being verified by the APCD through this process, any REC that is created through owned generation or acquired through supply contracts or energy purchases will be retired by the utility. This retirement provision in the statute allows the APCD verification process to use

zero GHG in the emissions calculations for these sources. The form also allows for custom emissions intensity values to be entered by the utility in the case of contract purchases that contain a mix of zero GHG and GHG emitting resources and market intensity rates are used when energy purchased through markets cannot be verified to include the associated RECs. The Division will review and verify the underlying data for any custom emissions intensity value that a utility enters in the verification workbook.

ATTRIBUTION FOR BENEFICIAL ELECTRIFICATION PROGRAMS

The State of Colorado views beneficial electrification of transportation, buildings, and industry as an important and powerful tool for maintaining progress toward achieving the GHG reduction goals defined in statute. As such, electric utilities are encouraged to develop bold and transformative programs to facilitate electrification of transportation, residential and commercial buildings, and industrial applications to support the statewide GHG reductions. In addition to reducing GHG emissions, beneficial electrification programs often include co-benefits such as improved indoor air quality, reduced criteria pollutant emissions, and energy cost savings. The benefits of early electrification efforts will continue to expand over time as the overall electric grid decarbonizes.

APCD anticipates that utilities will be able to submit a CEP that incorporates projected load growth from beneficial electrification programs and achieves a minimum of 75% GHG emissions reductions from 2005 levels, based on Colorado retail sales. Therefore, the APCD will not treat the GHG emissions that transfer onto the utility system from other sectors as a result of beneficial electrification programs differently during the CEP emissions reduction verification.

APCD recognizes that CEPs may be modified through the course of the proceedings before the PUC. This guidance sets forth a mechanism by which utilities may seek additional consideration of beneficial

electrification from the AQCC through a declaratory order under 5 CCR 1001-1, Section VI. Such consideration may be appropriate in the event the PUC approves an initial CEP that does not achieve at least a 75% reduction in total GHG emissions from the 2005 baseline necessary to satisfy the requirements of 25-7-105(1)(e)(VIII)(C), C.R.S., inclusive of emissions associated with the additional projected load from beneficial electrification programs. The petition for a declaratory order would seek an AQCC determination on the appropriate attribution of emissions associated with beneficial electrification programs as part of the reduction calculation. The Division expects that any declaratory order petition be conditioned upon ongoing demonstration of satisfactory GHG emissions reductions.

In order for the Division to evaluate any petition for declaratory order associated with beneficial electrification and assess its position, the requesting utility must include the following information in addition to the requirements set forth in the AQCC Procedural Rules:

1. Verification that the utility filed at least one (1) portfolio as part of Phase 2 of the CEP process that was projected to achieve a minimum of 80% GHG emissions reduction from 2005 levels based on Colorado retail sales.
2. Detailed description of each transportation, building, or industrial electrification program or plan, that includes the following elements:
 - a. Quantification of system-wide load growth required to serve the plan in 2025 and 2030,
 - b. Projected CO₂ and GHG emissions intensity of the system in 2025 and 2030,
 - c. CO₂ and GHG mass emissions in 2025 and 2030 associated with plan load growth,
 - d. CO₂ and GHG mass emissions reductions in 2025 and 2030 from residences, buildings, transportation, or industrial sources,

- e. Calculations, assumptions, and emission factors used to determine emissions reductions from residences, commercial buildings, transportation, or industrial sources,
 - f. Metrics to be tracked annually to demonstrate program implementation and effectiveness,
 - g. Other relevant data and issues pertaining beneficial electrification.
3. Information demonstrating that the plan(s), individually or in aggregate, achieve a minimum economy-wide net GHG benefit of at least 1.5 times the amount of emissions transferred onto the utility system by the load serving the plan(s) in 2025.
4. Information demonstrating that the plan(s), individually or in aggregate, achieve a minimum economy-wide net GHG benefit of at least 2.0 times the amount of emissions transferred onto the utility system by the load serving the plan(s) in 2030.
5. Certification that the utility will submit to the Air Pollution Control Division an annual progress report for all beneficial electrification plan(s). A copy of any annual report required to be filed with the PUC is acceptable to meet this requirement if it contains all of the required elements. The progress report will include the following elements:
 - a. Quantification of system-wide load required to serve the plan,
 - b. Actual CO₂ and GHG emissions intensity of the system,
 - c. CO₂ and GHG mass emissions associated with plan load,
 - d. CO₂ and GHG mass emissions reductions from residences, buildings, transportation, or industrial sources,
 - e. Calculations, assumptions, and emission factors used to determine emissions reductions from residences, commercial buildings, transportation, or industrial sources, and
 - f. Program metric results as defined in 2.f.

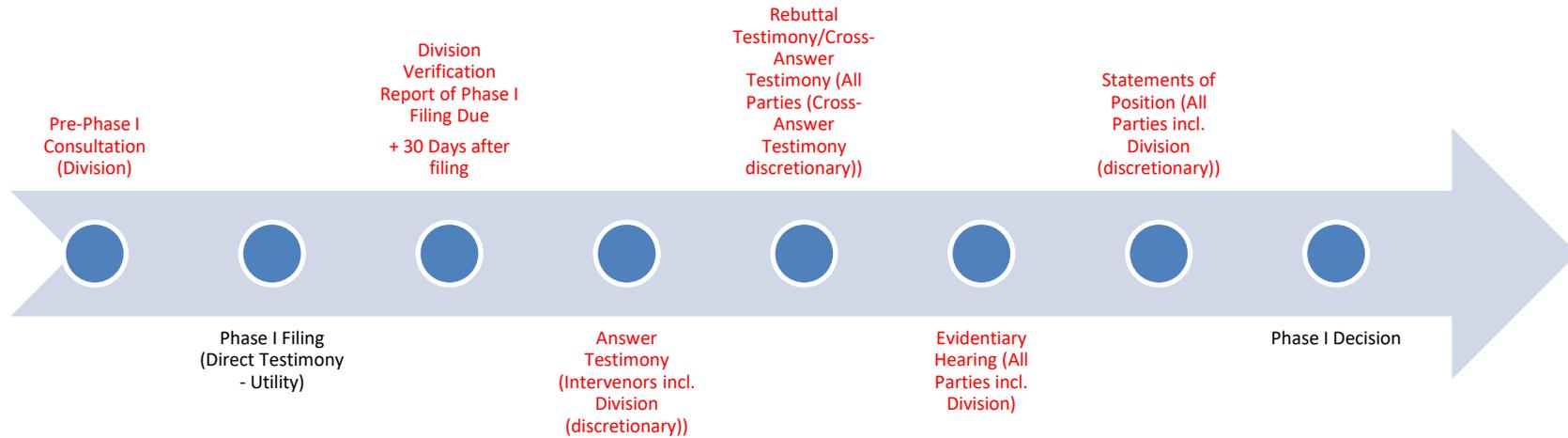
Failure to demonstrate ongoing compliance with the terms of a declaratory order, if granted, may result in rescission or any other consequences deemed appropriate by the AQCC.

The Division will maintain a list of those utilities that have demonstrated the requisite GHG emission reductions under section 25-7-105(1)(e)(VIII)(C), C.R.S. through a CEP or a CEP and AQCC declaratory order.

APPENDICES

APPENDIX A – PUC PROCESS MILESTONES

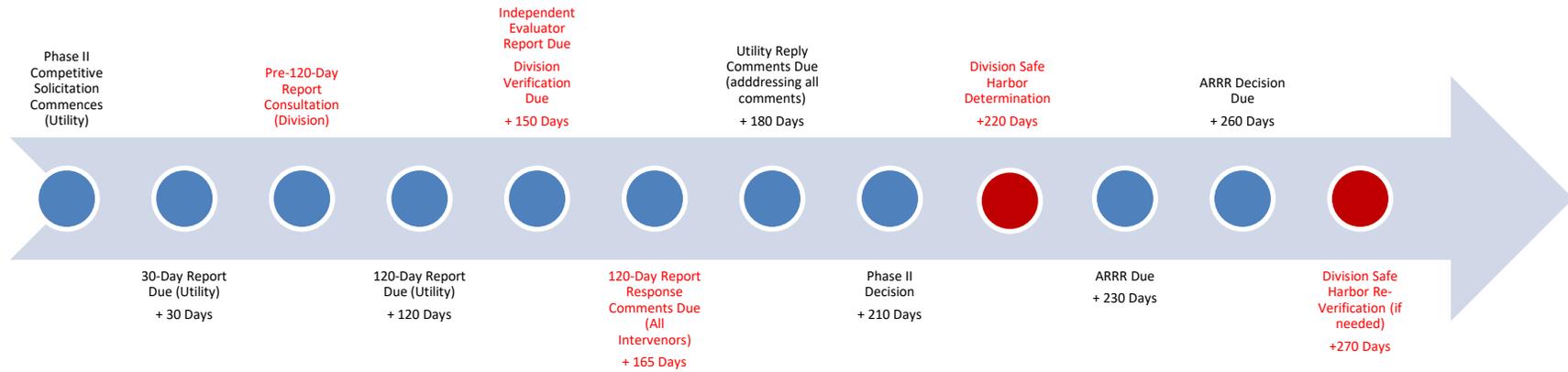
PHASE I PROCESS



RED TEXT = Potential Division Involvement

BLACK TEXT = No Division Involvement

PHASE II PROCESS



RED TEXT = Potential Division Involvement

BLACK TEXT = No Division Involvement

APPENDIX B – VERIFICATION WORKBOOK

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 relevant 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 relevant 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 relevant 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 resource 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 resource 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)	#N/A

Step 2: Calculate 2030 CO2 forecast

Forecast	2030
Electricity sales CO2 (short tons)	#N/A

Step 3: Calculate percent CO2 reductions

CO2 Reduction Demonstration	
2005 Baseline CO2	#N/A
2030 Projected CO2	#N/A
Percent Reduction	#N/A

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)	#DIV/0!

Step 2: Calculate 2030 retail only GHG forecast

Forecast	2030
Retail electricity sales CO2e (Metric Tons)	#DIV/0!

Step 3: Calculate percent GHG reductions for retail sales

GHG Reduction Demonstration	
2005 Retail Baseline CO2e	#DIV/0!
2030 Retail Forecast CO2e	#DIV/0!
Percent Reduction	#DIV/0!

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)	GHG Intensity (Metric Ton / Net MWh)
Plant 1										0	0	0	0	0.00
Plant 2										0	0	0	0	0.00
Plant 3										0	0	0	0	0.00
Plant 4										0	0	0	0	0.00
Plant 5										0	0	0	0	0.00
TOTAL HEAT INPUT		0					TOTAL GENERATION	0	TOTAL Emissions	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)
Contract #1				0	0	0	0	0	0
Contract #2				0	0	0	0	0	0
Contract #3				0	0	0	0	0	0
Contract #4				0	0	0	0	0	0
TOTAL CONTRACT PURCHASES		0		TOTAL Emissions	0	0	0	0	0

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)
Market 1				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Market 2				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Market 3				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
TOTAL MARKET ENERGY TRANSACTIONS		0		TOTAL Emissions	#N/A	#N/A	#N/A	#N/A	#N/A

Customer Sales Information			
	Net MWh	CO2 Emissions (Metric Tons)	GHG Emissions (Metric Tons CO2e)
Retail Sales		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #1		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #2		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #3		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #4		#DIV/0!	#DIV/0!
Total Sales	0	#DIV/0!	#DIV/0!

System Losses and Leakage Information		
		SF6 Emissions (Metric Tons CO2e)
Colorado Distribution System Losses		
Colorado Transmission System Losses		
Generation to Sales/Losses Variance Quick Check:		#DIV/0!

CEP Baseline Emissions Summary		
	Short Tons	Metric Tons
CO2 Total Emissions	#N/A	#N/A
GHG Total Emissions	#N/A	#N/A

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)	
Plant 1										0	0	0	0	0	0.00	
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		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)	N2O Total (Metric Tons)	CO2e Total (Metric Tons)
Contract #1				0	0	0	0	0	0
Contract #2				0	0	0	0	0	0
Contract #3				0	0	0	0	0	0
Contract #4				0	0	0	0	0	0
TOTAL CONTRACT PURCHASES		0		TOTAL Emissions	0	0	0	0	0

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)
Market 1				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Market 2				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Market 3				#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
TOTAL MARKET ENERGY TRANSACTION		0		TOTAL Emissions	#N/A	#N/A	#N/A	#N/A	#N/A

Sales Information			
	Net MWh	CO2 Emissions (Metric Tons)	CO2 Intensity (Metric Tons)
Retail Sales		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #1		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #2		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #3		#DIV/0!	#DIV/0!
Colorado Wholesale Contract #4		#DIV/0!	#DIV/0!
Total Sales	0	#DIV/0!	#DIV/0!

System Losses and Leakage Information			
		Emissions (Metric Tons)	
Colorado Distribution System Losses			
Colorado Transmission System Losses			
			Contribution to Sales/Losses Variance Quick #DIV/0!

Emissions Summary		
	Short Tons	Metric Tons CO2e
CO2 Total Emissions	#N/A	#N/A
GHG Total Emissions	#N/A	#N/A

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

2030 Adjustment Details							
	Net MWh	CO2 Intensity (Lb/MWh)	CO2 Total (Short Tons)	CO2 Total (Metric Tons)	CH4 Total (Metric Tons)	N2O Total (Metric Tons)	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

Year	CO2 (Short Tons)	Total GHG (Metric Tons CO2e)	Load (Net MWh)	Beneficial Electrification	CO2 Intensity (Lb/Net MWhr)	GHG Intensity (Metric Ton CO2e / Net
2021					#DIV/0!	#DIV/0!
2022					#DIV/0!	#DIV/0!
2023					#DIV/0!	#DIV/0!
2024					#DIV/0!	#DIV/0!
2025					#DIV/0!	#DIV/0!
2026					#DIV/0!	#DIV/0!
2027					#DIV/0!	#DIV/0!
2028					#DIV/0!	#DIV/0!
2029					#DIV/0!	#DIV/0!

APPENDIX C – BASELINE ADJUSTMENT EXAMPLE

Illustrative Example of 2005 Baseline Adjustment Process

Overview

As part of the ongoing conversations throughout the development of the Clean Energy Plan (CEP) guidance, the topic of resolving the potential for “double counting” of 2005 baseline emissions in two different filings was identified by the workgroup participants as a critical item to try to resolve. The potential for double counting arises due to differences in the statutory requirements found in SB19-236 and HB19-1261 for calculating the percent emissions reduction from total sales versus retail only sales.

This appendix provides an illustrative example of how the potential baseline overlap would be resolved using data provided by the qualifying retail utility, Public Service Company of Colorado (PSCo), during the CEP Guidance development process. The Division notes that contractual definitions may vary between utilities, but the concepts included in this guidance document and illustrative example can be applied to any Colorado utility that is contractually obligated to provide wholesale electricity to another Colorado utility to serve specific retail load. As part of the CEP verification process, the Division will review the wholesale requirement contracts that existed for the filing utility in 2005 and determine which contracts are to be included in the baseline emissions value.

Baseline Adjustments

The 2005 baseline will be adjusted according to changes in wholesale requirement customers that have occurred between 2005 and 2019, with the FERC Form 1 providing the support for the adjustments. Specifically, PSCo would adjust its 2005 baseline emissions to **exclude** any emissions associated with serving a wholesale requirement customer that is 1) out-of-state, 2) no longer a wholesale requirement customer of PSCo, or 3) plans to file their own CEP. The baseline would also be adjusted to **include** any new 2019 wholesale requirements customers that became a customer after 2005. This is a one-time adjustment that will be used to determine the adjusted 2005 baseline for the percent reduction evaluations. As part of the verification process, the Division will determine if a utility that remains a wholesale requirement customer intends to file a CEP.

According to PSCo’s analysis of FERC Form 1 data provided during the guidance development process, this results in the following targets for PSCo carbon emissions reductions, using the assumption that Holy Cross Energy and Intermountain Rural Electric Association will separately file CEPs.

	CO2 Tons Total	CO2 Tons Adjusted
Baseline	33,882,624	27,272,631
80% Reduction	6,776,525	5,454,526
75% Reduction	8,470,656	6,818,158

PSCo 2005 Adjustments by Customer

2005 Wholesale Requirements Customers	2019 Customer?	2005 MWh	2005 Tons	Adjusted 2005 tons	Adjustment Reason
Aquila (Black Hills Energy)	NO	1,786,175	1,651,319	0	Expired Contract
Arkansas River	NO	26,280	24,296	0	Expired Contract
Basin	NO	263,728	243,817	0	Expired Contract
Center of Municipal Gas, Light, Power	YES	13,734	12,697	12,697	None
Cheyenne Light Fuel & Power	NO	980,816	906,764	0	Expired Contract
City of Burlington	YES	29,365	27,148	27,148	None
Colorado Springs Utilities	NO	1,637	1,513	0	Expired Contract
Glenwood Springs	NO	0	0	0	Expired Contract
Grand Valley Rural Power Lines	YES	186,208	172,149	172,149	None
<i>Holy Cross Energy</i>	<i>YES</i>	<i>1,019,484</i>	<i>942,513</i>	<i>0</i>	<i>Potential CEP</i>
<i>Intermountain Rural Electric Assoc.</i>	<i>YES</i>	<i>1,901,615</i>	<i>1,758,043</i>	<i>0</i>	<i>Potential CEP</i>
Yampa Valley Electric	YES	507,305	469,003	469,003	None
MEAN	NO	265,372	245,336	0	Expired Contract
Unbilled Activity	NO	38,688	35,767	0	No identified contract
City of Julesburg	NO	9,685	8,954	0	Expired Contract
Western Area Power Admin-CRSP	NO	856,323	791,671	0	Expired Contract

This analysis assumes a 2005 system emissions intensity of 1,849 lbs/MWh.