Overview of the New Subparts Added to the Greenhouse Gas Reporting Program

U.S. Environmental Protection Agency

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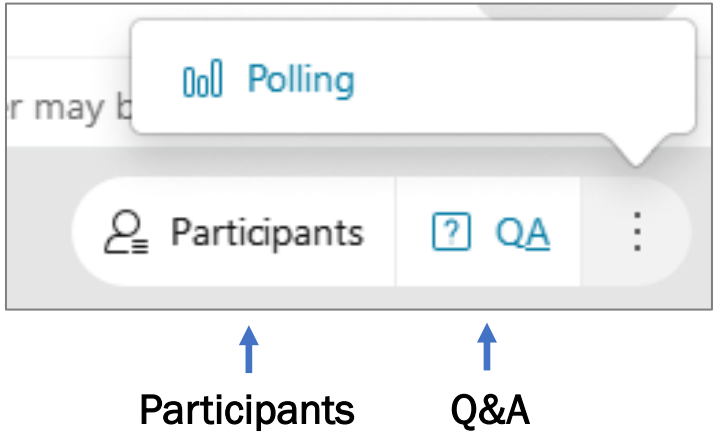

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Agenda

- Background on Greenhouse Gas Reporting Program (GHGRP)
- Overview of General Provisions (40 CFR Part 98, Subpart A)
- Summary of Requirements for General Stationary Fuel Combustion Sources (40 CFR Part 98, Subpart C)
- Overview of New Subparts to the GHGRP
  - Subpart VV – Geologic Sequestration of Carbon Dioxide with Enhanced Oil Recovery using ISO 27916
  - Subpart WW – Coke Calciners
  - Subpart XX – Calcium Carbide Producers
  - Subpart YY – Caprolactam, Glyoxal, and Glyoxylic Acid Production
  - Subpart ZZ – Ceramics Manufacturing

Overview of the Greenhouse Gas Reporting Program (GHGRP)

- Launched in response to Fiscal Year 2008 Consolidated Appropriations Act under Clean Air Act authority and codified at 40 CFR Part 98
- The GHGRP includes most, but not all, U.S. emissions. Over 8,000 facilities, suppliers, and underground injection sites currently report greenhouse gas (GHG) data to EPA, covering approximately 85-90% of total U.S. greenhouse gas emissions.
- Five new source categories were added to GHGRP in recent rule revision (89 FR 31802 - https://www.epa.gov/ghgreporting/rulemaking-notices-ghg-reporting) on 4/25/2024
  - VV (Geologic Sequestration of Carbon Dioxide with Enhanced Oil Recovery using ISO 27916),
  - WW (Coke Calciners)
  - XX (Calcium Carbide Producers),
  - YY (Caprolactam, Glyoxal, and Glyoxylic Acid Production)
  - ZZ (Ceramics Manufacturing).
- GHGRP now requires reporting of GHG data by 46 source categories:
  - 37 source categories covering direct emitters (WW, XX, YY, and ZZ are new)
  - 6 source categories covering suppliers of fuel and industrial GHGs
  - 3 source categories covering CO_2 injection underground (VV is new)

Subpart A – General provisions

Subpart A – General Applicability

- Applicability threshold determinations
  - §98.2(a)(1) "All In Source Categories" – VV, WW, XX, YY
    - Facilities that meet the definition of the source category are required to report regardless of emissions rate
    - Facilities must also report subpart C (General Stationary Combustion), U (Miscellaneous Uses of Carbonates), and any other applicable Table A-3, A-4 sources.
  - §98.2(a)(2) "Threshold Source Categories" – ZZ
    - Facilities are only required to report if facility emissions are over 25,000 metric tons (mt) of carbon dioxide equivalent (CO_2e), including subpart C, U, and any other Table A-3, A-4 sources
    - Facilities must also meet the definition of the source category, e.g. use at least the minimum quantity of carbonates (2,000 tons, either as raw materials or as a constituent in clay)
    - To determine if you meet the 25,000 mt CO_2e reporting threshold, sum the following:
      - Annual emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and each fluorinated GHG in mt CO_2e from all applicable source categories
      - Annual emissions of GHG (as CO_2e) for each stationary combustion unit. Exclude biogenic CO_2 emissions but include CH_4 and N_2O (as CO_2e) emissions from the combustion of biomass.
      - Annual emissions of CO_2 from the miscellaneous uses of carbonate.
- EPA is updating its applicability tool to help you determine what subparts your facility must report under: https://www.epa.gov/ghgreporting/applicability-tool

Subpart A – Monitoring & Reporting Timeframes

- Monitoring requirements for all new subparts go into effect on January 1, 2025.
- Facilities will gather required information on activities for calendar year 2025 (i.e., from 1/1/25 through 12/31/25)
- Facilities will then submit their first report for the five new source categories by March 31st, 2026.
  - Facilities report their data in electronic form directly to the EPA through e-GGRT.
  - EPA provides training on the reporting system each year in the spring.
- For all subsequent reporting years, annual reports covering the previous calendar year must be submitted to the EPA by March 31
- Facilities can cease reporting if they meet the requirements at 40 CFR 98.2(i)

Subpart A – General Reporting and Recordkeeping Requirements for All Facilities

What do facilities report?

- Identifying information, parent companies, NAICS code(s)
- Annual GHG emissions excluding biomass CO_2, metric tons CO_2e
- Annual CO_2 emissions from biomass combustion, metric tons
- Annual emissions of each GHG for each source category, metric tons each gas
- Other emissions data required by an applicable subpart (e.g., by unit or process line)
- Verification data required by each subpart (e.g., data used to calculate emissions)
- Data elements for which a missing data procedure was used
- Certification by the "designated representative"

What is not reported?

- Mobile source emissions (e.g., fleet emissions, off-road equipment)
- Emission offsets

What records must be retained?

- A list of all units, operations, processes, and activities for which the reporter calculates GHG emissions.
- Data used to calculate the GHG emissions for each unit, operation, process, and activity, categorized by fuel or material type.
- Annual GHG reports
- Missing data computations
- A written GHG monitoring plan
- The results of all required certification and quality assurance tests of monitoring systems used to provide data for the annual GHG report.
- Maintenance records for monitoring instrumentation.
- Any other data specified in any applicable subpart of this rule.

Confidential Business Information (CBI)

- Data collected under the Greenhouse Gas Reporting Program must be available to the public unless the data qualifies for confidential treatment under the Clean Air Act.
- Any data submitted under the GHGRP that is classified as CBI will be protected under the provisions of 40 CFR part 2, subpart B.
- In certain cases, EPA has determined that "inputs to emissions equations" should not be included in the annual reports submitted to EPA.
  - Instead, facilities enter the inputs into an electronic inputs verification tool (IVT)
  - These inputs are used to calculate emissions
  - EPA runs verification checks at the time of report submission but does not collect these inputs.
- The data reported to the GHGRP is available on ghgdata.epa.gov.
  - EPA will only publish non-CBI data at the individual facility or supplier level.
  - If CBI data is published, it will be aggregated to shield sensitive information.

Subpart C – General Stationary Fuel Combustion Sources

Subpart C – Overview, Applicability, and Definitions

- The Subpart C source category covers stationary source fuel combustion and their associated emissions of CO_2, CH_4, and N_2O.
- Stationary fuel combustion sources are devices that combust any solid, liquid, or gaseous fuel generally to:
  - Produce electricity, steam, useful heat, or energy for industrial, commercial, or institutional use, or
  - Reduce the volume of waste by removing combustible matter.
- Stationary fuel combustion sources include, but are not limited to, boilers, simple and combined-cycle combustion turbines, engines, incinerators, and process heaters.
- Subpart C excludes flares (unless otherwise required by another subpart), portable equipment, emergency generators, emergency equipment, agricultural irrigation pumps, electricity generating units that are subject to subpart D, combustion of hazardous waste (except for cofired fuels), and pilot lights.

Subpart C – Calculation Methods

- Calculating CO_2 Emissions from Combustion
  - Facilities must calculate CO_2 emissions using one of four methodological tiers, subject to certain restrictions based on unit size and fuel combusted. As an alternative to any of the four tier calculation methodologies, units that report to EPA year-round heat input data under 40 CFR part 75 can calculate annual CO_2 emissions using part 75 methods.
    - Tier 1 uses an emission factor that is multiplied by annual fuel use and a default heating value for that fuel.
    - Tier 2 uses an emission factor that is multiplied by annual fuel use and a measured heating value of that fuel. Units that combust MSW or other solid fuels and generate steam must use steam production (in place of fuel use) and an emission factor.
    - Tier 3 uses a calculation based on annual fuel use, measured carbon content, and, for gaseous fuels, molecular weight.
    - Tier 4 requires a CEMS.
- In general, reporters are required to calculate GHG emissions only for specific fuels that are listed in the rule (Table C-1), except that units larger than 250 mmBtu/hr also must additionally calculate GHG emissions for any non-listed fuel that provides 10 percent or more of the annual heat input to the unit.
- Calculating N_2O and CH_4 Emissions From Combustion
    - Most units can use an emission factor that is multiplied by annual fuel use and the high heat value of the fuel (a default high heat value prescribed in the rule can be used if a measured heat value is not available). Units that monitor and report annual heat input according to 40 CFR part 75 requirements will use an emission factor and the measured annual heat input.

More information: https://www.epa.gov/sites/default/files/2015-02/documents/stationaryfuel_infosheet.pdf

Subpart C – Monitoring and Reporting Requirements

- Required measurements are determined as follows:
  - Annual fuel use can be determined either by use of company records or by direct measurement using flow meters, depending on the size of the unit and the type of fuel burned.
  - Depending on the tier calculation method used and the fuel burned, reporters could be required to measure high heating value, molecular weight, or carbon content of fuel. The frequency of fuel sampling and analysis varies depending on the type of fuel combusted, and may be daily, weekly, monthly, quarterly, semi-annually, or by lot.
- Reports include:
  - Annual mass emissions for each GHG for each combustion unit. Emissions can be reported as the aggregated emissions among multiple units under specified conditions.
  - Other information used to qualify reported emissions, including the type of combustion unit, the maximum rated heat input capacity (either for the individual unit, the total for all units measured by a CEMS on a common stack or duct, or the highest in a group of units), type of fuel combusted, the tier methodology used, and other information (as applicable for each calculation method used).

Subpart VV – Geologic sequestration of carbon dioxide with enhanced oil recovery using ISO 27916

Subpart VV – Overview, Applicability, and Definitions

- The subpart VV source category covers CO_2 that is injected in enhanced recovery operations for oil and other hydrocarbons (CO_2–EOR), where:
  - You are using the standard designated as CSA/ANSI ISO 27916:19 as a method of quantifying geologic sequestration of CO_2 in association with EOR operations.
  - You are not reporting under subpart RR of this part.
  - This source category does not include wells permitted as Class VI under the Underground Injection Control program
- Currently, facilities that receive CO_2 for injection at EOR operations report under subpart UU (Injection of Carbon Dioxide), and facilities that geologically sequester CO_2 through EOR operations may instead opt-in to subpart RR (Geologic Sequestration of Carbon Dioxide).
- Subpart VV was added to the GHGRP as collecting additional information from these sources would improve our knowledge on the amounts of CO_2 that are geologically sequestered in association with EOR operations and allow the Agency to more comprehensively track and document the flow of CO_2 through the economy to better inform EPA policy and programs under the CAA.
- Subpart VV is an "all-in" subpart, reporting is mandatory if you meet the source category definition.
- Under Subpart VV, facilities must report the following: mass of CO_2 received by the CO_2-EOR project, mass of CO_2 loss from the CO_2-EOR project operations, mass of native CO_2 produced and captured, mass of CO_2 produced and sent off-site, mass of CO_2 loss from the EOR complex, and mass of CO_2 stored in association with CO_2-EOR.

Subpart VV – Comparison of Injection Subparts

Subpart VV

- Geologic sequestration of carbon dioxide with enhanced oil recovery using ISO 27916
- Does not include Class VI or wells reporting under subpart RR.
- Does not require an EPA-approved monitoring plan.

Subpart RR

- Geologic Sequestration of Carbon Dioxide
- Includes all Class VI wells (but is not limited to Class VI).
- Requires an EPA-approved monitoring, reporting, and verification (MRV) plan. EOR facilities can opt-in to RR by submitting an MRV plan.

Subpart UU

- Injection of Carbon Dioxide
- Includes any wells that inject a CO_2 stream into the subsurface, unless those wells are covered by RR or VV.
- Does not require an EPA-approved monitoring plan.

Subpart VV – Calculation Methods

- Uses quantification principles from CSA/ANSI ISO 27916:19, incorporated by reference.
- E.g., calculate CO_2 stored using Equation 1:

  - $m_{stored} = m_{input} - m_{loss\ operations} - m_{loss\ EOR\ complex}$

  - m_{stored} = The annual quantity of associated storage in metric tons of CO_2 mass.
  - m_{input} = The total mass of CO_2 ($m_{received}$) by the EOR project plus m_{native}, metric tons.
  - $m_{loss\ operations}$ = The total mass of CO_2 loss from project operations, metric tons.
  - $m_{loss\ EOR\ complex}$ = The total mass of CO_2 loss from the EOR complex, metric tons

Subpart VV – Monitoring and Reporting Requirements

- Facilities covered by subpart VV must use the applicable monitoring and quality assurance requirements set forth in Clause 6.2 of CSA/ANSI ISO 27916:19
- Monitoring requirements effective January 1, 2025. First report due by March 31, 2026.
- Reports include (but are not limited to):
  - Values such as mass of CO_2 stored, received, recycled, lost.
  - Annual documentation per Clause 4.4 of CSA/ANSI ISO 27916:19
  - Any documentation provided by a qualified independent engineer or geologist who certifies that the documentation provided is accurate and complete.
  - The EOR operation management plan must be submitted with the annual report covering the first reporting year.
- More information:

https://www.epa.gov/ghgreporting/subpart-vv-geologic-sequestration-carbon-dioxide-enhanced-oil-recovery-using-iso-27916

Subpart WW – Coke Calciners

Subpart WW – Overview, Applicability, and Definitions

- The Subpart WW source category applies to facilities that use coke calciners to heat petroleum coke to high temperatures and remove impurities or volatile substances in petroleum coke feedstock.
- Coke calciners are process units that include rotary kilns, rotary hearth furnaces, or similar process units used to calcine petroleum coke as well as afterburners, or other emission control systems, used to treat a coke calcining unit's process exhaust gas.
- Previously, emissions from coke calciners located at a petroleum refinery were reported under subpart Y.
- Some facilities also previously reported emissions from coke calciners under subpart C assuming that petroleum coke was the fuel consumed, which resulted in an overestimate of CO_2 emissions.
- New Subpart WW source category includes <u>all</u> coke calciners, not just those co-located at petroleum refineries, to provide consistent requirements for all units.

Subpart WW – Overview, Applicability, and Definitions

- Subpart WW is an "all-in" subpart, reporting is mandatory if you meet the source category definition.
- Coke calciners must report the following under subpart WW:
  - CO_2, CH_4, and N_2O emissions from each coke calcining unit.
- Coke calciners must also report the following under subpart C:
  - CO_2, CH_4, and N_2O emissions from auxiliary fuel used in each coke calcining unit and afterburner or other control systems used to treat the coke calcining unit's process off-gas

Subpart WW – Calculation Methods

- CO_2 emissions from each coke calcining unit can be calculated in two ways:
  - Continuous Emissions Monitoring System (CEMS) Method
    - Directly measures CO_2 concentration and total exhaust gas flow rate for the combined process and combustion source emissions. CO_2 mass emissions are calculated from these measured values using equation C–6 and, if necessary, equation C–7 in 40 CFR 98.33(a)(4).
  - Mass Balance Method
    - Uses the mass of green coke, calcined coke and petroleum coke dust removed from the dust collection system, along with the carbon content of the green and calcined coke, to estimate process CO_2 emissions
- Process CH_4 and N_2O emissions:
  - Calculate based on the total CO_2 emissions determined for the coke calciner and the ratio of the default CO_2 emission factor for petroleum coke in table C–1 to subpart C to the default CH_4 and N_2O emission factors for petroleum products in table C–2 to subpart C.

Subpart WW – Monitoring and Reporting Requirements

- Monitoring requirements effective January 1, 2025. First report due by March 31, 2026.
- For each coke calcining unit, reports include:
  - Maximum rated throughput of the unit, in metric tons coke calcined/stream day.
  - CO_2, CH_4, and N_2O annual process emissions, expressed in metric tons of each pollutant emitted.
  - A description of the method used to calculate the CO_2 emissions for each unit (e.g., CEMS or Mass Balance)
  - Annual mass of green coke fed to the coke calcining unit from facility records (metric tons/year).
  - Annual mass of marketable petroleum coke produced by the coke calcining unit from facility records (metric tons/year).
  - Annual mass of petroleum coke dust removed from the process through the dust collection system of the coke calcining unit from facility records (metric tons/year) and an indication of whether coke dust is recycled to the unit (e.g., all dust is recycled, a portion of the dust is recycled, or none of the dust is recycled).
  - Annual average mass fraction carbon content of green coke fed to the coke calcining unit from facility measurement data (metric tons C/metric tons green coke).
  - Annual average mass fraction carbon content of marketable petroleum coke produced by the coke calcining unit from facility measurement data (metric tons C/metric tons petroleum coke).
- More information:

https://www.epa.gov/ghgreporting/subpart-ww-coke-calciners

Subpart XX – Calcium Carbide Producers

Overview of Subpart XX – Overview, Applicability, and Definitions

- The Subpart XX source category applies to facilities that produce calcium carbide (CaC)
- Subpart XX is an “all-in” subpart, so reporting is mandatory if you meet the source category definition.
- Facilities that produce CaC_2 must report the following emissions:
  - CO_2 process emissions from each CaC_2 process unit or furnace used to produce CaC_2.
  - CO_2, CH_4, and N_2O emissions from each stationary combustion unit on site under subpart C

Subpart XX – Calculation Methods

- If a qualified CEMS is in place, the CEMS must be used. Otherwise, the facility can elect to either install a CEMS or elect to use the carbon mass balance method.
- Direct measurement using CEMS
  - Operate and maintain a CEMS according to the Tier 4 Calculation Methodology specified under 40 CFR 98.33
- Carbon balance method
  - Calculate and report under Subpart XX the annual process CO_2 emissions from the CaC_2 process unit using the carbon mass balance procedures specified in 40 CFR 98.503(b)(1) and (2)
  - For any stationary combustion units included at the facility, facilities will be required to follow the existing requirements in subpart C to estimate emissions of CO_2, CH_4, and N_2O from stationary combustion.

Subpart XX – Monitoring and Reporting Requirements

- Monitoring requirements effective January 1, 2025. First report due by March 31, 2026.
- Reports include:
  - Values such as annual CO_2 process emissions, production and production capacity, total number of CaC_2 production process units, annual consumption of petroleum coke, and each end use of any CaC_2 produced and sent off site.
  - If the facility produces acetylene, the annual production of acetylene, the quantity of CaC_2 used for acetylene production at the facility, and the end use of the acetylene produced on-site.
  - If CEMS is used to measure CO_2 emissions, report information required for Tier 4 calculation methodology as outlined under 40 CFR 98.36
- More information:

https://www.epa.gov/ghgreporting/subpart-xx-calcium-carbide-producers

SUBPART YY – CAPROLACTAM, GLYOXAL, AND GLYOXYLIC ACID PRODUCTION

Overview of Subpart YY – Overview, Applicability, and Definitions

- This source category applies to any facility that produces caprolactam ($C_6H_{11}NO$), glyoxal ($C_2H_2O_2$), or glyoxylic acid ($C_2H_2O_3$), but excludes the production of glyoxal through the LaPorte process (i.e., the gas-phase catalytic oxidation of ethylene glycol with air in the presence of a silver or copper catalyst).
- Subpart YY is an "all-in" subpart, reporting is mandatory if you meet the source category definition.
- Facilities must report N_2O process emissions from the production of caprolactam, glyoxal, or glyoxylic acid. Reporters should apply default N_2O generation factors on a site-specific basis to calculate these process emissions.
- Facilities must report carbon dioxide CO_2, CH_4, and N_2O emissions from each stationary combustion units under Subpart C

Subpart YY – Monitoring and Reporting Requirements

- Monitoring requirements effective January 1, 2025. First report due by March 31, 2026.
- Reports include:
  - Values such as annual process N_2O emissions, annual production quantities and production capacity, number of process lines by product, and operating hours for each process line
  - N_2O abatement technologies used and monthly abatement utilization factor for each N_2O abatement technology for each process line.
  - Annual percent N_2O emission reduction per chemical produced.
- More information:

https://www.epa.gov/ghgreporting/subpart-yy-caprolactam-glyoxal-and-glyoxylic-acid-production

SUBPART ZZ – CERAMICS MANUFACTURING

Overview of Subpart ZZ – Overview, Applicability, and Definitions

- The Subpart ZZ source category applies to:
  - "any facility that uses nonmetallic, inorganic materials, many of which are clay-based, to produce ceramic products such as bricks and roof tiles, wall and floor tiles, table and ornamental ware (household ceramics), sanitary ware, refractory products, vitrified clay pipes, expanded clay products, inorganic bonded abrasives, and technical ceramics (e.g., aerospace, automotive, electronic, or biomedical applications)."
- The source category includes facilities that exceed the 25,000 $mtCO_2e$ threshold and that annually consume at least 2,000 tons of carbonates (CO_3^{2-}), either as raw materials or as a constituent in clay, which is heated to a temperature sufficient to allow the calcination reaction to occur, and operate a ceramics manufacturing process unit.
  - A ceramics manufacturing process unit is a kiln, dryer, or oven used to calcine clay or other CO_3^{2-} based materials to produce a ceramics product.
- Ceramic production facilities currently report their GHG emissions from stationary fuel combustion sources under subpart C if those emissions exceed the 25,000 $mtCO_2e$.

Subpart ZZ – Calculation Methodologies

- If a qualified CEMS is in place, the CEMS must be used. Otherwise, the facility can elect to either install a CEMS or must use the carbon mass balance method.
- Direct measurement using CEMS:
  - Operate and maintain a CEMS according to the Tier 4 Calculation Methodology specified in 40 CFR 98.33(a)(4) to measure combined process and combustion CO_2 emissions and report these emissions under Subpart ZZ.
- Carbon mass balance method:
  - Ceramics manufacturing facilities must report the following under Subpart ZZ:
    - CO_2 process emissions from each ceramics process unit.
  - Ceramics manufacturing facilities must report the following under Subpart C:
    - CO_2, CH_4, and N_2O combustion emissions from each stationary combustion unit.

Subpart ZZ – Carbon Balance Calculation Method

- Carbon mass balance method
  - Equation 1 (below): annual carbonate process emissions from raw materials for an individual processing unit
    - Combustion emissions are calculated separately and reported under Subpart C by following the requirements of Subpart C
  - Equation 2: summation of all processing unit emissions calculated from Equation 1

$$E_{CO2} = \sum_j \left[\left(M_j \bullet \frac{2000}{2205} \right) \bullet \sum_i (MF_i \bullet EF_i \bullet F_i) \right]$$

E_{CO2} = Annual process CO_2 emissions from all carbonate-based raw materials (metric tons/year)
j = Index for carbonate-based raw material
M_j = Annual consumption of the carbonate-based raw material *j* (short tons/year)
2000/2205 = Conversion factor to convert short tons to metric tons
i = Index for carbonate mineral in each carbonate-based raw material *j*
MF_i = Annual average decimal mass fraction of mineral *i* in raw material *j*
EF_i = Emission factor for mineral *i* (metric tons CO_2/metric ton carbonate), see Table 1 to Subpart ZZ of Part 98
F_i = Decimal fraction of calcination achieved for mineral *i*, assumed to be 1.0 or 100% calcination

Subpart ZZ – Monitoring and Reporting Requirements

- Monitoring requirements effective January 1, 2025. First report due by March 31, 2026.
- Reports include (but are not limited to):
  - Total number of ceramics process units both at the facility and that operated during the reporting year.
  - For units using a qualified CEMS:
    - Values such as the annual quantity of carbonate-based raw material consumed, annual quantity of each type of ceramics product manufactured, and the annual production capacity.
  - For units without a CEMS:
    - Values such as the annual CO_2 process emissions, annual quantity of carbonate-based raw material consumed, annual quantity of each type of ceramics product manufactured, and annual production capacity.
    - Methods used, and results of all tests used to verify the mass fraction of carbonates in the raw material.
    - If missing data procedures are used, the number of times in the reporting year that missing data procedures were followed.
- More information:

https://www.epa.gov/ghgreporting/subpart-zz-ceramics-manufacturing

Resources

- For more information on the GHGRP:
  - https://www.epa.gov/ghgreporting
- For more information on the new source categories to the GHGRP:
  - https://www.epa.gov/ghgreporting/rulemaking-notices-ghg-reporting
  - The final rule and other background information is also available electronically at https://www.regulations.gov, EPA's electronic public docket and comment system (Docket ID No. EPA-HQ-OAR-2023-0234).
- To ask questions, contact the GHGRP Help Desk:
  - Email ghgreporting@epa.gov
  - https://www.epa.gov/ghgreporting/forms/contact-us-about-ghg-reporting
- Note that the GHGRP anticipates further outreach closer to the reporting period with more information on how to use e-GGRT to prepare and submit data under these new subparts.

APPENDIX

Subpart A – CO_2e, Combustion, and Process Emissions Explained

- **CO_2e = carbon dioxide equivalent**
  - It is the number of metric tons of CO_2 emissions with the same global warming potential (GWP) as one metric ton of another greenhouse gas.
    - Mass emissions x GWP = CO_2e (metric tons)
    - Table A-1 of Subpart A lists GWPs used to calculate CO_2e.
  - Biogenic CO_2 emissions are not included in total CO_2e
- Emissions from each source category can generally be categorized as either combustion or process emissions.
  - **Combustion emissions** include CO_2, CH_4, and N_2O emitted from combustion of a fossil fuel (e.g., coal, natural gas, petroleum products) or biomass fuel (e.g., wood, landfill gas).
    - Determined by facilities by using a continuous emission monitoring system (CEMS), measured fuel composition data, or default emission factors.
  - **Process emissions** generally include emissions from chemical transformation of raw materials and fugitive emissions.
    - Determined by facilities using a variety of methods including a CEMS, a mass balance approach, or site-specific or default emission factors. The methods specified in the rule vary by source category, and are the methods determined to be most appropriate for that source.