Conventional Oil and Gas Fall 2025 Webinar

Technology Innovation and Emissions Reduction Regulation (TIER)

Climate Regulation and Carbon Markets
Alberta Environment and Protected Areas
October 30, 2025

Overview of the Program in a Changing Regulatory Context

- Since 2020, the TIER Aggregate Program has shielded the conventional oil and gas (COG) sector from the federal fuel charge and has created net demand under TIER
- As of April 1, 2025, the federal fuel charge was eliminated, marking a major shift in how COG emissions are managed
- So, changes to broader sector coverage in the program are anticipated, creating challenges for representative benchmarking
- The webinar's purpose is to provide clarity and transparency to support informed industry decisions
- Participation has always been—and will continue to be—voluntary

Agenda

- TIER COG Aggregate Program Objectives
- Aggregate Enrollment Updates (2025 and onwards)
- The 2025 and 2026 Aggregate FSB Approaches
- Stakeholder Feedback on the FSB Approaches
- Q & A

TIER COG Aggregate Program Objectives

- Since 2020, the conventional oil and gas (COG) aggregate program has
  - Enabled regulated facilities to apply for exemption from the federal fuel charge
  - Maintained industry competitiveness and provincial jurisdiction over industrial emissions
- The federal fuel charge was ended as of April 1, 2025, however, the program continues to
  - Allow voluntary enrolment with compliance requirements
  - Incentivize emissions reduction by enabling aggregate facilities to earn EPCs through verifiable improvements in facility performance

Aggregate Enrollment Updates

Aggregate Enrollment Updates

- Updates to the TIER regulation are anticipated to allow aggregate facilities to apply to
  - Have their aggregate facility designation revoked for 2025
    - Anticipated application deadline: December 31, 2025
  - Or, submit a partial year compliance report for January 1 to March 31, 2025 (report due June 30, 2026) and opt-out for 2026
    - Anticipated application deadline: December 1, 2025
    - For the partial reporting option where aggregates are existing the program for 2026, verifiers may request an exemption from the “maximum of 5 verifications” requirement in the TIER verification standard (Part 1, Section 5 (c))
  - Or, have their aggregate facility designation revoked for 2026, using the same application form
    - Application deadline: December 1, 2025

Aggregate Enrollment Updates (cont'd)

- To facilitate the opt-out process
  - The department has emailed stakeholders an opt-out application form
    - Please complete and submit the opt-out application form to EPA.GHG@gov.ab.ca. Reply to the email with the attached **Excel (not PDF)** form completed. Signatures can be made digitally in the Excel form or as a separate attached pdf.
  - The form is simplified to include both 2025 and 2026 options
- Applications for aggregate facility designation revocation or partial year reporting for 2025 will not be processed or approved until appropriate amendments to the TIER regulation are made.

Aggregate Enrollment Updates (cont'd)

- Re-enrollment flexibility
  - Opted-out aggregate facilities remain opted-out unless re-enrolled
    - The enrollment deadline remains November 15, 2026, for 2026 reporting
  - If an aggregate facility opts out and later re-enrolls in TIER as a new aggregate facility, **its previous reference years may still be acceptable**.
    - E.g., **If the re-enrolled aggregate is the same as, or a smaller part of, the previous one**; However,
    - Significant population changes may trigger re-assessment of reference years

Aggregate Enrollment Updates (cont'd)

- For aggregate facilities that are staying in TIER
  - Government of Canada (GoC) has notified stakeholders of the changes to the Federal Fuel Charge
    - Relevant questions should be directed to GoC
  - There is no major change to TIER aggregate enrollment processes
    - Companies can continue adding or removing COG facilities from an aggregate as well as creating or revoking an aggregate
    - Alberta will continue sending out Confirmation of Regulation letters, without cc'ing GoC

The Impact of Zero-Emitting Facilities

Zero-Emitting Facilities

- Zero-Emitting Facility (ZEF) definition for 2025 FSB
  - A Petrinex facility (**based on Petrinex ID**) whose combined fuel and flare volumes (including purchased fuel gas if provided) constitute less than 0.5% of the aggregate facility's total fuel and flare volumes, and whose fuel and flare volume intensity is significantly **(> 90%)** lower than the aggregate facility's intensity in 2025 and the reference years on average

ReportingFacilityID	SummedActivityID	2019	2020	2021	2022	2023	2024
ABGS	FUEL						
	FLARE-OtherGases						
	FLARE-ACGAS						
	DISP	13613.23	12251.4	15045.06	12044.38	9992.173	9121.865
	PROD, PROC, FRAC						
	REC	14444.21	12925.37	14792.6	11535.67	9700.873	9070.111

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Year 1	Facility	Production Volume	Emissions	Intensity
Field 1	ABBT 1	100	5	
	ABBT 2	100	5	
Field 2	ABBT 3	100	5	
	ABBT 4	100	5	
Total		400	20	0.050
Year 2 (scenario 1)				
Field 1	ABBT 1	200	10	
	ABBT 2	200	10	
			0	
Field 2	ABBT 3	200	10	
	ABBT 4	200	10	
Total		800	40	0.050
Year 2 (scenario 2)				
Field 1	ABBT 1	200	10	
	ABBT 2	200	10	
	ABGS (new)	800	0	
Field 2	ABBT 3	200	10	
	ABBT 4	200	10	
Total		1600	40	0.025

An example issue of adding a new ZEF into an aggregate

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Benchmark Standard Updates for the 2025 Reporting Year

Benchmark Standard Updates for 2025

- The 2025 FSB approach will focus on addressing the ZEF impacts associated with the following facility types:
  - Gas Gathering System (GS)
  - Pipeline (PL)
  - Tank Terminal (TM)
  - Metering Station (MS)
  - Injection/Disposal Facility (IF)
  - Custom Treating Facility (CT)
  - Water Source (WS)

Benchmark Standard Updates for 2025 (cont'd)

- ZEF treatment for 2025 FSBs and reporting
  - Very similar to the ZEF treatment for 2024 FSBs
  - Fully implemented across all aggregates
  - To ensure consistent comparison with the 2025 FSB, report production accounting volumes for ZEF facilities as 0 in the 2025 compliance report.
- 2025 ZEF treatment process (default and BM application)
  - Identify ZEF from each aggregate's 2025 CoR facility list
  - Subtract ZEF production accounting volumes from annual total volumes

Benchmark Standard Updates for 2025 (cont'd)

- 2025 ZEF treatment process (cont'd)
  - Assess the difference between intensity ratios calculated with and without ZEF production accounting volumes
    - The ratio of 2025 volume intensity—defined as the combined volume of fuel and flare in 2025 divided by the 2025 production accounting volume—to the volume intensity of the reference years, with both intensities calculated using the 2025 CoR
  - Threshold for changing a benchmark unit: If the intensity ratios show 5% or more (up or down) difference before and after ZEF adjustments.
    - Switch the benchmark unit to Production where possible
      - Correlation results should be better or comparable based on Production
      - No significant volumes that are associated and well correlated with significant emissions are missed
    - Otherwise, use REC or DISP excluding specific production volumes for the ZEF facilities

Benchmark Standard Updates for 2025 (cont'd)

- Interpretation of correlation coefficient (r)
  - Same as before, r is used to assist the selection of a representative benchmark unit and a set of reference years for an aggregate
    - Annual data points may be used as appropriate. E.g., when monthly data indicates strong seasonality
  - r is a very useful but not the only metric for evaluating benchmark units and reference years
  - The benchmark unit must be representative of the aggregate facility's composition, configuration, and emissions in the reference years and subsequent reporting years

Benchmark Standard Updates for 2025 (cont'd)

- Correlation strength categories include
  - $|r|<0.30$: Weak
  - $0.30\leq|r|<0.50$: Moderate
  - $0.50\leq||r|<0.70$: Strong
  - $|r|\geq0.70$: very strong
  - Two correlation coefficients that differ by 0.20 or less are generally considered to be comparable in strength.
- A benchmark unit with the strongest positive r is usually preferred, taking into consideration of the aggregate's composition, configuration, and emissions characteristics

The Impact of Low-Emitting Facilities

Low-Emitting Facilities

- Low-Emitting Facility (LEF) definition (for 2026 FSB)
  - A Petrinex facility (based on Petrinex ID) – inclusive of all facility types – whose combined fuel and flare volumes (including purchased fuel gas if provided) average less than 500 e^3m^3 across the reference years (i.e., **total volume divided by the number of reference years**).

ReportingFacilityID	SummedActivityID	2019	2020	2021	2022	2023	2024
ABBT	FUEL	1.4	0.6	0.7	0.8	1	1
	FLARE-OtherGases						
	FLARE-ACGAS						
	DISP	924.5862	902.3503	815.5429	775.7319	704.6547	690.381
	PROD, PROC, FRAC	925.9456	903.3213	816.2226	776.8	705.917	691.8375
	REC						

Even and Uneven Scaling

	Year 1		Year 2 (Scenario 1)		Year 2 (Scenario 2)	
Facility	**Production Volume**	**Emissions**	**Production Volume**	**Emissions**	**Production Volume**	**Emissions**
F1 - BT	100	5	200	10	100	5
F2 - GS	100	0	200	0	100	0
F3 - GP	100	10	200	20	100	10
F4 - CT	100	1	200	2	200	2
F5 - TM	100	2	200	4	200	4
F6 - PL	100	0	200	0	200	0
Intensity		0.0300		0.0300		0.0233

- Even scaling scenario (Blue column vs Green): No change to both COG and aggregate intensities.
- Uneven scaling scenario (Yellow column vs Green): No change to COG intensities; Aggregate intensity down.

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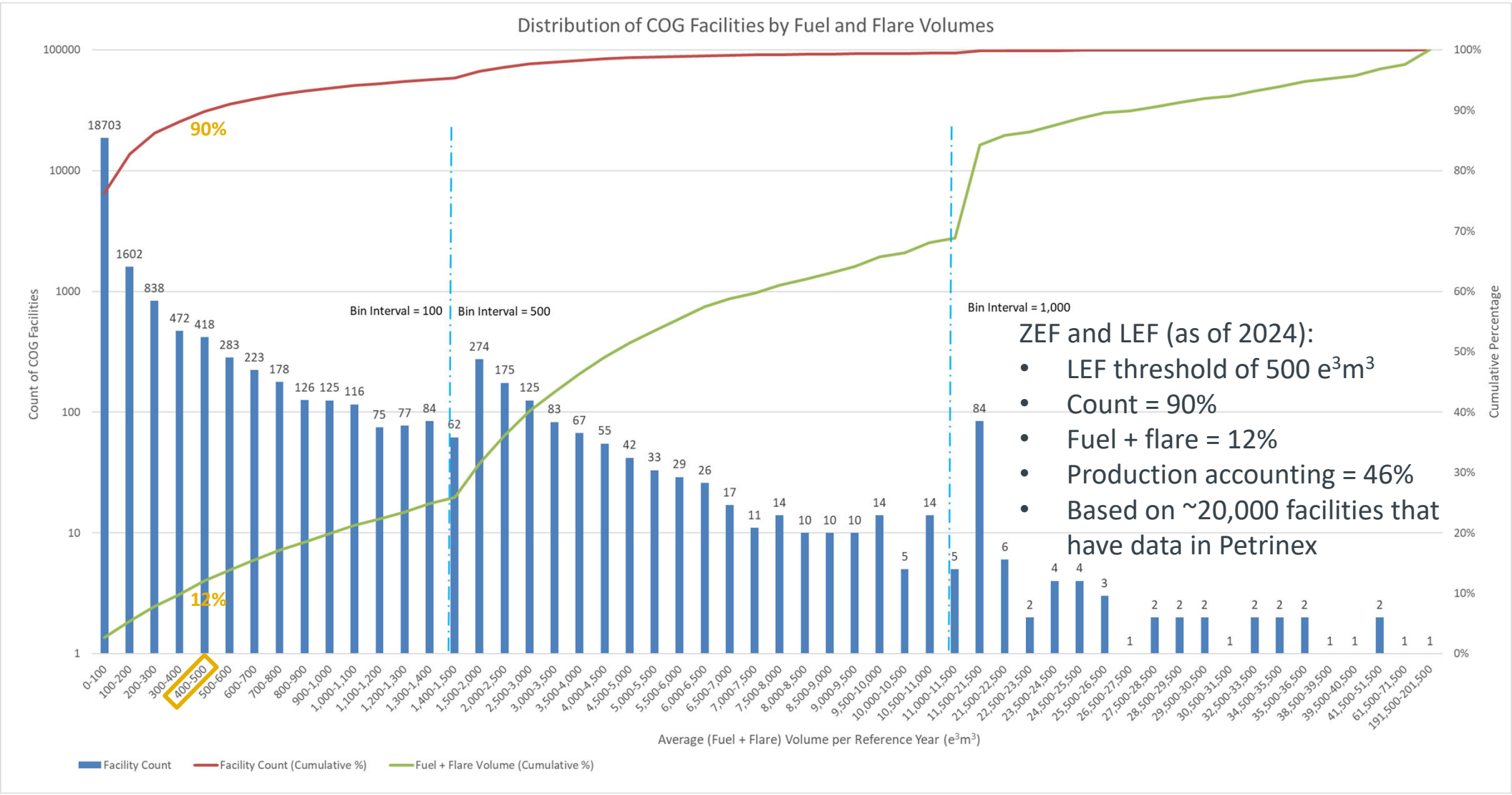
Dilutive Effects

- Both ZEF and LEF can dilute an aggregate's emissions intensity without demonstrable or significant facility improvements (i.e., emissions remain at zero or low). The dilutive effects can be due to:
  - Inconsistent production accounting between reference years and a reporting year
  - New ZEF or LEF facilities that were not operational (no data available in Petrinex) in the reference years
  - Unfair comparison among facility types with varying levels of emissions intensity when an aggregate exhibits uneven scaling, operational changes, or product changes relative to reference years.
- The dilutive effects could be magnified in the 2026 reporting period due to increased flexibility in aggregate enrollment, stemming from the FFC having been zeroed out



ZEF and LEF (as of 2024):

- LEF threshold of 500 e^3m^3
- Count = 90%
- Fuel + flare = 12%
- Production accounting = 46%
- Based on ~20,000 facilities that have data in Petrinex

Dilutive Effects (cont'd)

- Many simulations were conducted to identify and confirm the dilutive effects. The simulation results and the facility distribution chart indicate that
  - The aggregate program would be streamlined while maintaining meaningful (~88%) emissions coverage if we focus on the largest ~10% of the COG facilities
  - The dilutive effects of the large number of ZEF and LEF facilities can be significantly mitigated if the production accounting volumes (i.e., denominator volumes) are excluded from benchmarking and reporting
  - Benchmarking by facility type would help to address the uneven scaling and unfair comparison issues among facility types

Benchmark Standard Updates for the 2026 Reporting Year

2026 FSB Approach — Objectives

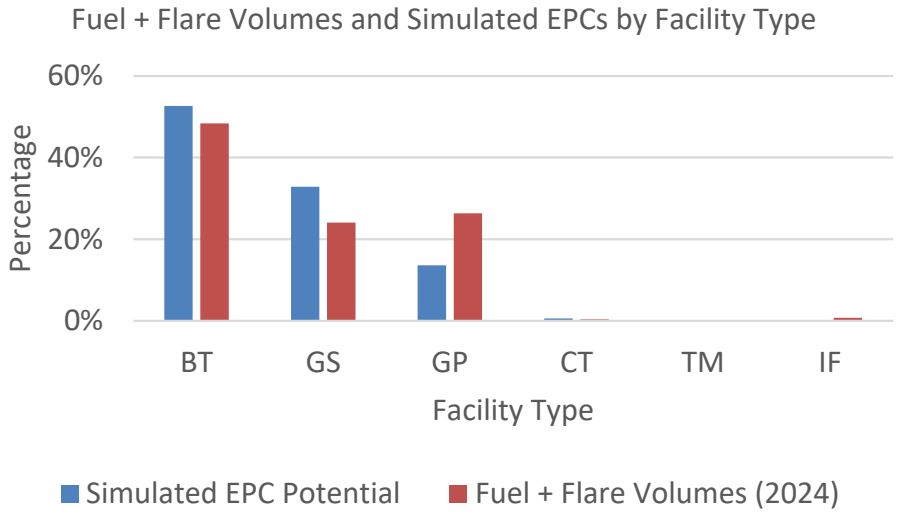
- **To reiterate**, the TIER aggregate program objectives for 2026 and onwards are to
  - Allow voluntary enrolment with compliance requirements
  - Incentivize emissions reduction by enabling aggregate facilities to earn EPCs through verifiable improvements in facility performance
- The dilutive effects could be magnified in the 2026 reporting period due to increased flexibility in aggregate enrollment, stemming from the FFC having been zeroed out
- **The 2026 FSB approach is projected to offer EPC opportunities comparable to those in 2024, while incorporating measures to mitigate the impact of dilutive effects**

2026 FSB Approach — General

- One FSB will be assigned to each facility type, with a minimum emissions threshold of 500 e^3m^3 fuel + flare volumes (average in the reference years), applied to each Petrinex ID (facility).
  - This approach mitigates the dilutive effects linked to ZEF, LEF, and uneven scaling across various facility types
  - **Offers similar EPC opportunities (vs. 2024)**
  - Upfront analysis and optimization of facilities within an aggregate can result in leaner, more stable aggregates, and improved visibility into projected FSBs

2026 FSB Approach — General (cont'd)

- All Petrinex emissions data will be included in both benchmarking and reporting
- LEF (includes ZEF) production accounting data (denominator volumes) will be excluded from benchmarking and reporting
- The compliance and FSB application forms will be revised accordingly



2026 FSB Approach — Benchmark Unit

- Selection of a benchmark unit for each facility type in an aggregate
  - Typically, Receipts is not representative for BT; Production not for GS, CT, TM, IF, PL, or MS; Disposition not for IF.
  - Default Option 1 units will be Production for BT, and Receipts for GS, GP, CT, TM, IF, PL, MS, unless significant differences are found between the options available (green in the table) for each facility type (**not exhaustive**)

Type\Unit	Production	Receipt	Disposition
BT			
GS			
GP			
CT			
TM			
IF			
PL			
MS			

2026 FSB Approach — Benchmark Unit (cont'd)

- For other facility types, benchmark units may be assessed on a case-by-case basis (e.g., WP)
  - There could be strong seasonality in the monthly data for a WP
    - Annual data for correlation analysis on an Option 2 unit (e.g., DISP to non-op)
- **The added complexity in 2026 benchmarking can be mitigated through automation, supporting efficient implementation of the 2026 FSB approach**
- And the 2026 compliance reporting process would be similar to 2024

2026 FSB Approach — Reference Years

- The pre-existing reference years will be adopted where appropriate, and Pearson's correlation coefficient (r) will continue to support the reference year selection process
  - The production accounting volumes (denominator volumes only) for all LEF including those without Petrinex data in the reference years (new facilities) will be excluded from benchmarking and reporting due to the minimum emissions threshold (average across the reference years)
    - This ensures a consistent comparison of emissions performance across the same cohort of COG facilities between the reference years and the reporting year.
    - **Promotes leaner, more stable aggregates, and improved visibility into projected FSBs**

2026 FSB Approach — Reference Years (cont'd)

- To support the participation of new facilities for EPC opportunities, consider
  - Adding a more recent year to the reference years (maximum three years) so that the new facilities would have sufficient data and meet the threshold of 500 e^3m^3; or,
  - Creating a new aggregate for the new facilities with new reference years (one year prior and two subsequent by default)
    - **Increased admin costs are offset by EPC opportunities**
    - Ensures more comparable, and cohort-consistent emissions benchmarks
  - **Newly built sites demonstrating innovation and best-in-class performance may be included within an existing aggregate to support comparison against the legacy facility cohort**

2026 FSB Approach — Non-Petrinex Emissions

- Non-Petrinex emissions will be excluded from benchmarking for each facility type by default
  - There has been or could be significant changes to some aggregates' D&C
    - Some aggregates' D&C may have halted; Or,
    - The D&C may have shifted to different regions that have or lack natural advantages; Or,
    - The levels of TIER enrollment for new D&C sites may have plummeted
- Would consider
  - A new benchmark metric for D&C if needed
  - **Attributing non-D&C emissions (e.g., purchased fuel gas) to COG facilities if verified data is provided**

2026 FSB Approach — FSB Calculations

- **The default FSB form method**
  - Extracts data for the reference years from previously verified benchmark applications and compliance reports if a COG is in the 2026 CoR;

  Otherwise,

  - Applies default emission factors to Petrinex fuel and flare volumes for the COG in the reference years
    - The same emission factors should be used in the report
  - Is essentially a simplified FSB application form filled out by the department
    - Preserves GHG quantification method choices at the COG level
    - Increases transparency and streamlines calculations with COG level volumes and methodologies in one form
    - Becomes more practical and beneficial with the expectation that aggregates would be mainly shrinking

2026 Default FSB Data Submission

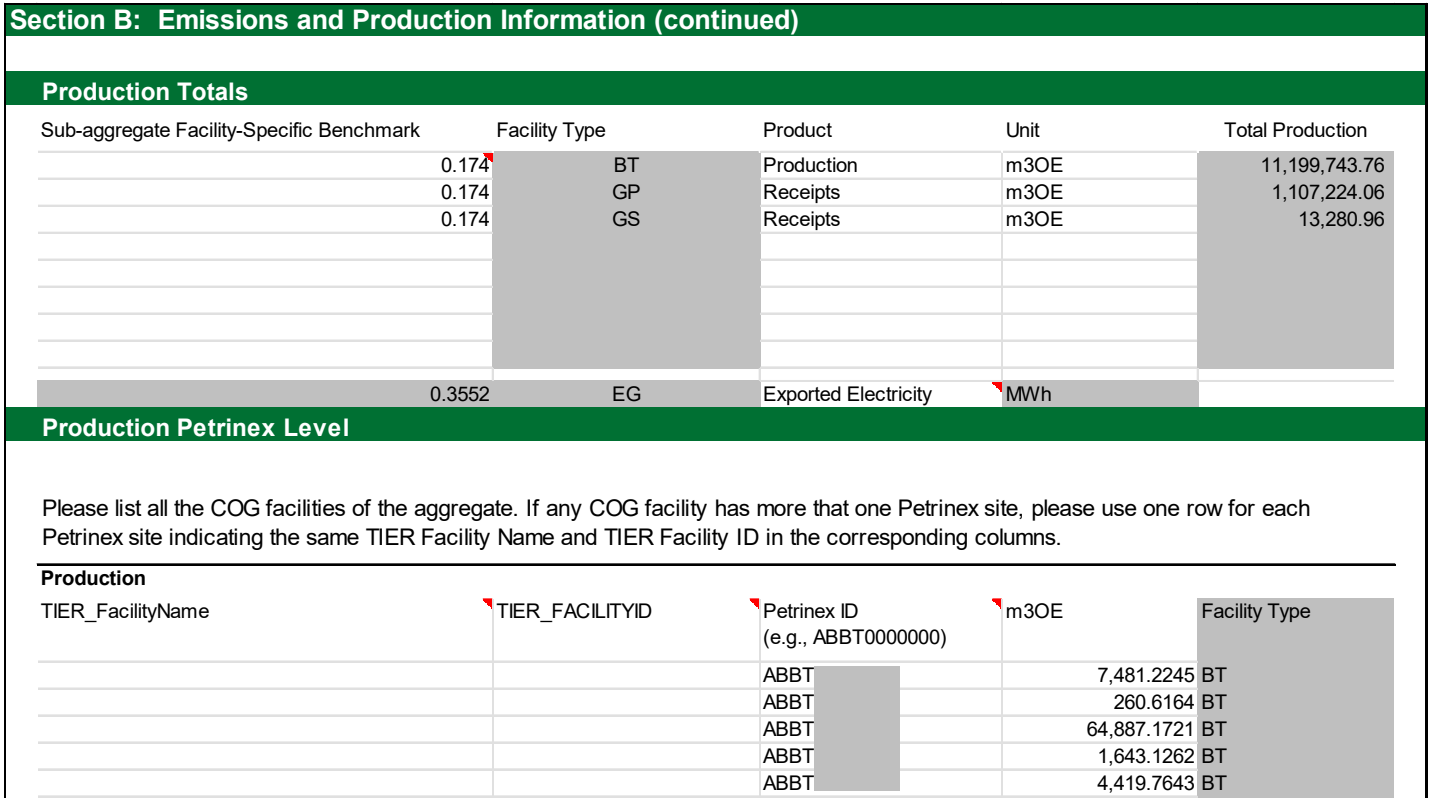
- Stakeholders are encouraged to reach out to the department regarding any flaring or SFC emission reduction efforts or investments that are not reflected in the default benchmarking framework
- Data submissions for the following scenarios may be incorporated into default benchmarking
  - Engineered emissions reduction; and,
  - Transformational innovation

2026 FSB Applications

- 2026 FSB applications should follow the same benchmarking approach as default FSBs regarding ZEF, LEF, benchmark units, reference years, and non-Petrinex emissions
- **Vision for the 2026 FSB application form**
  - The 2026 form would largely maintain a consistent look and feel with the 2024 version
    - Automatic detection of facility types in sections B1 and B6
    - Section B2 will be modified (e.g., to include Petrinex IDs; D&C benchmark unit; Report non-Petrinex non-electricity purchased fuel gas in Section B1)
    - Section E will be duplicated for each facility type with automatic calculations
- The 2025 FSB application form (with corrections to reduction targets) may be used to project 2026 FSBs – one facility type at a time – until the 2026 form is released

Vision for the 2026 Compliance Report Form

- Largely the same form as 2024
- Section B6 will have multiple rows for sub-aggregate FSBs with automated detection of facility type and calculation of facility type totals
- Some changes are expected for Section B2



Section B: Emissions and Production Information (continued)

Production Totals

Sub-aggregate Facility-Specific Benchmark	Facility Type	Product	Unit	Total Production
0.174	BT	Production	m3OE	11,199,743.76
0.174	GP	Receipts	m3OE	1,107,224.06
0.174	GS	Receipts	m3OE	13,280.96
0.3552	EG	Exported Electricity	MWh	

Production Petrinex Level

Please list all the COG facilities of the aggregate. If any COG facility has more that one Petrinex site, please use one row for each Petrinex site indicating the same TIER Facility Name and TIER Facility ID in the corresponding columns.

Production

TIER_FacilityName	TIER_FACILITYID	Petrinex ID (e.g., ABBT0000000)	m3OE	Facility Type
		ABBT	7,481.2245	BT
		ABBT	260.6164	BT
		ABBT	64,887.1721	BT
		ABBT	1,643.1262	BT
		ABBT	4,419.7643	BT

Summary of Deadlines

- November 15, 2025: Adding facilities for 2025 reporting
- December 1, 2025 (anticipated): 2025 partial reporting (application); 2025 FSB application, benchmark unit or reference year requests
- December 31, 2025 (anticipated): 2025 opt-out (application)
- December 1, 2025: Removing facilities for 2026 reporting
- November 15, 2026: Adding facilities / creating a new aggregate for 2026 reporting
- December 1, 2026: Removing facilities for 2027 reporting
- December 1, 2026 (anticipated): 2026 FSB application, change of benchmark unit or reference year requests

Stakeholder Feedback

- Feedback on the 2025 and 2026 FSB approaches may be submitted to the general inbox at EPA.GHG@gov.ab.ca by **November 12, 2025**.
- The benchmark standard will be updated this fall for both 2025 and 2026 FSB methodologies

Questions?

Contact:
EPA.GHG@gov.ab.ca
Meetings can be requested.