

Validation, Verification and Audit Workshop

Alberta Climate Change Office

December 19th, 2018



Agenda

- Regulatory Overview
- Overview of Validation, Verification and Audit
- Offsets Program
- Compliance:
 - Verification requirements for compliance reports and applications
 - Mandatory requirements under Part 1
 - Observations and areas of improvement
 - New requirements under CCIR
 - Total error and materiality assessment
 - Updated verification report template
 - Validation and audit requirements for cost containment program

Regulatory Overview

Regulatory Overview

- Carbon Competitiveness Incentive Regulation (Regulation) came into effect January 1, 2018
- Recent amendments in November 2018
- Facilities are subject to the Regulation if the facility emissions exceed 100 KT or facility opted in
- Facilities are required to submit verified annual compliance reports
- Forecasting facilities (≥ 1 MT of emissions) are required to submit forecasting and interim compliance reports. These reports do not require verification unless required by director
- Verification of compliance reports for forecasting facilities must include verification of the assertions for all four reporting periods
- Opt-in applications are not required to be verified, unless required by director
- Assigned benchmark applications are required to be verified
- Offset project reports must be verified when submitted for serialization

Standards

Regulation incorporates four standards:

1. Standard for Validation, Verification and Audit
 - Requirements for third party assurance providers (validators and verifiers) and auditors
2. Standard for Completing Greenhouse Gas Compliance and Forecasting Reports
 - Facility requirements for reporting and forecasting
 - Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and the Specified Gas Reporting Regulation
3. Standard for Establishing and Assigning Benchmarks
 - Requirements for benchmarks, transition allocations and cost containment
4. Standard for Greenhouse Gas Emission Offset Project Developers
 - Requirements for offset developers

Overview of Validation, Verification and Audit



Overview of Validation, Verification and Audit

- Standard for Validation, Verification and Audit:
 - Part 1 – Regulatory Details sets out the requirements that are binding to the third party assurance provider and auditor
 - Part 2 – Requirements for Validation, Verification and Audit provides guidance on validation, verification and audit process.
- Updates on the standard:
 - Qualifications of verification and validation team members
 - Materiality thresholds
 - Quantification of total error
 - Working paper and documentation requirements
 - Addition of validation and audit requirements for cost containment program
 - Updated terminology – third party assurance provider and auditor

Overview of Validation, Verification and Audit

Verification

- Required for compliance reports, benchmark application and emission offset project reports
- May be required for interim compliance reports and other information submitted, if requested by director
- Conducted by third party assurance providers (verifiers)

Validation

- Required for Emissions Reduction Plan (ERP) submitted as part of cost containment application
- Conducted by third party assurance providers (validators)

Audit

- Required for financial audits submitted as part of cost containment application
- Conducted by financial auditors

Overview of Validation, Verification and Audit

Objective

- Provide an opinion to the department on whether there are material errors in the assertion provided by the facility or project developer

Opinion

- Positive, Adverse, or Qualified

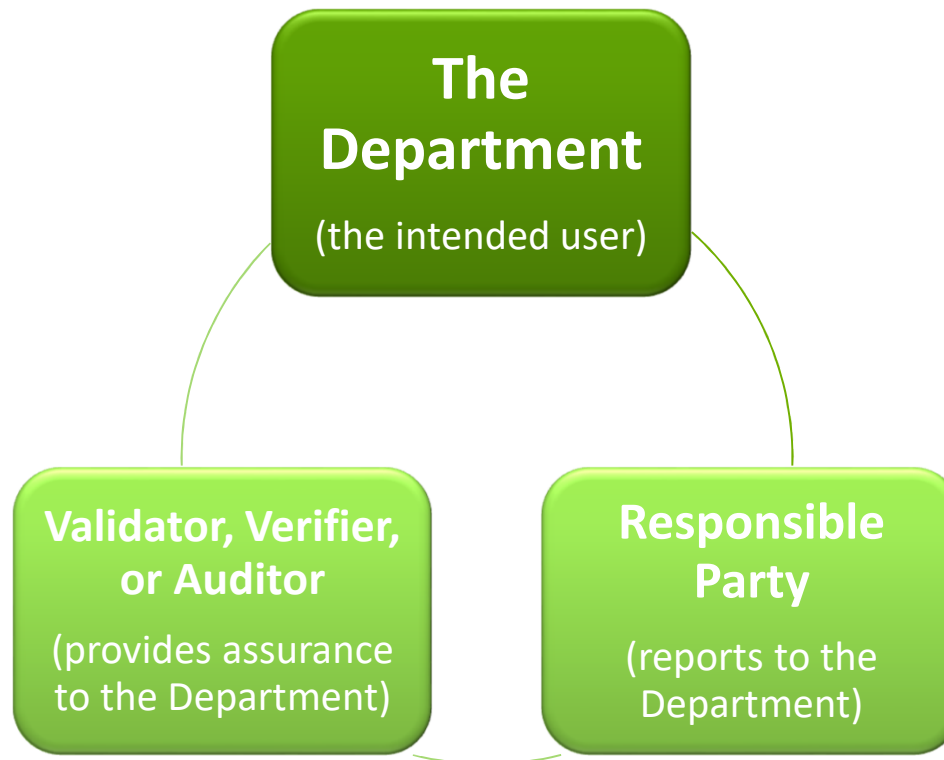
Materiality Threshold

- Defines the quantitative materiality thresholds
- Qualitative materiality based on professional opinion of third party assurance provider or auditor

Level of Assurance

- Reasonable Level of Assurance

Overview of Validation, Verification and Audit



Three Party Relationship

(adapted from ISO 14064-3 Specification with guidance for the validation and verification of greenhouse gas assertions, Figure A.1 — Roles and responsibilities)

Overview of Validation, Verification and Audit



Overview of Validation, Verification and Audit

Verifications and Validations:

- Designated Signing Authority (DSA):
 - A person who can bind the company
 - Meets the qualifications as the DSA
 - Can be the same individual as the lead verifier
- Lead Verifier/Validator:
 - Primary difference between lead verifier and DSA is ability to bind company
- Peer Reviewer:
 - Person must not have been involved with core verification activities that were conducted
 - Cannot be the same person as the lead verifier/validator or the DSA

Overview of Validation, Verification and Audit

Financial Audits:

- Lead Auditor:
 - A person who can bind the company
 - Must follow requirements in the standard and applicable regulation for auditor
- Independent Reviewer:
 - Person must not have been involved with core auditing activities
 - Cannot be the same person as the lead auditor

Emission Offset Verification

Standard for GHG Emission Offset Project Developers

- Version 1.0 issued December 2017, effective January 1, 2018
- Version 2.0 issued July 9, 2018: changes made between version 1.0 and 2.0 are effective July 9, 2018
 - Activity start date within 30 days of planning sheet submission to Registry
 - Second extensions are enabled
 - If a project ended in 2017 they have until the end of 2018 to apply for a second extension
 - May 1 project planning/subproject identification deadline for conservation cropping and NERP

Rules Related to Subprojects

What Part 1 Standard Says (paraphrased)	The verifiers responsibility
8(1) project developer must submit an updated planning (or master planning) sheet to Registry to add subprojects	Verifier must confirm that the project is listed in the planning sheet if it is being reported on.
8(2) when a project developer adds subproject through the above process the project is not eligible to generate offsets more than 30 days prior to the date the updated planning (or master planning) sheet is submitted.	Verifier must confirm that the activity start date is correct. This should include sampling activity start date evidence.
8(3) subprojects added to conservation cropping and NERP that are added after May 1 are not eligible to generate offsets in that year.	Verifier must confirm that the project is listed in the planning sheet by the appropriate date if it is being reported on.
8(4) Subprojects are not eligible to generate emission offsets prior to the activity start date or the offset start date	Verifier must confirm that the activity start date is correct. This should include sampling activity start date evidence.

Aggregated Project Planning/Reporting

Sample unique identifiers/serial numbers for accuracy

Sample activity start date evidence for accuracy

Ensure the assertion and the reporting sheets match

If the registry identifies errors with the reporting sheet, the assertion will be rejected and will require changes. To avoid delays and additional cost the verifier should run the tests (where possible) that will be conducted by the Registry.

- Ensure subprojects listed are accurate (yellow flag)
- Ensure subprojects that are reported on are listed in the planning sheets (blue flag)
- Ensure there are no duplicate projects listed in the reporting sheet (red flag)

Sample Planning and Reporting Sheets

- ACCO will be hosting a webinar in January 2019 for project developers and verifiers on use of the sheets
- Templates for the sheets are available on the Registry website:
- https://www.csaregistries.ca/albertacarbonregistries/eor_resources.cfm

Changes to Verification Standard

- 2 per cent materiality threshold for offset projects that have emission reductions of over 500,000 tCO₂e annually
- Sampling for aggregated projects is permitted (do not need to verify each subproject). This includes site visits – not every site needs to be visited, but a sample of sites are required
- Limit of 5 verifications and then a break of 2 consecutive project reports.

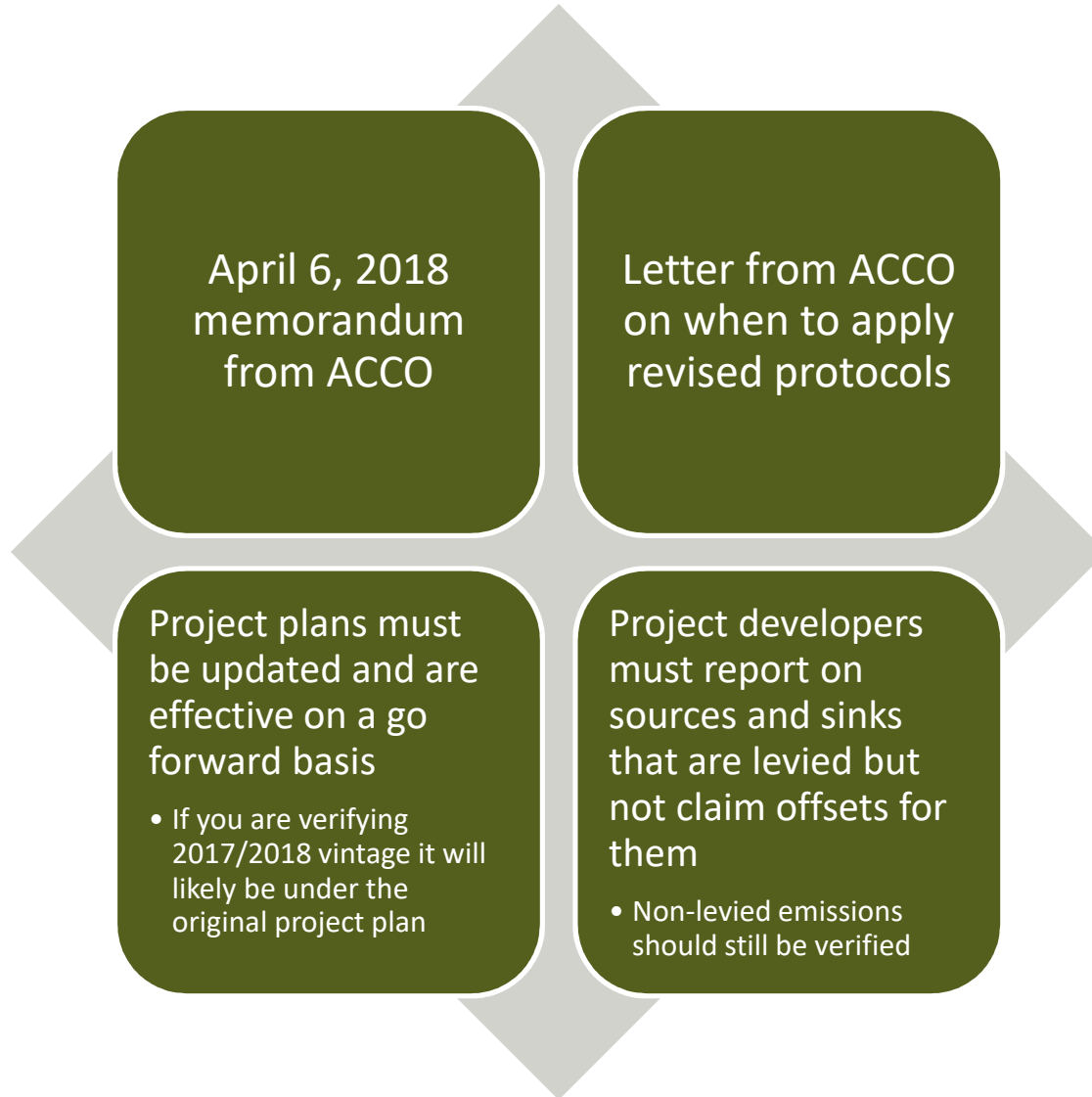
Re-verification follow-up forms

- Emission offset projects which have undergone government re-verification have follow-up forms issued to them by the ACCO (even in cases where errors are immaterial).
 - ACCO requires this follow-up form be signed by next verifier
- If you are conducting a verification of an offset project that has previously undergone a government re-verification you should request the follow-up form from the project developer
- You need to confirm the revised methods are being used and sign this form (separately from the verification report) and submit to ACCO
- See form examples next page

Example of follow up form

Report Information (recompiled report)		
Revised GHG Assertion (tCO2e):		
Verification Company:		
Verifier Check		
Re-verification Result #	Description of Correction	Are corrections complete and acceptable?
Verifier Signature		
I confirm that the proposed corrections were implemented in the revised project report and the errors that were identified in the previous re-verification were not present in this report.		
Verifier Signature:		
Date:		
<p>Instructions:</p> <ol style="list-style-type: none"> 1. Project developer is to complete the Project Information and Re-verification Results and Corrective Actions. 2. Project developer to sign and date the form and return it to ACCO. 3. During the three party re-verification the project developer is responsible for informing the verifier of the previous audit results, providing this form to the verifier, and asking the verifier to confirm that corrective actions have been implemented. 4. Verifier is responsible for checking that corrective actions have been implemented, provide a brief description of corrections and sign this form and return it to ACCO. 		

Alignment with carbon levy



Other Requirements

- Ensure that the project developer is meeting the requirements outlined in any memorandums issued from ACCO:
 - April 6, 2018 memo on alignment with levy
 - March 12, 2018 memo re: Energy Efficiency Alberta
- Ensure that the project developer is meeting the requirements outlined in any letter from ACCO:
 - Deviation letter,
 - Extension letter,
 - Clarification letter or email.

Verification Report Template

- Verification Report Template will be specific to offset projects
- Continue using the current Template until March 31, 2019
- New Template will be required on April 1, 2019
 - Minor changes (removal of facility language)
 - Alignment with new regulation and standard

Verification Requirements for Compliance Reports and Applications

Mandatory Requirements under CCIR

Verification Requirements for Compliance Reports and Applications

- All facilities (including opted-in facilities) regulated under CCIR must hire an independent third party assurance provider to verify their compliance report and/or benchmark application
- For the compliance report submitted on March 31 or benchmark application submitted by June 1, the facility is required to submit a verification report including:
 - Statement of Verification
 - Statement of Qualifications
 - Conflict of Interest Form
- Approx. 170 facilities require verifications for 2018 (compared with 136 in 2017)
- Verifications may take up to 6 to 8 weeks or more to complete

Part 1 – Mandatory Requirements

- Qualifications of Verification Team:
 - Designated Signing Authority (DSA) and Peer Reviewer:
 - DSA is considered to be the “verifier” under CCIR
 - Signing authority on behalf of employer (DSA Only)
 - Successfully completed training on ISO 14064-3
 - Minimum of 4 years of experience in verifying emission offsets or providing greenhouse gas verifications
 - Technical knowledge in the quantification of production, fuel usages, imported electricity, imported heat, imported hydrogen, carbon dioxide sequestration, and reductions of specified gases being verified
 - Technical knowledge of the process operations and production of the sector that the verification is being performed

Part 1 – Mandatory Requirements

- Verification Report
 - Verification plan including risk assessment and sampling plan
 - Verification procedures
 - List of findings: unresolved and resolved qualitative and quantitative findings
 - An assessment of the impact of unresolved qualitative and quantitative findings
- Verifiers
 - Verifiers may conduct up to 5 verifications for a facility's compliance report or a project developer's offset emissions report
 - After 5 verifications, the verifier must not verify at minimum two consecutive compliance reports or offset emissions project reports

Part 1 – Mandatory Requirements

Part 1 – Mandatory Requirements

- DSA must provide Statement of Verification that is adverse if:
 - the qualitative findings are deemed to be material
 - the verification was not conducted to a reasonable level of assurance

Materiality Threshold:

- the total error calculated in accordance with Equation 5-8 of section 5.1.1 of Part 2 exceeds:
 - 5 percent for a facility with total regulated emissions less than 500,000 tonnes of CO₂e and output based allocation less than 500,000 tonnes of CO₂e for the reporting period being verified
 - 2 percent for a facility with total regulated emissions equal to or greater than 500,000 tonnes of CO₂e for the reporting period being verified

Part 1 – Mandatory Requirements

Part 1 – Mandatory Requirements

Records and Information

- The following information can be requested by the director:
 - Working papers as described in sections 3.9 of Part 2;
 - Peer review documentation as described in section 5.4 of Part 2; and
 - Evidence of the qualifications and experience of the designated signing authority and peer reviewer as required under (1)(e) and (1)(f), respectively.

Record Retention

- Third party assurance provider must retain any records or information related to a verification report or validation report including working papers for 7 years from the date that the record or information are created

Observations and Areas of Improvement Verifications of Compliance Reports

Observations and Areas of Improvement

Observations:

- Inconsistencies in verification procedures conducted and content provided in verification reports
- Transparency or detail in findings and issues
- Selection of team members for verifications

Response:

- Updated standard to provide further clarity on requirements
- Updated verification report template
- Communicate with facilities on deficiencies identified with verifications

Observations and Areas of Improvement

Verification Plans:

- Objective
 - Scope
 - Facility boundaries, processes, and sources
 - Assertion
 - Materiality threshold
 - **Risk Assessment**
 - **Sampling Plan**
 - **Team Members**
 - Schedule
- The risk assessment should directly correlate with the sampling plan
 - Must demonstrate that medium and high risk areas are mitigated by verification procedures and sampling plan
 - Verification must rely heavily on substantive testing

Observations and Areas of Improvement

Execution of Verification Procedures:

- Insufficient substantive testing – must ensure that sufficient data is collected to mitigate risks
- Relying too much on facility controls (i.e. not digging into source documentation)
 - Many facilities rely on complex data management systems to collect and utilize data for compliance report
 - Expect verifiers to evaluate the data management system
 - Review calculations embedded in data management systems ([sample workbook chat](#))

Site Visits:

- Provide verification plan to facility prior to site visit (at least 24 hours)
- Sufficient time to understand the facility operations and emission sources before going on site

Observations and Areas of Improvement

Working Papers:

- An issues log that includes the third party assurance provider's or auditor's procedures, issues, findings, conclusions, information requests and documents reviewed.
- Re-calculations and analyses of emissions, production, financial data, and other reported parameters based on data and information provided by the responsible party (e.g. facility or proponent);
- List of material and immaterial discrepancies;
- Total error calculation based on discrepancies identified for various emission sources and parameters (section 5.1.1);
- Comparison of the calculated total error to the applicable materiality threshold;

Observations and Areas of Improvement

Working Papers (cont'd):

- Qualitative assessments and findings;
- Data and information provided by the responsible party that was analyzed by the third party assurance provider (e.g. tabulated data from third party fuel invoices, outputs from facility data control systems or accounting systems);
- Conflict of interest and impartiality assessment; and
- Experience and qualifications of validation, verification or audit team members.
- Working papers may be requested by the director for review

Observations and Areas of Improvement

Government Re-verifications:

- Approximately 10-15% of facilities are selected for re-verifications
- Verifiers are contracted by the government conduct the re-verifications,
- If material findings are determined, corrective actions are typically provided to the facility for the compliance report and/or on a move-forward basis
- Verifiers contracted by the facility are required to sign off indicating that the errors identified in the re-verification have been addressed in subsequent compliance report

New Requirements under CCIR

New Requirements under CCIR

- Quantification Methodologies
 - Standard for Completing GHG Compliance and Forecasting Reports and the Quantification Methodologies for the Carbon Competitiveness Incentive Regulation and Specified Gas Reporting Regulation
 - Assess whether facility adhere to the required methodologies for their facility
 - Did the facility obtain a deviation for mandatory requirements that were not met in the reporting period that is being verified
- Negligible Emissions
 - Ensure that facility's negligible emissions meet definition in Quantification Methodologies
 - Facility may use alternative methodologies for these emissions
 - Negligible emissions must be included in the facility's TRE
- Renewables and Opt-Ins
 - Facilities that will have a low TRE
 - Negligible emissions and TRE likely assessed against OBA
 - Renewable facilities must register and retired Renewable Energy Certificates (RECs) as part of the facility's compliance reporting

Total Error and Materiality Assessment

- Updated total error calculation specifically addresses some new parameters reported under the Regulation:
 - Production quantities
 - Indirects, imported and exported electricity, hydrogen, and industrial heat
 - Emissions from various source categories (e.g. stationary fuel combustion, flaring, fugitives, etc.)
 - CO₂ imported and exported
 - CO₂ consumed in urea production process
- For forecasting facilities, the total error must be assessed for the assertion for each reporting period

Total Error and Materiality Assessment

Total Error =

$$\left[\begin{aligned} &|\Delta_{DE}| + |\Delta_{imported\ CO2}| + |\Delta_{exported\ CO2}| + |\Delta_{urea\ CO2}| \\ &+ \sum_j |\Delta_{product,j} \times (BM_{product,j} + BTA_{product,j} + BCCA_{product,j})| \\ &+ \sum_k |\Delta_{indirect,k} \times BE_{indirect,k}| \end{aligned} \right] \div (TRE_{corrected}\ or\ OBA_{corrected})$$

- Use the higher value between the TRE or OBA for the denominator.

Total Error and Materiality Assessment

Step 1:

Determine individual discrepancies (Δ_i) for each reportable parameter

Step 2:

Determine the net discrepancy for each parameter:

$$\Delta_{product,j} = \sum_i \Delta_{i,product,j}$$

$$\Delta_{indirect,k} = \sum_i \Delta_{i,indirect,k}$$

$$\Delta_{import\ CO_2} = \sum_i \Delta_{i,imported\ CO_2}$$

$$\Delta_{exported\ CO_2} = \sum_i \Delta_{i,exported\ CO_2}$$

$$\Delta_{urea\ CO_2} = \sum_i \Delta_{i,urea\ CO_2}$$

$$\Delta_{source,n} = \sum_i \Delta_{i,source,n}$$

Step 3:

Determine the net and absolute discrepancy for the direct emissions:

$$|\Delta_{DE}| = \sum_n |\Delta_{source,n}|$$

$$\Delta_{DE,net} = \sum_n \Delta_{source,n}$$

Total Error and Materiality Assessment

Step 4: Calculate the net discrepancy for the TRE:

$$\Delta_{TRE} = \Delta_{DE,net} - \Delta_{imported\ CO2} + \Delta_{exported\ CO2} + \Delta_{ureaCO2}$$

Step 5: Calculate the corrected TRE, Product, Indirects, and OBA:

$$TRE_{corrected} = TRE_{reported} + \Delta_{TRE}$$

$$Product_{j,corrected} = Product_{j,reported} + \Delta_{product,j}$$

$$Indirect_{k,corrected} = Indirect_{k,reported} + \Delta_{indirect,k}$$

$$OBA_{corrected} = \sum_j \left(Product_{j,corrected} \times (BM_{product,j} + BTA_{product,j} + BCCA_{product,j}) \right) - \sum_k (Indirect_{k,corrected} \times BE_{indirect,k})$$

Total Error and Materiality Assessment

Step 6: Calculate the total error:

$$\left[|\Delta_{DE}| + |\Delta_{imported\ CO_2}| + |\Delta_{exported\ CO_2}| + |\Delta_{urea\ CO_2}| \right. \\ \left. + \sum_j |\Delta_{product,j} \times (BM_{product,j} + BTA_{product,j} + BCCA_{product,j})| \right. \\ \left. + \sum_k |\Delta_{indirect,k} \times BE_{indirect,k}| \right] \div (TRE_{corrected}\ or\ OBA_{corrected})$$

*For the denominator, use the higher of the corrected TRE or OBA

Step 7: Compare with Materiality Threshold

- For facilities equal to or greater than 500,000 tonnes CO₂e for TRE or OBA: 2% of Total Error
- For facilities less than 500,000 tonnes CO₂e for TRE or OBA: 5% of Total Error

Total Error and Materiality Assessment

Corrected Calculations (February 2019):

EXAMPLE: Verification of Company ABC's 2018 Compliance Report

Reported Values for 2018:

- TRE = 200,000
- Product A = 35,000 tonnes
- Flaring Emissions = 12,000 tonnes CO₂e
- Stationary Fuel Combustion Emissions = 160,000 tonnes CO₂e
- Imported CO₂ = 16,000 tonnes CO₂
- Imported Electricity = 60,000 MWh

*Note: Only emission sources with discrepancies are shown in the summary of reported values.

Benchmarks for 2018:

- Assigned Benchmark for Product A = 2.0 tonnes CO₂ per tonne of product
- Transition allocation for 2018 = 0.5 tonnes CO₂ per tonne of product

Total Error and Materiality Assessment

EXAMPLE: Verification of Company ABC's 2018 Compliance Report

Step 1: Identify discrete discrepancies:

$\Delta_{1, \text{Product A}}$	= - 2,500 tonnes of Product A
$\Delta_{1, \text{Flaring}}$	= 2,000 tonnes CO ₂ e
$\Delta_{1, \text{SFC}}$	= 12,000 tonnes CO ₂ e
$\Delta_{2, \text{SFC}}$	= - 5,200 tonnes CO ₂ e
$\Delta_{1, \text{Imported CO}_2}$	= - 5,500 tonnes CO ₂
$\Delta_{1, \text{Imported electricity}}$	= 1,000 MWh

Total Error and Materiality Assessment

EXAMPLE: Verification of Company ABC's 2018 Compliance Report

Step 2: Determine the net discrepancies for each parameter:

$\Delta_{Product A}$	=	- 2,500 tonnes
$\Delta_{Flaring}$	=	2,000 tonnes CO ₂ e
Δ_{SFC}	=	12,000 + (-5,200)
	=	6,800 tonnes CO ₂ e
$\Delta_{Imported CO2}$	=	- 5,500 tonnes CO ₂ e
$\Delta_{Imported Electricity}$	=	1,000 MWh

Total Error and Materiality Assessment

EXAMPLE: Verification of Company ABC's 2018 Compliance Report

Step 3: Calculate net and absolute error for DE:

$$\begin{aligned} |\Delta_{DE}| &= |2,000| + |6,800| \\ &= 8,800 \text{ tonnes CO}_2\text{e} \end{aligned}$$

$$\begin{aligned} \Delta_{DE} &= 2,000 + 6,800 \\ &= 8,800 \text{ tonnes CO}_2\text{e} \end{aligned}$$

Step 4: Calculate net discrepancy for TRE:

$$\begin{aligned} \Delta_{TRE} &= 8,800 - (- 5,500) \\ &= 14,300 \end{aligned}$$

Total Error and Materiality Assessment

EXAMPLE: Verification of Company ABC's 2018 Compliance Report

Step 5: Calculate the corrected parameters:

$$\begin{aligned} \text{TRE}_{\text{corrected}} &= 200,000 + 14,300 \\ &= 214,300 \end{aligned}$$

$$\begin{aligned} \text{Product A}_{\text{corrected}} &= 35,000 + (-2,500) \\ &= 32,500 \end{aligned}$$

$$\begin{aligned} \text{Imported electricity}_{\text{corrected}} &= 60,000 \text{ MWh} + 1,000 \text{ MWh} \\ &= 61,000 \text{ MWh} \end{aligned}$$

Total Error and Materiality Assessment

EXAMPLE: Verification of Company ABC's 2018 Compliance Report

$$\begin{aligned} \text{OBA}_{\text{corrected}} &= 32,500 \text{ tonnes Product A} \\ &\quad \times (2.0 + 0.5 \text{ tonnes CO}_2\text{e per tonne}) \\ &\quad - (61,000 \text{ MWh} \times 0.37 \text{ tonnes CO}_2\text{e per MWh}) \\ &= 58,680 \text{ tonnes CO}_2\text{e} \end{aligned}$$

Step 6: Calculate the total error:

$$\begin{aligned} \text{Total Error} &= [|8,800| + |-5,500| + \\ &\quad |(-2,500 \times (2.0 + 0.5 \text{ tonnes CO}_2\text{e per tonnes}))| + \\ &\quad |(1,000 \text{ MWh} \times 0.37 \text{ tonnes CO}_2 \text{ per MWh})| \\ &\quad \div [214,300 \text{ tonnes (TRE) or } 58,680 \text{ tonnes (OBA)}] \end{aligned}$$

Total Error = 9.76% (based on TRE)

Total Error and Materiality Assessment

EXAMPLE: Verification of Company ABC's 2018 Compliance Report

Step 7: Assess against Materiality Threshold

Conclusion:

- Company ABC is subject to 5% materiality threshold since TRE is less than 500,000 tonnes CO₂e
- Total error = 9.76% (based on the higher of TRE or OBA)
- Total error is greater than 5% which is considered to be material

Verification Report Template Compliance Reports

<<Verification Report Template Link>>

- Separate verification report template is used for offset project reports

Cost Containment Validation and Audit Requirements

Cost Containment

Validation and Audit Requirements

Validation of Emissions Reduction Plans (ERPs):

- Validation process is similar in process as a verification; however it is a forward looking process
- Validation is to be conducted at a reasonable level of assurance
- Requirements for ERPs are described in Standard for Assigning and Establishing Benchmarks

DSA must provide an adverse opinion if :

- The qualitative findings are deemed to be material
- The validation was not conducted to a reasonable level of assurance
- The emissions reduction plan does not reasonably demonstrate that the emissions reductions target will be achieved for the project period;
- The total error calculated in accordance with Equation 5-7 of section 5.5.1 of part 2 exceeds 5 percent if the corrected forecasted emissions intensity is greater than the reported forecasted emissions intensity.

Cost Containment

Validation and Audit Requirements

Audit of Financial Statements:

- Audit engagements are to be conducted to a reasonable level of assurance (unlike review engagements)
- The Lead Auditor must provide an adverse opinion if the total identified quantifiable errors, omissions or misstatements exceed:
 - 5 percent of the amount of products sold for a facility whose total regulated emissions is less than 500,000 tonnes of CO₂e for the period being audited; or
 - 2 percent of the amount of products sold for a facility whose total regulated emissions is equal to or greater than 500,000 of CO₂e for the period being audited;
- result in a difference in the facility sales ratio equal to or greater than 0.0006; or
- result in a difference in the facility profit ratio equal to or greater than 0.002.

Questions?

