Towards Sustainable Mining

Energy and Greenhouse Gas Emissions Management Protocol

Towards Sustainable Mining
Vers le développement minier durable

TSM ASSESSMENT PROTOCOL

A Tool for Assessing Energy Use and Greenhouse Gas Emissions Management Performance

Purpose

The purpose of the assessment protocol is to provide guidance to facilities in completing their evaluation of energy use and greenhouse gas (GHG) emissions management against TSM indicators. The assessment protocol sets out the general expectations for energy use and GHG emissions management as part of the TSM initiative.

As with any assessment of a management system, professional judgment is required in assessing the degree of implementation of a system indicator and the quality of management processes and intervention. Application of this protocol will therefore require a level of expertise in auditing and systems assessment and knowledge of and experience in the practice of energy use and GHG emissions management, including relevant regulatory regimes and requirements. This protocol assesses the level of implementation of energy use and GHG emissions management in support of the TSM initiative. It is not, of itself, a guarantee of the effectiveness of energy use and GHG emissions management activities.

Performance Indicators

Three performance indicators have been established:

1. Energy use and greenhouse gas emissions management systems
2. Energy use and greenhouse gas emissions reporting systems
3. Energy and greenhouse gas emissions performance targets

Materiality

Recognizing that energy use and GHG emissions are not a material business risk for all companies and facilities, a materiality threshold has been incorporated into the energy use and GHG emissions management protocol. Facilities whose GHG emissions (as a sum of Scope 1 and Scope 2 emissions) are less than 25kt of CO_2e or whose on-site energy usage is less than 250,000 GJ, are not required to report on indicators 1 or 3 of this protocol.

1. ENERGY USE AND GREENHOUSE GAS EMISSIONS MANAGEMENT SYSTEMS

Purpose

To confirm that systems are in place to manage energy use and GHG emissions. This indicator applies to facilities and/or business units for which energy use and GHG emissions are deemed to be material (see FAQs).

Energy Use and Greenhouse Gas Emissions Management Systems: *Assessment Criteria*

LEVEL	CRITERIA
C	No management system in place.
B	Basic energy use and GHG emissions management system established that includes: • Demonstrated senior management commitment to manage energy use and GHG emissions at the facility level. • Facility-level responsibility for energy use and GHG emissions assigned to department or individual (e.g., Energy Leader). • Established processes to determine energy consumption sources and associated GHG emissions on a defined frequency for sources accounting for substantial consumption and/or offering considerable potential for energy performance improvement and with a level of disaggregation by major process activity (e.g., mill, mine, smelter, refinery, etc.). • Identification and estimation of significant sources of non-energy GHG emissions. • Standard quantification and estimation methodologies used to convert energy and GHG emissions data into comparable units, including process emissions data. • Records of facility-level data are maintained.
A	Comprehensive energy use and GHG emissions management system established that includes these additional elements: • Facility or business unit has identified and annually reviewed what energy and emissions sources are material according to its established criteria. • Clear accountability for energy use and GHG emissions management assigned to operational managers. • Energy data is reviewed regularly and integrated into operator actions for energy intensive processes.

	• Actions and process controls related to energy use and GHG emissions are included in management systems for material sources. • General energy and GHG awareness training is provided to personnel with additional training for key personnel.
AA	• Energy use and GHG emissions are considered in business planning at the facility and/or business unit level. • Energy use and GHG emissions management system has been subject to internal or external verification.
AAA	Energy use and GHG emissions management system is integrated into a broader sustainable business strategy that includes at least two of the following: • Procurement and supply chain management policies that incorporate energy efficiency and GHG emissions reduction criteria. • Voluntary corporate investments in research and development, feasibility studies and/or demonstration of technologies and/or new processes that target energy efficiency and reduced GHG emissions. • Corporate investments in renewable energy projects and/or energy recovery projects. • Participation with communities of interest to improve energy efficiency and reduce GHG emissions (e.g., community events, environmental non-government organizations, government energy efficiency programs.

Energy Use and Greenhouse Gas Emissions Management Systems: *Frequently Asked Questions*

2. ENERGY USE AND GREENHOUSE GAS EMISSIONS REPORTING SYSTEMS

Purpose

To confirm that energy use and GHG emissions tracking and reporting are in place for internal use and for public reporting. This indicator applies to all facilities, whether energy use and GHG emissions are deemed to be material or not (see FAQs).

Energy Use and Greenhouse Gas Reporting Systems: *Assessment Criteria*

LEVEL	CRITERIA
C	No energy use or GHG emissions reporting in place.
B	Energy use and GHG emissions performance results reported at least annually to facility-level management.
A	Energy use and GHG emissions reporting occurs and includes: • Metrics that are clearly defined, consistently applied, and reported routinely to facility senior management to inform decision making. • At least annual public reporting of energy use and GHG emissions. • Where offsets are used by the facility or business unit to meet commitments, public reporting includes: - the amount of offsets as a percentage of total emissions generated at the facility and/or at the business unit level, and - the source and nature of the accreditation of offsets.
AA	• Energy use and GHG emissions reporting is internally verified. • At least annual public reporting of performance[1] (against target). • Overview of corporate energy and GHG emissions management strategy is publicly available.
AAA	• Energy use and scope 1 and 2 GHG emissions reporting is externally verified. • Some scope 3 GHG emissions are included in reporting.

[1]The combination of energy consumption and mineral production data can significantly compromise a company's position vis-à-vis its competition, particularly in instances where there are relatively few global competitors (e.g. iron ore). This may affect a company's ability to disclose certain types of information on energy use and GHG emissions. Necessary limits on public reporting for competitive reasons should not prevent a facility from satisfying Level A criteria. Where information is not disclosed, reporting should include a list of information omitted and a reason for the omission.

Energy Use and Greenhouse Gas Reporting Systems: *Frequently Asked Questions*

3. ENERGY AND GREENHOUSE GAS EMISSIONS PERFORMANCE TARGETS

Purpose

To confirm that energy and GHG emissions performance targets have been established at each facility or business unit[2].

This indicator applies to facilities and/or business units for which energy use and GHG emissions are deemed to be material (see FAQs).

Energy and GHG Emissions Performance Targets: *Assessment Criteria*

LEVEL	CRITERIA
C	No energy or GHG emissions performance targets have been set for the facility and/or business unit.
B	Energy and GHG emissions performance targets have been set for the facility and/or the business unit, and performance strategies have been developed that are consistent with energy policy and/or commitments to improve performance.
A	• Energy and GHG emissions performance targets for the facility and/or business unit are met in the reporting year. • In establishing objectives and targets, the facility or business unit has considered significant energy uses identified in its energy management system as well as its financial, operational and business conditions, legal requirements, technological options, the views of potentially affected parties and opportunities to improve energy performance.
AA	• The facility and/or business unit has met its energy and GHG emissions performance targets for three of the past four years. • Energy and GHG emissions performance have been internally or externally verified.
AAA	• Some performance strategies or projects meet an additionality test (See FAQ). • The energy and GHG emissions target strategies include at least two of the following: - ROI threshold set to determine criteria for implementing energy efficiency or GHG emissions reduction projects and demonstrate implementation.

2 Recognizing that climate change is a global issue and that the geographic location/source of GHG emissions is irrelevant, facilities and/or business units are encouraged to set performance targets that achieve the greatest reductions at the lowest cost, regardless of location.

	- Continuous improvement targets set to demonstrate reductions based on historical trends. - Investments in new technologies and/or new processes that have resulted in meaningful reductions.

Energy and GHG Emissions Performance Targets: *Frequently Asked Questions*

APPENDIX 1: FREQUENTLY ASKED QUESTIONS

Protocol-Specific Guidance

1. Can corporate documentation be used to demonstrate facility-level commitment?

Written senior management commitment at the corporate level (e.g. a corporate policy) can be accepted as evidence during a facility-level self-assessment or TSM external verification if it is accompanied by evidence that the corporate commitment is being applied and adhered to at the facility level. There must be evidence of a link between the corporate documentation and facility-level practices. If this linkage is established, then the corporate documentation can be accepted as evidence of facility-level commitment.

2. What are standard quantification and estimation methodologies?

Standard quantification and estimation methodologies are conversion factors, process equations or process simulations that have been accepted by the federal/provincial/territorial harmonized reporting process for energy use and GHG emissions.

3. What is a major process activity?

This can be defined as a significant component of the production process that can be easily bounded and whose consumption of energy and GHG emissions can be accurately measured.

4. What is meant by "energy data is reviewed regularly and integrated into operator actions for energy intensive processes"?

The key energy management principle applied in this indicator is that floor-level operators are managing energy consumption as a consumable of (or input to) the production process. This means that, energy use for energy intensive process may be metered and controlled by technologies and operators that operate that process. Therefore, information about energy use must be available on a frequency that enables the operator to optimize energy consumption. Examples include maintaining a temperature range and optimizing the speed of a variable speed pump.

5. What is meant by "actions and process controls related to energy use and GHG emissions are included in management systems for material sources"?

Operator actions related to energy use and GHG emissions are typically included in the operator's job procedures. In the situation where the GHG emissions are directly related to energy use, then energy-related job procedures act as a proxy for GHG emissions control procedures. Examples include procedures to identify and repair compressed air leaks as part of the operation manual for air compressors and energy saving steps as part of the start-up procedures of a large piece of equipment.

Where GHG emissions are a direct result of energy use (e.g. GHG emissions from the consumption of natural gas in a direct fired boiler, or emissions from the consumption of diesel by a fleet of mobile mining equipment), then the control of energy use can be used as a proxy for the control of GHG emissions. With the application of the appropriate conversion factors or quantification protocols, controlled energy performance can be expressed as GHG emissions performance. In these instances, information on GHG emissions does not need to be present on the operator's control interface, but can be inferred from the energy use information.

6. Can a facility with distinctly different production processes have separate energy/GHG emissions performance targets (i.e. one for each production process)?

Yes, particularly when a facility uses intensity-based targets. It has been pointed out that a single indicator may not be sufficient in the case of an open pit facility that is comprised of the pit and a concentrator, or where smelters are processing an increasing amount of recycled material. It may be necessary to have multiple targets at a single facility where the dynamics of the production processes are so different that one common target is not adequately representative or a consumption driver for each production process.

7. If a facility uses multiple targets, does it have to meet all targets before it achieves a Level A rating?

If a company uses multiple targets at various functions and levels within the facility or business unit, it does not need to meet all of the targets in order to achieve a Level A rating. However, the facility must demonstrate that one of the following approaches have been undertaken:

- **Designated targets for the purposes of TSM:** As the facility or business unit sets energy use and/or GHG emissions performance targets, it may choose to designate which targets are established for the purposes of TSM. The designation of targets must take place by the end of the first quarter in the reporting year and the rationale for each target must be documented. The facility or business unit must meet all designated targets in order to achieve a Level A rating.
- **Net target:** Facility or business unit may choose to set net targets. In this case, the facility does not need to meet all targets to achieve a Level A as long as it can demonstrate that the net target has been achieved. For example, a facility could have an overall energy reduction target set, as well as targets for various sources. The facility could do better than its target for diesel, but fall short for electricity consumption. If the net reduction is met, the facility would achieve a Level A.
- **Materiality analysis of targets:** The facility or business unit may choose to determine a materiality threshold for its targets. This would require the company to define the criteria to determine materiality as well as designate which targets are material. In the case, the facility would have to meet all material targets in order to achieve a Level A.

8. In some instances, underground mines are developing new production zones at much greater depth and the energy intensity becomes greater because of the extra energy required for ventilation, pumping, cooling, hoisting and sustaining the infrastructure at depth. What methodology can be used to create a practical target in these cases?

A zero-based energy budget can be used to determine the new intensity level as well as the performance indicator and target. The zero-based energy budget is established by estimating baseline consumptions for each mining activity (e.g. ventilation, pumping, lighting, hoisting) at depth for a convenient period of time, and then determining the expected total monthly and annual consumptions relative to forecasted production levels. Typically, operations monitor total monthly consumption versus the estimated consumption budget. However, the total estimated monthly consumption can be divided by the forecasted production to determine monthly intensity targets. Actual performance can then be tracked throughout the year versus these target intensities.

9. What dictates whether energy use and/or GHG emissions are material to a facility or business unit?

Energy use and/or GHG emissions are to be considered material for a facility and/or business unit if it:

- Exceeds 25kt (GHG) or uses more than 250,000GJ.
- Elects to define energy use and/or GHG emissions as material.

10. What is considered a material fuel source?

For the purpose of this protocol, facilities or business units must define the criteria to determine whether a fuel source is material in their management system. One such example of a material threshold for fuel sources is anything above 10% of the total fuel consumption is to be considered material. This 10% threshold would apply to miscellaneous energy use at the facility, which does not have a direct or indirect impact on its ability to create, preserve or erode economic, environmental and social value for itself and its stakeholders.

If a facility so chooses or fails to define materiality, all fuel sources will be assumed to be deemed material.

11. What is the threshold for significant sources of non-energy GHG emissions?

Facilities or business units must identify and estimate significant sources of non-energy GHG emissions over 100 tonnes of CO_2 eq.

12. What constitutes an energy use or GHG emissions performance target?

A facility or business unit may designate one or more of the following types of energy use or GHG emissions performance targets:

- **Volume target:** Volume refers to an absolute amount of energy consumed or carbon dioxide equivalent (CO_2 eq) emitted by the facility. Such targets are independent of production. Typically volume targets are defined relative to current or historical data (e.g. 5% reduction from 2007 baseline).
- **Intensity targets:** Intensity refers to the ratio of consumption or emissions relative to production. This is often referred to as “normalizing” the data. Examples include emissions or energy use per tonne of copper cathode produced or per tonne of ore processed
- **Activity-based target:** An activity-based target is an established target where future energy consumption or GHG emissions will be reduced or avoided due to a specific activity. Such targets could include initiatives or projects that lead to energy not being consumed that would otherwise be consumed if the project had not been implemented. Where these activity-based targets span multiple years before a reduction or avoidance is realized, please refer to FAQ #18 for more information.

Control Target: A control target establishes a level or measure of effectiveness of a control over an activity that is linked to either the consumption of energy or the release of GHGs. A control may include operational limits on production equipment or administrative requirements on various mining activities. Examples include:

- Conformance with operational limits for unit operations that are key consumers of energy or emitters of GHG emissions (e.g. 100% conformance with operating within the upper and lower temperature limits in a dryer)
- Compliance with an administrative control (e.g. 95% compliance with a no-idle policy)

13. What should be considered during the process of selecting targets?

When selecting targets, environmental, economic, and social issues should be taken into consideration. Below is a list of some areas a facility or business unit may want to consider:

- Financial criteria and priorities
- Alternative energy sources
- Maintenance and infrastructure needs
- Operational requirements and constraints
- Quality and appropriateness of energy resources
- Environmental impacts
- Safety and health issues
- Available human and technical resources
- Its energy management system including areas of significant use and drivers
- Life of mine

Targets should be:

- Ambitious, so as to commit the organization to continual improvement;
- Realistic, so that they can be achieved within specific time limits;
- Specific and measurable.

14. Can offsets be used to meet performance targets?

Yes, performance targets can be met by a combination of on-site reductions and offsets (including performance credits). However, if offsets have been used to meet targets, the percentage and source of offsets used must be clearly documented and their use should not exceed any regulatory caps that may be in place for a facility or business unit.

15. Do targets have to apply to the entire facility or business unit?

No. Some targets may apply to equipment (e.g. specific piece of equipment), while others may address the energy consumption of departments, training or energy awareness or additional measuring and monitoring.

16. How can a facility or business unit express energy reduction targets?

Energy use and GHG emissions reduction targets can be expressed either as absolute energy savings attributable to a given initiative or through performance improvement metrics.

17. If a business unit target is achieved by realizing reductions at a single facility, do all facilities in that business unit get credit for the reduction?

Yes, If an energy use and GHG emissions management system designates a business unit level target that calls for a defined emissions reduction, and the specified reduction target for the entire business unit is achieved by reducing emissions at one facility, then all facilities listed in that business unit are to receive credit for achieving the target. The climate makes no distinction as to where a tonne of GHGs come from and, as such, this protocol encourages the most cost-effective reduction, rather than reductions across all facilities. This principle is consistent with the principles underlying carbon pricing policies such as cap-and-trade, in that the intent is to establish a price on carbon that should encourage companies to implement the lowest cost opportunities.

18. How is progress against a multi-year emissions target and energy efficiency plan assessed?

A multi-year target is an energy use or GHG emissions target that specifies a certain performance over a defined number of years (e.g., a 20% reduction over a three year period). In such a case it is difficult to determine if a facility is meeting expectations toward the target if progress is not linear. The target may make sense for a facility or business unit that is implementing a multi-year capital plan or infrastructure upgrade that will result in emissions reductions and/or energy savings only when the final plan is complete. In such a case, an action plan outlining the specific steps that will be implemented each year until the plan is complete should be used to assess progress. Such actions may include, but are not limited to, new operating procedures to be implemented, new equipment to be purchased and installed, or new processes to be commissioned. Actions in the plan should be specific and measurable and should clearly contribute to achieving the reduction specified in the multi-year plan. For a facility or business unit to achieve a Level A under indicator 3, it must be able to demonstrate that previously-declared annual milestones for the current year of a multi-year target have been achieved in the reporting year. Energy efficiency plans must be made on a cycle of no more than three years.

19. Can investments in renewable energy that provide benefits of offsets for regulatory compliance fulfill the requirements of corporate investments under indicator 1 Level AA?

Yes.

20. Can a facility or business unit develop a single plan incorporating both energy use and GHG emissions management?

Yes. The vast majority of GHG emissions produced as a result of mining are associated with burning fossil fuels and consuming energy. Based on this fact, many facilities will manage GHG emissions by managing their energy consumption first. As such, it is very appropriate for facilities or business units to develop a single plan to address both energy and GHG emissions. It is also appropriate for facilities or business units to establish a single reporting mechanism for both energy use and GHG emissions as well as reduction targets focused only on energy reductions where those reductions lead directly to GHG emissions reductions. Regardless of whether a facility or business unit creates a single plan or separate one, non-combustion emissions should be included, where appropriate.

21. What are Scope 1, Scope 2 and Scope 3 emissions?

Scope 1 emissions: the total global direct emissions from sources owned or controlled by the reporting facility or business unity.

- Stationary combustion;
- Mobile combustion;
- Process emissions; and
- Fugitive emissions.

Scope 2 emissions: indirect GHG emissions that the facility or business unit has caused through its consumption of energy in the form of electricity, heat, cooling or steam.

Scope 3 emissions: indirect emissions that arise as a consequence of a facility or business unit's activities from sources that are owned or controlled by others. (Carbon Disclosure Project)

Verification

22. What is verification?

Verification is the systematic, independent and documented process for the evaluation of an energy or GHG assertion (for example, related to management systems, reporting systems, or performance) against agreed verification criteria. (Adapted from ISO 14064: 2006.)

Definition of Key Terms

23. What does "business unit" mean?

Business Unit: The energy use and GHG emissions management system allows a company to set targets at both facility and business unit levels. For the purpose of this protocol, a business unit is defined as a logical element or segment of a company representing a specific business function or a definite place on the organizational chart, under the domain of a manager, or a functional geographic area. This may include, but is not limited to, a series of mines located in a defined physical area, a series of mines producing the specific product, or the combination of a mine and smelter. For the purpose of this protocol, a business unit is defined by the company but requires a documented rationale for why two or more facilities have been grouped together in the business unit.

24. What does "offset" mean?

Offset: a unit of carbon dioxide-equivalent (CO2e) that is reduced, avoided, or sequestered to compensate for emissions occurring elsewhere, in this case, at a mine or smelter. Offsets work in a financial system where, instead of reducing its own carbon use, a company can comply with emissions caps by purchasing an offset from an independent organization that completed and certified an emissions reduction, avoidance or sequestration project. For the purpose of TSM, an offset must be independently verified by an accredited body, fungible, and must pass a credible additionality test.

25. What does "defined frequency" mean?

Defined frequency: As defined for each material fuel source in the energy use and GHG management system.

26. What does "established criteria" mean?

Established criteria: As defined in the energy use and GHG management system.

27. What does "additionality" mean?

Additionality: The Emission Offset Regulation defines additionality in terms of the baseline emissions against which a project's emission reductions are estimated:

"...the baseline scenario will result in a conservative estimate of the greenhouse gas reduction to be achieved by the project considering... existing or proposed regulatory requirements, provincial or federal incentives...including tax incentives or grants...the financial implications...of...action referred to in the baseline...any other factor...to justify the claim that the baseline scenario is likely to occur if the project is not carried out"

- (Guide to Determining Project Additionality, Pacific Carbon Trust)

APPENDIX 2: TSM SELF ASSESSMENT CHECKLIST

Energy Use and Greenhouse Gas Emissions Management

Facility Name:		Company Name:	
Assessed By:		Date Submitted:	

Supporting Documentation / Evidence:	
NAME OF DOCUMENT	**LOCATION**

Interviewees:			
NAME	**POSITION**	**NAME**	**POSITION**

	QUESTION	Y	N	NA	DESCRIPTION & EVIDENCE
INDICATOR 1: ENERGY USE AND GREENHOUSE GAS EMISSIONS MANAGEMENT SYSTEMS					
Indicator 1 Level B	Has a basic energy use management system established that includes: • demonstrated senior management commitment to manage energy use and GHG emissions at the facility level?				
	• facility-level responsibility for energy use and GHG emissions assigned to department or individual (e.g.., Energy Leader)?				
	• established processes to determine energy consumption sources and associated GHG emissions on a defined frequency for sources accounting for substantial consumption and/or offering considerable potential for energy performance improvement and with a level of disaggregation by major process activity (e.g., mill, mine, smelter, refinery, etc.)?				
	• identification and estimation of significant sources of non-energy GHG emissions?				
	• standard quantification and estimation methodologies used to convert energy and GHG emissions data into comparable units, including process emissions data?				
	• records of facility-level data are maintained?				
	If you have answered "Yes" to all of the Level B questions, continue to the Level A questions. If you have not answered "Yes" to all of the Level B questions, assess the facility as a Level C.				
Indicator 1 Level A	Has a comprehensive energy use and GHG emissions management system established that includes these additional elements: • facility or business unit has identified and annually reviewed what energy and emissions sources are material according to its established criteria?				
	• clear accountability for energy use and GHG emissions management assigned to facility managers?				
	• energy data is reviewed regularly and integrated into operator actions for energy intensive processes?				
	• actions and process controls related to energy use and GHG emissions are included in management systems for material sources?				

	QUESTION	Y	N	NA	DESCRIPTION & EVIDENCE
	• general energy and GHG awareness training is provided to personnel with additional training for key personnel?				
	If you have answered "Yes" to all of the Level A questions, continue to the Level AA questions. If you have not answered "Yes" to all of the Level A questions, assess the facility as a Level B.				
Indicator 1 Level AA	• Can the facility and/or business unit demonstrate that energy use and GHG emissions are considered in business planning?				
	• Has the energy use and GHG management system been subject to internal or external verification?				
	If you have answered "Yes" to all of the Level AA questions, continue to the Level AAA questions. If you have not answered "Yes" to all of the Level AA questions, assess the facility as a Level A.				
Indicator 1 Level AAA	Is the energy use and GHG emissions management system integrated into a broader sustainable business strategy that includes at least two of the following: • procurement and supply chain management policies that incorporate energy efficiency and GHG reduction criteria?				
	• voluntary corporate investments in research and development, feasibility studies and/or demonstration of technologies and/or new processes that target energy efficiency and reduced GHG emissions?				
	• corporate investments in renewable energy projects and/or energy recovery projects?				
	• participation with communities of interest to improve energy efficiency and reduce GHG emissions (e.g., community events, environmental non-government organizations, government energy efficiency programs?)				
	If you have answered "Yes" to all of the Level AAA questions, assess the facility as a Level AAA. If you have not answered "Yes" to all of the Level AAA questions, assess the facility as a Level AA.				
	ASSESSED LEVEL OF PERFORMANCE FOR INDICATOR 1				**Level: _____**

	QUESTION	Y	N	NA	DESCRIPTION & EVIDENCE
INDICATOR 2: ENERGY USE AND GREENHOUSE GAS EMISSIONS REPORTING					
Indicator 2 Level B	Is a basic energy use and GHG emissions reporting established that includes: • facility-level reporting for energy use and GHG emissions on a pre-determined frequency?				
	• energy use and GHG emissions performance results are reported annually at the facility level to management?				
	If you have answered "Yes" to all of the Level B questions, continue to the Level A questions. If you have not answered "Yes" to all of the Level B questions, assess the facility as a Level C.				
Indicator 2 Level A	Does comprehensive energy use reporting occur and does it include: • Metrics that are clearly defined, consistently applied and reported on a pre-determined frequency at the facility level to facility senior management in order to inform decision making?				
	• annual public reporting of energy use and GHG emissions?				
	▪ Where offsets are used by the facility or business unit to meet commitments, does public reporting include: - the amount of offsets as a percentage of total emissions generated at the facility and/or at the business unit level; and - the source and nature of the accreditation of offsets?				
	If you have answered "Yes" to all of the Level A questions, continue to the Level AA questions. If you have not answered "Yes" to all of the Level A questions, assess the facility as a Level B.				
Indicator 2 Level AA	▪ Is the energy use and GHG emissions reporting internally verified?				
	▪ Annual public reporting of performance (against target)?				
	▪ Is the overview of the corporate energy use and GHG emissions management strategy publicly available?				
	If you have answered "Yes" to all of the Level AA questions, continue to the Level AAA questions. If you have not answered "Yes" to all of the Level AA questions, assess the facility as a Level A.				

	QUESTION	Y	N	NA	DESCRIPTION & EVIDENCE
Indicator 2 Level AAA	• Are the energy use and scope 1 and 2 GHG emissions reporting externally verified?				
	• Are the energy use and scope 1 and 2 GHG emissions reporting externally verified?				
	If you have answered "Yes" to all of the Level AAA questions, assess the facility as a Level AAA. If you have not answered "Yes" to all of the Level AAA questions, assess the facility as a Level AA.				
	ASSESSED LEVEL OF PERFORMANCE FOR INDICATOR 2				**Level: _____**

	QUESTION	Y	N	NA	DESCRIPTION & EVIDENCE
INDICATOR 3: ENERGY AND GREENHOUSE GAS EMISSIONS PERFORMANCE TARGETS					
Indicator 3 Level B	Have energy and GHG emissions performance targets been set for the facility and/or the business unit, and performance strategies been developed that are consistent with energy policy and/or commitments to improve performance?				
	If you have answered "Yes" to all of the Level B questions, continue to the Level A questions. If you have not answered "Yes" to all of the Level B questions, assess the facility as a Level C.				
Indicator 3 Level A	• Have the energy use and GHG emissions performance targets for the facility and/or business unit been met in the reporting year?				
	• In establishing objectives and targets, has the facility or business unit considered significant energy uses identified in its energy management system, as well as its financial, operational and business conditions, legal requirements, technological options, the views of potentially affected parties and opportunities to improve energy performance?				
	If you have answered "Yes" to all of the Level A questions, continue to the Level AA questions. If you have not answered "Yes" to all of the Level A questions, assess the facility as a Level B.				
Indicator 3 Level AA	• Has the facility and/or business unit met its energy use and GHG emissions performance targets for three of the past four years?				
	• Have the energy use and GHG emissions performance been internally or externally verified?				
	If you have answered "Yes" to all of the Level AA questions, continue to the Level AAA questions. If you have not answered "Yes" to all of the Level AA questions, assess the facility as a Level A.				

	QUESTION	Y	N	NA	DESCRIPTION & EVIDENCE
Indicator 3 Level AAA	Do some performance strategies or projects meet an additionality test?				
	Does the energy use and GHG emissions target strategies include at least two of the following: • A ROI threshold that has been set to determine criteria for implementing energy efficiency or GHG reduction projects and demonstrate implementation? • Continuous improvement targets set to demonstrate reductions based on historical trends? • Investments in new technologies and/or new processes that resulted in meaningful reductions?				
	If you have answered "Yes" to all of the Level AAA questions, assess the facility as a Level AAA. If you have not answered "Yes" to all of the Level AAA questions, assess the facility as a Level AA.				
	ASSESSED LEVEL OF PERFORMANCE FOR INDICATOR 3				**Level: _____**

For more information about the TSM initiative, visit:

The Mining Association of Canada
www.mining.ca/tsm

Mining Association of British Columbia
www.mining.bc.ca/tsm

Quebec Mining Association
www.amq-inc.com

Finnish Mining Association
www.kaivosvastuu.fi/in-english

The Argentinean Chamber of Mining Entrepreneurs (CAEM)
www.caem.com.ar/hms/

Botswana Chamber of Mines
www.bcm.org.bw