

# **Ontario Emissions Trading Code**

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**Emission Reduction Credit creation, recording and transfer rules, rules for renewable energy projects and conservation projects, and rules for the operation of the Ontario Emissions Trading Registry**

**Air Policy and Climate Change Branch**

**Ministry of the Environment**

**Ontario**

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# 1. Introduction

## Overview of the Ontario Emissions Trading Code

The Ontario Emissions Trading Code (the “Code”), which includes all Appendices and Schedules, applies to Proponents applying to create Emission Reduction Credits (“ERCs”), to Proponents holding ERCs or Set-Aside Reductions (“SRs”), to Proponents applying for approval of SRs, to Proponents who have received emission allowances, to the operator of the Ontario Emissions Trading Registry (the “Registry”), and to persons who are applying for emission allowances for renewable energy projects and conservation projects under section 12 or 15 of the Regulation.

The Code is adopted by Ontario Regulation 397/01 and Ontario Regulation ###/05 governing emissions trading made under the Environmental Protection Act (the “Regulations”) and sets out specific requirements persons and Proponents must follow. The contents of this Code may change from time to time due to Ministry of the Environment (“the Ministry”) review. When changes are made, a notice of amendment will be published in the *Ontario Gazette* or on the *Environmental Bill of Rights Registry*.

The Code describes the rules for the creation and transfer of ERCs and SRs. It also sets out the rules for the operation of the Registry that has been created to provide the public with information about the Emission Trading program.

Projects that are intended to be eligible to receive emission allowances in connection with a renewable energy project or conservation project shall adhere to the procedures and requirements set out in this Code which determine their eligibility to claim a portion of the set-aside and the amount of that claim.

## 2. The Ontario Emission Trading Registry

### 2.1 General

The Registry has been established to provide notice to the public of the distribution and retirement of NO, NO<sub>x</sub> and SO<sub>2</sub> emission allowances and of the creation and retirement of NO, NO<sub>x</sub> and SO<sub>2</sub> ERCs. It also provides public access to all documentation submitted in support of an application to create an ERC, or to have an SR approved, and provides an opportunity for persons to comment on those documents. Documentation includes the Protocol, the Emission Reduction Report (“ERR”), and the Verification Report.

All documents submitted by Proponents in respect of allowances, Emission Reductions (“ERs”), ERCs and SRs shall be submitted for recording on the Registry by e-mail in pdf format. Comments regarding Proponents’ documents may be submitted for recording on the Registry by registered mail, courier, fax, or e-mail. All documents received by the operator of the Registry for recording on the Registry shall be recorded within 7 days of receipt by the operator of the Registry, unless specified otherwise in this Code.

Proponents seeking to create ERCs from emission reductions achieved as a result of an emission reduction project, and Proponents seeking to have an emission reduction from a renewable energy project or energy conservation project recognized as a Set-Aside Reduction (“SR”), shall submit all documentation supporting the creation of the ERC or the SR, which shall include the Protocol, the Emission Reduction Report (for each 12 month ER period), and the Verification Report (for each 12 month ER period), to the Registry.

A Proponent is a person seeking to create an ERC, to obtain an approval of an SR, to apply for a set-aside allowance, to retire an ERC or an allowance, or who is a holder of emission allowances, ERCs or SRs. All Proponents must establish an account on the Registry, by accessing the registry on-line, prior to initiating any submissions, transactions or applications.

Notwithstanding that ERs or ERCs have been recorded on another registry or in another jurisdiction, the Proponent must submit all the documents listed above in support of an application to create an ERC or for approval of a SR.

Upon completion of a review by the Registry, the documents shall be recorded on the Registry for 30 days for public review and comment.

At any time after the end of the 30 day public review and comment period, the Proponents seeking to have their emission reductions used to create ERCs, or to have their emission reductions from renewable energy projects or energy conservation projects recognized as SRs, shall submit an application electronically on-line using the application feature of the Registry. All documentation supporting the creation of the ERC, or the approval of the SR, shall be submitted with the application, and shall include the Protocol, the Emission Reduction Report and the Verification Report, as well as copies of the comments from the public that have been submitted to and recorded on the Registry in the course of the public review. All proponents shall make application electronically using the application feature of the Registry.

Further information on applications for the set-aside allowances appear in Section 4.10 of the Code.

Within 30 days of receiving the application the Director shall either approve or reject the application to create ERCs or approve or reject the SRs. A decision of the Director to approve or reject an application to create ERCs or approve or reject an SR is not invalid solely on the ground that the decision was not made within the prescribed 30 day period. The Director may request additional information from the applicant at any time prior to either approving or rejecting the application.

Upon making a decision to accept or reject the application to create the ERC, the Director shall inform the Registry, and through the Registry, the applicant of the decision by providing to the Registry, either a Notice of Creation or a Notice of Denial of Creation, whichever the case may be. Upon making a decision to approve or reject the application to approve the SR, the Director shall inform the Registry, and through the Registry, the applicant, of the decision by providing to the Registry either a Notice of SR Approval or a Notice of Denial of SR Approval. The Registry shall record the Director's notices within 7 days.

If the Director gives a Notice of Denial of Creation or a Notice of Denial of SR Approval, the Proponent may revise his/her documentation and re-apply for creation or approval.

If the Director gives a Notice of Creation or a Notice of SR Approval, all documents submitted in support of an emission reduction and associated ERC creation, or the approval of a SR, and all comments made and submitted to the Registry in respect of an ERC or SR, whether in hard copy or electronically, shall remain on the Registry in perpetuity, or until the Minister orders or gives consent to its removal.

The operator of the Registry shall maintain a Web site, and shall make the Registry accessible to all persons by way of the Web site.

All persons shall have access to the Registry in order to view documents recorded on the Registry, and shall have the right to have comments recorded in respect of an application to create an ERC, or to approve SRs, and associated documents contained on the Registry.

The operator of the Registry shall record on its Web site, and link to the appropriate accounts on the Registry, all documents in respect of an application to create an ERC, to approve a SR, to distribute emission allowances, and in respect of emission allowance and ERC retirement.

The operator of the Registry shall record all documents including public comments made in respect of the information recorded on the Registry.

The operator of the Registry shall amend the Registry to indicate the retirement of emission allowances and ERCs that are used for compliance under the Regulations, and to indicate that the use of SRs to obtain emission allowances under Section 12 or 15 of Ontario Regulation 397/01 has occurred.

The operator of the Registry will also amend the Registry to indicate that an emission reduction recorded on the Registry has been approved for creation of an ERC or approval of a SR, or has been denied for creation of an ERC or approval of a SR.

## **2.2 Registry Notices**

The following are forms used by the Registry.

1. Notice of Emission Allowance Distribution
2. Notice of Intent to Create
3. Notice of Emission Reduction
4. Notice of Transfer
5. Notice of Verification
6. Notice of Creation or Notice of SR Approval
7. Notice of Denial of Creation or Notice of Denial of SR Approval
8. Notice of Intent to Retire
9. Notice of Retirement
10. Notice of Application for ERC Creation Outside the Eligibility Zone
11. Notification of Director's Decision Regarding ERC Creation Outside the Eligibility Zone
12. Notice of Voluntary Retirement

### **2.2.1 Notice of Emission Allowance Distribution**

Upon receipt of the Notice of Emission Allowance Distribution from the Director indicating that a person has acquired an emission allowance, the operator of the Registry shall record the emission allowances distributed to each recipient in the recipient's account created on the Registry by the operator of the Registry. The Registry shall assign a unique serial number to each, which includes the compliance year for which the allowance was originally allocated.

Emission allowances that are acquired by Ontario Power Generation (OPG) pursuant to section 7, 9, 13 or subsection 14(9) of Ontario Regulation 397/01 shall, within 30 days of their distribution, be redistributed by OPG to each Combined Nitrogen Oxides Facility and to each Combined Sulphur Dioxide Facility. OPG shall report the redistributions to the Director using a Notice of Transfer.

The Notice of Transfer shall identify the facility to which it relates and the number of allowances being distributed to it.

### **2.2.2 Notice of Intent to Create**

The Notice of Intent to Create shall be the first page, and as such forms part of any Protocol submitted to the Registry. The Notice is used to initialize Registry database records with key information about the Protocol. The Notice shall identify: the Proponent, the Standard Method used, the emission reduction project location, and the expected annual and cumulative emission reductions.

### **2.2.3 Notice of Emission Reduction**

An ERC can be created only upon the approval of an ER by the Director. The Notice of Emission Reduction shall be the first page appearing in any Emission Reduction Report submitted to the Registry, and as such forms part of the Emission Reduction Report. There must be a separate Notice of Emission Reduction provided for each 12-month period for which applications for creation of ERCs are being made. This Notice must identify the Proponent, the Standard Method used, the emission reduction project

location, the creation period and the amount of ERs. The amount of the ER achieved in the smog season, and the amount achieved in the non-smog season, shall be identified.

The Notice of Emission Reduction includes a Notice of Verification, which confirms that the emission reduction occurred by the amount being claimed by the Proponent.

#### **2.2.4. Notice of Transfer**

The Notice of Transfer shall be used to register a transfer of ERCs, SRs, or emission allowances from one Registry account to another. ERCs, SRs, and emission allowances cannot be transferred except by Notice of Transfer.

For ERCs and SRs a Notice of Transfer must identify, the Protocol and Emission Reduction Report originally associated with the ERCs or SRs, the amount being transferred and the amount remaining with the current holder of the ERCs or SRs, the name and address of the current holder of the ERCs or SRs and of the recipient of the ERCs or SRs. The Notice of Transfer must also identify the original Notice of Creation or Notice of SR Approval for the ERC or SR being transferred.

For emission allowances the Notice of Transfer must identify, the date the emission allowances were distributed, the original emission allowance recipient, the current holder of the emission allowances and the new holder of the emission allowances.

OPG shall submit Notices of Transfer for the redistributions of emission allowances to each Combined Nitrogen Oxides Facility and to each Combined Sulphur Dioxide Facility to the operator of the Registry. The operator of the Registry shall, upon receipt from OPG of the Notices of Transfer, record the transfer of emission allowances from the OPG emission allowance account to the account of each Combined Nitrogen Oxides Facility and of each Combined Sulphur Dioxide Facility.

#### **2.2.5 Notice of Verification**

The Notice of Verification shall be the first page, and as such forms part, of the Verification Report and shall provide information that the ER has been verified by a qualified Verifier in accordance with the Code. The Notice shall identify the Protocol and the Emission Reduction Reports that are associated with the ER, and identify the Verifier, and the results of the Verification Report. The Director is not bound to approve the ER as an ERC.

The Verification Report accompanies the Emission Reduction Report and is part of it.

#### **2.2.6 Notice of Creation or Notice of SR Approval**

Approval of an application to create an ERC constitutes creation of an ERC. Approval of an application to approve a SR constitutes the creation of a SR. The Notice of Creation and Notice of SR Approval are issued by the Director. Approval cannot be reversed except in cases where audit or enforcement actions indicate that an ERC or SR is not valid or ER quantification fails to support the validity of the ERC or the SR; or, in cases where a Notice of Creation has been issued to register a Foreign Allowance as an ERC, and the applicant has then failed to furnish proof to the satisfaction of the Director that the Foreign Allowance has been either retired under the foreign jurisdiction's program, or transferred to the Government of Ontario account on the EPA registry.

The Registry shall record the Notice of Creation or Notice of SR Approval within 7 days of receipt, and shall assign unique serial numbers to each.

#### **2.2.7 Notice of Denial of Creation or Notice of Denial of SR Approval**

A Notice of Denial of Creation or Notice of Denial of SR Approval issued by the Director indicates that the Director has determined that an ER submitted to the Director for creation of an ERC, or for approval of a SR, was not acceptable for that purpose.

The Registry shall record the Notice of Denial of Creation or Notice of Denial of SR Approval within 7 days of receipt.

#### **2.2.8 Notice of Intent to Retire**

Written notice provided in accordance with either Subsection 24(1) of Ontario Regulation 397/01 or Subsection 41(1) of Ontario Regulation ###/05 shall be in the form of a Notice of Intent to Retire. The Notice of Intent to Retire shall contain the name of the facility intending to retire an emission allowance or an ERC, and its identification number assigned to it by the operator of the Registry.

#### **2.2.9 Notice of Retirement**

Written notice of the Director's decision provided pursuant to either Subsection 24(2) of Ontario Regulation 397/01 or Section 41(2) of Ontario Regulation ###/05 shall be in the form of a Notice of Retirement, where the Director has approved the application to retire.

Pursuant to section 2.4.2, upon receipt of the Notice of Retirement the operator of the Registry shall transfer allowances or ERCs, as the case may be, that are identified by the Director to the Government of Ontario retirement account.

#### **2.2.10 Notice of Application for ERC Creation Outside the Eligibility Zone**

Subsection 18(2) of Ontario Regulation 397/01 states that ERCs can only be created as a result of an emission reduction project undertaken in Ontario, the District of Columbia or one of the states that the subsection lists (the "Eligibility Zone").

Subsection 18(3) of Ontario Regulation 397/01 states that credits may be created outside the area defined in subsection 18(2) if the Director is satisfied that reductions of nitrogen oxides emissions or sulphur dioxide emissions achieved by the emission reduction project have a measurable effect in Ontario.

The Notice of Application shall be used to notify the public that a Proponent is making an application to the Director for the creation of an ERC from an ER made outside the Eligibility Zone.

The Notice of Application must identify the ERC Protocol and Emission Reduction Report originally associated with the ERs that are the subject of the application, the amount of the air quality improvement expected in Ontario, the name and address of the person who originally caused the emission reduction that resulted in the application for creation, the current applicant for creation of the ERC, the location where the ER was achieved, a description of the science upon which the application is based, and the studies which show that the emission reductions at the facility will result in the claimed improvement in air quality in Ontario.

The Notice of Application and all supporting documents shall be provided to the operator of the Registry by the person making application to the Director for the creation of the ERC. The operator of the Registry shall record the Notice of Application as required by this Code.

#### **2.2.11 Notification of Director's Decision Regarding ERC Creation Outside the Eligibility Zone**

If the Director approves an application for ERC creation outside the Eligibility Zone, the Director shall provide a Notice of Creation to the Registry, and to the applicant indicating that the application has been approved. The Registry operator shall record the Director's decision within 7 days of receipt.

#### **2.2.12 Notice of Voluntary Retirement**

Written notice provided pursuant to either Section 32 of Ontario Regulation 397/01 or Section 9 of Ontario Regulation ###/05 shall be in the form of a Notice of Voluntary Retirement.

For ERCs the Notice of Voluntary Retirement shall identify the Emission Reduction Report associated with the ERC and the current holder of the ERC.



For emission allowances the Notice of Voluntary Retirement shall identify the original recipient of the emission allowance and the current holder of the emission allowance.

## **2.3 Registry Accounts**

Each Proponent who holds emission allowances, ERCs, or SRs, or who wishes to submit documentation towards creating an ERC or obtaining approval for an SR, must establish an account on-line on the Registry. Additions and removals of emission allowances, ERCs and SRs to and from accounts shall be implemented only by the operator of the Registry upon receipt of the Notices set out in this Code.

The operator of the Registry shall ensure that each Registry account clearly identifies the name, address, phone and fax numbers, and e-mail address of the person to whom the account has been assigned, along with the name of the prime contact person if the person to whom the account has been assigned is a company or government agency. In addition, the account must include the number of emission allowances, ERCs or SRs held, transferred and retired in that account. The operator of the Registry must provide access to Registry files containing all documents submitted to the Registry in respect of the account holdings.

The operator of the Registry shall establish 2 Registry accounts in the name of the Government of Ontario to be used exclusively to record retired or voluntarily retired emission allowances and ERCs. There shall be a Government of Ontario account for retired and voluntarily retired emission allowances, and a Government of Ontario account for retired and voluntarily retired ERCs.

## **2.4 Recording Procedures**

### **2.4.1 Document Submission**

Protocols and Emission Reduction Reports shall be prepared in accordance with this Code.

The operator of the Registry will perform an administrative review of all the documents submitted in respect of the Code to ensure that the documentation is complete and in the format required by the Code, and shall record complete documentation on the Registry within 7 days of receipt.

The operator of the Registry may ask questions or require the submission of additional documents from the person submitting the Protocol or Emission Reduction Report for recording on the Registry. The operator of the Registry shall refuse to record a Protocol or Emission Reduction Report if it is of the opinion that any documentation is missing or incomplete, or the Proponent has failed to pay the applicable Registry application fee, if any.

The operator of the Registry shall refuse to record any document that contains profane language or language of a nature that promotes, encourages or condones hatred.

Reports that are incomplete will be returned to the Proponent for correction. Upon correction and re-submission to the Registry, the operator of the Registry will have an additional 7 days to complete the administrative review and record or return the documents.

Information submitted by the Proponent to the Registry must be provided in the form set out in this Code. The operator of the Registry will review the Proponent's submission for completeness prior to recording it on the Registry. The operator of the Registry is not in a position to verify or warrant the accuracy of the Proponent's submission. The Proponent submitting the Protocol or Emission Reduction Report is solely responsible for the information provided and statements made.

The registry can be found on the Home Page of the Web site of the Ministry of the Environment, at [www.ene.gov.on.ca](http://www.ene.gov.on.ca); or directly at [www.oetr.on.ca](http://www.oetr.on.ca).

Contact for the Emissions Trading program:  
Air Policy and Climate Change Branch  
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Fax: 416-314-4128

The registry can be reached at: [operator@oetr.on.ca](mailto:operator@oetr.on.ca)

#### **2.4.2 Recording**

Upon receipt, the operator of the Registry shall record pdf versions of all Protocols, Emission Reduction Reports, and all associated documents and scanned versions of all signed forms associated with an emission reduction project, allowance distribution or transfer on the Registry. Original paper documents and all electronic documents, including scanned versions, shall be retained by the operator of the Registry in perpetuity, unless the Minister orders or gives consent to their removal; or the Proponent, having received a Notice of Denial of Creation or a Notice of Denial of SR Approval withdraws the document from the registry; or, prior to the determination of the ERC or SR application by the Director, the Proponent withdraws the documentation.

Each Proponent account shall be assigned a unique identification number by the operator of the Registry. All ERCs, SRs and emission allowances recorded in each Proponent's account shall have a unique identifier assigned by the operator of the Registry. Linkages between emission allowances, ERCs and SRs and the associated reports and documents shall be established by the operator of the Registry.

Before recording an emission allowance, the operator of the Registry must receive a Notice of Emission Allowance Distribution from the Director that the person has acquired emission allowances. The operator of the Registry shall record the emission allowance in the appropriate account of the recipient within 7 days of receiving the copy of the Notice of Emission Allowance Distribution from the Director.

A Notice of Retirement shall be submitted to the operator of the Registry by the Director within 7 days of a decision under Section 22 of Ontario Regulation 397/01 regarding an ERC. The operator of the Registry shall amend the government's and Proponent's Registry accounts to indicate that the ERC has been transferred to the ERC account of the Government of Ontario. An ERC that has been transferred to the Government of Ontario account has been retired and no longer exists. ERCs may be voluntarily retired without being used by an emitter to meet an obligation under the regulation.

A Notice of Retirement shall be submitted to the operator of the Registry by the Director within 7 days of a decision under either Section 22 of Ontario Regulation 397/01 or Section XX of Ontario Regulation ###/05 regarding an emission allowance. The operator of the Registry shall amend the government's and Proponent's Registry accounts to indicate that the emission allowance has been transferred to the emission allowance account of the Government of Ontario. An emission allowance that has been transferred to the Government of Ontario account has been retired and no longer exists. Emission allowances may be voluntarily retired without being used by an emitter to meet an obligation under the regulation.

### **3. Foreign Emission Allowances**

A foreign emission allowance is an emission allowance issued to an emitting facility in the United States that is located in the Eligibility Zone, as part of the Ozone Transport Commission's NO<sub>x</sub> Budget Trading Program, or as part of the Federal NO<sub>x</sub> Budget Trading Program under Section 126 of the Clean Air Act

(the NO<sub>x</sub> SIP Call), administered by the United States Environmental Protection Agency (EPA); or as part of the SO<sub>2</sub> trading program of the United States EPA's Acid Rain Program ("Foreign Allowance"). The Eligibility Zone means the jurisdictions listed in subsection 18(2) of Ontario Regulation 397/01.

Foreign Allowances may be recorded on the Ontario Emissions Trading Registry as ERCs if approved by the Director, and may be used by an emitter to help meet its obligations under the Regulations. Foreign allowances are not the result of emission reduction projects. Therefore, despite any other provision of this Code, it is not necessary to submit Standard Methods, Protocols, Emission Reduction Reports and Verification Reports, or notices of Emission Reduction and Verification to support an application made to the Director to have a foreign emission allowance recognized as an emission reduction credit.

Foreign Allowances that have been recorded as ERCs on the Ontario Emissions Trading Registry are subject to the rules in the Regulations and the Code.

A Proponent seeking to record a Foreign Allowance as an ERC on the Registry pursuant to subsection 17(2) of Ontario Regulation 397/01 must make an application to the Director. The applicant must provide evidence satisfactory to the Director that the Foreign Allowance is owned by the applicant, and has been registered by the applicant on the EPA registry, was originally issued by a jurisdiction contained in the Eligibility Zone, and has not been used by anyone to meet an emission obligation anywhere.

If satisfied that the Foreign Allowance is owned by the applicant, that it is registered on the EPA registry, that it has not been used by anyone to meet an emission obligation anywhere, and that it was originally issued by a jurisdiction located in the Eligibility Zone, the Director may approve the creation of an ERC on a tonne-for-tonne basis, or may discount the tonnage in the creation of an ERC because allowances are or may become subject to discounting in the foreign jurisdiction.

Within 30 days of receiving the application the Director shall either approve or reject the application to create an ERC through the use of a Foreign Allowance. Upon making the decision to accept or reject the application to create an ERC through the recognition of a Foreign Allowance that has been recorded on the EPA registry, the Director shall notify the applicant and the Registry operator of the decision within 7 days by providing to each a Notice of Creation, or a Notice of Denial of Creation. The Registry operator shall record the Director's notice on the Registry.

Within 30 days of receiving the Notice of Creation, the applicant shall furnish proof satisfactory to the Director that the applicant has either retired the Foreign Allowance under the foreign program, or transferred the Foreign Allowance to the Government of Ontario account on the EPA registry. Failure to furnish proof satisfactory to the Director shall result in the revocation of the Notice of Creation according to section 2.2.6.

Once a Foreign Allowance has been transferred to the Government of Ontario account on the EPA registry, it is no longer eligible to create ERCs.

#### **4. ERC Creation and Set-Aside Reduction Approval**

The types of projects that qualify for ERC creation are emission reduction projects that directly reduce a facility's NO<sub>x</sub> and/or SO<sub>2</sub> emissions. These projects are set out in the Standard Methods in Appendix A.

The types of projects that qualify for Set-Aside Reductions (SRs) are emission reduction projects that indirectly reduce a facility's NO<sub>x</sub> and/or SO<sub>2</sub> emissions by reducing the amount of NO<sub>x</sub> and SO<sub>2</sub> emissions from the power generation mix in Ontario. These projects are set out in the Standard Methods in Appendix B. Further description of Set-aside Reductions and Set-Aside Allowances is provided in Section 4.10.

Emission reductions may only be proposed for creation as ERCs or SRs in Ontario by reducing emissions of NO<sub>x</sub> and/or SO<sub>2</sub> through the implementation of an approved Standard Method.

Except for projects that had been submitted to the Pilot Emission Reduction Trading Project, PERT, as described in section 4.9, only ER projects which came into service on or after January 1, 2000 are eligible for ERC creation. In addition, only ER projects which came into service on or after January 24, 2000 are eligible for SR creation.

Facilities to which emission allowances have been distributed are not eligible to create ERCs or SRs from ERs that they achieve.

Notwithstanding that ERs or ERCs have been recorded on another registry or in another jurisdiction, the Proponent must submit all the documents listed in section 4.2 in support of an application to create an ERC or for approval of a SR.

## **4.1 Standard Methods**

A Standard Method is a description of a process, process change, or technology, which can be added to, or replace, a process or technology to reduce NO<sub>x</sub> or SO<sub>2</sub> emission rates, and is approved by the Ministry for this purpose.

The Standard Method sets out the pollutant to be reduced, describes the process by which the pollutant will be reduced and the projects that qualify, and defines the framework for determining emission reductions and may also define the requirements for baseline data.

An application of a proposed emission reduction project for either creation of ERCs or approval of SRs can only be considered if an approved Standard Method exists. Approved Standard Methods are set out in Appendix A and B of this Code.

Proponents and other persons may submit proposals for new Standard Methods or amendments to existing ones. Proposals shall be made to the Director. The Director may cause a review of the proposed new or amended Standard Methods. The Director's review shall examine and make recommendations on the scientific basis for the reduction in emission rates that can be expected from the proposed Standard Method; and on the ability to quantify and verify emission reductions.

### **4.1.1 Proposal for New or Amended Standard Methods**

Proponents and other persons proposing a new or amended Standard Method shall submit to the Director a proposal including a description of the science supporting the emission reductions, and a complete step-by-step method to be used for the computation of emission reductions. The Director may cause an evaluation of the proposal to be undertaken.

A proposal must be submitted to the Director. New technologies or behavioural changes must be documented fully with respect to the proposed Standard Method's ability to make reductions and how it meets the other Criteria set out in Section 5.4 of the Code.

The second part of the proposal is a draft Standard Method and includes a description of the process(es) to be used to achieve the emissions reduction and the method to be used for the computation of emission reductions. The following format must be followed, which includes, but is not necessarily limited to, the following information:

Pollutant(s) Reduced

- indicates which pollutant or pollutants the technology or change will reduce

Description of the Process(es)

- describes the process, process change or technology by which the pollutant will be reduced including information on the variables which may affect the rate of emissions.

#### Determination of Emission Rates and Reductions

- defines the method for estimating or measuring reductions in emission rates, including information on the frequency of measurement and specification of measurement and monitoring protocols
- The proponent must include an analysis that demonstrates how the proposed reductions satisfy the general principle that changes or reductions in the activity level do not constitute an emission reduction. This principle is generally described for two different Cases in the following equations.

Case 1: If the Actual Capacity of the emitting facility has not been increased from the Baseline Capacity, the emission reduction is calculated as follows:

$$\text{Emission Reductions} = (\text{Baseline Emission Rate} - \text{Actual Emission Rate}) \times \text{Actual Activity}$$

Case 2: If the Actual Capacity of the emitting facility has been increased from the Baseline Capacity, the emission reduction is calculated as follows:

Situation 1) If Actual Activity is less than or equal to ( $\leq$ ) the Baseline Capacity, then

$$\text{Emission Reductions} = (\text{Baseline Emission Rate} - \text{Actual Emission Rate}) \times \text{Actual Activity}$$

Situation 2) If Actual Activity is greater than ( $>$ ) the Baseline Capacity, then

$$\text{Emission Reductions} = (\text{Baseline Emission Rate} - \text{Actual Emission Rate}) \times \text{Baseline Capacity}$$

Where, in both Cases:

- Actual Capacity is the maximum production capacity of the facility during the emission reduction period;
- Baseline Capacity is the maximum production capacity of the facility that existed during the baseline period;
- Baseline Emission Rate is the quantity of NO<sub>x</sub> (mass) per appropriate unit of Activity during the baseline period;
- Actual Emission Rate is the quantity of NO<sub>x</sub> (mass) per appropriate unit of Activity during the emission reduction period; and
- 
- Actual Activity is the number of units produced during the emission reduction period. This number is a comparable unit of activity such as heat input, production outputs or hourly usage which are determinedly correlated to emissions.
- 

The equations demonstrate the intention of the “Real” criterion described in section 5.4.1 as it applies to measurement.

All measurements, published data, algebraic formulae, and units must be shown in proposals for new Standard Methods, and the source or derivation must be given for all emission factors used. A rationale and justification for the calculation procedure must be provided in the proposal. Source documents and supporting information must be supplied with the proposal.

The proposal must demonstrate how the expected activity levels, baseline emissions, emission reductions and final actual emissions associated with an emission reduction project are calculated and

tabulated annually over the expected life of the emission reduction project. Tables supporting the proposal may be addenda to the proposal.

A proposal must state the strategy and rationale for accomplishing the emission reduction, and include a complete emission reduction project description and step-by-step method to be used for the computation of emission reductions.

New and amended Standard Methods, once accepted by the Ministry, will be added to the Code.

## **4.2 Protocols and Emission Reduction Reports**

Before an emission reduction from a project can be submitted as an application for creation of an ERC or to be approved as a SR, its Protocol, Emission Reduction Report, Verification Report and other supporting documentation must be submitted by the Proponent to the Registry and recorded.

Protocols and Emission Reduction Reports are two key documents used in the review, verification, creation and recording of ERCs and SRs.

A Protocol is a document that describes a specific emission reduction project as set out in section 5. The Protocol is a key part of the documentation and is recorded on the Registry to allow for public review and comment. The Protocol is part of the documentation supporting an annual Emission Reduction Report, allowing the Director to consider the applicability of a Standard Method to a particular project.

Upon receipt of the Protocol and supporting documentation, if any, the Registry operator shall conduct a review as described in Section 2.4. If the documentation is found to be complete, it shall be recorded on the Registry for 30 days for public review and comment.

The Proponent must submit an Emission Reduction Report for a twelve (12) month ER period to the operator of the Registry in order for the emission reduction to be eligible for creation of the ERC, or to be approved as a SR. The Emission Reduction Report shall quantify the actual emission reductions resulting from the emission reduction project described in the Protocol. An Emission Reduction Report shall document what reductions in emissions of NO<sub>x</sub> and SO<sub>2</sub> have actually been achieved.

The Emission Reduction Report, a supporting Verification Report, and other documentation, if any, must each:

- Cover a twelve (12) month ER period; and
- be submitted electronically by the Proponent to the Registry for public review within 180 days of the end of the 12 month period in which the emission reductions were made.

All of the documentation will be reviewed by the operator of the Registry as described in Section 2.4. If the documentation is found to be complete, it shall be recorded on the Registry for 30 days for public review and comment.

There must be an individual Emission Reduction Report submitted for each twelve month period for which an emission reduction credit or a set-aside reduction is claimed, up to a maximum of seven consecutive 12 month periods following the completion of the emission reduction project. The first 12 month period must commence on the project in-service date. Subsequent 12 month periods must commence on the anniversary of the in-service date. The in-service date, also known as the commissioning date, is the date when the project's normal service begins following a commissioning period. The Director may require that Proponents substantiate the designation of the in-service date.

An Emission Reduction Report and its supporting documentation may be recorded concurrently with a Protocol.

At any time after the end of the 30 day review period for the Emission Reduction Report, and its supporting documentation, if any, the Proponents seeking to have their emission reductions considered for creation as ERCs or approved as SRs shall submit an application on-line using the application feature of the Registry. All documentation supporting the application, including but not limited to the Protocol, the Emission Reduction Report, the Verification Report, and all comments from the public that have been submitted in the course of the public review, shall be submitted with the application.

Within 30 days of receiving the application the Director shall either approve or reject the application to create ERCs or approve or reject the SRs. A decision of the Director to approve or reject an application to create ERCs or approve or reject an SR is not invalid solely on the ground that the decision was not made within the prescribed 30 day period. The Director may request additional information from the applicant at any time prior to either approving or rejecting the application.

Upon making a decision to accept or reject the application to create the ERC, the Director shall inform the Registry, and through the Registry, the applicant, of the decision by providing to the Registry, and through the Registry, the applicant, either a Notice of Creation or a Notice of Denial of Creation, whichever the case may be. Upon making a decision to approve or reject the application to approve the SR, the Director shall inform the Registry, and through the Registry, the applicant, of the decision by providing to the Registry either a Notice of SR Approval or a Notice of Denial of SR Approval. The Registry shall record the Director's notices within 7 days.

If the Director gives a Notice of Denial of Creation or a Notice of Denial of SR Approval, the Proponent may revise his/her documentation and re-apply for creation or approval.

The operator of the Registry shall record the Notice of Creation provided by the Director.

### **4.3 Verification**

A Verification Report must be prepared and signed by a technically and professionally qualified and independent third-party, except as provided for in Standard Method B.1. A statement of qualifications of the Verifier must be submitted along with each Verification Report.

The Verification Report must confirm that the ER is surplus, real, properly quantified and unique. The Verification Report does not guarantee that the ER will be approved for ERC creation by the Director.

The Verification Report accompanies and is part of the Emission Reduction Report. Further description of the Verification Report is provided in Section 7.0.

### **4.4 Approval**

Approval by the Director of an ER as an ERC constitutes the creation of an ERC. Approval cannot be reversed except in cases where fraud or improper ER quantification has been shown to the satisfaction of the Director to have occurred that led to the creation of the ERC.

## **4.5 How the Protocol and Emission Reduction Report are Used**

### **4.5.1 Registry**

The operator of the Registry will base its recording decision solely upon the required reports being complete. Clear and well-written reports, providing all necessary information and following the procedures and instructions herein,

will facilitate review and Verification. The Registry is not in a position to verify the truth of every claim made.

#### **4.5.2 Verifier**

The Verifier shall use the Protocol and Emission Reduction Reports and any other documents recorded on the Registry to assess whether the Proponent has properly applied the Standard Method to the emission reduction project that is the subject of the Verification activity, including the appropriate use of measurement and predictive techniques for the method and for the emission reduction project being verified. The Verifier shall make a site visit to confirm the findings of the evaluation, or shall otherwise demonstrate to the satisfaction of the Director a knowledge or degree of familiarity with the emission reduction project that is sufficient to confirm the findings of the evaluation.

#### **4.5.3 Director**

The Director may examine Protocols, Emission Reduction Reports, Verification Reports and additional documentation in order to determine the acceptability of ERs presented for creation as ERCs.

#### **4.5.4 Public**

Members of the public may examine any document recorded on the Registry and provide the Director or the Registry with comments. A person does not have to leave their name or any other personal information, but personal information relating to that person that is provided will be recorded on the Registry and will be available to the public.

#### **4.5.5 Notices**

The operator of the Registry shall record Notices on the Registry to facilitate public review of ER verification, ERC creation, and trading activities. A description of these Notices and their requirements for submission to the Registry are contained in Section 2.2 of this Code.

### **4.6 General Guidelines for Submissions**

Documents submitted to the operator of the Registry for recording must be written in accordance with this Code.

#### **4.6.1 Rules and Procedures**

The Regulations and the Code establish rules for ERC creation and for ERC and emission allowance retirement, and procedures setting forth, among other things, various reporting requirements to demonstrate that emissions from a facility have been balanced with ERCs and emission allowances held by that facility. The Regulations and the Code may be amended from time to time.

#### **4.6.2 No Protection for Information**

There will be no protection of the confidentiality of any information provided to the Registry for recording by the Registry or its operator.

### **4.7 ER Limitation**

ERs are eligible to be presented for ERC creation or for SR approval from an emission reduction project or a renewable electricity or electricity conservation project for a period of up to seven years after the project's in-service date, or as set out in the appropriate Standard Method.

### **4.8 Banking of Emission Allowances and ERCs**

ERCs and emission allowances may be banked indefinitely. Approved set-aside reductions may also be banked indefinitely.

### **4.9 Credit for Early Action**



Credit for Early Action means credit for emission reductions achieved during the period between July 1, 1998 and December 30, 2001.

Emission reductions made between July 1, 1998 and December 31, 1999 and for which documents describing the nature of the emission reduction project causing the reductions, and the quantification of the reductions, were submitted to the Pilot Emission Reduction Trading project (PERT) for review and registration prior to July 1, 2001, or for which the Director is satisfied that protocol development work for the project had been started before July 1, 2001 and for which documents were submitted to PERT prior to December 31, 2001, and which also meet the requirements of the Code and the Regulations, are eligible for creation.

Emission reductions made after December 31, 1999 resulting from an action that was taken, or which was placed in service, between January 1, 2000 and December 30, 2001, are eligible for creation and may be recorded on the Registry if they meet the requirements of the Code and the Regulations. These ERs are eligible for creation as ERCs whether or not they were submitted to PERT.

For all emission reduction projects that are eligible for creation the seven year ER eligibility period for ERC creation shall commence on the date the emission reduction project was completed as defined in the applicable Standard Method (known as the in-service date).

#### **4.10 Set-Aside for Renewable Electricity Projects and Electricity Conservation Projects**

Proponents who undertake specified renewable electricity projects and electricity conservation projects that result in reductions of emissions of NO<sub>x</sub> or SO<sub>2</sub> from a fossil fired electricity generating facility in accordance with the applicable Standard Method shall be eligible to receive a portion of an emission allowance set-aside as described in Sections 12 and 15 of Ontario Regulation 397/01. The emission reductions must be achieved in accordance with the Standard Method as set out in Appendix 2 of this Code.

Only an approved SR can be submitted to the Director in support of an application to receive an emission allowance from the emission allowance set-aside. The emission reductions must first be approved as SRs. A Notice of Intent to Create, Protocol, Notice of Emission Reduction, Emission Reduction Report, Verification Report and other supporting documentation relating to the emission reductions must be submitted to the Registry. These documents shall meet the same recording, public review and comment, and Director approval requirements as documents for emission reductions that are being recorded for creation as ERCs, described in Section 4.2 of this Code.

Emission reductions from renewable electricity projects and electricity conservation projects shall not qualify for creation of ERCs. Instead, following the public review period the Proponent may apply to the Director for approval of these as SRs. These SRs shall be recorded on the Registry until such time as they are used in an application for set-aside allowances.

Verified emission reductions from renewable electricity projects and electricity conservation projects become SRs once they are approved by the Director. SRs may be banked indefinitely until they are submitted to the Director in application for set-aside allowances. SRs may not be used for the purposes of sections 20 or 21 of Ontario Regulation 397/01 or sections 37 or 38 of Ontario Regulation ###/05. SRs may be used to support an application for allowances from the allowance set-aside.

Sections 12 and 15 of Ontario Regulation 397/01 describe the application and award process for a set-aside allowance. Allowances awarded pursuant to section 12 or 15 of Ontario Regulation 397/01 shall be recorded on the Registry by the operator of the Registry in accordance with the Regulation and the Code.

All documentation supporting the application including but not limited to the Protocol, the Emission Reduction Report and the Verification Report, as well as comments from the public that have been submitted in the course of the public review, shall be submitted with the application.

#### **4.11 Baselines**

The method for determining the emissions baseline for the purpose of measuring emission reductions that are eligible for ERC creation is set out in the applicable Standard Method and is based on a 12 month period.

Where the preceding 12 month period is not a representative baseline, and a baseline is not prescribed by the Standard Method, then alternative baselines which are more representative of the typical emissions of a source should be used. An alternative baseline chosen shall be no more than the preceding 36 month period. The period chosen shall immediately precede the commencement of the activities necessary to implement the emission reduction.

If the most recent stack test was conducted prior to the preceding 36 month period, it may be used for baseline determination at the discretion of the Director if the stack test results can be shown to be representative of current emissions.

### **5. Preparing an ERC Protocol**

A Protocol is a document that describes an emission reduction project (actions taken in accordance with a Standard Method), and explains how the emission reductions will be achieved by the application of a Standard Method to the particular emission reduction project. All emission reductions claimed by the emission reduction project must be measured, calculated and reported in accordance with the Standard Method and Protocol for that emission reduction project.

#### **5.1 Protocol Format and Content**

All Protocols submitted to the operator of the Registry shall follow the format set out in the Code below, and summarized by the following table of contents.

Table of Contents
1. Introduction
2. Proponent Identification
3. Emission Reduction Project Description
3.1 Site Description
3.2 Pre-Project Conditions
3.3 The Standard Method
3.4 Actions Taken
3.5 Post-Project Conditions
4. Validity of Emission Reductions
4.1 Real
4.2 Surplus
4.3 Quantifiable
4.4 Unique
4.5 Verifiable
5. Quantification of Emission Reductions
5.1 Process Description
5.2 Data Collection

- 5.3 Baseline Determination
- 5.4 Emission Reduction Calculation
- 6. Reporting of Emission Reductions
- 7. Final Sections
  - 7.1 Documents Examined
  - 7.2 Warranties
- Addenda

Protocols submitted to the Registry contain and shall include a Notice of Intent to Create, as well as a Protocol Summary.

## **5.2 General Sections**

### **5.2.1 Notice of Intent to Create**

The Notice of Intent to Create shall be the first page of the Protocol. This Notice provides the information required for recording the Protocol.

### **5.2.2 Protocol Summary**

The Protocol Summary shall contain a brief summary of each section of the Protocol as set out in the Table of Contents.

### **5.2.3 Table of Contents**

The Table of Contents as set out in Section 5.1 above shall follow the Protocol Summary.

### **5.2.4 Introduction**

This section shall give a brief synopsis of the facility, emission source, the Standard Method undertaken, and the kind and quantity of reductions expected over the life of the emission reduction project.

### **5.2.5 Proponent Identification**

In this section, the facility where the emission reduction project takes place shall be identified by name, address and geographic location. This should include a legal description of the property. The names, street and e-mail addresses, telephone and fax numbers for the Proponent, facility owner and facility operator must be provided.

## **5.3 Project Description**

The purpose of this section is to define the emission reduction project, establish its boundaries and demonstrate that it will make an impact on emissions. Verifiers will study this section to ascertain that the actions taken clearly implement the Standard Method, and that the actions taken plausibly account for the difference between the pre- and post-project conditions. The following is a description of the five subsections of the Project Description portion of the Protocol.

### **5.3.1 Site Description**

In this section the Proponent shall describe the history, purpose and operation of the emission reduction project site. This establishes the context within which the emission reduction project takes place. Normally the site is a facility such as a manufacturing plant or commercial building, but it can also be an area such as Toronto.

### **5.3.2 Pre-Project Conditions**

In this section the Proponent shall describe the operation, output, emission rates, and emissions of the affected process(es) and/or facilities immediately preceding the implementation of the emission reduction project. The date or time period used to characterize the pre-project conditions must be specified

### **5.3.3 The Standard Method**

In this section the Proponent shall identify the Standard Method used to accomplish the emission reduction.

### **5.3.4 Action Taken**

In this section the Proponent shall describe what was or will be done to implement the Standard Method at the facility including all key dates, studies and approvals. In addition the Proponent shall specify all major equipment that was or is intended to be installed.

### **5.3.5 Expected Post-Project Conditions**

In this section the Proponent shall describe the operation, output and emissions of the affected process(es) that are expected in the period immediately following the emission reduction project as specified in the appropriate Standard Method.

## **5.4 Validity of Emission reductions**

This section addresses the non-quantitative criteria governing the validity and eligibility of the ERs for creation of ERCs, and of emission reductions from renewable energy projects and conservation projects.

### **5.4.1 Real**

An emission reduction is real if it results solely and specifically from the actions taken in the emission reduction project and could not occur in the absence of the emission reduction project. A real reduction produces an observable change in the emission rate of a process or facility, and does not result from a mere change in activity (such as a reduction in output).

The reduction must be a net reduction, i.e. any increase in emissions of the subject gas resulting as a direct consequence of the emission reduction project must be deducted. Emission increases that occur outside of the emission reduction project boundary are called leakages. If, for example, a process reduces emissions at the site by outsourcing production of a component of the final product of the process, this would be leakage and would need to be netted out for the purposes of quantifying the ER claim.

Further, netting applies to the subject gas (i.e. the gas whose reduction is the purpose of the action): an increase in or leakage of a gas other than the subject gas is not leakage.

The information should establish logically that the emission reduction project produces real, net emission reductions. The sources of emission increases and leakages must be identified.

### **5.4.2 Surplus**

An emission reduction is surplus if it is in excess of any reduction required to comply with any regulation, permit or order, pertaining to emissions of NO<sub>x</sub> or SO<sub>2</sub>, as the case may be, into the atmosphere, that is applicable in the jurisdiction in which the emission reduction project is being implemented. Emission reductions made pursuant to an agreement with a regulatory body, that is applicable in the jurisdiction in which the emission reduction project is being implemented, may only be considered surplus if the reductions are in excess of a specified annual emission reduction objective, or a specified portion of such an objective, identified in such an agreement as being non-eligible for emission reduction credit creation or for approval of a set-aside reduction.

All such requirements set out in any regulation, agreement, permit or order must be stated and briefly summarized in this sub-section.

Any convictions, charges, orders, or notices of violation that affect the claim of surplus for the subject facility during the period in which the emission reductions that are the subject of the Protocol and associated ERRs were being achieved must also be identified in this sub-section.

Where the facility or source is not in compliance with any regulation, agreement, approval, permit or order, pertaining to NO<sub>x</sub> or SO<sub>2</sub>, as the case may be, air emissions requirements, emission reductions made during that period of non-compliance shall not be considered surplus.

The date, file number and issuing authority for each permit, as well as the names and offices of compliance inspectors must be provided with any Emission Reduction Report.

**5.4.3 Quantifiable** Reductions must be based on the baseline data requirements of the Standard Method being used, and the requirements of the Standard Method for the measurement of emission reductions.

#### **5.4.4 Unique**

ERs will not be eligible for creation of ERCs in Ontario if they have already been voluntarily retired or used to meet an air emissions compliance requirement in another emission reduction trading regime.

In this sub-section the Proponent shall describe any requirements for reporting of environmental emissions or emission reductions to authorities and shall show how credited reductions will be reported to ensure that no benefit can be obtained from the credited reductions other than through emission trade. Note that the Proponent must also warrant, in Section 7.2 of the Protocol and in each Emission Reduction Report that the emission reductions have not and will not be registered with any other emission trading program, except through valid Notices of Transfer when ERCs are moved from one registry to another. Movement from one registry to another may occur because of an ERC transfer from one jurisdiction to another.

#### **5.4.5 Verifiable**

The Proponent shall demonstrate that the data and the calculation methodology are capable of being confirmed and tested for accuracy. In that regard the Proponent shall describe all records to be retained and the step-by-step procedure that could be used by an independent third party to verify any creation made under the Protocol. Records must be maintained by the Proponent for at least five years from the date the last Emission Reduction Report in respect of a Protocol is recorded on the Registry.

### **5.5 Quantification of Emission Reductions**

This section shall define and justify the methods and procedures to be used to measure and quantify the emission reductions resulting from the emission reduction project. The methods defined here will be used in all future Emission Reduction and Verification Reports resulting from the emission reduction project.

#### **5.5.1 Process Description**

The Proponent shall identify the Standard Method used in the emission reduction project. The purpose of this description is to define the terms and concepts needed to understand the discussion in the remainder of this section, and to show that the process conforms to the approved Standard Method for that project type.

#### **5.5.2 Data Collection**

The Proponent shall describe the instruments, measurements and data sources used in the quantification of baselines, activity levels and emission reductions.

The make, model, serial and type of each instrument must be specified. The Proponent shall describe accuracy, calibration method and frequency and quality control procedures used. For published sources such as Statistics Canada, the report number, title and source shall be given. For unpublished data sources, the organization, department and individual providing the data shall be identified. In each case the datum obtained shall be specified, along with the algebraic symbol assigned to the parameter or variable and used in the sub-sections below.

### **5.5.3 Baseline Determination**

This sub-section shall present and justify the emission reduction project baseline. The baseline is defined as "the emissions that would be expected to occur in the absence of the emission reduction project". Emission reductions are created when, as a result of an emission reduction project, actual emission rates are less than the baseline emission rates. The baseline determination method will be that described in the applicable Standard Method for this action.

### **5.5.4 Emission Reduction Calculation**

The calculation method to determine the emission reductions is set out in the Standard Method. The Standard Method being used shall be identified.

## **5.6 Reporting of Emission reductions**

In this section the Proponent shall provide a description and sample of the emission reduction calculation to be submitted with the Emission Reduction and Verification Reports.

The measurements used to calculate the emission reductions and the baseline and actual emission quantities must be indicated. The calculation must use the formulae developed and described in the Standard Method. The format in which the data are presented shall provide for data corrections (eg. for bias errors in instrument readings) and indicate the sources and the degree of uncertainty associated with the final results.

The data shall be presented in a format and in sufficient detail that the computations can be readily verified.

## **5.7 Final Sections**

The final sections of the Protocol shall list the documents examined and provide warranty statements concerning the accuracy of the material submitted.

### **5.7.1 Documents Examined**

The Proponent shall list all documents examined in the course of writing the Protocol, and provide a full bibliographic citation for each. Copies of all documents cited shall be retained for 5 years following the recording of the Protocol on the Registry.

### **5.7.2 Warranties**

In this section the Proponent shall state who participated in the writing of the Protocol and associated Emission Reduction Report(s) and who takes responsibility for the statements made in them. The Proponent must attest to and sign-off on the accuracy of the Protocol and the Emission Reduction Report(s).

### **5.7.3 Proponent**

The Proponent shall warrant that all information provided in the Protocol is true and factual and that all matters affecting the validity of the Protocol or associated ER claims, and documented in the Emission Reduction Report(s), have been fully disclosed. The Proponent shall further warrant that the ERs have not been previously used in any other emission reduction agency or program.

### **5.7.4 Author**

Where the author of the Protocol is a person other than the Proponent, the author shall warrant that the Protocol was prepared by the author based on the author's examination of information and records provided by the Proponent; and, that the author is satisfied that the information provided is complete and correct.

### **5.7.5 Addenda**

Any information that is too detailed or does not readily fit into the main body of the Protocol may be put in the addenda.

## **6. Preparing ERC Emission Reduction Reports**

Emission Reduction and Verification Reports must be prepared in accordance with the recorded Protocol for the emission reduction project.

Emission Reduction and Verification Reports document the actual emission reductions achieved by an emission reduction project. Compared to Protocols, these reports describe *what* reductions were made, while the Protocol describes *how* the reductions are made. Emission Reduction Reports document emission reductions that the Proponent intends to submit to the Director for creation as ERCs as well as for emission reductions from renewable energy projects and conservation projects.

### **6.1 Emission Reduction Reports**

Emission Reduction Reports (ERRs) must be prepared annually and recorded on the Registry within 180 days of the end of the 12 month period in which the emission reductions were made. This rule applies to ERRs relating to ERs for creation of ERCs and approval of SRs. In all cases there must be an individual Emission Reduction Report for each 12 month period for which emission reductions are claimed.

Protocols, Emission Reduction Reports, Verification Reports, and other documents to support an application to create ERCs from emission reductions made between July 1, 1998 and December 31, 1999 must be submitted to the Registry within 180 days of Ontario Regulation 397/01 coming into effect.

Where a Standard Method has been submitted to the Ministry for approval but has not yet been approved, the 180 day deadline for ERR submission will be deemed to have been met if the Protocol has been submitted, and each annual ERR has been submitted within its respective 180 day period. The review process will be suspended until the draft Standard Method has been approved. The Verification Report(s) for all submitted ERRs, and any revisions to the Protocol or the ERRs, must be submitted within 180 days of the Standard Method being approved.

#### **6.1.1 Notice of Emission Reduction**

The Notice of Emission Reduction is the first page, and as such forms part of the Emission Reduction Report. This Notice provides the information required for recording the Emission Reduction Report document, the creation of ERCs and their deposit into the Registry account assigned to the Proponent by the operator of the Registry.

#### **6.1.2 Emission Reduction Summary**

The Emission Reduction Summary immediately follows the Notice of Emission Reduction and as such forms part of the Emission Reduction Report. The purpose of the Emission Reduction Summary is to establish that the reductions have been correctly quantified in accordance with the Protocol and the applicable Standard Method, and that no event or change has occurred during the emission reduction period that would alter the validity of the Protocol.

The Emission Reduction Summary must demonstrate how the emission reduction project succeeded in meeting the eligibility criteria (real, surplus, unique, quantifiable, verifiable) as set out in the Code, and must disclose any matter that could affect the validity of the Protocol or its quantification methods. The Proponent must describe process, equipment, production or regulatory changes, changes in emission reduction project circumstances, or other changes that may have a bearing on the reliability of the Protocol's treatment of the eligibility criteria (real, surplus, unique, quantifiable, verifiable) in respect of the

emission reduction project. If there has been a deviation from the Protocol, an amendment to the Protocol must be made.

### **6.1.3 Calculation Documents**

The Emission Reduction Report shall document the calculations of the emission reductions. This shall include but may not be limited to spreadsheets tabulating measurements used to calculate emission reductions and the baseline, and actual emission quantities.

### **6.1.4 Documents Examined**

The Proponent shall list all documents examined in the course of writing the Emission Reduction Report, and provide a full bibliographic citation for each. Copies of all documents cited shall be retained for 5 years following the recording of the Emission Reduction Report on the Registry.

## **7. Verification Reports**

A Verification Report must be prepared for each Emission Reduction Report. This section sets out the requirements for all verification reports other than the verification reports allowed for under Standard Method B.1 for proponents who measure electricity production using a utility grade meter.

A Verification Report shall be prepared by a qualified and independent third-party (the “Verifier”), who will confirm the accuracy of the information provided. A statement of qualifications of the Verifier demonstrating that s/he is qualified to verify ERs shall be included in the Verification Report. The Director will review the statement of qualifications to determine if s/he is satisfied with the qualifications of the Verifier. Where the Director is not satisfied with the qualifications of the Verifier, the Director may reject the Verification Report.

The Verification Report shall indicate whether the Verification procedure described in the Protocol as required by section 5.4.5 of the Code was followed; and, shall provide an analysis of that conclusion.

A Verification Report shall include a statement by the Verifier certifying that the Verifier has personal knowledge of the emission reduction project, and that the Proponent has made proper use of the Standard Method in its application of the Standard Method to the emission reduction project that is the subject of the Verification activity. This shall include but is not limited to the appropriate use of measurement, data, and predictive techniques for the Standard Method and for the project being verified, correct calibration and QA/QC of all instrumentation, correct calculations, appropriate development of models and sampling plans, and correct application of any procedures such as laboratory analyses or stack testing.

The Verifier shall identify any potential conflict of interest to the Director in the Verification Report. Without limiting the generality of the foregoing, the Verifier shall not currently be or have been within six months of submission for Verification an employee of the party seeking Verification of the ER, the ER creator or any other previous owner of the ER, a competitor of the ER creator, or a competitor of the party seeking Verification of the ER, or an employee of any entity or person who has prepared the Protocol or the Emission Reduction Report.

The Verification Report contains the Verifier’s assessment of whether the ER claimed was the result of actions taken in accordance with the appropriate Standard Method, Protocol, and Emission Reduction Report and any other supporting documentation recorded on the Registry. The Verification Report must indicate whether the ER is surplus, real, properly quantified and unique. The Verification Report does not guarantee that the ER will be approved as an ERC by the Director.



## **Appendix A:**

### **Standard Methods for ERC Creation**

(Credits are created as a result of projects that reduce emissions directly from a source.)

## **A.1 Standard Method for Nitrogen Oxides (NO<sub>x</sub>) Reductions from Combustion Control Technologies**

This Standard Method relates to NO<sub>x</sub> emission reductions from thermal NO<sub>x</sub> made through adjustments to combustion variables.

### **Pollutant Gas Being Reduced**

The pollutants being reduced are nitrogen oxides (NO<sub>x</sub>).

### **Description of the Processes**

The principal nitrogen pollutants generated by industrial combustion are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>), collectively referred to as nitrogen oxides (NO<sub>x</sub>). The NO<sub>x</sub> content in the combustion gases from conventional power plant boilers and many industrial heating processes contains 90% or more NO, with the remainder being NO<sub>2</sub>.

NO<sub>x</sub> is primarily formed in two ways:

- Thermal NO<sub>x</sub> is formed when nitrogen and oxygen in the combustion air combine with one another at the high temperatures in a flame. Thermal NO<sub>x</sub> makes up the majority of the NO<sub>x</sub> formed during the combustion of gases and light oils.
- Fuel NO<sub>x</sub> is formed by the reaction of nitrogen bound in the fuel with oxygen in the combustion air. In oils containing significant amounts of fuel-bound nitrogen, fuel NO<sub>x</sub> can account for up to 50% of the total NO<sub>x</sub> emissions but is generally around 25%.

There are a number of combustion technologies that reduce thermal NO<sub>x</sub> emissions. Low NO<sub>x</sub> combustion technologies considered acceptable for the purpose of applying for Emission Reduction Credits include but are not limited to:

- ❑ Low Excess Air (LEA) Firing: Ignition Timing and Lean Air-to-Fuel Operation
- ❑ Staged Combustion: changing the air and fuel flow patterns in order to reduce the peak flame temperature and oxygen concentrations
- ❑ Flue Gas Recirculation (FGR): recirculating a portion of relatively cool exhaust gases back into the combustion process in order to lower the flame temperature
- ❑ Water/Steam Injection: water or steam are injected in the flame reducing the peak flame temperature and the oxygen concentration
- ❑ Fuel Induced Recirculation (FIR): the recirculation of a portion of the boiler flue gas and mixing it with the gas fuel at some point upstream of the burner
- ❑ Replacement of air feed with oxygen
- ❑ Other Low NO<sub>x</sub> Burners: include cyclonic burners and pre-mixed surface stabilized burners

### **Variables affecting the Rate of Emissions**

Variables affecting the rate of emission of NO<sub>x</sub> include nitrogen content in fuel, temperature, residence time and percent excess air.

Typical Combustion sources include: boilers, combustions turbines, internal combustion engines, reciprocating engines etc.

## **Determination of Emission Reductions**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions. The Proponent shall provide all of the parameters and the supporting information used in the calculation. This information shall include the following:

- Measurements taken – procedures or protocols followed with respect to sampling; the operation and calibration of the equipment; and factors taken into account to normalize data;
- Emission factors and Manufacturers Data – the source of the data or information and its applicability to the Proponent's project;
- Engineering Calculations – a description of all variables used and the method for determining that the calculation includes all pertinent variables and establishes the independence between variables and the applicability of each variable to the Proponent's project;
- Laboratories or testing facilities used and their qualifications;
- Qualifications of any staff who performed any testing or measurement;
- All other relevant information; and
- Any information that is requested by the Director

## **A.2 Standard Method for Sulphur Dioxide (SO<sub>2</sub>) Emission Reductions from Fuel Switching**

This Standard Method relates to SO<sub>2</sub> emission reductions through reductions in the percentage of sulphur in a fuel used by a stationary source.

### **The Pollutant Being Reduced**

The pollutant reduced is sulphur dioxide (SO<sub>2</sub>) in exhaust gases.

### **Description of Processes**

Fuel Switching for this Standard Method is defined as a change in fuels either of the same type (for example high sulphur coals to coal with a lower sulphur content) or different types (for example, petroleum coke to natural gas) resulting in the reduction of SO<sub>2</sub> gas emitted to the atmosphere from stationary sources.

When a fuel (such as oil, coal or diesel fuel) which contains sulphur compounds is burned, sulphur dioxide gas, SO<sub>2</sub>, is emitted in the exhaust gases. Different fuels contain different concentrations of sulphur. By replacing a high sulphur content fuel with a low sulphur fuel, SO<sub>2</sub> releases to the atmosphere are reduced.

### **Determination of Emission Reductions**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions. The Proponent shall provide all of the parameters and the supporting information used in the calculation. This information shall include the following:

- Measurements taken – procedures or protocols followed with respect to sampling; the operation and calibration of the equipment; and factors taken into account to normalize data;
- Emission factors and Manufacturers Data – the source of the data or information and its applicability to the Proponent's project;
- Mass Balance and Engineering Calculations – a description of all variables used and the method for determining that the calculation includes all pertinent variables and establishes the independence between variables and the applicability of each variable to the Proponent's project;
- Laboratories or testing facilities used and their qualifications;
- Qualifications of any staff who performed any testing or measurement;
- All other relevant information; and
- Any information that is requested by the Director

For calculation of SO<sub>2</sub> emissions based on percentage of sulphur in fuel, the percentage of sulphur in fuel must be measured and reported by a certified laboratory, with a frequency appropriate to its rate of change.

### **A.3 Standard Method for Nitrogen Oxides Emission Reductions by Fuel Switching**

This Standard Method relates to NO<sub>x</sub> emission reductions through reductions in the percentage of nitrogen in a fuel used by a stationary source.

#### **Pollutant Gas Being Reduced**

The pollutants being reduced are nitrogen oxides (NO<sub>x</sub>).

#### **Description of the Processes**

Fuel Switching for this Standard Method is defined as a change in fuels (for example, coal to natural gas) resulting in the reduction of NO<sub>x</sub> gas emitted to the atmosphere from stationary sources. Fuel additives are not permitted under this Standard Method.

The principal nitrogen pollutants generated by industrial combustion are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>), collectively referred to as nitrogen oxides (NO<sub>x</sub>). The NO<sub>x</sub> content in the combustion gases from conventional power plant boilers and many industrial heating processes contains 90% or more NO, with the remainder being NO<sub>2</sub>.

NO<sub>x</sub> is primarily formed in two ways:

- Thermal NO<sub>x</sub> is formed when nitrogen and oxygen in the combustion air combine with one another at the high temperatures in a flame. Thermal NO<sub>x</sub> makes up the majority of the NO<sub>x</sub> formed during the combustion of gases and light oils.
- Fuel NO<sub>x</sub> is formed by the reaction of nitrogen bound in the fuel with oxygen in the combustion air. In oils containing significant amounts of fuel-bound nitrogen, fuel NO<sub>x</sub> can account for up to 50% of the total NO<sub>x</sub> emissions but is typically around 25%.

When nitrogen compounds, present in the fossil fuel, are burned in the combustion process, they produce significant quantities of NO<sub>x</sub>.

#### **Variables Which Effect the Rate of Emission of the Pollutant Gas**

When a fuel containing nitrogen compounds burns in air, approximately 25% of the NO<sub>x</sub> in the combustion products is formed by reaction of the fuel-bound nitrogen with oxygen in the air. The other approximately 75% of NO<sub>x</sub> in the combustion products is formed by reaction of the nitrogen in the air with oxygen.

#### **Determination of Emission Reductions**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions. The Proponent shall provide all of the parameters and the supporting information used in the calculation. This information shall include the following:

- Measurements taken – procedures or protocols followed with respect to sampling; the operation and calibration of the equipment; and factors taken into account to normalize data;
- Emission factors and Manufacturers Data – the source of the data or information and its applicability to the Proponent's project;
- Engineering Calculations – a description of all variables used and the method for determining that the calculation includes all pertinent variables and establishes the independence between variables and the applicability of each variable to the Proponent's project;
- Laboratories or testing facilities used and their qualifications;
- Qualifications of any staff who performed any testing or measurement;

- All other relevant information; and
- Any information that is requested by the Director

## **A.4 Standard Method for NO<sub>x</sub> Emission Reductions from Selective Catalytic Reduction (“SCR”) in Combustion Exhaust**

This Standard Method relates to NO<sub>x</sub> emission reductions from installing and operating a Selective Catalytic Reduction (SCR) unit.

### **The Pollutant Gas Being Reduced**

The pollutants being reduced are nitrogen oxides (NO<sub>x</sub>).

### **Description of Processes**

For the purposes of this Standard Method, SCR is defined as a process or technology that selectively reduces NO<sub>x</sub> emissions by injecting ammonium (NH<sub>3</sub>) into the exhaust gas stream, upstream of a catalyst.

The principal nitrogen pollutants generated by industrial combustion are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>), collectively referred to as nitrogen oxides (NO<sub>x</sub>). The NO<sub>x</sub> content in the combustion gases from conventional power plant boilers and many industrial heating processes contains 90% or more NO, with the remainder being NO<sub>2</sub>.

NO<sub>x</sub> is primarily formed in two ways:

- Thermal NO<sub>x</sub> is formed when nitrogen and oxygen in the combustion air combine with one another at the high temperatures in a flame. Thermal NO<sub>x</sub> makes up the majority of the NO<sub>x</sub> formed during the combustion of gases and light oils.
- Fuel NO<sub>x</sub> is formed by the reaction of nitrogen bound in the fuel with oxygen in the combustion air. In oils containing significant amounts of fuel-bound nitrogen, fuel NO<sub>x</sub> can account for up to 50% of the total NO<sub>x</sub> emissions but is typically around 25%.

### **Variables Which Affect the Rate of Emissions**

Variables affecting the rate of emission of NO<sub>x</sub> include nitrogen content in fuel, ratio of ammonium to NO<sub>x</sub>, temperature, residence time and percentage excess air.

A rapid change in any of these variables will rapidly change the rate of emission of NO<sub>x</sub>, which must be measured frequently enough to track the change.

### **Measurement of Emission Rates and Reductions**

There is no quantitative formula for predicting the rate of emission of NO<sub>x</sub> from highly variable fuels. It is also very difficult to quantify the NO<sub>x</sub> removal from SCR. Consequently, the only way to measure emissions is by direct measurement of NO<sub>x</sub> in the combustion products.

The Proponent shall measure or estimate the upstream flow rate and must measure upstream NO<sub>x</sub> concentrations. A Continuous Emissions Monitoring System (CEMS) must be used to measure downstream emissions. In this case, the upstream measurement or estimate shall provide the baseline against which the NO<sub>x</sub> reduction is determined.

The Continuous Emissions Monitoring System (CEMS) shall be selected, installed, operated and maintained in accordance with the following:

- the Environment Canada publication entitled “Protocols and Performance Specifications for Continuous Monitoring of Gaseous Emissions from Thermal Power Generation” (1/PG/7), September 1993. This Guideline can be followed even if the NO<sub>x</sub> source is not a thermal

generation plant. The Guideline can be downloaded at:  
[http://www.ec.gc.ca/energ/electric/report\\_pg7/main\\_e.htm](http://www.ec.gc.ca/energ/electric/report_pg7/main_e.htm); or

- a guideline that, in the opinion of the Director, is equivalent to 1/PG/7.

### **Determination of Emission Reductions**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions.



## **A.5 Standard Method for SO<sub>2</sub> Emission Reduction by Scrubbing Technologies**

This Standard Method relates to making reductions in SO<sub>2</sub> emissions through the removal of SO<sub>2</sub> gas in exhaust gas by contact of the gas with a liquid or slurry in a scrubber.

### **The Pollutant Reduced**

The pollutant reduced is sulphur dioxide (SO<sub>2</sub>) in exhaust gases.

### **Description of the Processes**

When a material (such as oil, coal or metal ores) which contains sulphur or sulphur compounds is burned in air or oxygen, sulphur dioxide gas (SO<sub>2</sub>) is emitted in the exhaust.

For the purpose of this Standard Method, applicable technologies remove the SO<sub>2</sub> gas from the exhaust gas by contact of the exhaust gas with liquid slurry, (for example calcium carbonate in the case of Limestone Scrubbing) in a scrubber unit. The SO<sub>2</sub> gas is removed when it is precipitated or washed out of the exhaust gas and converted to a solid or liquid.

The sulphur dioxide can be removed from the exhaust by a variety of scrubbing methods including but not limited to:

Lime/Limestone Scrubbing  
Magnesium Oxide Scrubbing  
Dilute Sulphuric Acid Scrubbing  
Sodium Sulphite Scrubbing  
Amine Absorption

### **Determination of Emission Reductions**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions. The Proponent shall provide all of the parameters and the supporting information used in the calculation. This information shall include the following:

- Measurements taken – procedures or protocols followed with respect to sampling; the operation and calibration of the equipment; and factors taken into account to normalize data;
- Emission factors and Manufacturers Data – the source of the data or information and its applicability to the Proponent's project;
- Mass Balance and Engineering Calculations – a description of all variables used and the method for determining that the calculation includes all pertinent variables and establishes the independence between variables and the applicability of each variable to the Proponent's project;
- Laboratories or testing facilities used and their qualifications;
- Qualifications of any staff who performed any testing or measurement;
- All other relevant information; and
- Any information that is requested by the Director

## **A.6 Standard Method for Emission Reductions Generated from the Installation of an Idle Reduction System (IRS)**

This Standard Method relates to the installation and use of any device which leads to a reduction in the idling time of a mobile source (such as locomotives, trucks and buses), and reduces NO<sub>x</sub> and/or SO<sub>2</sub> emissions from idling.

### **Pollutant Gas Being Reduced**

The pollutants being reduced are nitrogen oxides (NO<sub>x</sub>) and/or sulphur dioxide (SO<sub>2</sub>).

### **Description of the Technology**

Locomotive diesel engines and large transport trucks have historically been allowed to idle for extended periods of time mainly to keep the main engine systems warm during periods of inactivity and to allow for the operation of the operator's cab accessories, heat and air conditioning, both of which require that the main engine be left running to provide the necessary electrical power.

Locomotives, depending on their assignment, typically idle 40-60% of the time the main engine is in operation, which equates to about 8 -14 hours per day. Railroad operating policies, automatic shutdown devices and layover protection systems have all been developed to reduce main engine idling and each of these systems can have an effect of reducing idle time to some degree. Each of these systems can have an adverse effect of increasing wear on the main engine's starting system components thus reducing the locomotive's reliability and service life between rebuilds.

Similarly, long haul transport generally have sleeping quarters that require heating or cooling depending on the season; systems that require the full engine to be idling in order to operate; or tend to have long wait times and the engine is kept idling rather than shut down to reduce wear from cold starts.

This Standard Method allows for the installation of an Idle Reduction System, ("IRS"), which starts up after the diesel engine is shut down (in the case of a locomotive, automatically after a prescribed amount of idle time). The IRS must use less power and fuel than the full engine, thus significantly reducing the quantity of all exhaust emission constituents from the engine.

The IRS maintains the engine's lube oil and coolant water systems with auxiliary heat to keep them within designated temperature limits. The maintenance of these systems is critical to keep the engine in the ready-to-operate mode, and protect the locomotive engine from freezing or from incurring excessive wear associated with cold starts regardless of season. This minimizes the increased emissions associated with start-up.

In addition to keeping the main engine lube oil and water systems warm, the IRS may generate electrical power to maintain the locomotive's battery charge to provide maximum starting power when needed. Auxiliary electrical power, is also generated for the operation of the crew comfort cab accessories, heat (in winter) or air conditioning (in summer).

### **Determination of Emission Rates**

The reduction in emissions of nitrogen oxides and sulphur dioxide is the difference between the emission rate of the idling main engine (the "baseline") and the emission rate of the operating IRS. The hour-by-hour record of main engine idling and IRS operation for each locomotive or truck shall be recorded by an automatic data logger.

The baseline locomotive idle emission rate shall be the value listed for each specific type of locomotive in either of two reports:

- Tables 5 and 6 in the document, Influence of Duty Cycles and Fleet Profile on Emissions from Locomotives in Canada, prepared for the Transport Development Centre, Transport Canada, by Robert Dunn and Peter Eggleton. in June 2002, or
- Locomotive Emission Study prepared for the California Air Resources Board, by Booz-Allen & Hamilton in January 1991.

To determine the baseline emission rate of nitrogen oxides and sulphur dioxide for locomotive engines not specified in these reports, or for other types of mobile sources, the engines shall be tested by a facility that, in the opinion of the Director, is qualified to do so. All documentation from the tests shall be provided, including but not limited to:

- procedures used;
- a summary of the testing facility's qualifications;
- the results of the tests; and
- applicability of the tests to the Proponent's project.

To determine the emission rates of nitrogen oxides and sulphur dioxide of the IRS, each type of unit shall be tested by a facility that, in the opinion of the Director, is qualified to do so. All documentation from the tests shall be provided, including but not limited to:

- procedures used;
- a summary of the testing facility's qualifications; and
- the results of the tests.

The Proponent shall also provide the range of emission rates, based on a spectrum of power output of the IRS, as determined by the testing facility.

### **Determination of Emission Reductions**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions. The Proponent shall provide all of the parameters and the supporting information used in the calculation. This information shall include the following:

- Measurements taken – procedures or protocols followed with respect to sampling; the operation and calibration of the equipment; and factors taken into account to normalize data;
- Emission factors and Manufacturers Data – the source of the data or information and its applicability to the Proponent's project;
- Mass Balance and Engineering Calculations – a description of all variables used and the method for determining that the calculation includes all pertinent variables and establishes the independence between variables and the applicability of each variable to the Proponent's project;
- Laboratories or testing facilities used and their qualifications;
- Qualifications of any staff who performed any testing or measurement;
- An explanation of the differences in emission rates from the IRS based on seasonal variation and other changes in power requirements;
- All other relevant information; and
- Any information that is requested by the Director

## **A.7 Standard Method for Emission Reductions from Energy Conservation through Process Efficiencies**

This Standard Method relates to changes to a process or processes (such as efficiency improvements), such that fuel consumed per unit activity is reduced. Reduced electricity consumption is not considered under this Method

### **The Pollutant Gas Being Reduced**

The pollutants being reduced are nitrogen oxides (NO<sub>x</sub>) and/or sulphur dioxide (SO<sub>2</sub>).

### **Description of Processes**

For the purpose of this Standard Method, a process or processes must be changed such that the rate of fuel consumed per unit activity is reduced.

This Method does not include adding abatement technology or electricity conservation. For electricity conservation, see Standard Method B.2: Standard Method for Displacement of Electricity from Conservation Projects. For abatement technology see Methods A.1 through A.6.

### **Determination of Emission Reductions**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions. The Proponent shall provide all of the parameters and the supporting information used in the calculation. This information shall include the following:

- Measurements taken – procedures or protocols followed with respect to sampling; the operation and calibration of the equipment; and factors taken into account to normalize data;
- Emission factors and Manufacturers Data – the source of the data or information and its applicability to the Proponent's project;
- Mass Balance and Engineering Calculations – a description of all variables used and the method for determining that the calculation includes all pertinent variables and establishes the independence between variables and the applicability of each variable to the Proponent's project;
- Laboratories or testing facilities used and their qualifications;
- Qualifications of any staff who performed any testing or measurement;
- All other relevant information; and
- Any information that is requested by the Director

For calculation of SO<sub>2</sub> emissions based on percentage of sulphur in fuel, the percentage of sulphur in fuel must be measured and reported by a certified laboratory, with a frequency appropriate to its rate of change.

All measurements and their adjustments shall be consistent with:

- the International Performance Measurement and Verification Protocol (IPMVP), Volume 1, 2002;
- ASHRAE Guideline 14-2002 Measurement of Energy and Demand Savings; or
- a generally recognized published industry protocol or guideline that is acceptable to the Director.

The Proponent shall identify the protocol or guideline used and shall demonstrate how it was used.

When using IPMVP, measurement shall be achieved in accordance with either section 3.4.2 (Option B) or section 3.4.3 (Option C).

Copies of IPMVP can be obtained from the following website address:

<http://www.ipmvp.org/>

Copies of ASHRAE Guideline 14 are available for a fee (approximately \$80USD) from the following website address:

<http://resourcecenter.ashrae.org/store/ashrae/>

## **Appendix B:**

### **Standard Methods for Set-Aside Reductions**

(Set-aside reductions are achieved as a result of projects that reduce emissions indirectly from a source.)

## **B.1 Standard Method for Displacement of Electricity from Renewable Electricity Projects**

This Standard Method relates to the indirect reduction of emissions from the Ontario electricity generation mix by new generation of electricity by renewable, non-emitting sources.

### **Pollutants Being Reduced**

The pollutants being reduced are nitrogen oxides (NO<sub>x</sub>) and/or sulphur dioxide (SO<sub>2</sub>).

### **Description of the Technologies**

In order for a renewable electricity project to be eligible under this Standard Method, the project must:

- Be the result of construction that began after January 24, 2000.
- Be located in the province of Ontario.
- Produce electricity using one or more of the following methods:
  - photo-voltaics
  - wind turbines
  - run of river hydro-electric
  - new hydro-electric power from existing dams (projects which produce no increase in reservoir size).

### **Measurement of Electricity Production**

Electricity production shall be metered using a utility grade meter installed and maintained in accordance with the procedure that is required by the Independent Electricity System Operator (IESO) under the Market Rules for the Ontario Electricity Market or a procedure that is acceptable to the Director.

Where a utility grade meter is not used to measure electricity production, the Proponent shall measure and calculate the electricity production using a method that, in the opinion of the Director, does not overestimate the electricity production.

### **NO<sub>x</sub> and SO<sub>2</sub> Displacements**

The Proponent shall report electricity delivered from the system in the periods defined in Schedule 1 of this Appendix.

NO<sub>x</sub> and SO<sub>2</sub> displacements shall be calculated using electricity savings, displacement calculations as shown below and shall be calculated using NO<sub>x</sub> and SO<sub>2</sub> electricity intensities published in Schedule 2 to this Appendix. Displacement calculations must be for a full 12 month period starting on the in-service date of the project or its anniversary.

For the purpose of this Standard Method:

- NO<sub>x</sub> displacements shall be D where D is the sum across all hours of Di, and  
 $D_i = E_i \times K_i$   
where Di = displacement of NO<sub>x</sub> in hour i  
Ei = is the electricity saving in hour i  
Ki = is the NO<sub>x</sub> intensity for hour i
- SO<sub>2</sub> displacements shall be D where D is the sum across all hours of Di, and  
 $D_i = E_i \times K_i$   
where Di = displacement of SO<sub>2</sub> in hour i  
Ei = is the electricity saving in hour i  
Ki = is the SO<sub>2</sub> intensity for hour i

The proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions.

### **Verification**

For the purposes of this Standard Method and where a Proponent measures electricity production using a utility grade meter, the Verification Report set out in Section 7.0 of the Code may be modified as follows:

The verification of the “real” and “quantifiable” components of verification may be satisfied by the Proponent providing, as part of his application,

- a letter from every electricity distribution or transmission company that the Proponent has delivered electricity to during the emission reduction period confirming in each case the quantity of electricity delivered from the generator during each of the periods set out in Schedule 1 of this Appendix during the 12 month period discussed above; or
- all billing records substantiating the amount of electricity delivered from the generator in the emission reduction period.

In either case, these records must set out and accurately reflect the amount of electricity delivered by the Proponent during the emission reduction period.

The remaining criteria, “surplus” and “unique” must be independently verified according to the requirements stipulated in Section 7.0.

For Proponents who do not measure electricity production using a utility grade meter, a full verification report, as outlined in Section 7.0 of the Code, is required from a qualified, independent, third-party verifier.



## **B.2 Standard Method for Displacement of Electricity from Conservation Projects**

This Standard Method relates to the indirect reduction of emissions from the Ontario electricity generation mix by as created through electricity conservation measures.

### **Pollutants Being Reduced**

The pollutants being reduced are nitrogen oxides (NO<sub>x</sub>) and/or sulphur dioxide (SO<sub>2</sub>).

### **Description of the Technologies**

In order for a conservation project to be eligible under this Standard Method, the project must:

- Begin after January 24, 2000.
- Be located in the province of Ontario.
- Reduce the use of electricity purchased or received from the IESO-controlled grid through the implementation of energy efficiency projects.

### **Determination of Electricity Savings**

The Proponent shall calculate the emission reductions in accordance with a procedure that, in the opinion of the Director, does not overestimate the emission reductions. The Proponent shall provide all of the parameters and the supporting information used in the calculation. This information shall include the following:

- Measurements taken – procedures or protocols followed with respect to sampling; the operation and calibration of the equipment; and factors taken into account to normalize data;
- Manufacturers Data – the source of the data or information and its applicability to the Proponent's project;
- Engineering Calculations – a description of all variables used and the method for determining that the calculation includes all pertinent variables and establishes the independence between variables and the applicability of each variable to the Proponent's project;
- Laboratories or testing facilities used and their qualifications;
- Qualifications of any staff who performed any testing or measurement;
- All other relevant information; and
- Any information that is requested by the Director

All measurements and their adjustments shall be consistent with:

- the International Performance Measurement and Verification Protocol (IPMVP), Volume 1, 2002;
- ASHRAE Guideline 14-2002 Measurement of Energy and Demand Savings; or
- a generally recognized published industry protocol or guideline that is acceptable to the Director.

The Proponent shall identify the protocol or guideline used and shall demonstrate how it was used.

When using IPMVP, measurement shall be achieved in accordance with either section 3.4.2 (Option B) or section 3.4.3 (Option C).

Copies of IPMVP can be obtained from the following website address:

<http://www.ipmvp.org/>

Copies of ASHRAE Guideline 14 are available for a fee (approximately \$80USD) from the following website address:

<http://resourcecenter.ashrae.org/store/ashrae/>

## NO<sub>x</sub> and SO<sub>2</sub> Displacements

The Proponent shall report electricity savings in the periods defined in Schedule 1 of this Appendix. Electricity savings is defined according to the following equation:

$$\text{Electricity savings} = (\text{electricity consumption during the baseline period}) - (\text{electricity consumption during the emission reduction period}) \pm \text{adjustments}$$

NO<sub>x</sub> and SO<sub>2</sub> displacements shall be calculated using electricity savings, displacement calculations as shown below and shall be calculated using NO<sub>x</sub> and SO<sub>2</sub> electricity intensities published in Schedule 2 to this Appendix. Displacement calculations must be for a full 12 month period starting on the in-service date of the project or its anniversary.

For the purpose of this Standard Method:

- NO<sub>x</sub> displacements shall be D where D is the sum across all hours of Di, and  
Di = Ei x Ki  
where Di = displacement of NO<sub>x</sub> in hour i  
Ei = is the electricity saving in hour i  
Ki = is the NO<sub>x</sub> intensity for hour i
- SO<sub>2</sub> displacements shall be D where D is the sum across all hours of Di, and  
Di = Ei x Ki  
where Di = displacement of SO<sub>2</sub> in hour i  
Ei = is the electricity saving in hour i  
Ki = is the SO<sub>2</sub> intensity for hour i

**SCHEDULE 1, CONSERVATION AND RENEWABLE ENERGY PROJECT -  
MEASUREMENT PERIODS**

Winter 1	January 1 to March 1
Spring	March 2 to May 31
Summer	June 1 to September 30
Fall	October 1 to November 30
Winter 2	December 1 to December 31
The amount of electricity conveyed into the grid between - Day 7 AM to 6:59 PM <sup>1</sup> Night 7 PM to 6:59 AM <sup>2</sup>	

<sup>1</sup> Monday to Friday, excluding statutory holidays

<sup>2</sup> All other times

**SCHEDULE 2, NO<sub>x</sub> AND SO<sub>2</sub> DISPLACEMENT CO-EFFICIENTS**

<b><u>NO<sub>x</sub> Intensity (kg/MWh)</u></b>		
<b>Period</b>	<b>Day</b>	<b>Night</b>
Winter 1	2.0	1.7
Spring	1.5	1.2
Summer	1.7	1.5
Fall	1.8	1.7
Winter 2	2.0	1.7

<b><u>SO<sub>2</sub> Intensity (kg/MWh)</u></b>		
<b>Period</b>	<b>Day</b>	<b>Night</b>
Winter 1	5	4
Spring	3	2
Summer	4	3
Fall	3.5	2.5
Winter 2	5	4