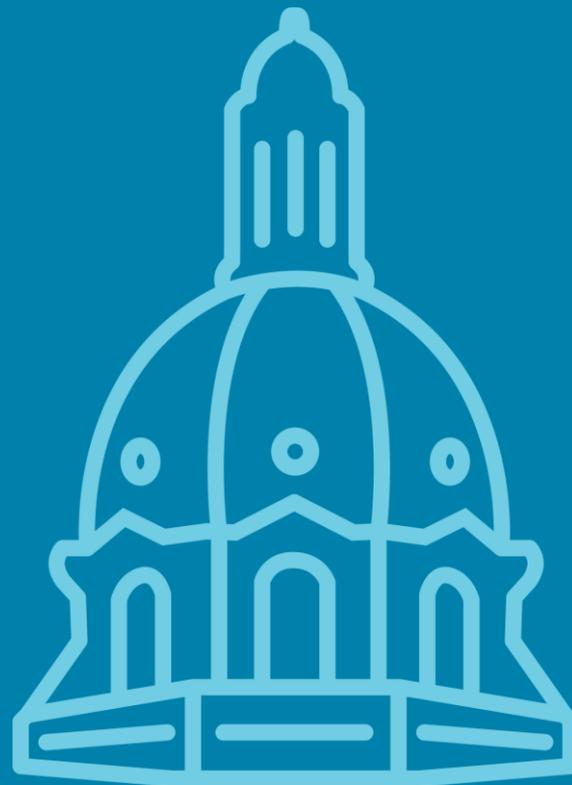


TIER Regulation

Technology Innovation and Emissions Reduction Regulation

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Overview and Context

- Alberta Context
 - Alberta needs an approach to reducing greenhouse gas emissions that:
 - Effectively reduces greenhouse gas emissions.
 - Reassures investors.
 - Safeguards Alberta industry competitiveness with industry in jurisdictions without emissions legislation.
 - Maintains provincial jurisdiction over the regulation and pricing of emissions.



Overview and Context

- Federal Context
 - Strategic goal of TIER to maintain jurisdiction and control over industrial climate change regulations in Alberta.
 - Federal plan includes Output Based Pricing under the Federal Greenhouse Gas Pollution Pricing Act (GGPPA)
 - TIER provides options to protect conventional oil & gas from the Federal Fuel Charge.



Overview and Context

Situational Background

– SGER

- Implemented in 2007, SGER featured facility-specific benchmarks.
- Every facility reduced emissions relative to their own historical baselines.

– CCIR

- Implemented in 2018, CCIR featured product-specific benchmarks.
- Facilities are compared to peers.
- Stronger performers earn credits, while poorer performers owe more compliance.
- Facilities received transition allocations in 2018 and 2019



Overview and Context

Situational Background

– TIER

- Coming into force for January 1, 2020, TIER will be a hybrid system.
- Average and below average facilities can be measured against facility-specific benchmarks.
- Strong performing facilities can be measured against product-specific benchmarks.
- Electricity is an exception. All power generation will be subject to the good-as-best-gas standard for emissions intensity from power generation.



Stakeholder Engagement



Stakeholder Engagement

- Alberta Environment and Parks conducted a comprehensive stakeholder engagement process in July/August 2019.
 - Minister-led roundtables
 - Webinar presentation
 - Technical workshops
 - One-on-one meetings
 - Discussion Document posted online
 - Public feedback through online link
- Feedback was presented to government as part of decision-making process.



Stakeholder Engagement

- Main messages from stakeholders:
 - Ensure Alberta maintains jurisdiction over industrial carbon pricing in the province.
 - Allow conventional oil and gas facilities below the regulatory emissions threshold to opt-in to TIER.
 - Create a mechanism for best-in-class facilities to be rewarded, rather than facing a facility-specific 10% reduction requirement.
 - Apply a cap to the tightening rate.
 - Carefully consider rules for emissions performance and offset credit usage for compliance.



General Policy Items



Stringency

The level of allowable emissions, per unit of product.

- **Approach:**

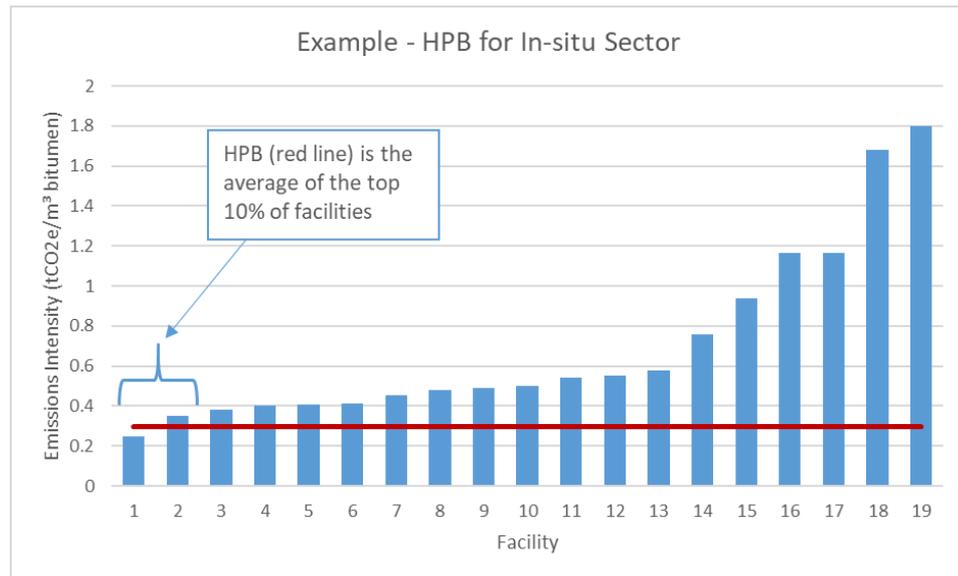
- Facilities comply with the least stringent of:
 - Stated high performance benchmark (HPB)
 - Product-specific high performance benchmarks reflect emissions intensity of high performance in a sector

OR

- Facility-specific benchmark (FSB) of 90% historical emissions intensity
- Does not apply to electricity producers (subject to good-as-best-gas).

Stringency

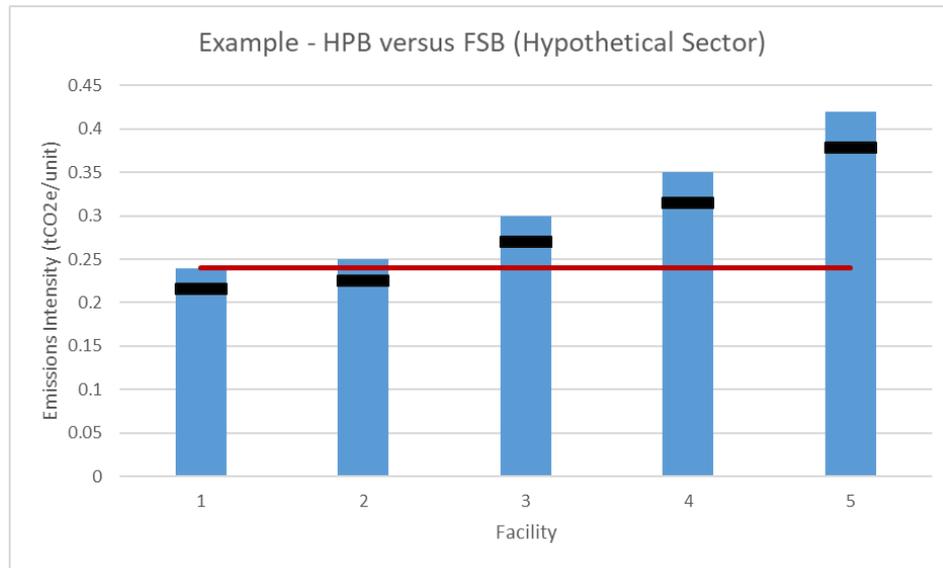
- **High performance benchmark approach:**
 - Calculated as the average emissions intensity of the top 10% performing facilities
 - If ≤ 10 facilities in a sector, it is equal to the emissions intensity of the best performing facility.
 - If 11-20 facilities in a sector, it is equal to the average emissions intensity of the top two facilities.
 - If 21-30 facilities in a sector, it is equal to the average emissions intensity of the top three facilities, and so on.



HPB may be reviewed & updated prior to formal review period.

Stringency

- **Facilities comply with the least stringent of**
 - Stated high performance benchmark (HPB), or
 - Facility-specific benchmark (FSB) of 90% historical emissions intensity
- **Example:**
 - Facilities 1 and 2 would be subject to the HPB (red line), as it is less stringent than their FSBs (black lines).
 - Facilities 3, 4, and 5 would be subject to their FSBs (black lines), as they are less stringent than the HPB (red line)
- FSBs are reduced by 1% per year starting in 2021





Tightening Rate

Annual rate at which allowable emissions decrease.

- **Approach:**

- Tightening rate of 1% per year.
- Applied to all non-electricity facilities beginning in 2021.
- Applied until each benchmark meets tightening rate floor (HPB).
- Does not apply to high performance benchmarks.
- Does not apply to electricity or industrial process emissions.



Conventional Oil and Gas

To protect small and medium oil & gas facilities that are below the emissions threshold from the federal fuel charge.

- **Approach**

- Conventional oil & gas facilities below the 100,000 tonne threshold may apply to opt in to TIER.
- Aggregation of multiple facilities to streamline reporting and compliance.
- Emission intensity reduction requirement of 10% relative to rolling baseline.
- Product-specific HPBs implemented January 2021, facilities subject to least stringent of FSB or HPB.
- Aggregate facilities are not subject to annual stringency tightening.



Fund Price

Compliance price (\$/tonne CO₂e) paid to TIER Fund.

- **Approach**

- Fund credit price to be set at \$30 per tonne CO₂e, to align with 2020 federal benchmark requirements under GGPPA.



Emissions Threshold

Threshold at which facilities automatically become regulated under TIER.

- **Approach**

- Facilities emitting 100,000 tonnes CO₂e or more in 2016 or subsequent years will automatically become regulated under TIER.



Opt-in and Opt-out

Provisions to allow non-regulated facilities to join or regulated facilities to leave TIER regulation.

- **Approach**

- Opt-in is allowed if a facility:
 - Competes directly with an already regulated facility.
 - Emits greater than 10,000 tonnes CO₂e per year and belongs to a highly emissions-intensive and trade-exposed sector.
- Renewable electricity facilities are allowed to opt in (directly compete) to earn emissions performance credits.
 - Facilities under TIER cannot generate Alberta emissions offsets.
- Opt-out allowed upon review of application by Director.
- Facilities that have sequestered CO₂ on site will not be eligible to opt-out.
- Opt-out may not occur in the same calendar year as opt-in.



New Facility Treatment

Treatment of new or significantly changed facilities under TIER.

- **Approach**

- Up-to three year compliance obligation exemption to allow operations to stabilize.
 - No compliance obligation for the first partial year, plus two full additional calendar years of commercial operation.
 - Following the exemption period, a facility-specific or high performance benchmark will apply in the next year of commercial operation,
 - New facility-specific benchmarks are set at 95% historical emissions intensity
 - Benchmarks are decreased by 5% per year to reach the full reduction target
 - Full reduction target starts at 10% in 2020 and increases linearly by 1% per year after that (e.g. in 2025, full reduction target would be 15%).



New Facility Treatment

Treatment of new or significantly changed facilities under TIER.

Continued...

- **Approach**

- Facilities may choose to skip the exemption (e.g. to generate EPCs)
- A new electricity generation facility exemption will end at the earlier of:
 - January 1, 2023, or
 - When the facility is in its third or subsequent year of commercial operation.
- Starting January 1, 2023, new electricity generation facilities will be subject to compliance as soon as they are a regulated facility.



New Product Treatment

How new products would be treated under TIER.

- **Approach**

- New products that have never been regulated under TIER before may be evaluated for emissions-intensive and trade exposure status
- Facilities with new products that can demonstrate use of best available emissions technology that is economically achievable with respect to emissions intensity can apply to create an HPB set at 100% of their average historical emissions intensity.
- The HPB would not be subject to the 1% annual tightening rate.
 - Facilities would be required to submit documentation to demonstrate use of best available emissions technology that is economically achievable with respect to emissions intensity.



Review Period

The formal period to review and update TIER on a regular frequency.

- **Approach**

- Establish formal policy review three years after initial implementation (to be completed by January 1, 2023).
- Subsequent reviews to occur at five-year intervals from first review.
- Key policy items subject to review at this time.
 - Including, but not limited to: high performance benchmarks, benchmark stringency, tightening rate, fund price, and compliance, reporting and assurance requirements.



Benchmarking

Determining emissions intensity
targets under TIER



Reference Years

Data years used to develop benchmarks.

- **Approach**

- Facility-specific and high performance product benchmarks will be based on 2013 to 2015 emissions intensity.
- Discretion to use alternate years in circumstances where emissions intensity in 2013 to 2015 years is not representative of normal operations.



Multi Product Facility Treatment

Treatment of facilities producing more than one product (other than electricity, heat, and hydrogen).

- **Approach**

- Set individual facility-specific benchmarks for each product or processing unit at a multi-product facility.
 - Separate emissions intensity benchmarks for each product, based on the facility's emissions and production data.
 - Enable the combination of multiple products into a single benchmark, for simplicity, where appropriate.
 - Alternative benchmarking approaches for refining, upgrading and natural gas processing can be used.



Cogeneration or Self-Generation of Electricity

Treating integrated and merchant cogeneration fairly.

- **Approach**

- Providing recognition for cogeneration efficiencies in electricity generation.
- Integrated cogeneration facilities
 - Treat cogeneration as separate facility for benchmark setting, with heat and electricity consumed on site assigned the HPB.
 - See Standard for Developing Benchmarks for additional details.
- Merchant cogeneration facilities
 - No need for benchmarking merchant cogeneration as benchmarks for industrial heat and electricity are already set.
 - Ensures crediting is equivalent between the merchant cogen / host facility and a comparable integrated cogeneration business model.



Emissions Scope

Emissions sources regulated
under TIER



Emissions Scope

Total Regulated Emissions include all direct emissions

- **Approach**

- All direct emissions within the facility boundary, except biomass CO₂ are included in Regulated Emissions
- Net exported CO₂ is included as an ‘emission’ and can generate emissions offsets when sequestered
- Allowable emissions are adjusted for indirect emissions associated with imported heat, electricity and hydrogen
- Aggregate facilities only include stationary combustion emissions



Indirect Emissions

Emissions associated with electricity, heat, or hydrogen are considered to ensure a level playing field between business models using the high-performance benchmarks for electricity, industrial heat, and hydrogen.

- **Benchmarking Approach**

- A system of emission adjustments to appropriately account for the use industrial heat, hydrogen, and electricity in the production of regulated products.

- **Compliance Approach**

- A system of emission allocations to appropriately account for the net import or export of industrial heat, hydrogen, and electricity.



Indirect Emissions

High performance benchmarks for indirect emissions sources:

- Electricity
 - 0.37 tonnes CO₂e per MWh
 - Based on the best gas-fired generation facility in Alberta
- Industrial Heat
 - 0.06299 tonnes CO₂e per GJ
 - Based on the emissions intensity of an 80% efficient natural gas reference boiler
- Hydrogen
 - 9.068 tonnes CO₂e per tonne hydrogen
 - Maintained from CCIR (based on the complexity-weighted barrel approach for refining and the emissions intensity of the best performing refinery).



Industrial Process Emissions

Direct emissions from chemical reactions other than combustion, where the primary purpose is not energy production.

- **Approach**

- Include industrial process emissions in the regulated emissions under TIER, but exclude them from any reduction requirement or tightening rate.
 - Include in facility-specific benchmarks at 100% facility-specific emissions intensity.
 - Include in HPBs at the average emissions intensity of top 10% performing facilities.



Biomass Emissions

Emissions originating from biomass sources.

- **Approach**

- CO₂ emissions from biomass to be excluded from the emissions threshold and emissions reduction requirement.
- Continue regulating methane and nitrous oxide emissions from biomass.
- Improve definition of biomass CO₂ emissions by including fermentation.



Oil Sands Area Fugitive Emissions

Emissions from mine faces and tailings ponds.

- **Approach**

- Include in the facility specific emission intensity baseline.
- Include in total regulated emissions when determining compliance obligation.



Aggregate Facility Emissions

Emissions from small conventional oil and gas facilities.

- **Approach**

- Include only stationary combustion emissions until regulatory review period.
- Include exported CO₂ from combustion sources
- CO₂ in regulated acid gas injection streams excluded



Compliance, Reporting & Assurance

Regulated facility requirements
and options



Compliance, Reporting & Assurance

- General Requirements:
 - Annual compliance reporting due on June 30 of the following year.
 - Quarterly reporting no longer required.
 - Facilities emitting greater than 1,000,000 tonnes CO₂e per year required to submit annual forecast of emissions, production, and credit usage.
 - Unused emission offset and emission performance credits generated under SGER and CCIR are eligible under TIER.
 - Credit expiry periods maintained from previous regulation:
 - Credits from 2014 and earlier expire in 2020
 - Credits from 2015 and 2016 expire in 2021
 - Credits from 2017 and forward have an eight-year expiry



Compliance, Reporting & Assurance

- General Requirements:
 - Third-party verification requirements remain consistent. Changes to verifier qualifications, such as accreditation and training, and reduced site visit requirements will improve verification processes for regulated facilities and the regulator.
 - Benchmark can be met by:
 - Reducing emissions intensity
 - Using emissions performance credits
 - Using Alberta-based emissions offsets
 - Paying into the TIER Fund



Credit Usage Limit

Maximum proportion of compliance that can be met with emissions performance credits or emissions offsets.

- **Approach**

- No more than 60% of a facility's compliance obligation can be met with emissions performance credits or Alberta-based emissions offsets.
- No more than 40% of a facility's compliance obligation can be met with emissions performance credits or Alberta-based emissions offsets from years prior to 2017.



Compliance Cost Containment

Support mechanism to provide relief to facilities experiencing economic hardship due to compliance costs.

- **Approach**

- A support mechanism for eligible facilities demonstrating economic hardship as a result of compliance costs incurred under TIER.
- Relief mechanisms available to eligible facilities:
 - Additional cost containment benchmark allocations.
 - Exception/removal of emissions credit limit to allow 100% credit payments.
 - Grant funding to support emissions reduction projects.
- Does not apply to aggregate facilities or sectors considered to have high cost pass through.
- Eligibility requires emissions reduction plan.



Impacts of Policy



Impacts of Policy

- It's anticipated that by transitioning to TIER, industry will save over \$330M in avoided compliance payments in 2020.
- Emissions outcomes are expected to be relatively unchanged since the \$30 price signal is preserved.
- Electricity transition and oil and gas market outcomes strongly affect emissions levels.



Next Steps and Important Dates



Next Steps and Important Dates

- November 2019
 - Conventional Oil and Gas Opt-in Workshop (date to be determined)
- December 1, 2019
 - Deadline for facilities opted-in to CCIR to opt-out of TIER for 2020 compliance year
- January 1, 2020
 - TIER replaces the CCIR
- September 1, 2020
 - Deadline for benchmark applications for 2020 compliance year
 - Deadline for opt-in for 2020 and 2021 compliance years
 - Deadline to apply to be designated as an aggregate facility for 2020



Next Steps and Important Dates

- Remaining CCIR compliance requirements:
 - For facilities emitting more than 1,000,000 tonnes CO₂e per year:
 - November 15, 2019 – Q3 compliance report due
 - November 30, 2019 – annual forecasting report due
 - For all regulated facilities:
 - March 31, 2020 – Final 2019 CCIR compliance report due



Additional Resources

- TIER Website
- TIER Fact Sheet
- Standard for Developing Benchmarks
- TIER Regulation

Questions?

