

GREENHOUSE GAS EMISSION REDUCTION TRADING PILOT (GERT)

TECHNICAL COMMITTEE REVIEW REPORT

Enmax-Canada Trade Matched Project

(Enmax2000-Feb-28)

1. PURPOSE

This report presents the assessment and recommendations of the Enmax-Canada Project Review Team for approval by the GERT Technical and Steering Committees.

2. ESTIMATED EMISSION REDUCTIONS

The Project Proponents are seeking:

1. registration of the emissions reductions that accrued as a result of the 1997 sale of green power by Enmax to Environment Canada, and
2. review and registration of the emission reduction project described in their Project Document.

1997 Registered Emissions Reductions

The Project Proponents estimate that the 1997 sale of green power by Enmax to Environment Canada resulted in 427 tonnes of CO₂ emission reductions.

Projected Emissions Reductions

The Project Proponents project the following estimates for emissions reductions from 1998 to 2008:

Year	Annual CO ₂ Reduction Estimate (tonnes CO ₂)
1998	2,774
1999-2006	2,777
2007	2,535
2008	22

3. PROJECT PROPONENTS

The seller of emission reductions is Enmax. Enmax was represented in the GERT review by Leon Burn. The buyer is Her Majesty in the Right of Canada (as represented by Environment Canada and Natural Resources Canada). Environment Canada was represented in the review by Leslie Welsh. Natural Resources Canada was represented by Deirdre Hetherington.

4. PROJECT DESCRIPTION

The project involves CO₂ emission reductions created as a result of the installation of two 600-kW capacity Vestas wind turbines in Alberta. The wind turbines were installed in 1997 by Vision Quest Windelectric Inc. (VQ) at Belly River and Castle River. The turbines are connected to the Alberta Interconnected Electric System by separate interconnection facilities with separate metering. The electricity generated is sold to the Power Pool of Alberta on a non-dispatchable basis at established prices

Enmax entered into an agreement to purchase “Green Power” from VQ on November 7, 1997. The Green Power delivery under this contract began on November 8, 1997 and is contracted to continue for 10 years.

Environment Canada entered into an agreement to purchase Green Power from Enmax on November 7, 1997. The Green Power delivery under this contract began on November 8, 1997 and is contracted to continue for 10 years.

Natural Resources Canada entered into an agreement to purchase Green Power from Enmax on January 8, 1998. The Green Power delivery under this contract began on January 8, 1998 and is contracted to continue for 10 years.

The Project Proponents submitted a Project Document (PD) to the GERT Pilot to support their case that the wind turbine generation from the VQ facility displaces generation “...which otherwise would have been generated by dispatchable sources, often including fossil-fuel generated electricity which emits greenhouse gases.” Hence, the Project Proponents’ position is that their purchase of Green Power eliminates the CO₂ emissions associated with the displaced generation.

The Project Proponents have requested GERT registration of this trade matched project, which positions them to apply for registration of the emission reductions achieved by the purchase of Green Power from the two VQ turbines for the 1997 to 2008 calendar years. The Review Team notes that there is no guarantee that GERT will exist in future calendar years. The Project Proponents have also requested registration of the emissions reductions that accrued in 1997.

5. OVERALL ASSESSMENT

Mandatory Requirements

The Project Review Team conducted a thorough review of the PD in consultation with the Project Proponents and the Technical Committee.

Based on its review, the Project Review Team has concluded that the PD satisfies the mandatory criteria set out in the GERT rule: namely; that the purchase of Green Power by Environment Canada and Natural Resources Canada results in emission reductions that are real, measurable, verifiable and surplus.

Real Emission Reductions

The demonstration of a credible reference case is central to the determination of emission reductions.

The Project Review Team concluded that the purchase of Green Power from Enmax resulted in real emission reductions because it displaced more greenhouse gas intensive generation in the Power Pool of Alberta. That is, it is the view of the Review Team that the delivery of zero emission electricity into a power pool supplied principally by thermal sources will result in a reduction in greenhouse gas emissions in aggregate.

Measurable Emission Reductions

The PD presents two methodologies for quantifying emission reductions: a formula based on a yearly-average emission factor for the Alberta grid (Reference Case A) and a formula based on an hourly-average emission factor for the grid (Reference Case B).

The Review Team and the Project Proponents discussed the relative merits of Reference Case A and B at length (Refer to Information Request#1 and Information Request#2). It is the Project Proponents' opinion that Reference Case A is the most appropriate methodology for the calculation of emissions reductions, and they have requested that emission reductions based on Reference Case A be registered for 1997.

The Review Team agreed that there are a number of ways to measure average emissions, and that both approaches are acceptable. However, at this time, the Review Team is not convinced that Reference Case A is to be preferred to Reference Case B. Future information with respect to average calculation methodologies may shed more light on this discussion. At the time of future registration, the Project Proponents will be requested to submit Reference Case A and B, as well as a marginal calculation methodology, as described below.

Of particular interest to the project Review Team were methodologies that would provide information on the marginal generation unit displaced. This issue had been investigated by the Project Proponents prior to the submission of the PD to GERT and was discussed as part of the Project Review process. The Project Review Team requested information with respect to possible methodologies that would incorporate a marginal emission factor. Also, the Project Proponents requested information regarding the marginal unit of generation, of their own accord, during the review process (Refer to Appendix D).

It is the view of the Review Team that a marginal calculation methodology is preferred because it would provide the most accurate estimate of emission reductions. However, the Review Team recognizes that there are a number of definitional, methodological, and confidentiality difficulties associated with developing such a calculation methodology. Therefore, for reasons of practicality, the Review Team has accepted Reference Cases A and B as reasonable means of measuring emissions reductions at this time. For the future registration of emissions reductions, the Review Team recommends that a marginal calculation methodology be pursued in addition to those methodologies presented in the PD.

The Project Review Team also noted that emissions from non-utility generators (NUGs) in the Alberta system are excluded from the Reference Cases (i.e. they are assumed to be zero). Given that energy from NUGs is included in the Reference Cases, this results in an underestimation of the project's emission reductions. Information submitted by the Proponent indicated that a) NUG emission data is currently unavailable publicly, b) NUGs currently make up less than 10 percent of total electricity supply in Alberta and c) NUGs are largely hydroelectric or natural gas-fired. Based on this information, the Review Team concluded that the impact of ignoring NUG emissions on the final estimate of the project's emission reductions is small given that the contribution of NUG to the Alberta power grid was small in 1997. However, the Review Team recommends that future submissions of emission reductions from this project strive to incorporate NUG emissions.

Notwithstanding the difficulty involved in quantifying emission reductions in an integrated electricity system, the Review Team has concluded that the methodologies proposed by the Proponent for measuring emission reductions resulting from the green power sale are acceptable to GERT and consistent with industry practice.

With respect to Review Team concerns relating to a marginal calculation methodology and NUG emission factors, the Project Proponents have addressed these concerns to the satisfaction of the Review Team by committing to:

- a) request a marginal calculation by the Power Pool of Alberta;
- b) incorporate NUG emission factors at the time of future registration given a mutually agreed upon methodology at the time of registration

In conclusion, although the Review Team is not convinced of the relative merits of Reference Case A and B, it is prepared to accept Reference Case A for the registration of

the emission reductions that accrued in 1997. However, as stated previously, at the time of future registrations, the GERT Technical Committee will request the Project Proponents submit Reference Case A and B, as well as a marginal calculation methodology.

Verifiable Emission Reductions

The Project Review Team has concluded that the Reference Case A as used within the final version of the PD to calculate emission reductions is acceptable, transparent and replicable and the raw data required to verify/audit the calculations is available. Specifically,

- the calculation methodology is fully documented in the PD;
- power production from the wind turbines is subject to non-GERT, third party verification and audit; and
- publicly available information regarding electricity production and emission factors will be used.

The Review Team recommends that third party verification of the 1997 reductions not be required.

For future registrations of emission reductions, the Technical Committee may require a third party verification as part of its review of an application for the registration of emission reductions under the GERT Pilot.

Surplus Emission Reductions

The Project Review Team is satisfied that the emission reductions produced by Enmax's purchase and sale of Green Power to Her Majesty in the Right of Canada (as represented by Environment Canada and Natural Resources Canada) are neither the direct or indirect result of any regulatory requirements on the operation of, or any discharges/emissions (including non-greenhouse gases) from, VQ's, Enmax's, Environment Canada's or Natural Resources Canada's facilities.

Non-Mandatory Requirements

Ownership

The Review Team notes the following with respect to ownership:

- a) emission reductions related to this matched trade are in the name of Her Majesty in Right of Canada as represented by the Minister of the Environment; and by Her Majesty in Right of Canada as represented by the Minister of Natural Resources,
- b) Section 2.2 E) of the PD states that, under its agreement with the seller, Enmax, “the ownership of the emission reductions is not assigned or transferred to Natural Resources Canada. However, Natural Resources Canada obtained interest in the emission reductions by obtaining entitlement under the agreement to monetary proceeds which Enmax may accrue through disposition of the emission reductions associated with the Natural Resources Green Power purchase.”

Additionality

The Review Team tested some initial questions relating to additionality with the Project Proponents on behalf of the Technical Committee. Refer to questions 3-8, 3-9 and 3-10 in the first attached Information Request (EnmaxIR – 991123) for further information.

Other Environmental and Socio-Economic Impacts

The Project Proponents provided a copy of the Environmental Assessment of the project that had been completed, as Annex H.

6. RECOMMENDATIONS

- a) Based on its review of the PD and the commitments of the Project Proponents as described above, the Project Review Team recommends registration of this trade matched project.
- b) It is further recommended, as per the request of the Project Proponents, that 427 tonnes of CO₂ emission reductions that accrued in 1997 be registered.
- c) In future, should the Project Proponents apply to register further emission reductions under GERT, the Review Team strongly recommends that the Project Proponents include, if feasible, an estimation of emission reductions based on a marginal approach. The volume of emission reductions registered by GERT registration of emission reductions may depend upon future information regarding marginal emission factor information.
- d) The proponents have included NUG emissions in the formulas they have used for their Reference Cases. At this time, information pertaining to NUG emissions is not publicly available in Alberta, and, therefore, the proponents has assumed them to be zero. For the case of 1997 emissions, the Review Team has determined the measurement error this assumption introduces is small.

In the future, the contribution of NUG emissions in the Power Pool of Alberta may

increase. The Review Team recommends that assumptions about NUG emissions be revisited at the time of future registrations of emission reductions. This discussion should include a consideration of:

- (1) the relative contribution of NUG emissions to the Power Pool,
- (2) the availability of public information about NUG emissions, or, in the absence of such information,
- (3) the availability of public information about NUG supply that would allow for agreement on an accounting methodology.

7. PROJECT REVIEW PROCESS

7.1 Project Review Team– Membership

The Project Review Team is a subset of the membership of the Technical Committee.

- Leah Lawrence, Canadian Energy Pipeline Association (Industry Representative)
- Andrew Pape, Pembina Institute (Environmental NGO Representative)
- John Duffy, Canadian Electricity Association (Industry Representative)
- Warren Bell, BC Environment Lands & Parks (Pilot Manager and Provincial Government Representative)
- Deborah Bisson (Pilot Coordinator)

7.2 History of the Review Process

The Project Review Team has conducted a thorough review of the PD in consultation the Project Proponents and the Technical Committee.

- Aug 28, 1998** Application submitted and posted to web site.
- Aug 5, 1999:** Project Document (PD) submitted.
- Oct 8, 1999** Acknowledgement and Agreement received
- Oct 8, 1999:** Project documentation complete
- Oct, 1999:** Project Review Team formed, leader chosen
- Nov 12,1999:** Conference Call (CC) to discuss project work plan, and raise questions of clarification the PD
Project Review Team
- Nov 13,1999:** Six written questions seeking clarification on the PD
were posed by the Project Review Team to the Project Proponents
- Nov 13,1999:** Project Proponents provided written answers on the questions of clarification
- Nov 15,1999:** CC to discuss project work plan and questions of clarification on the PD document
- Project Review Team and Project Proponents
- Nov 23,1999:** Information Request #1 submitted to the Project Proponents
- Nov 29,1999:** Response to Information Request #1 received from the Project Proponents
- Nov 29, 1999:** CC to discuss response to Information Request#1
- Dec 1, 1999:** Revised response to Information Request #1 received from the Project Proponents
- Dec 8, 1999:** CC to discuss revised response to Information Request#1
- Dec 17, 1999:** Information Request #2 submitted to the Project Proponents
- Jan 7, 2000:** Response to Information Request #2 received from the Project Proponents
- Feb 15, 2000:** CC to discuss draft Technical Committee Review Report (TCRR)– Project Review Team
- Feb 15, 2000:** Project Proponents provided an Addendum to their Response to Information Request #2
- Feb 18, 2000:** Issue draft TCRR to Project Proponent’s for their review and comment
- Feb 21, 2000:** Project Proponents provided final PD, revised as per the Project Review Team’s and the Project Proponents’ communications
- Feb 24, 2000:** Draft TCRR tabled with the Technical Committee for their review, comment and approval
- March 2000:** Steering Committee review and approval of final

TCRR

8. DECISION

The assessment and recommendations contained in this Technical Committee Review Report are approved by the GERT Technical Committee and the GERT Steering Committee.

Warren Bell, Pilot Manager
Chair, GERT Technical Committee

DATE

Don Fast, Co- Chair,
GERT Steering Committee

DATE

Roy Stavely, Co- Chair,
GERT Steering Committee

DATE