
Compliance Year 2021 LFE/Opt-in Compliance Workshop

Technology Innovation and Emissions Reduction
Regulation (TIER)

Climate Regulation and Carbon Markets
Alberta Environment and Parks
May 25, 2022



Alberta

Agenda



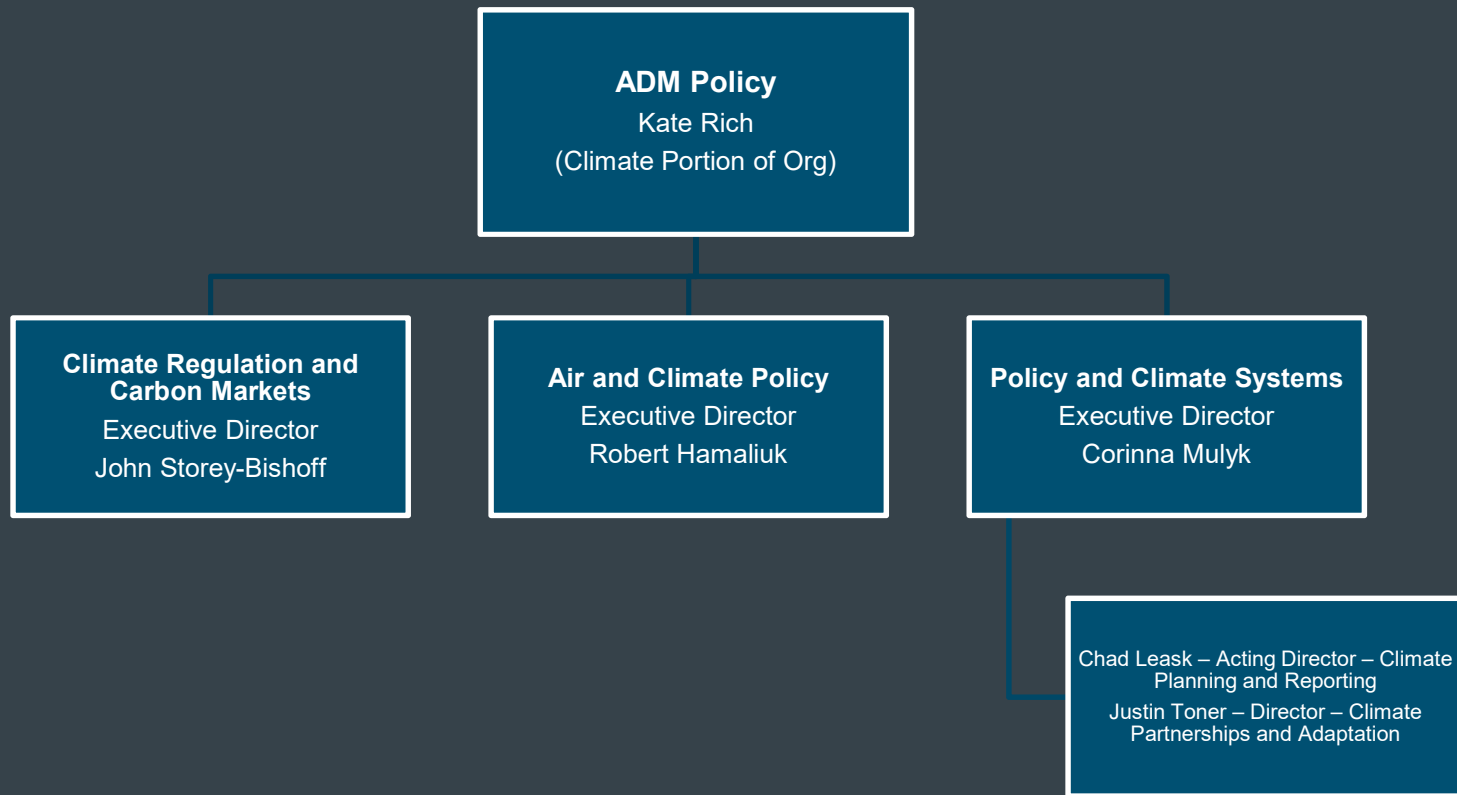
- Introductions and Organization
- Background and Regulatory Overview
 - Industrial Greenhouse Gas Regulation
 - Deadlines and Updates
 - Overview of Standards
- Compliance 2021
 - Requirements and Improvements
 - Compliance Form Overview
- Specified Gas Reporting Regulation
- Questions
- TIER Review Engagement Update

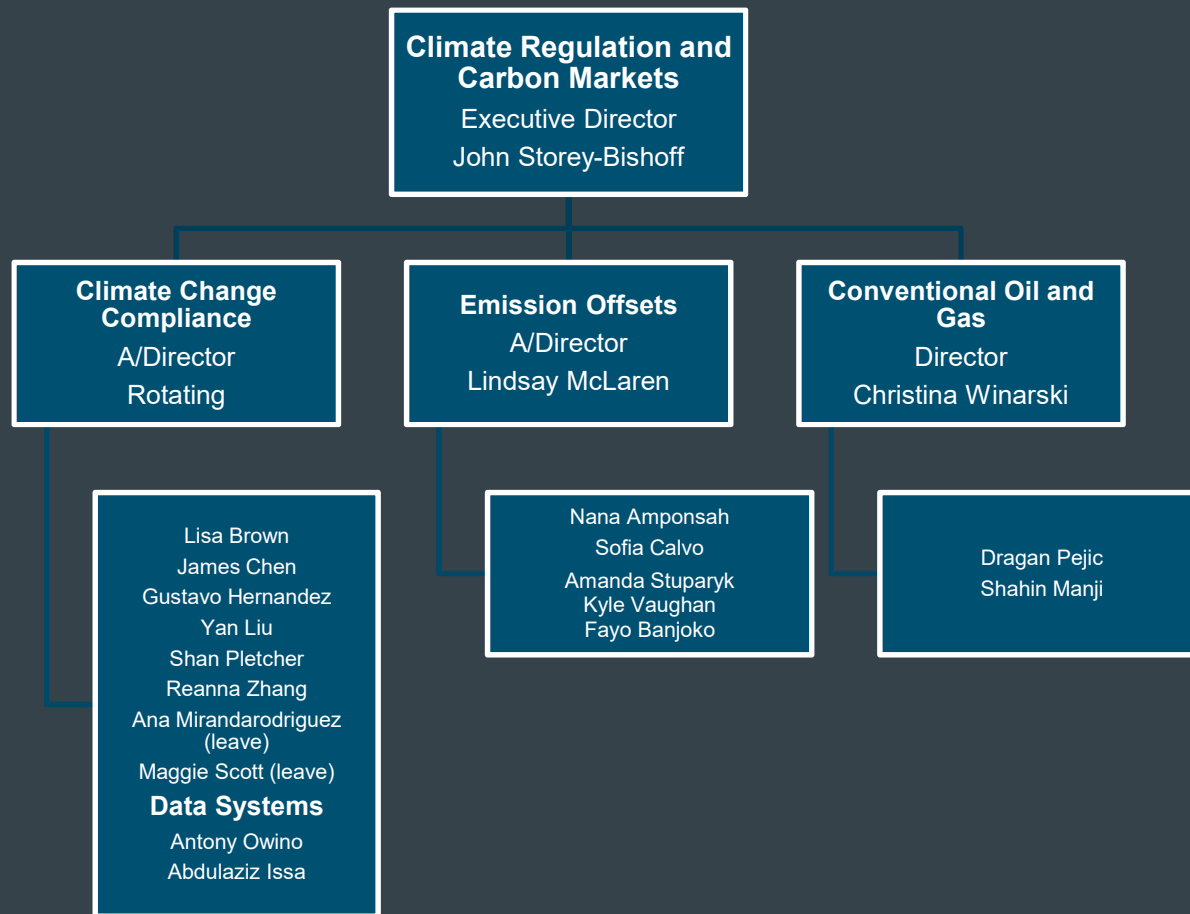
Introduction and Organization

Industrial Climate Policy and Regulation

Introduction – Presenters

- John Storey-Bishoff, Executive Director, Climate Regulation & Carbon Markets
 - TIER Compliance
- Shan Pletcher, CCUS Liaison and Climate Change Engineer
 - Background and Regulatory Overview
- Shahin Manji, Climate Change Emissions Specialist
 - Specified Gas Reporting Regulation
- Laura Gray-Steinhauer, Acting Director, TIER Policy & Economics
 - Update on TIER Review Engagement





Air and Climate Policy

Executive Director
Robert Hamaliuk

TIER Policy and Economics

A/Director
Laura Gray-Steinhauer

Strategic Climate Policy

Director
Heather Carmichael

Air Policy

Director
Rob Bioletti

Kevin Breton
Sushmitha Gollapudi
Colin Jan
Alison Lennie
Richard McEwan
Evan Miller-Tait
Catalina Solano Rivera
Stephen Dobson
Alison Bailie

Background and Regulatory Overview

Industrial GHG Regulation

Regulatory Background

- Specified Gas Emitters Regulation (2007 – 2017)
 - Facility specific baselines based on historical performance
 - Applied to direct emissions only
- Carbon Competitiveness Incentive Regulation (2018 – 2019)
 - Output based allocation system using assigned and established benchmarks
 - Applied to direct and indirect emissions
 - Provincial carbon levy in place until June 2019 with exemption for conventional oil and gas
 - Opted-in facilities

Overview of TIER

- Technology Innovation and Emissions Reduction Regulation (TIER) (2020 – present)
 - TIER implemented on January 1, 2020
 - Regulated facilities:
 - Large emitters with annual emissions above 100,000 tonnes of carbon dioxide equivalent in 2016 or subsequent; or
 - Voluntarily entered the regulation (including aggregate facilities and opted-in facilities)
 - <https://www.alberta.ca/technology-innovation-and-emissions-reduction-regulation.aspx>
 - TIER is a recognized provincial program under the *Greenhouse Gas Pollution Pricing Act* for 2020, 2021 and 2022

Overview of TIER (con't)

- Facilities must comply with the least stringent of:
 - High Performance Benchmark (HPB)
 - In regulation and can be set or updated through Ministerial Order
 - No tightening rate
 - Facility-Specific Benchmark (FSB)
 - 90% of historical emissions intensity in 2020, with 1% annual tightening as in Benchmark Standard
 - Ramp in for new facilities
- Regulated Emissions
 - Large emitters and opted in facilities are regulated for all direct emissions with accounting for imported heat, hydrogen and electricity
 - Direct emissions – do not include biomass CO₂ nor federally levied fuels where exemption certificate is in place, do include CO₂ sent off site

Background and Regulatory Overview

Deadlines and Updates

Upcoming Key Dates from TIER

Report	Deadline	Compliance Year
Compliance Report and True Up	June 30, 2022	2021
Opted-in Facility Application / Removal	September 1, 2022	2023
Facility Specific Benchmark Application	September 1, 2022	2022
Forecasting Report	November 30, 2022	2023 (future yr)
Forecasting Report update	March 31, 2023	2022 (previous yr)
Cost Containment Application	March 31, 2023	2022

Regulated Products

Products with Facility-Specific Benchmarks and/or High Performance Benchmarks (2021)			
*ABGPI (Natural Gas Processing)	Energy Products	Linear Alpha Olefins	Pipeline Transmission
Ammonia	Ethanol	Liquid Cane Sugar	Polyethylene
Ammonium Nitrate	Ethyl Alcohol	Live Weight Of Cattle	Propane\butane Mix
Ammonium Sulphate	Ethylene Glycol	Lumber	Quicklime
Asphalt	Finished Frozen Potato Products	Malt	Refine Bleach Deodorize
Bare Glass	Flour	Magnesia	Refined Vegetable Oil
Biodiesel	Hydraulic Fracturing Sand	Methane	*Refining AB-CWB
Bituminous Coal	Fertilizer Products	Mono Ammonium Phosphate	*Softwood Kraft Pulp
Bleached Chemi-thermomechanical Pulp	Gas Plant Dispositions	Natural Gas Liquids	Styrene
Butene	Gluten	Nickel + Cobalt	Sub-bituminous Coal
C20+ Olefins	Hardwood Bleached Market Pulp	*Oil Sands In-situ Bitumen	Sugar
Calcined Coke	Hardwood Kraft Pulp	*Oil Sands Mining Bitumen	Super Degummed Oil
Carbon Black	High Value Chemicals	Oriented Strand Board	Sulphur
Cavern Storage	*Hydrogen	Panels	Sulphuric Acid
Cement	Hydrogen Peroxide	Paper Newsprint	Unrefined Canola Oil
Crude Vegetable Oil	*Industrial Heat	Partially Calcined By-product	*Upgrading AB-CWB
Crude Super Degum	Injected Water	Pentane	Urea
Dispositions	Isooctane	Phosphoric Acid	Veneer
*Electricity	Laminated Veneer Lumber	Plywood	Wallboard

14 Classification: Public

*Products that are also regulated by another organization (i.e. AESO, AER).



High Performance Benchmarks

Products with High Performance Benchmarks	Unit	Product Description
Ammonia	Tonnes	Specified at least 99% of ammonia by mass
Ammonium Nitrate	Tonnes	Specified at least 99% of ammonium nitrate by mass
Bituminous Coal	Tonnes	Clean Coal as per facility sales specification
Cement	Tonnes	Cement and additives without specification
Crude Canola Oil	Tonnes	Oil and solid residue produced from the low erucic acid oil-bearing seeds of <i>Brassica</i> species
Electricity	Megawatt hours (MWh)	AESO requirements for electricity export to grid or to another facility
Ethyl Alcohol	Litres absolute alcohol	Un-denatured food grade alcohol which is intended for human ingestion
Ethylene Glycol	Tonnes	Per regulation
Hardwood Kraft Pulp	Air Dried Metric tonnes (ADMT)	Air Dry Metric Tonnes – 10% moisture by mass of hardwood pulp
High Value Chemicals (HVC)	Tonnes	Per regulation
Hydrogen	Tonnes	Mass of hydrogen excluding impurities.
Industrial Heat	Gigajoules (GJ)	Heat exported to a third party per regulation.
Oil Sands In Situ Oil Bitumen	Cubic meter of bitumen	As per AER ST39
Oil Sands Mining Bitumen	Cubic meter of bitumen	As per AER ST39
Softwood Kraft Pulp	Air Dried Metric tonnes (ADMT)	Air Dry Metric Tonnes – 10% moisture by mass of softwood pulp
Sub-bituminous Coal	Tonnes	Coal from a mine located in the Plains Region
Natural Gas	Alberta Gas Processing Index	Benchmarking based on a modular approach for different processes.
Granular Urea	Tonnes	White solid nitrogen-based fertilizer having the molecular formula $\text{CO}(\text{NH}_2)_2$
Upgrading	Upgrading Alberta complexity weighted barrel	Standardized volumetric production of upgraded bitumen

Department Status Updates

- Reverifications for 2019 and 2020 Compliance Reviews are nearly complete
- Facility Specific Benchmarks for 2021 should be finalized for all facilities
 - Contact the Department if facility does not have final Facility Specific Benchmark(s) assignment letter
- Annual compliance reviews
 - Staff working through 2019 and 2020

Background and Regulatory Overview

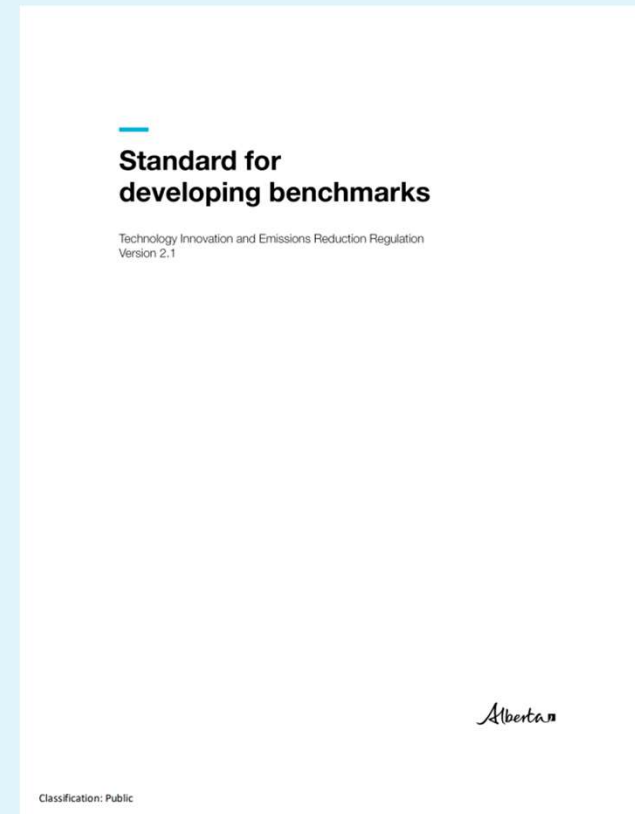
Overview of Standards

TIER Standards

- Four standards under TIER
 - Standard for Developing Benchmarks
 - Standard for Completing Greenhouse Gas Compliance and Forecasting Reports
 - Standard for Validation, Verification and Audit
 - Standard for Greenhouse Gas Emission Offset Project Developers
 - Part 1 is law and binding
 - Part 2 provides context, explanation and requirements, but not binding.
- Alberta Quantification Methodologies (AQM)
 - Provides mandatory quantification methodologies for regulated facilities
 - Is made mandatory through standards

Benchmark Standard

- Opted-in facility entry
- Benchmark setting methodologies
 - High performance benchmark
 - Facility specific benchmark
- Benchmark setting treatment of:
 - Indirect emissions
 - Cogeneration
 - Self generation of electricity
 - Refining/Upgrading
- Cost containment program



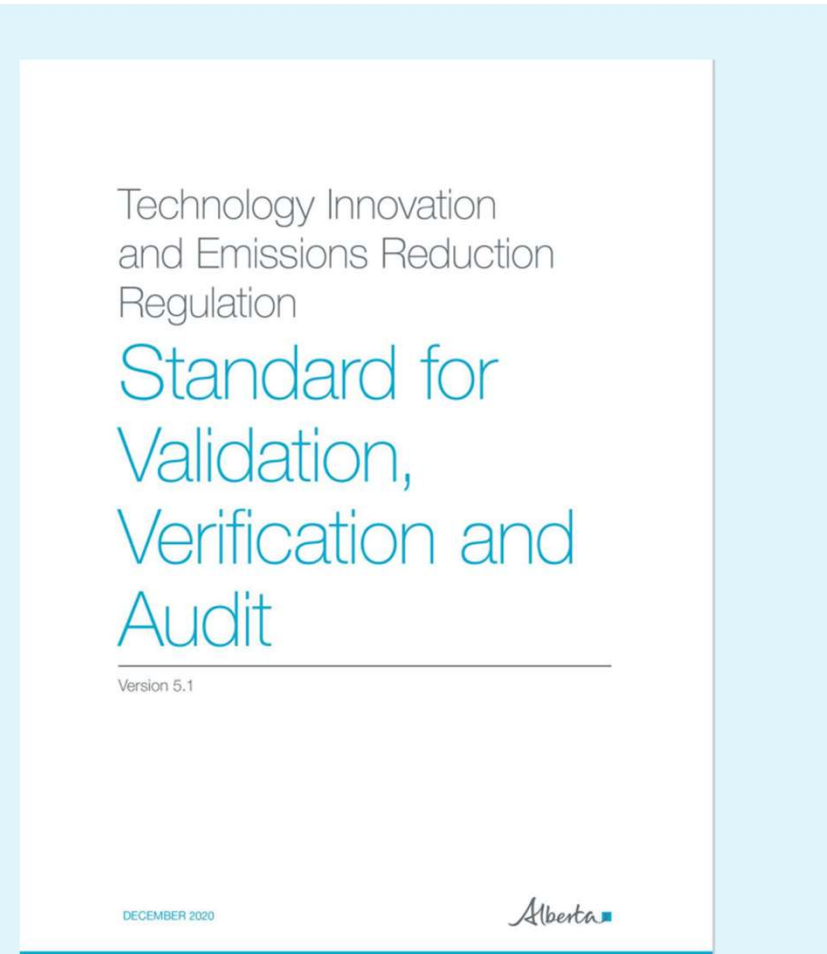
Compliance Standard

- Facility requirements for compliance reporting
- Facility requirements for forecasting
- Provides minimum level assignment for quantification methodologies



Verification Standard

- Requirements for third party assurance providers (verifiers, validators) and auditors
- Covers compliance reports, benchmark applications, cost containment applications, data submissions, emission offset project reports



Quantification Methodologies

- Provide consistent and standardized approach to quantifying emissions, production and other reported parameters
- Provide level playing field for facilities within the same sector and across all sectors
- Standardize benchmarking approaches for regulated facilities
- Aligned with federal greenhouse gas reporting where appropriate

Alberta greenhouse gas quantification methodologies

Technology innovation and emissions reduction regulation

Version 2.2

Alberta

Alberta

Mandatory Quantification Methodologies

- Mandatory Quantification Methodologies for 2021
 - Chapter 1 – Stationary Fuel Combustion
 - Chapter 4 – Venting
 - Chapter 5 – On-Site Transportation
 - Chapter 8 – Industrial Processes
 - Chapter 12 – Imports
 - Chapter 13 – Production
 - Chapter 14 – Carbon Dioxide Emissions from Combustion of Biomass
 - Chapter 15 – Aggregate Facilities
 - Chapter 16 – Cogeneration Benchmark Calculation
 - Chapter 17 – Measurements, Sampling, Analysis and Data Management

Mandatory Quantification Methodologies

- Mandatory Quantification Methodologies for 2021
 - Appendix A – References
 - Appendix B – Fuel Properties
 - Appendix C – General Calculation Instructions
 - Appendix D – Conversion Factors
 - Appendix E – Additional Information for the Alberta Gas Processing Index
- Facilities submit deviation requests to the department to propose alternative method if unable to adhere to mandatory method
 - Department will provide a time limited approval letter to facility if deviation request is accepted.
- Chapter 2 Flaring
 - Finalized chapter published in AQM, and will be mandatory for 2022.

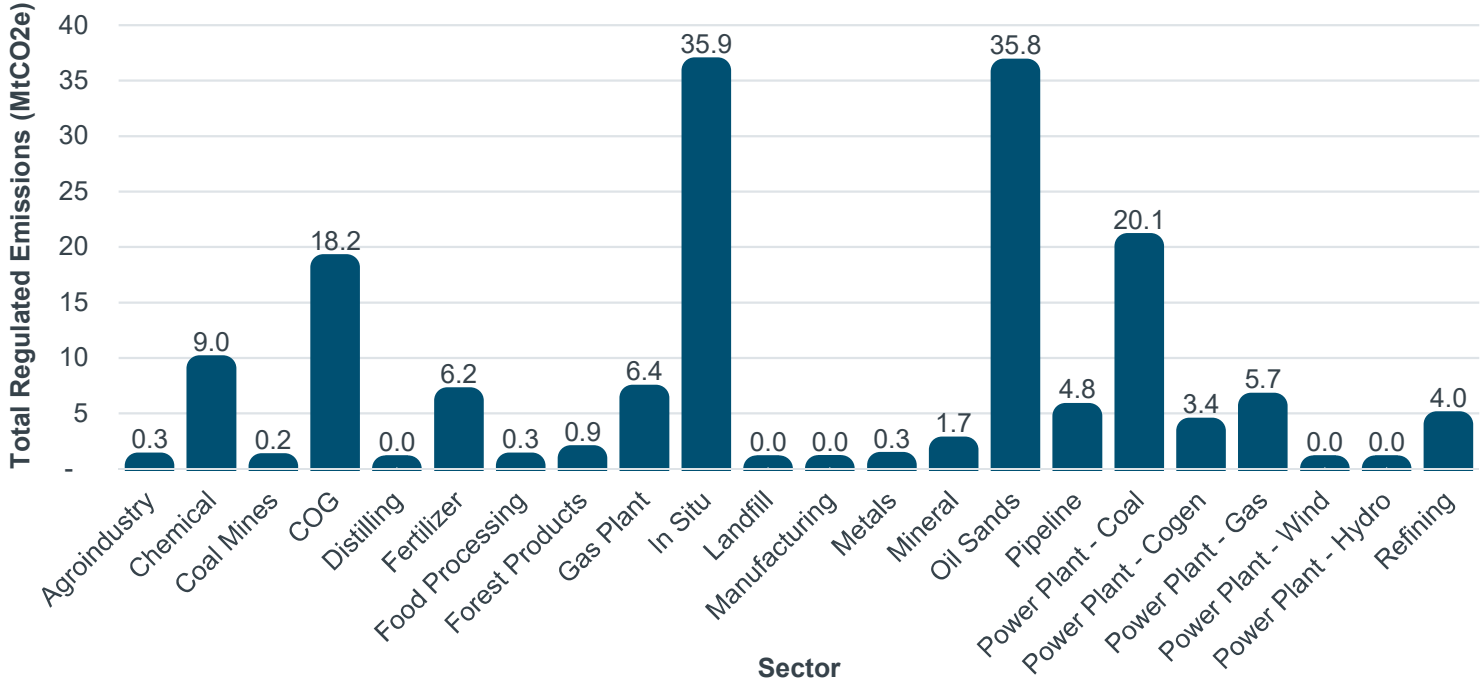
Data Review

Prior Compliance Results

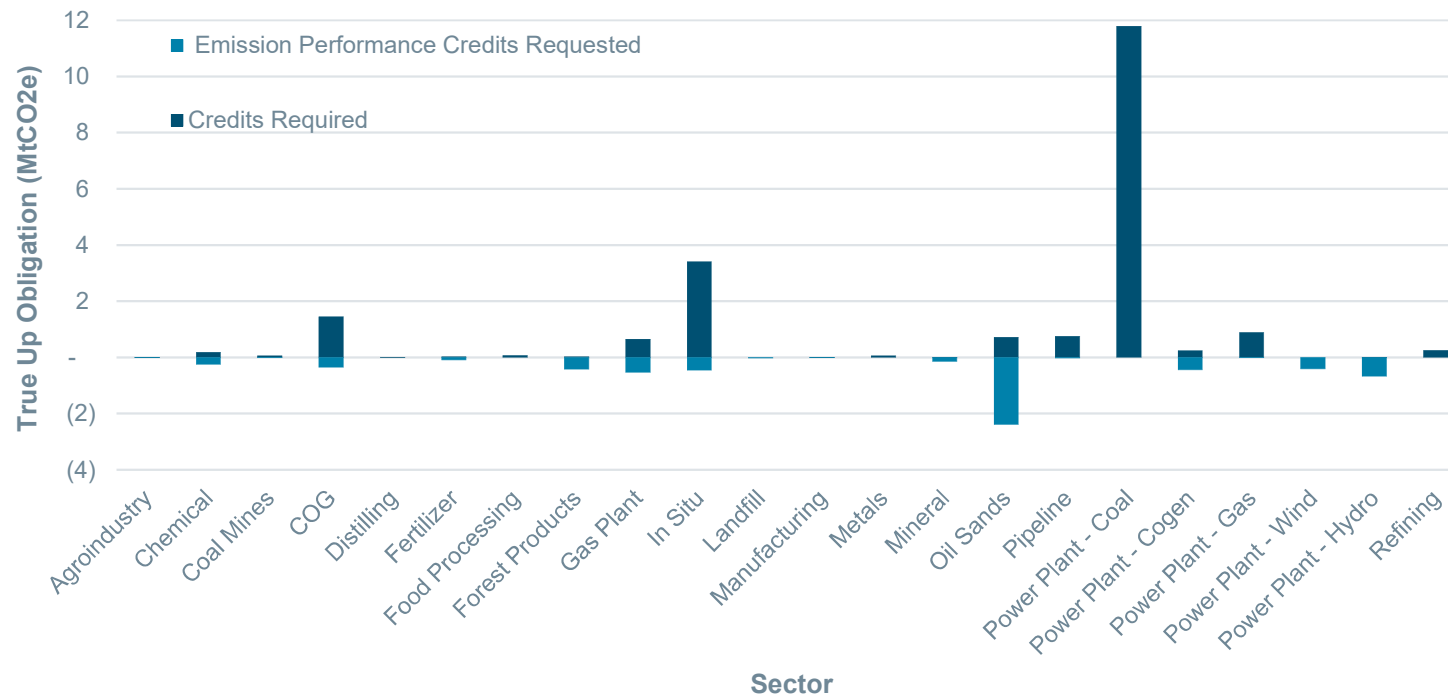
Historic GHG Compliance

Compliance Year	Emission Offset Credits Submitted (megatonnes CO ₂ e)	EPCs Submitted (megatonnes CO ₂ e)	Fund Credits Submitted (megatonnes CO ₂ e)	Total Compliance (megatonnes CO ₂ e)	Fund Payment (\$Million)
2007 (half year)	0.9	0.2	3.0	4.1	45.2
2008	2.9	0.6	5.9	9.4	88.3
2009	3.8	1.5	4.4	9.7	66.3
2010	3.9	1.9	5.3	11.1	78.9
2011	5.4	0.8	4.2	10.4	62.9
2012	3.0	0.7	5.9	9.5	93.7
2013	2.2	1.3	6.3	9.8	94.4
2014	2.3	1.3	5.6	9.3	84.3
2015	0.0	0.3	9.0	9.3	135.7
2016	0.8	1.0	10.3	12.2	206.5
2017	9.2	6.2	3.1	18.5	94.0
2018	8.0	3.9	17.8	29.7	533.5
2019	9.9	5.3	15.9	31.0	476.1
2020	1.2	1.0	18.3	20.6	547.6
Total	53.5	26.0	115.0	194.6	2607.4

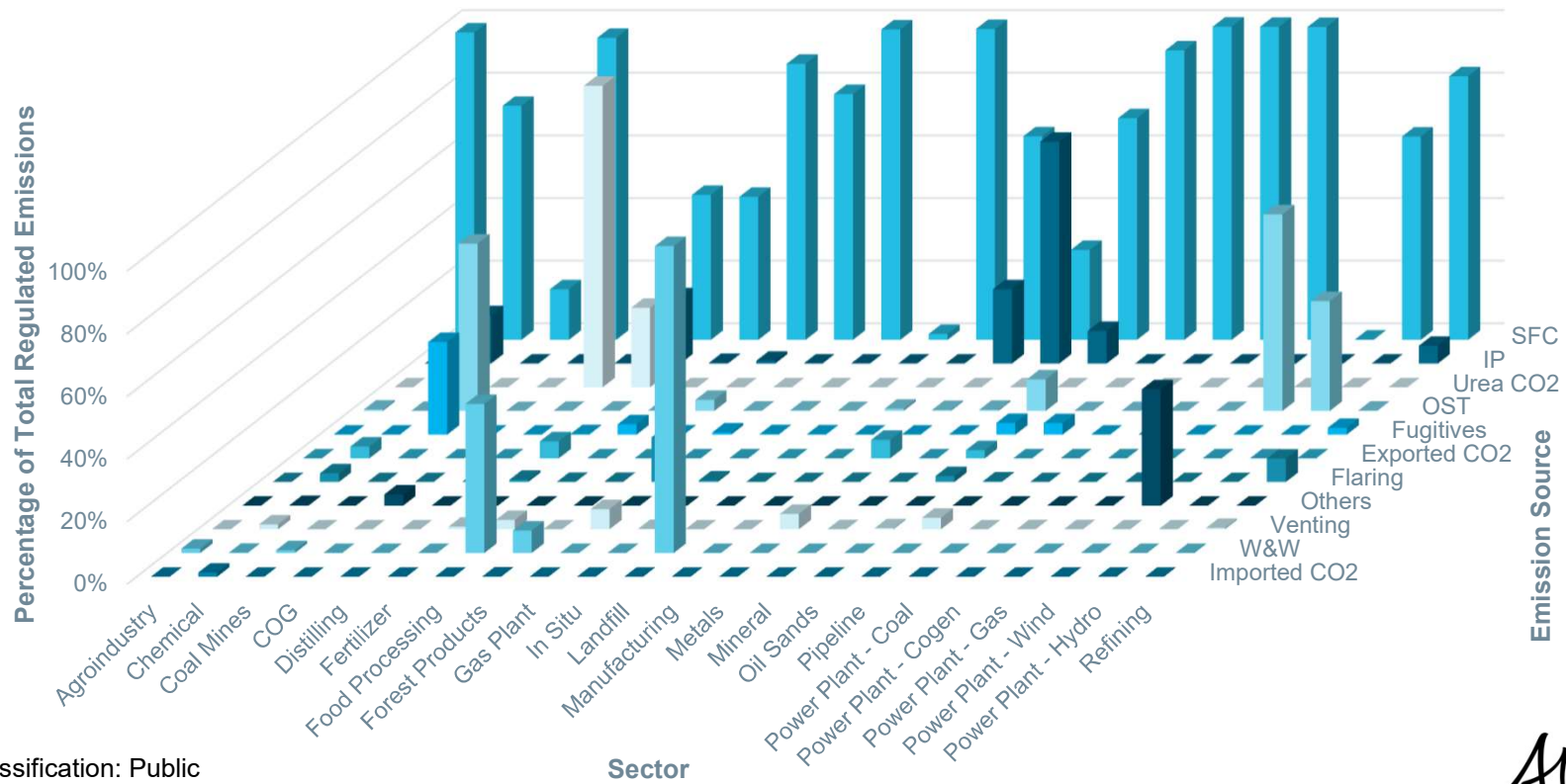
Total Regulated Emissions by Sector (2020)



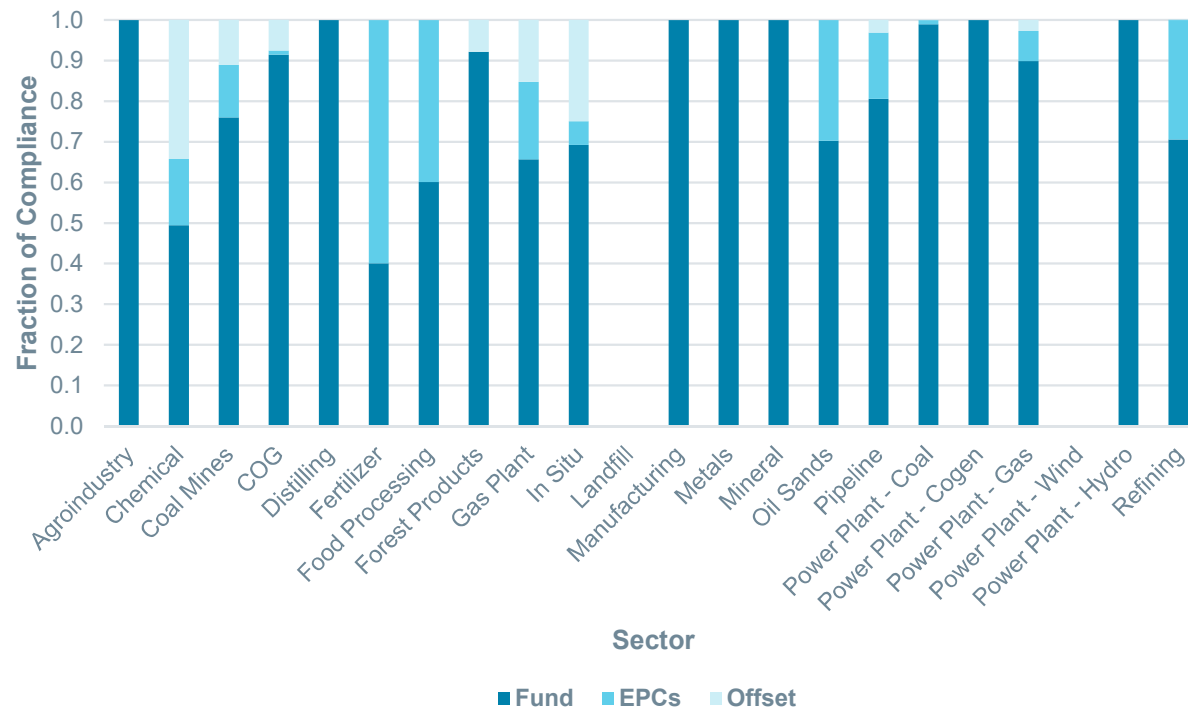
Compliance Position by Sector (2020)



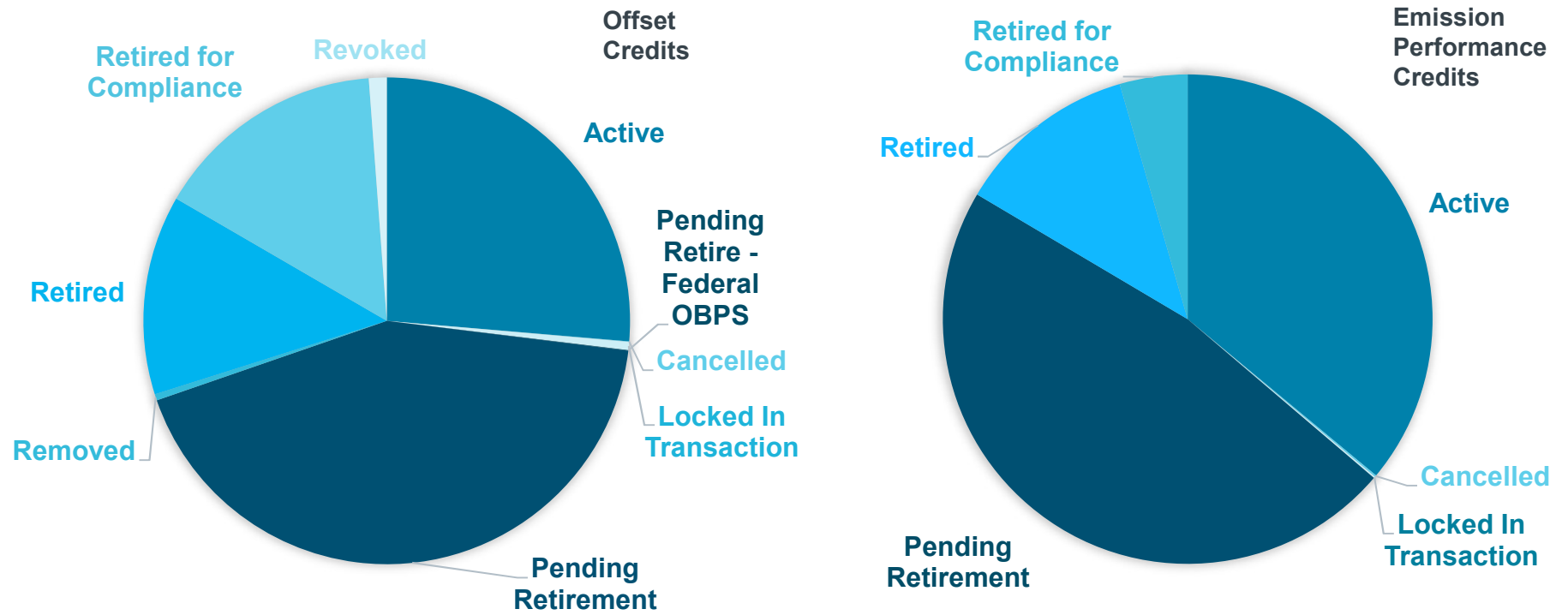
Emissions Sources by Sector (2020)



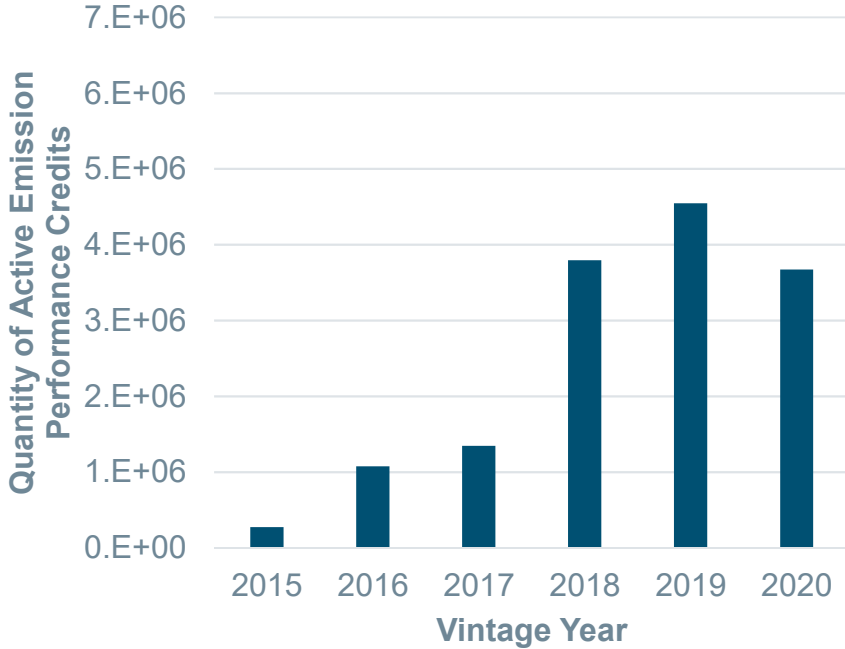
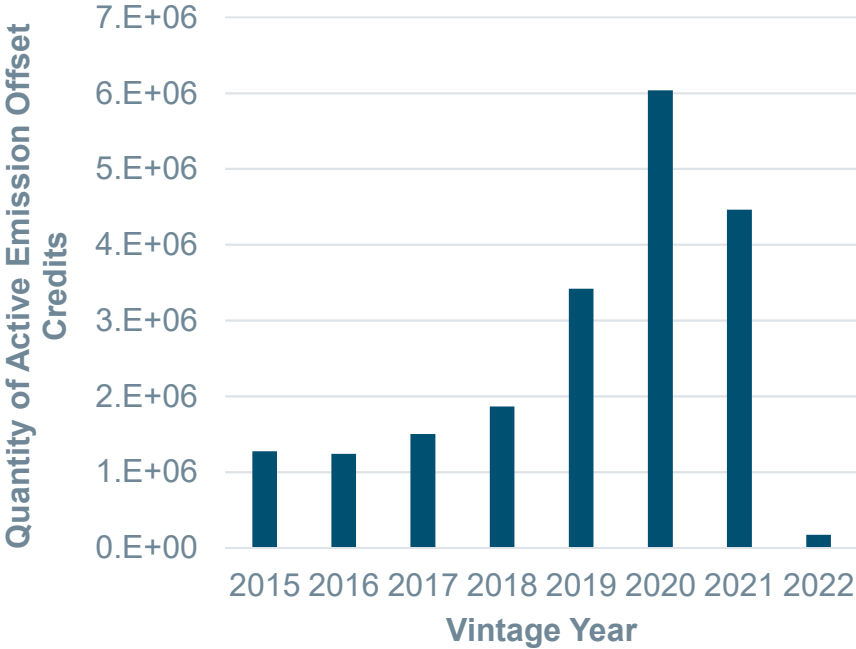
Credit Usage (2020)



Offset and Emission Performance Credit Status



Active Offset and Emission Performance Credits Vintage



Compliance 2021

Requirements and Improvements

Key Take Aways

- Person responsible to submit verified compliance report by ***June 30, 2022*** for the 2021 compliance year
- Positive verification opinion required
 - Any material errors must be resolved before submission
- Required true-up (credits retired or fund payment made) should be complete *before* submitting your compliance report
- Fund price is **\$40** per tCO₂e for 2021
 - [Ministerial Order 87/2021](#)

Emissions Completeness

- “Direct Emissions”: all specified gases released from sources located at a facility
 - *not including* biomass CO₂ emissions
 - *not including* fuel for which a fuel charge has been paid under the *Greenhouse Gas Pollution Pricing Act* (Canada) with exemption certificate covering the period
- All direct emissions within facility boundary must be reported
 - includes contractors, drilling rigs, etc.
- If the source meets the definition for “negligible emissions”, can use alternative quantification method
 - defined in Standard for completing greenhouse gas compliance reports
 - all “negligible emissions” count toward Total Regulated Emissions

Lesson Learned from Re-verifications

- QMD to list parameters, constants and site specific emission factors used for the calculation (and match the internal data mgmt. system)
- Data reconciliation and negligible emission estimation should be clearly documented in QMD
- List of AQM mandatory item over the years and the updates
- Ensure the facility GHG calculation workbooks allows a verifier to retrace data back to the data management system and raw data
- Missing data procedure from AQM is based on minimum required frequency

Usage of Credits

- TIER Requirements
 - Maximum credit usage for 2021: 60% of tonnes owed
 - 40% of true-up may be pre-2017 vintage credits
 - Reminder
 - 2014 and older credits have **expired**
 - 2015 and 2016 credits **expire** this year (2021 compliance last year to use)
- Credits must be
 - held by person responsible
 - in pending retired status
 - in the account of the regulated facility (EPCs only)
 - Correctly tabulated on compliance report
 - Separate tabs for EPCs and Offsets
 - Serial ranges must be correct and match reported totals

Verification – Improvements Required

- Review production quantities
 - involved throughput-based products such as AB-CWB, AGPI
- Confirm correct application of benchmarks
- Ensure consistency with quantification requirements
- Confirm QMD completeness
- Trace back to physical meter readings

Verifier Training Requirements in 2022

- TIER Verification Training:
 - Lead verifiers, peer reviewers, and DSA completing 2020 verifications were required to complete the TIER-specific verification training for CR's and benchmark reports
 - If completed, nothing else required this year
 - If not previously completed, then
 - Review verification training from TIER webpage,
 - Complete Quiz and submit to AEP.GHG@gov.ab.ca
 - New Verification Training will be mandatory for 2022
 - Online training and quizzes will take 8 hours and may over 10 days

Quantification Methodology Document

- QMD must be updated to TIER
 - Update quantification methodologies as each becomes mandatory
 - Must follow format in Compliance Standard
- QMD an essential reference for verification and AEP internal reviews
 - Still seeing QMDs missing information (examples: equations, emission factors, sample calculations, negligible emissions method, justifications for chosen methods and emission factors)
- Do not need value updates, but should have sample calculations
 - Sample calculation workbooks must supplement use of emission management software, and provided to verifier
- If deviation request(s) granted by department, include in QMD

Deviation Requests

- Where unable to fully implement the prescribed quantification requirement, a deviation request can be made
 - cannot grant if deviation is based on preference for alternative method
- If a missing data procedure can be used according to Chap 17 AQM, a deviation request is not needed.
- If mandatory quantification method is not followed and deviation not in place, verification finding should be resulted
- Deviations are limited
 - granted for one year
 - review approval letter carefully, often conditions included
 - request should include how facility will comply with mandatory requirements in subsequent reporting
- Department tracks deviations to inform review of quantification requirements

Confidentiality

- If requesting confidentiality on reporting form, must include letter with submission
- Letter should clearly justify how requested data meets criteria under the regulation
- Unjustified requests are rejected
 - review decision letter prior to subsequent requests
 - if request rejected, do not request in future submissions unless conditions warrant

Contents of Compliance Submission Package

- Completed Compliance Form (Excel workbook)
- Signed Statement of Certification (SoC)
- Verification Report, including
 - Signed Statement of Verification (SoV)
 - Signed Statement of Qualifications (SoQ)
 - Signed Conflict Of Interest Checklist (COI)
- Updated Quantification Methodology Document
- Area Fugitives Report (as required)
- Emissions reduction plan report for facilities with cost containment designation
- Confidentiality request for specified parts of the submission (optional)

Compliance Submission

- Send to AEP.GHG@gov.ab.ca by June 30, 2022
- Payment by cheque
 - Submit a cheque payable to “Government of Alberta” along with the fund credit purchase form:
 - Government of Alberta
 - Finance and Administration Branch
 - Alberta Environment and Parks
 - 6th floor, South Petroleum Plaza
 - 9915 108 Street NW
 - Edmonton, Alberta
 - T5K 2G8

Compliance Submission

- Electronic payment
 - Submit payment by electronic fund transfer and **provide the fund credit purchase form** at least three business days in advance of the electronic funds transfer

Account Name	PA Technology Innovation & Emission
Bank Name	CIBC
SWIFT Code	CIBCCATT
Bank Address	10102 Jasper Avenue Edmonton
Institution Number	0010
Transit Number	00059
Account Number	92-74219
Ministry/Department	Alberta Environment and Parks, Finance and Administration Branch
E-mail	AEP.revenue@gov.ab.ca

- Receipt will be provided

Using Credits for Compliance

EPCs/Emission Offsets

- Credits must be in a pending retirement state on the [registry](#) prior to submission
- Action on the registry should be submitted 10 business days in advance
- EPCs must be retired to the facility that are using them to true-up
 - If you are new to TIER and want to use EPCs for compliance, create account and facility on registry

Compliance Form Review

Overview video on TIER webpage
under Compliance Reporting

https://youtu.be/jujIEP_XMqU

Signing Compliance Forms

Additional guidance has been created on using electronic signatures

- [Guide to Signing Technology Innovation and Emissions Reduction Regulation Forms \(alberta.ca\)](#)

Specified Gas Reporting Regulation (SGRR)

SGRR Overview

- Alberta's mandatory Greenhouse Gases (GHG) reporting program for facilities emitting over 10,000 tonnes of CO₂ equivalent per year
- Builds on voluntary reporting by most Alberta emitters since the mid-1990's
- This regulation and the associated standard were passed in 2003
- One reporting window with Environment and Climate Change Canada (ECCC) GHG Reporting Program
- Emissions reporting data is used to inform policy development and analysis, and support federal national inventory reporting (NIR)
- Annual reporting deadline is **June 1**
- The Specified Gas Reporting Standard has been updated and posted on the open portal website

SGRR – 2022 Updates to SWIM Alberta data fields

- Boundary files: Eliminate multiple files in the database, as facility boundaries will not change one year to the next.
- Facility need not to duplicate effort from previous year.
- Delete fields under North American Product Classification System (NAPCS) for Product Quantity and Unit from Section B of the Single Window Information Management (SWIM) ABGHG
- Equation numbers must be reported in SWIM, and guidance will be provided for the small number of cases where Alberta Greenhouse Gas Quantification Methodologies (AQM) equation numbers have been updated to align with the drop-down options in SWIM

SGRR – 2022 Updates con't

- Mandatory quantification methodologies:
 - Facilities regulated in TIER must use the Alberta Greenhouse Gas Quantification Methodologies (AQM)
 - Facilities not regulated in TIER must use either the AQM or the Specified Gas Reporting Regulation
 - Level 1 methodologies in those documents are the minimum requirement for SGRR reporting, and are aligned with ECCC minimum requirements.
- NAPCS - Production reporting requirements are eliminated for products that compete with products in TIER

TIER Review Update

TIER Context

- Since the implementation on January 1, 2020, the TIER regulation has met the federal requirements under the federal *Greenhouse Gas Pollution Pricing Act* (GGPPA) for 2020, 2021, and 2022.
 - As a result the federal Output-based Pricing System (OBPS) has not been applied in Alberta.
- The TIER regulation includes a requirement for a regulatory review to be completed by December 31, 2022.
 - This requirement was mandated to ensure the value of continuous improvement, and that climate policy is dynamic and must be agile to changing priorities.
 - Additionally provides opportunity to improve TIER system – integration with related policies, attract new investment, reduce administrative burden for regulated facilities, etc.

Federal Context

- On August 5, 2021, the federal government released its updated benchmark criteria that will be used to assess carbon pricing systems across Canada.
 - Provincial systems will be assessed on a multi year basis from 2023 to 2030 with an interim review in 2026.
- TIER must now meet new federal requirements under the *Greenhouse Gas Pollution Pricing Act (GGPPA)*.
 - Follow the federal carbon pollution price schedule
 - Equivalent emissions coverage to federal backstop
 - Maintain the marginal price signal in 2023 through 2030
- Alberta intends to continue to maintain jurisdiction over industrial carbon pricing, and keep the federal OBPS from being imposed in Alberta.
 - Industry and stakeholders engagement will inform recommendations for the most effective and efficient TIER system improvements.

Engagement Approach

- The TIER review engagement approach will include the following:
 - Release of a discussion document for stakeholders and public to comment on proposed key policy items.
 - Series of sector-specific webinars for stakeholders to ask questions and engage in discussion on key policy items for the sector.
- Alberta Environment and Parks is currently finalizing the approach, but anticipate engagement to start in the coming weeks.

Questions?

Contact:
AEP.GHG@gov.ab.ca



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