Environmental Quality Board

STATEMENT OF NEED AND REASONABLENESS
In the Matter of Proposed Revisions of Minnesota Rule Chapter 4410.2550

Revisor ID Number: R-04494
Alternative Format:
Upon request, this document can be made available in an alternative format. To make a request, contact Erik Cedarleaf Dahl at the Environmental Quality Board, 520 Lafayette Road North, St, Paul, MN 55155; telephone 651-757-2364; or e-mail erik.dahl@state.mn.us

Notice Regarding the Excerpted Language in this SONAR:
The EQB has excerpted language from the draft rules and included those excerpts in this SONAR at the point that the reasonableness of each provision of the rules is discussed. This was done to assist the reader in connecting the rule language with its justification. However, there may be slight discrepancies between the excerpted language and the rule amendments as they are proposed. The EQB intends that the rule language published in the State Register at the time the rules are formally proposed is the rule language that is justified in this SONAR.
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# Acronyms or abbreviations

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Introduction and background

A. Introduction

In the 2017 Minnesota legislative session, (Laws of Minnesota 2017, Chapter 93, Article 2, Section 140) the Minnesota Legislature passed legislation directed the Environmental Quality Board (EQB) to adopt by rule, “procedures to: (2) authorize a responsible government unit to allow a proposer of a specific action to prepare a draft environmental impact statement according to section 116D.04, subdivision 2a, paragraph (i).”\(^1\) Accordingly, the Environmental Quality Board proposes the following amendments to Minnesota Rules (Minn. R.) under Revisor ID R-04494.

This document explains the need for and reasonableness of proposed amendments to the environmental review rules specifically Minn. R. part 4410.2550. It summarizes the evidence and arguments that the Board is relying upon to justify the proposed amendments. It has been prepared to satisfy the requirements of Minnesota Statutes (Minn. Stat.) section (§) 14.131 and Minn. R. part 1400.2070.

B. Background

The Minnesota Environmental Review Program, established by the Minnesota Environmental Policy Act (Act) of 1973, has been in existence since 1974. The program operates under rules adopted by the EQB, which are binding upon all state agencies and political subdivisions of the state.

Draft EIS Rulemaking

This rulemaking amending Minn. R. part 4410.2550 is undertaken at the direction of the 2017 Legislature to adopt the specific language herein.

Public participation and stakeholder involvement

The EQB took the following steps to develop the draft rules, notify interested parties about the draft rules, and to solicit public input on rule language:

A. The EQB has provided the required notifications to the public and the entities identified in statute. Three Requests for Comments notices were published in the State Register on the following dates:

a. August 21, 2017

b. September 25, 2017

\(^1\) Note: The Session Law reads: “section 116D.04, subdivision 2a, paragraph (i)” however, the cross reference in the law was corrected to read section 116D.04, subdivision 2a, paragraph (k) in the current text of the law and therefore the rest of this SONAR will refer to that paragraph.
The EQB has a self-subscribing rule-specific mailing list at:
https://www.eqb.state.mn.us/contact, which EQB uses to disseminate rule-related information to interested and affected parties on the following dates:

a. August 23, 2017
b. November 6, 2017

In addition, the EQB sent a GovDelivery notice and a notice the EQB Monitor encouraging interested and affected parties to register to receive rulemaking information via the self-subscribing rule-specific mailing list on the following dates:

a. August 28, 2017
b. November 6, 2017

The EQB established a rule-specific webpage: https://www.eqb.state.mn.us/content/draft-environmental-impact-statement-eis-rulemaking, which was used to disseminate rule-related information to interested and affected parties.

The notifications required under Minn. Stat. ch. 14 will be provided at the time the amendments are proposed. The EQB intends to publish a Notice of the Intent to Adopt for the proposed amendments in the State Register and to provide additional notice of its activities to all parties who have registered their interest in receiving such notice.

Statutory authority

The Board was authorized and directed by the Minnesota Legislature to undertake this rulemaking (Laws of Minnesota 2017, Chapter 93, Article 2, Section 140). Additional statutory authority for the Board to adopt the rule amendments is found in the Minnesota Environmental Policy Act, Minn. Stat. 116D.04, subdivision 5a(11) and 116D.045, subdivision 1. Under these provisions, the Board has the necessary statutory authority to adopt the proposed rule amendments.

Statement of general need

Minn. Stat. ch. 14 requires the EQB to make an affirmative presentation of facts establishing the need for and reasonableness of the rules as proposed. In general terms, this means that the EQB must not be arbitrary or capricious in proposing rules. However, to the extent that need and reasonableness are separate, “need” has come to mean that a problem exists that requires administrative attention, and “reasonableness” means that the solution proposed by the EQB is appropriate. The basis of the need for this rule is described here; reasonableness is addressed in the next Section.

The EQB is proposing amendments to Minn. R. ch. 4410.2550 to:

A. Adopt (as directed by the 2017 Minnesota Legislature) procedures to authorize a RGU to allow a proposer of a specific action to prepare a preliminary draft EIS according to Minn. Stat. 116D.04, subdivision 2a, paragraph (k).
The desired outcome of this rulemaking is to meet the 2017 Legislative directive. The proposed rulemaking is designed to maximize flexibility for project proposers and responsible government units (RGUs) while maintaining the integrity and reliability of the environmental review process. The rulemaking proposes clarifying language that project proposers may, at their option, present information in the form of a preliminary draft EIS to the RGU for the RGU’s use in developing the final EIS. The rulemaking provides for input by the project proposer but the RGU maintains the control over the final EIS contents. The proposed rulemaking is necessary and reasonable to achieve the legislature’s goals specifically for this rulemaking.

The Minnesota Legislature determined there was a need to clarify that RGUs could allow project proposers to prepare a preliminary draft EIS according to Minn. Stat. 116D.04, subdivision 2a, paragraph (k). The session law states "draft environmental impact statement" but refers to paragraph "k" in Minn. Stat. 116D.04, subdivision 2a, which addresses the creation of a "preliminary draft EIS". Accordingly, the EQB focused on the need to update Minn. R. 4410.2550, the preliminary draft EIS section.

The Legislatures’ focus on paragraph "k", which addresses preliminary draft EISs, signals that although the project proposer is welcome to submit a preliminary draft EIS, the actual, final EIS, lies in the hands of the RGU and that the RGU may accept or reject the preliminary draft EIS contents.

The 2017 Legislative language states, “The board must by rule adopt procedures to: (2) authorize a responsible government unit to allow...” The EQB did not interpret the Legislative language to mean that prescriptive preliminary draft EIS procedures should be developed in rule. Rather, as the Legislative language states, “adopt procedures to authorize,” meaning the EQB must adopt a rule to authorize the RGU to allow the development of a preliminary draft EIS.

EQB was mindful to not to be too prescriptive with this rulemaking and it does not include deadlines which could lead to unintended negative effects on a project or the environmental review process itself (construction schedules, securing funding, the ability for people at the local level to best assess the timing and development of the project and the ability for the public to engage in the process).

It is necessary to codify the legislative language in rule to make it clear that proposers are allowed to develop preliminary draft EIS content according to Minn. Stat. section 116D.04, subdivision 2a, paragraph (k). The proposed rulemaking is necessary to achieve the legislature’s aforementioned goals and directive specifically for this rulemaking.

Reasonableness of the amendments

A. General reasonableness

Minn. Stat. ch. 14 requires the EQB to explain the facts establishing the reasonableness of the proposed rule amendments. "Reasonableness" means that there is a rational basis for EQB’s proposed action.

The EQB is proposing amendments to Minn. R. ch. 4410.2250 to:
A. Adopt (as directed by the Minnesota Legislature in 2017) procedures to authorize a RGU to allow a proposer of a specific action to prepare a preliminary draft EIS according to section 116D.04, subdivision 2a, paragraph (k).

The desired outcome is to meet the 2017 Legislative directive. Rule updates keep the rules relevant and allow for clarifications to make the rule more easily understood by project proposers, RGUs and the general public.

B. Specific reasonableness

The specific reasonableness of each change is discussed below. Some of the amendments have resulted in the re-numbering or changes to the lettering of items and sub-items. Those types of formatting changes are made through the authority of the Office of the Revisor of Statutes and the basis for those changes is not included in this SONAR.

CHAPTER AND PART 4410.2550 PRELIMINARY DRAFT EIS OPTION.

Proposed change – Part 4410.2550, Preliminary Draft EIS Option.

The proposer of a specific action may include in the information submitted to the RGU a preliminary draft EIS on that action for review, modification, and determination of completeness and adequacy by the RGU. The RGU may allow a proposer of a specific action to prepare a preliminary draft environmental impact statement according to Minnesota Statutes, section 116D.04, subdivision 2a, paragraph (k). A preliminary draft EIS prepared by the project proposer and submitted to the RGU shall identify or include as an appendix all studies and other sources of information used to substantiate the analysis contained in the preliminary draft EIS. The RGU shall require additional studies, if needed, and obtain from the project proposer all additional studies and information necessary for the RGU to perform its responsibility to review, modify, and determine the completeness and adequacy of the EIS.

Justification for Part 4410.2550, Preliminary Draft EIS Option.

The proposed rule language for Minn. R. 4410.2550 is necessary and reasonable because the 2017 Minnesota Legislature (Laws of Minnesota 2017, Chapter 93, Article 2, Section 140) directed the Environmental Quality Board to develop, in rule, procedures to authorize a RGU to allow a proposer of a specific action to prepare a preliminary draft EIS according to section 116D.04, subdivision 2a, paragraph (k).

The Minnesota Legislature determined there was a need to clarify that a RGU may allow a project proposer to prepare a preliminary draft EIS according to Minn. Stat. 116D.04, subdivision 2a, paragraph (k). It is reasonable to adopt a rule codifying this language to provide more clarity for RGUs and proposers. EQB is adding the legislative language to Minn. R. 4410.2550 for consistency between statutory language and rule language.

It is reasonable to develop rule language that creates greater clarity for the roles and responsibilities (of the project proposer and RGU), because the clarity is helpful for the parties involved in environmental review and may bring about greater efficiency in the EIS process. There could be potential cost savings if a RGU allows a proposer to provide input via a preliminary draft EIS while maintaining the integrity of the RGU’s role as the environmental review authority and the final word
on the EIS and the adequacy of the environmental review. It is reasonable to codify the Legislative language in final rule to clarify roles and responsibilities of the proposer and RGU.

The proposed language change is also reasonable because it allows the proposer to proactively develop preliminary draft EIS content, increasing efficiency, flexibility, and opportunity in the process and potentially reducing the cost for the RGU, while maintaining the integrity of the environmental review process. Efficiency may be gained if the RGU is confident in the preliminary draft EIS content and can incorporate it into the final EIS.

The 2017 Legislative language states, “The board must by rule adopt procedures to: (2) authorize a responsible government unit to allow,” The EQB did not interpret the Legislative language to mean that prescriptive preliminary draft EIS procedures should be developed in rule beyond the detail currently included in Minn. R. 4410.2550. Rather, as the Legislative language states, “adopt procedures to authorize,” meaning the EQB must adopt a rule to authorize the RGU to allow the development of a preliminary draft EIS. It is reasonable to adopt the legislative language into Minn. R. 4410.2550 because this is where the concept of preliminary draft is referenced in EQB rules.

It is reasonable to codify the legislative language in rule to achieve the Legislative directive to make it clear that proposers are allowed to develop preliminary draft EIS content according to Minn. Stat. section 116D.04, subdivision 2a, paragraph (k).

Regulatory analysis

This part addresses the requirements of Minn. Stat. § 14.131 (a), which compels state agencies to address a number of questions in the SONAR. In some cases, the response will depend on the specific amendment being proposed and specific detail will be provided. However, for most of the questions, the EQB’s response can be general and will apply across all of the components of this rulemaking, regardless of the specific amendment being proposed.

A. Description of the classes of person who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule.

As with the existing rules, the proposed amendment to Minn. R. 4410.2550 will primarily affect persons who propose to develop projects in Minnesota that have, or may have, potential for significant environmental effects.

The proposed language change to Minn. R. 4410.2550 should have little to no effect on the cost to EQB, RGUs, the general public or proposers. Currently, proposers are already allowed to prepare preliminary draft EIS content at their own cost, and thus EQB anticipates no extra costs to proposers. A RGU cannot stop a project proposer from submitting a preliminary draft EIS for its review. The RGU does not have to use the preliminary draft EIS content, but they cannot tell a project proposer that they cannot submit the preliminary draft EIS content because it is allowed in statute.

There is no mandatory requirement that a project proposer submit a preliminary draft EIS. The proposed rule clarifies that they may submit a preliminary draft EIS—so any additional costs would be voluntarily incurred by the project proposers. This proposed rule change will provide more clarity to the EQB, RGUs, the general public, and proposers, that proposers of
a specific action are allowed to prepare a preliminary draft EIS. If the RGU has confidence in
the preliminary draft EIS presented by the project proposer, the cost to the RGU and in turn,
to the applicable taxpayers, might decrease.

The proposed language change 4410.2550 will benefit all Minnesotans by providing more
clarity as to who can prepare a preliminary draft EIS.

B. The probable costs to the agency and to any other agency of the implementation and
enforcement of the proposed rule and any anticipated effect on state revenues.

The proposed rule amendments clarify practices for preliminary draft EIS preparation
already in place for the statewide environmental review program, therefore the proposed
rule amendments are unlikely to result in an increase in costs to state agencies.

The proposed rule does not relate to enforcement.

The EQB anticipates no effect on state revenues.

C. A determination of whether there are less costly methods or less intrusive methods for
achieving the purpose of the proposed rule.

The proposed rulemaking and specific language changes to Minn. R. 4410.2550 were
incorporated in the directive of the 2017 Minnesota Legislature (Laws of Minnesota 2017,
Chapter 93, Article 2, Section 140) which specifically directed this rulemaking, thus no less
costly methods or less intrusive methods were available to achieve the purpose of the
proposed rule or to comply with the legislative directive.

D. A description of any alternative methods for achieving the purpose of the proposed rule
that were seriously considered by the Agency and the reasons why they were rejected in
favor of the proposed rule.

The proposed rulemaking and language changes to Minn. R. 4410.2550 were incorporated in
the directive of the 2017 Minnesota Legislature (Laws of Minnesota 2017, Chapter 93,
Article 2, Section 140) thus no alternative methods were available to achieve the purpose of
the proposed rule or to comply with the legislative directive.

E. The probable costs of complying with the proposed rule, including the portion of the total
costs that will be borne by identifiable categories of affected parties, such as separate
classes of governmental units, businesses, or individuals.

As with the existing rules, the proposed amendment to Minn. R. 4410.2550 will primarily
affect persons who propose to develop projects in Minnesota that have, or may have,
potential for significant environmental effects.

The proposed language change to Minn. R. 4410.2550 should have little to no effect on the
costs assessed to EQB, RGUs, the general public or proposers. Currently, proposers already
have the authority to prepare a preliminary draft EIS, and thus EQB anticipates no extra or additional costs to proposers, which they themselves, do not authorize by choosing to voluntarily produce a preliminary draft EIS.

F. **The probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals.**

The proposed rule language for Minn. R. 4410.2550 was directed to be completed by the 2017 Minnesota Legislature (Laws of Minnesota 2017, Chapter 93, Article 2, Section 140) thus; no other options were available to complete the legislative directive and not adopting the proposed rule language is not considered an option. No additional costs or consequences should be involved.

As stated before, the proposed language change to Minn. R. 4410.2550 should have little to no effect on the costs or consequences for EQB, RGUs, other government units, businesses, the general public or proposers. Currently, proposers already have the authority to prepare a preliminary draft EIS, and thus EQB anticipates no extra or additional costs to proposers, which they themselves, do not authorize by choosing to voluntarily produce a preliminary draft EIS.

The consequence of not adopting the proposed rule would create more uncertainty for project proposers and RGUs in the environmental review process.

G. **An assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference.**

The proposed rule language for Minn. R. 4410.2550 is specific to the preparation of a preliminary draft EIS for the State of Minnesota and EQB sees no differences or impacts to existing federal regulations.

H. **An assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule.**

*Minn. Stat. § 14.131 defines “cumulative effect” as “the impact that results from incremental impact of the proposed rule in addition to the other rules, regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor but collectively significant rules adopted over a period of time.”*

There is no cumulative effect of the rule changes with other federal and state regulations related to Environmental Review. The proposed 4410 rule change covers the process of preparing a preliminary draft EIS. The change is an attempt clarify that RGUs may allow proposers to prepare a preliminary draft EIS for the RGUs consideration.

**Notice plan**
Minn. Stat. § 14.131 requires that an Agency include in its SONAR a description of its efforts to provide additional notification to persons or classes of persons who may be affected by the proposed rule, or explain why these efforts were not made.

The EQB utilizes a self-subscription service for interested and affected parties to register to receive rule related activities at the EQB. Each EQB rule project has a page on the EQB’s website and rulemaking information include status, timelines and drafts can be found on the rulemaking webpage. In addition to the public legislative process, which mandated this rulemaking, three separate Request for Comments notices were published for notice and comment.

A. Notice:

The EQB published notice requesting comments on planned rule amendments to Minn. R. ch. 4410. The notice was placed on the EQB’s rulemaking webpage. Three Requests for Comments notices were published in the State Register as follows:

A. The EQB has provided the required notifications to the public and the entities identified in statute. Three separate Requests for Comments notices were published in the State Register on:
   a. August 21, 2017
   b. September 25, 2017
   c. November 6, 2017

B. The EQB has a self-subscribing rule-specific mailing list at: https://www.eqb.state.mn.us/contact which EQB uses to disseminate rule-related information to interested and affected parties. Please note: an electronic notice was inadvertently not sent for the September 25, 2017 notice and that is why EQB decided to republish the notice in the State Register and send a new electronic notice in November 2017.
   a. August 23, 2017
   b. November 6, 2017

C. In addition, the EQB sent a GovDelivery notice and a notice the EQB Monitor encouraging interested and affected parties to register to receive rulemaking information via the self-subscribing rule-specific mailing list. Please note: an electronic notice was inadvertently not sent for the September 25, 2017 notice and that is why EQB decided to republish the notice in the State Register and send a new electronic notice in November 2017.
   a. August 28, 2017
   b. November 6, 2017

D. The EQB established a rule-specific webpage: https://www.eqb.state.mn.us/content/draft-environmental-impact-statement-eis-rulemaking, which was used to disseminate rule-related information to interested and affected parties.

E. The notifications required under Minn. Stat. ch. 14 will be provided at the time the amendments are proposed. The EQB intends to publish a Notice of the Intent to Adopt for the proposed amendments in the State Register and to provide additional notice of its activities to all parties who have registered their interest in receiving such notice.
Minn. Stat. § 14.22. On the date the Notice is published in the State Register, the EQB intends to send an electronic notice with a hyperlink to electronic copies of the Notice, SONAR, and proposed rule amendments to all parties who have self-subscribed to the EQB rulemaking distribution lists for the purpose of receiving notice of rule proceedings. The EQB will also distribute an electronic notice with a hyperlink to electronic copies of the Notice, SONAR, and proposed rule amendments in the next available EQB Monitor.

Additionally, the EQB intends to send an electronic notice with a hyperlink to electronic copies of the Notice, SONAR, and the proposed rule amendments to the following organizations:

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<tr>
<th>Name</th>
<th>Contact</th>
<th>Email</th>
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<tbody>
<tr>
<td>Association of MN Counties</td>
<td>Jennifer Berquam, Environment &amp; Natural Resources Policy Analyst</td>
<td><a href="mailto:jberquam@mncounties.org">jberquam@mncounties.org</a></td>
</tr>
<tr>
<td>League of MN Cities</td>
<td>Craig Johnson, Intergovernmental Relations Representative</td>
<td><a href="mailto:cjohnson@lmc.org">cjohnson@lmc.org</a></td>
</tr>
<tr>
<td>MN Association of Townships (MAT)</td>
<td>Gary Pedersen, Executive Director</td>
<td><a href="mailto:info@mntownships.org">info@mntownships.org</a>, <a href="mailto:gpedersen@mntownships.org">gpedersen@mntownships.org</a></td>
</tr>
<tr>
<td>MN Center for Environmental Advocacy</td>
<td>Kathryn Hoffman</td>
<td><a href="mailto:khoffman@mncenter.org">khoffman@mncenter.org</a></td>
</tr>
<tr>
<td>MN Chamber of Commerce</td>
<td>Tony Kwilas</td>
<td><a href="mailto:tkwilas@mnchamber.com">tkwilas@mnchamber.com</a></td>
</tr>
<tr>
<td>Metropolitan Council</td>
<td>Leisa Thompson, MCES General Manager</td>
<td><a href="mailto:leisa.thompson@metc.state.mn.us">leisa.thompson@metc.state.mn.us</a></td>
</tr>
<tr>
<td>Minnesota Association of Planning and Zoning Administrators</td>
<td>Ben Baglio, AMC Policy Liaison</td>
<td><a href="mailto:bbaglio@mncounties.org">bbaglio@mncounties.org</a></td>
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A copy of the Notice, proposed rule amendments and SONAR will be posted on the EQB’s rulemaking webpage: https://www.eqb.state.mn.us/content/draft-environmental-impact-statement-eis-rulemaking

Pursuant to Minn. Stat. § 14.22, the EQB believes its regular means of notice, including publication in the State Register, EQB Monitor and on the EQB’s rulemaking webpage, will provide adequate notice of this rulemaking to persons interested in or regulated by these rules.

Minn. Stat. § 14.116. The EQB intends to send a cover letter with a hyperlink to electronic copies of the Notice, SONAR, and the proposed rule amendments to the chairs and ranking minority party members of the legislative policy and budget committees with jurisdiction over the subject matter of the proposed rule amendments, as required by Minn. Stat. § 14.116. The timing of this notice will occur at least 33 days before the end of the comment period because it will be delivered via U.S. Mail.

This statute also states that if the mailing of the notice is within two years of the effective date of the law granting the agency authority to adopt the proposed rules, the agency must make
reasonable efforts to send a copy of the notice and SONAR to all sitting House and Senate legislators who were chief authors of the bill granting the rulemaking.

Pursuant to Minn. Stat. §14.111, if the rule affects farming operations or agricultural land, Minn. Stat. §14.111 requires an agency to provide a copy of the proposed rule changes to the Commissioner of Agriculture no later than 30 days before publication of the proposed rule in the State Register. The rule changes will be submitted to the Commissioner of the Department of Agriculture with a cover letter notifying the MDA of the changes. This rule doesn't specifically address farming operations or agricultural land but EQB is providing notice to the Commissioner of the Department of Agriculture because there is a possibility that the environmental review program may, at times, involve farming operations.

Performance-based rules

Minn. Stat. §14.002 requires state agencies, whenever feasible, to develop rules that are not overly prescriptive and inflexible, and rules that emphasize achievement of an agency’s regulatory objectives while allowing maximum flexibility to regulated parties and to an agency in meeting those objectives.

The goal of the environmental review program is to obtain useful information about potential environmental effects of proposed projects and how they can be avoided or mitigated. The structure of the rules promotes flexibility for units of government in obtaining this information. The rules specify the types of information that are needed, but the RGU chooses how it will obtain the information. Furthermore, Environmental Review is not a regulatory program, and hence the EQB has no “regulatory objectives” in this rulemaking.

The proposed rulemaking is designed to maximize flexibility for the project proposer and the RGUs while maintaining the integrity and reliability of the process. The rulemaking proposes clarifying language that project proposers may, at their option, present information in the form of a preliminary draft EIS to the RGU for the RGUs use in developing the final EIS. The rulemaking provides for input by the project proposer but the RGU maintains the control over the final EIS contents. The proposed rulemaking is necessary and reasonable to achieve the legislature’s goals specifically for this rulemaking and generally by its compatibility with Minn. Stat. § 14.002.

Consult with MMB on local government impact

As required by Minn. Stat. § 14.131, the EQB will consult with Minnesota Management and Budget (MMB). The EQB will do this by sending MMB copies of the documents that are sent to the Governor’s office for review and approval on the same day the EQB sends them to the Governor’s office. The Agency will do this before publishing the Notice of Intent to Adopt/Dual Notice/Notice of Hearing. The documents will include – the Governor’s Office Proposed Rule, and SONAR Form, the proposed rules, and the SONAR. The EQB will submit a copy of the cover correspondence and any response received from MMB to the Office of Administrative Hearing (OAH) at the hearing or with the documents, it submits for Administrative Law Judge (ALJ) review.
Impact on local government ordinances and rules

Minn. Stat. § 14.128, subdivision 1, requires an agency to determine whether a proposed rule will require a local government to adopt or amend any ordinances or other regulation in order to comply with the rule. The EQB has determined that the proposed amendments will not have any effect on local ordinances or regulations.

Costs of complying for small business or city

Minn. Stat. § 14.127, subds. 1 and 2 require an agency to "determine if the cost of complying with a proposed rule in the first year after the rule takes effect will exceed $25,000 for any one business that has less than 50 full-time employees, or any one statutory or home rule charter city that has less than ten full-time employees."

The EQB has determined that the cost of complying with the proposed rules in the first year after the rules take effect will not exceed $25,000 for any small business or small city. The EQB has made this determination based on the probable costs to a small business or city of complying with the proposed rule, which is expected to be voluntary to the project proposer, which could possibly be a small business, and minimal, if any to the RGUs, which may include some small cities, as described in the Regulatory Analysis section of this SONAR.

Authors, witnesses and SONAR exhibits

A. Authors

- Erik Cedarleaf Dahl

B. SONAR exhibits

Exhibits are located at the end of this document.

Conclusion

In this SONAR, the EQB has established the need for and the reasonableness of the proposed amendments to Minn. R. ch. 4410.2550. The EQB has provided the necessary notifications and in this SONAR documented its compliance with all applicable administrative rulemaking requirements of Minnesota statute and rules.

Based on the forgoing, the proposed amendments are both needed and reasonable.

Date: 12/17/2

David Frederickson, Chair
Environmental Quality Board
SONAR Exhibits

1. Laws of Minnesota 2017, Chapter 93, Article 2, Section 140
2. Revisor Certified Rules
3. Comments received from Requests for Comments Notices
Sec. 138. Minnesota Statutes 2016, section 116D.04, subdivision 5b, is amended to read:

Subd. 5b. **Review of environmental assessment worksheets and environmental impact statements.** By December 1, 2012 2018, and every five three years thereafter, the Environmental Quality Board, Pollution Control Agency, Department of Natural Resources, and Department of Transportation, after consultation with political subdivisions, shall submit to the governor and the chairs of the house of representatives and senate committees having jurisdiction over environment and natural resources a list of mandatory environmental assessment worksheet and mandatory environmental impact statement categories for which the agency or a political subdivision is designated as the responsible government unit, and for each worksheet or statement category, a document including:

1. intended historical purposes of the category;
2. whether projects that fall within the category are also subject to local, state, or federal permits; and
3. an analysis of and recommendations for whether the mandatory category should be modified, eliminated, or unchanged based on its intended outcomes and relationship to existing permits or other federal, state, or local laws or ordinances.

Sec. 139. Minnesota Statutes 2016, section 116D.04, subdivision 10, is amended to read:

Subd. 10. **Review.** A person aggrieved by a final decision on the need for an environmental assessment worksheet, the need for an environmental impact statement, or the adequacy of an environmental impact statement is entitled to judicial review of the decision under sections 14.63 to 14.68. A petition for a writ of certiorari by an aggrieved person for judicial review under sections 14.63 to 14.68 must be filed with the Court of Appeals and served on the responsible governmental unit not more than 30 days after the party receives the final decision and order of the responsible governmental unit provides notice of the decision in the EQB Monitor. Proceedings for review under this section must be instituted by serving a petition for a writ of certiorari personally or by certified mail upon the responsible governmental unit and by promptly filing the proof of service in the Office of the Clerk of the Appellate Courts and the matter will proceed in the manner provided by the Rules of Civil Appellate Procedure. A copy of the petition must be provided to the attorney general at the time of service. Copies of the writ must be served, personally or by certified mail, upon the responsible governmental unit and the project proposer. The filing of the writ of certiorari does not stay the enforcement of any other governmental action, provided that the responsible governmental unit may stay enforcement or the Court of Appeals may order a stay upon terms it deems proper. A bond may be required under section 562.02 unless at the time of hearing on the application for the bond the petitioner-relator has shown that the claim is likely to succeed on the merits. The board may initiate judicial review of decisions referred to herein and the board or a project proposer may intervene as of right in any proceeding brought under this subdivision.

Sec. 140. Minnesota Statutes 2016, section 116D.045, subdivision 1, is amended to read:

Subdivision 1. **Assessment.** The board shall by rule adopt procedures to:

1. assess the proposer of a specific action for the responsible governmental unit's reasonable costs of preparing, reviewing, and distributing the environmental impact statement. The costs shall be determined by the responsible governmental unit pursuant according to the rules promulgated adopted by the board; and
2. authorize a responsible governmental unit to allow a proposer of a specific action to prepare a draft environmental impact statement according to section 116D.04, subdivision 2a, paragraph (i).
Sec. 141. Minnesota Statutes 2016, section 160.06, is amended to read:

**160.06 TRAIL OR PORTAGE DEDICATION.**

Any trail or portage between public or navigable bodies of water or from public or navigable water to a public highway in this state which has been in continued and uninterrupted use by the general public for 15 years or more as a trail or portage for the purposes of travel, shall be deemed to have been dedicated to the public as a trail or portage. This section shall apply only to forest trails on established state water trails canoe routes and the public shall have the right to use the same for the purposes of travel to the same extent as public highways. The width of all trails and portages dedicated by user shall be eight feet on each side of the centerline of the trail or portage.

Sec. 142. Minnesota Statutes 2016, section 168.1295, subdivision 1, is amended to read:

Subdivision 1. **General requirements and procedures.** (a) The commissioner shall issue state parks and trails plates to an applicant who:

(1) is a registered owner of a passenger automobile, recreational vehicle, one ton pickup truck, or motorcycle;

(2) pays a fee of $10 to cover the costs of handling and manufacturing the plates;

(3) pays the registration tax required under section 168.013;

(4) pays the fees required under this chapter;

(5) contributes a minimum of $50 annually to the state parks and trails donation account established in section 85.056; and

(6) complies with this chapter and rules governing registration of motor vehicles and licensing of drivers.

(b) The state parks and trails plate application must indicate that the contribution specified under paragraph (a), clause (5), is a minimum contribution to receive the plate and that the applicant may make an additional contribution to the account.

(c) State parks and trails plates may be personalized according to section 168.12, subdivision 2a.

Sec. 143. Minnesota Statutes 2016, section 282.018, subdivision 1, is amended to read:

Subdivision 1. **Land on or adjacent to public waters.** (a) All land which is the property of the state as a result of forfeiture to the state for nonpayment of taxes, regardless of whether the land is held in trust for taxing districts, and which borders on or is adjacent to meandered lakes and other public waters and watercourses, and the live timber growing or being thereon, is hereby withdrawn from sale except as hereinafter provided. The authority having jurisdiction over the timber on any of these lands may sell the timber as otherwise provided by law for cutting and removal under the conditions as the authority may prescribe in accordance with approved, sustained yield forestry practices. The authority having jurisdiction over the timber shall reserve such timber and impose such conditions as the authority deems necessary for the protection of watersheds, wildlife habitat, shorelines, and scenic features. Within the area in Cook, Lake, and St. Louis counties described in the Act of Congress approved July 10, 1930 (46 Stat. 1020), the timber on tax-forfeited lands shall be subject to like restrictions as are now imposed by that act on federal lands.

(b) Of all tax-forfeited land bordering on or adjacent to meandered lakes and other public waters and watercourses and so withdrawn from sale, a strip two rods in width, the ordinary high-water mark being the waterside boundary thereof, and the land side boundary thereof being a line drawn parallel to the ordinary high-water mark and two rods distant landward therefrom, hereby is reserved for public travel thereon, and
Performs responsibility to review, modify, and determine the completeness and adequacy of the EIS. The project proposer shall require additional studies, if needed, and obtain all studies and other sources of information used to substantiate the analyses contained in the preliminary draft EIS. The project proposer shall submit to the RCU the preliminary draft EIS prepared by the project proposer and submitted to the RCU shall identify or include as an appendix of the project proposer a preliminary draft that environmental impact statement according to Minnesota subdivision 11.04, paragraph 2 of section 11.04.14.11.04.11.04.10.11.04.09.11.04.08.11.04.07.11.04.06.11.04.05.11.04.04.11.04.03.11.04.02.11.04.01.11.04.00.11.04.00.11.04.00.


draft EIS option.

Preliminary Rule: Preliminary Draft Environmental Impact Statements

Environmental Quality Board

RD494

CM/UNIT

REVISED

11/09/17
September 29, 2017

Mr. Erik Cedarleaf Dahl  
Environmental Quality Board  
520 Lafayette Road North  
St. Paul, MN 55155

RE: Request for Comment on Possible Amendments to Rules Governing Draft Environmental Impact Statements

Dear Mr. Dahl:

Thank you for the opportunity to comment on the Possible Amendments to Rules Governing Draft Environmental Impact Statements (EIS) developed for the Environmental Review Program as published on pages 226 - 227 of the State Register on August 21, 2017. The Environmental Quality Board’s request mentions the intent to address the 2017 session law that requires rules to let proposers develop draft EISs with RGU permission. Existing Minnesota law (Minn. Stat. 116D.04 subd. 2a (k)) and rule (Minn. R. 4410.2550) already authorize Responsible Governmental Units (RGU) to allow proposers to prepare preliminary draft EISs. With that background, the MPCA offers the following comments for your consideration.

1. It is important that the existing authority and responsibilities of the RGU under Minn. Stat. 116D.04 are not compromised by any prospective rulemaking. RGUs continue to be responsible for scoping an EIS; the publication, distribution, review, comment, and response to comments on the draft EIS; and the publication, distribution, notice, modification, and determination of the completeness and adequacy of the EIS. That means the RGUs will need to understand and support the methodology, approach, data analysis, and other aspects of the draft EIS, if prepared by the proposer, so that the RGU can stand behind both the draft and final EIS.

2. In describing the document that an RGU may allow a proposer to create, the new statutory language creates potential ambiguity through its use of the term “draft EIS” rather than “preliminary draft EIS”, as currently stated in Minn. Stat. 11D.04, subd. 2a (k). Our understanding is that it was not the legislative intent to alter the current process and procedures for creating a “draft” EIS, but this discrepancy in wording may suggest that there is a new distinction between a “preliminary draft” and “draft” EIS. It will be helpful for any rulemaking to clarify this through definition of terms. Similarly, however the document prepared by a proposer is described, the rulemaking should reaffirm that the RGU remains responsible for all the steps following preparation of the draft EIS mentioned above.

3. Additionally, any proposed rulemaking should consider the 280-day deadline in Minn. Stat. 116D.04 subd. 2a (j). The 280-day clock begins when the RGU publishes the notice of EIS preparation. If the proposer prepares the draft EIS, the rules should assure that the proposer’s preparation time will not affect the RGU’s ability to meet the challenging 280-day deadline.
4. Finally, it will be important to clarify the relationship between possible rule revisions in Minn. R. 4410.0200 and 4410.2600, and the current language and procedures already included in 4410.2550.

We appreciate the opportunity to comment. If you have any questions concerning our comments, please contact me by email at dan.card@state.mn.us, or by telephone at 651-757-2261.

Sincerely,

Dan R. Card, P.E.
Supervisor, Environmental Review Unit
Certification, Environmental Review & Rules Section
Resource Management & Assistance Division

DC/KK:mb

cc: Bill Sierks, MPCA, St. Paul
    Karen Kromar, MPCA, St. Paul
Minnesota Department of Natural Resources
Division of Ecological and Water Resources
500 Lafayette Road North
Saint Paul, MN 55155

September 28, 2017

Erik Cedarleaf Dahl
Environmental Quality Board
520 Lafayette Road North
Saint Paul, MN 55155

Dear Mr. Dahl,

On August 21, 2017 the Environmental Quality Board (EQB) published in the State Register a Request For Comments regarding Possible Amendments to Rules Governing Draft Environmental Impact Statements developed for the Environmental Review program. This rulemaking presumably stems from the 2017 session law that modified Minnesota Statutes 116D.045, Subdivision 1, which now reads,

Subdivision 1. Assessment. The board shall must by rule adopt procedures to:

(1) assess the proposer of a specific action for the responsible governmental unit’s reasonable costs of preparing, reviewing, and distributing the environmental impact statement. The costs shall must be determined by the responsible governmental unit pursuant according to the rules promulgated adopted by the board; and

(2) authorize a responsible governmental unit to allow a proposer of a specific action to prepare a draft environmental impact statement according to section 116D.04, subdivision 2a, paragraph (k).

[2017 session law changes indicated in strikethrough and underline.]

In many ways, this language appears to mirror the existing section 116D.04, subdivision 2a, paragraph (k), indicating that the changes to statute here only affirm the existing statutory language. However, since the Request for Comments indicated that rule changes are being considered for Minnesota Rules chapter 4410.0200 Definitions, and chapter 4410.2600 Draft EIS, DNR offers the following clarifications.

RGU Authorities Anticipated to Remain Unchanged

One of the primary components of the environmental review program under the Minnesota Environmental Policy Act (MEPA) is the establishment of governmental units as Responsible Governmental Units (RGUs) to implement the program according to Minnesota Rules chapter 4410. Minnesota Rules chapter 4410.0300 Subpart 4 defines the objectives of the environmental review process for which RGUs are entrusted with implementing.

To achieve these objectives, Minnesota Statutes section 116D.04 identifies various duties that are held by RGUs. These include, but are not limited to:
- Preparing a detailed environmental impact statement (EIS) for major governmental actions (Minn. Stat. 116D.04 Subd. 2a(a));

- Publishing notice of the completion of an environmental assessment worksheet (EAW) and receiving comments on the EAW (Minn. Stat. 116D.04 Subd. 2a(d));

- Deciding on the need for an EIS based on the EAW and comment received (Minn. Stat. 116D.04 Subd. 2a(d));

- Deciding on the need for an EAW as a result of a petition (Minn. Stat. 116D.04 Subd. 2a (e)); and

- Review, modify and determine the completeness and adequacy of the EIS (Minn. Stat. 116D.04 Subd. 2a (k)).

It is important that none of these responsibilities or authorities change as a result of this rulemaking, including the authority of an RGU to review, modify, and determine the completeness and accuracy of a preliminary draft EIS prior to publication, as well as the final determination of adequacy of an EIS. Maintaining these authorities and responsibilities for RGUs is important to ensure that environmental review documents continue to meet the responsibilities defined by statute and program objectives defined in Minn. R. chapter 4410.0300.

Relationship of this Rulemaking Effort to the Existing Rules

Minnesota Statutes 116D.04 Subdivision 2a(k) contains language that is included in Minnesota Rules chapter 4410.2550 as the following language,

The proposer of a specific action may include in the information submitted to the RGU a preliminary draft EIS on that action for review, modification, and determination of completeness and adequacy by the RGU. A preliminary draft EIS prepared by the project proposer and submitted to the RGU shall identify or include as an appendix all studies and other sources of information used to substantiate the analysis contained in the preliminary draft EIS. The RGU shall require additional studies, if needed, and obtain from the project proposer all additional studies and information necessary for the RGU to perform its responsibility to review, modify, and determine the completeness and adequacy of the EIS.

It will be important to clarify the relationship between possible rule revisions in Minn. Rules 4410.0200 and 4410.2600, and the current language and procedures already included in 4410.2550. It may be helpful to clarify what role, if any, this language may play in the development of rule revisions for this rulemaking effort.

Thank you for your consideration.

Sincerely,

[Signature]

Randall Doneen
Environmental Review Unit Supervisor

CC: Kate Fairman, DNR
Erik Cedarleaf Dahl  
Environmental Quality Board  
520 Lafayette Road North  
St. Paul, MN 55155

Subject: Draft EIS Rulemaking

The Minnesota Division of the Izaak Walton League of America (aka Ikes) has a strong belief that decisions impacting our environment should be rooted in scientific integrity. We also recognize that the sciences are ever evolving, and that regulatory agencies must periodically review the statutes, rules and policies that provide the basis for their actions. We commend the EQB for undertaking this Environmental Review (ER) re-evaluation, to examine or re-examine the emerging sciences that can benefit the State’s citizens and the environment by providing new insights into how we are impacting our State’s natural resources, and examining new ways to mitigate those impacts to the habitats that man and nature depend on for our health, wellbeing, and survival.

The following comments are provided to address topics for the preparation, review and modification of draft EISs located under part 4410.2600 (Draft EIS), as part of 4410.0200 Definitions and Abbreviations. These revisions are our public comments.

**Health Impact Assessment (HIA)**

Among the new sciences currently not included in Rule of Statute during development of an ER, is a Health Impact Assessment. Society has long recognized that regulatory decisions can and do play a major role in protecting or harming human health, whether based on a single decision, or on the cumulative impacts over many decisions. Like any other living organism humans are a part of the ecosystem, and our health and well-being must be an important consideration in the assessment of environmental impacts posed by any project(s) subject to ER. This is not to say all impacts are negative. In fact, a project may have many positive impacts on the environment and the humans that live in or use that environment. We believe all impacts, negative and positive, deserve to be weighed in the decision-making process.

But it is likely that negative impacts will draw the greatest attention, and these have the potential to adversely impact humans, causing accidents and injury, acute and chronic health problems, and even death. As the medical community examines health data for our citizens, patterns begin to emerge that need addressing, such as elevated mercury levels in newborns in the Arrowhead region, nitrates in groundwater supplies that can lead to infant methemoglobinemia (blue baby syndrome), lead, heavy metals, or other contaminants in drinking water, elevated rates of mesothelioma (lung cancer) in iron miners (and others exposed to asbestos fibers), etc. Each of these and more, deserve analysis and regulatory consideration as part of our formalized environmental review.

This review should be conducted by the State’s medical professionals, medical researchers at Minnesota’s colleges and universities, and by medical professionals and researchers from across
the nation (or from around the world), that are intimately familiar with the causes and effects associated with environmental problems. They can be assisted by professionals familiar with the use of “big data”, that can analyze large data sets to pinpoint issues heretofore unseen through standard research or observations.

Common sense should dictate the need and application of this review, for not all projects will need a HIA. But at the same time, the regulators need to be open to professional or public input that points to the need for an HIA, when their evidence or observations indicates that the inclusion of an HIA is a reasonable and prudent step to protecting the health and wellbeing of our citizens and environment.

Climate Change

Nowhere in ER Statutes or Rules is there a requirement to include an examination of climate change, even though there is irrefutable evidence that climate change resulting from the human caused release of atmospheric CO2, methane, and other greenhouse gases, is already having significant impacts on man, nature and our environment. ER must closely examine the upstream and downstream impacts of all projects that extract, transport, refine, and utilize fossil fuels and other greenhouse related gases.

We also believe the most significant climate related change, that impacts all aspects of the EQB's evaluation considerations, is the long-term impacts on the trajectory of almost all environmental baseline conditions. When we assess ecological impacts or management actions we typically make quite valid and logical assumptions that basic physical and ecological baseline functions are relatively static, like climate, wetlands functions, soil moisture, drought and precipitation cycles, or other baseline conditions, on top of which we consider environmental impacts from some action. However, climate change is impacting those very baseline physical and ecological processes that we once assumed were relatively static. For example, consider the increasing loss of permafrost and the resulting release of methane, or the increasing soil aridity that occurs as we raise temperatures 1-2 degrees. As we consider cumulative impacts we need to understand that the base against which we are assessing "impact" is changing.

We have recognized for several decades that greenhouse gas emissions are now pushing the Earth’s environment and the climate to a place it has not been since before the dawn of humanity. Time is of the essence, and this phase of ER must be immediately implemented in an attempt to limit the worst of the environmental damage.

Time and again climate models have been largely upheld, or have been found to be too conservative in their predictions based on collect observable data, with nearly every one beginning to show that impacts are worse than predicted. If we are to retain any semblance of our ecosystem, and protect the health and wellbeing of our citizens from the destructive elements of our climate, we must seek credible independent evaluation for all major projects that have the potential to negatively impact our efforts to reach greenhouse gas emission goals established in State statute and/or EQB rule. Failure to critically evaluate this issue during ER is no longer an option.
Finally, projects must accommodate our changing climate, and be built to increasingly higher structural standards in order to withstand more intense storms, with greater frequency, bringing stronger winds and higher precipitation totals than what was typical historically. An ER must ascertain whether design standards are based on future expectations, rather than past-experience, and whether the associated financial estimates concur to also meet these new climate realities. The damage observed in recent hurricanes/floods in the Gulf and Caribbean are good examples of the need for stronger building/zoning standards. ER needs to identify projects that over time will become increasingly susceptible to damage from severe storms, so that project proposers and the public are protected from unnecessary financial/environmental liability.

**Ecosystem Services Valuation**

Most if not all ERs require the applicant to look at the socio-economic impacts of a project. And not surprisingly, nearly all are presented with optimistic accounts that the project will positively impact the citizens and our State’s economy. Few provide a scientifically and fiscally sound, balanced look at the negative as well as positive impacts, on the existing economy and the citizens welfare. And virtually none complete an analysis that considers the ecological costs in real dollars, when the ecosystem’s environmental services are disrupted by the project.

The Federal government, including the EPA, is now examining the ecological services provided by our natural resources, and those values are expressing in real dollars. This would provide a more balanced approach to economic evaluations, taking into consideration the positive values of a project, while also looking at the potential costs to society for the ecosystem services lost in the process.

A good example of Ecosystem Services Valuation is attached. It is “Earth Economics St. Louis River Project Report” produced by Earth Economics of Tacoma, Washington, and was funded by the Fond du Lac Band of Lake Superior and the US EPA.

An example of where this would have been of real value, was in the EIS ordered for the Sandpiper and Line 3 Replacement projects, proposed by Enbridge. Unfortunately, the MN Dept. of Commerce during scoping, specifically stated that ecosystem services valuations would not be a part of the EIS. Decisions such as this throw off the ability to balance economic costs and benefits, by only presenting the benefits side of the equation, and ignoring some real costs to society in ecosystem services lost or damaged by the project. The public and regulators are left with incomplete information upon which they then must make their decisions.

Society still seems to have that frontier mentality that we have endless resources to exploit forever, when in reality, the pressures of a growing worldwide population have already begun to do irreversible harm to the planet. These resources, and the ecosystem services provided by nature have economic value, even if we refuse to consider them. By ignoring the need to value these complex, but critical functions, we do so at our own peril. The cost to repair or replace
damaged ecosystem functions will inevitably be greater than the cost to protect those same functioning resources.

**Environmental Justice**

We must insist that during ER on all major projects that an independent and thorough review be completed of potential impacts on the disadvantaged populations within our State. This includes Native Americans living on and off reservations, communities of working poor, small rural communities challenged by economic changes (ex. farming/mining/timber production), poor inner city populations, and those communities populated by immigrants, etc. History has shown that the poor, or those living in areas with poor economic opportunities, have their living conditions exposed disproportionately to pollution and environmental degradation, and have job opportunities that expose them to hazardous conditions that pay substandard wages, trapping them in a low standard of living. And that these individuals and communities subsequently experience greater physical and mental health problems and have less opportunity to better themselves and their families.

This topic becomes increasingly important as the political divide potentially continues on a trajectory of benefits for a few, at the expense of the many, especially underserved populations. We must prevent dangerous and potentially harmful projects from focusing on and negatively impacting the disadvantaged communities. The ER needs to look at the impacts of these projects, and develop practical and realistic alternatives that protect these populations, or that adequately compensate and/or mitigate for the impacts.

**Cumulative Impacts**

“Significant cumulative potential effects can result from individually minor projects taking place over a period of time. In analyzing the contributions of past projects to cumulative potential effects, it is sufficient to consider the current aggregate effects of past actions,” (4410.0299 Subp. 11a).

Cumulative impacts are identified in Administrative Rules 4410.0200, as a requirement of ER. But not all project reviews identify or adequately address cumulative impacts. The issue is a matter of time (years/decades) and landscape scale. The provisions in 4410 were passed in the early 1970s, and if we were to compare the environment, and man’s impacts on it over the period of time since then, we would see that there has been a steady but gradual erosion of our environment. This is an observable, measureable fact.

It’s true that some aspects of our environment are better, such as air and water quality from point source contaminants, largely due to the Federal Clean Air Act and the Clean Water Act (as well as WCA-Minnesota’s Wetland Conservation Act) that focused on the negative impacts caused by point source pollutants. However, we are in reality treading water at best and losing ground in most cases. Based on an MPCA study we know that water quality in half or more of the state is now found to be unsuitable for swimming and fishing. And most of the wetlands that would
have prevented or mitigated farm runoff have disappeared following drainage. Clearly, we need to look more closely at the impacts associated with cumulative impacts on our environment.

With no real statute preventing the loss of wetlands in the agricultural part of the state, and no real way to regulate farm runoff, our surface and groundwater resources are being challenged by both nonpoint and point-source problems associated with farm practices. CAFOs (Confined Feedlot Operations) contribute to both air and water pollutants. Some facilities stay below thresholds, others do not. Either way, when multiple operations are in (relatively) close proximity, there’s a need to look at cumulative impacts. Whether the facilities comply or not, the cumulative impacts often result in both point source, as well as non-point source contamination within the watershed (one might argue that pattern tile drainage should be a “point source” for pollutants, because contaminated water spills directly from an open pipe into waters of the State). Manure from the thousands of animals in the CAFOs is spread on bare or frozen field, with no living plants to mitigate runoff through nutrient uptake, or provide needed filtration. Add in runoff from pesticides, fertilizers, and sediment, and it’s no mystery why our waters are unfit for human use.

We see all this as a cumulative impact, over both time and space. And every new operation, whether meeting minimum standards or not, they all contributes to an unregulated cumulative impact. Unless we begin to recognize it as such, and create a regulatory framework to deal with it, our water quality will continue to be abysmal.

Recognize that this is only one example of the cumulative impact on our environment. Flash back and forth from the 1970s to the present, and there are countless cumulative impacts, from urban development, forest conversion to agriculture, expanded mining development, or the over-pumping of our groundwaters for urban or agricultural use (to name just a few). The issue is one of passing time, and our point of reference. We’ve failed to set a point in time from which cumulative impacts are to be measured. And because we’ve failed to observe and analyze the gradual changes over time, it’s resulting in our failure to mitigate for the slow erosion of our environment from one decade to the next.

Projects no longer stand on their own, as they join vast numbers of environmentally impacting projects across all habitat types. We need, and lack thresholds; we need limits that say "no more". Without considering cumulative impacts there is no way to consider threshold limits of change. Back when WCA was developed in the early 90's, many of us thought the policy of “no net loss” was embraced and articulated in law. We were naive, now realizing that mitigation has failed us, policy has failed us, and now we are on a trajectory of continued wetland and habitat loss, currently without any cumulative considerations.

Possibly the best way to address this, is to bring a more historical perspective into the ER process, one that measures and analyzes the longer-term (cumulative) losses that chip away at our environmental quality relatively unnoticed by normally observant citizens and regulators. It would be beneficial to everyone to establish a hard baseline point in time, from which to measure cumulative changes, thus giving regulators and the public a point to measure impacts from, which would lead to a true look at those cumulative impacts to our landscape.
ER Process

In addition to the topical items mentioned above, the Ikes would like to provide input on the regulatory processes in the hope that it will lead to improved citizen participation, a technically and strategically improved process, and an improved permitting process through improved scientific review.

Often, the staff at the regulatory agencies are burdened by political influence, lack the scientific expertise in some specific field(s) where they are required to make sound scientific findings, are understaffed, and/or are hampered by statute, rule, or policy that prevents the development of findings that square with the scientific evidence.

To assist in addressing these issues, we feel that having a standing, independent body comprised of knowledgeable experts from across a broad range of scientific fields, focusing on environmental, geologic, chemical, medical, and engineering sciences. Their charge would be to review and offer recommendations on the science and findings developed by the agency staff, as well as that of the project applicants. This “Supreme Court of Science” would serve as a Scientific Advisory Panel, along the lines of the National Academy of Science, to provide independent (isolated from political influence) scientific advice and review for regulatory permitting, as well as providing expertise to policy and law-makers. To help ensure independence, the Panel would be drawn from experts from across the country, possibly from around the world. These scientists are to be elected by their peers, based on outstanding contributions to science and research, furthering scientific knowledge in America, as well as active contributors to the international scientific community. Finally, to further ensure independence, the Panel would receive no compensation from the government during their term on the Panel.

If there is a lack of scientific knowledge on a particular topic, the Advisory Panel would reach out to others in the scientific community that have the needed expertise, and that would provide guidance to the Advisory Panel in developing findings and recommendations.

Next, we would ask that the EQB staff change the format for involving the public, finding better ways to seek input from those with the most at stake in the decision-making process, as well as seeking input from those with no overt stake in a permitting decision. In this congested and busy world, simply announcing in the EQB Monitor that they want input is inadequate, and will not garner valuable public input from one of the most knowledgeable and experienced stakeholder groups. Industry, business and environmental groups along with RGU’s and EAW petitioners are typically invited to comment. But the general public who often is experiencing the rather onerous and very costly (the issue of cost pits the have’s against the have not’s, which in itself sets up an imbalance within the process) ER process for the first time, and sees or must live with the long-term outcome(s) of ER, have not been specifically sought out for their input and cannot fully participate in the permitting process as presently designed.

To more accurately gauge public acceptance of the current ER and permitting system, we feel the EQB staff should request all RGU’s around the state identify and submit a lists of ER
commenters as a separate interested stakeholder group. This group would be polled for their opinion on how well the ER and permitting process is worked for them, and how it could be improved.

Finally, our Division recommends that the ER process for State approved projects be returned to the two agencies that are responsible for the protection and management of our state’s environment and natural resources, the Minnesota Pollution Control Agency (PCA) and the Department of Natural Resources (DNR). And that the Responsible Government Unit (RGU) for all State permitted projects become the full Environmental Quality Board. If having the EQB be the RGU for all State permits is unacceptable, we would offer as a compromise that this responsibility could be narrowed to just those projects requiring a Mandatory EIS.

The Ike’s do have concerns when a single agency is the RGU, and that agency has a mission that both promotes and regulates industries that seek to benefit financially from extraction and use of our State’s natural resources or the environment. A separation of duties is needed, so that there is greater confidence that the “public commons” are being properly protected and managed.

For example, the Department of Commerce (DOC) presently does ER for the PUC, at DOC EERA. The Ikes see MPCA and DNR as the best qualified agencies for completing ER, with their missions most favorably align with environmental and resource protection and management. They also have more available staff capable of better understanding the complex ecological and environmental implications of a project, and they have far better staff distribution across the entire state that can provide local knowledge. DOC EERA on the other hand is a small, centralized staff that has none of these advantages. In addition, there is some concern that the mission of Commerce is conflicted, being seen as both promoter and regulator of the same industries.

Returning ER responsibility to the MPCA and DNR would be our recommendation. However, we do feel that DOC has an important role in ER, but this is their expertise in matters of finance.

The best of all worlds is to have DOC, DNR and MPCA participate in ER development, each working in the facets that best align with their missions and area(s) of expertise. The agencies would work collaboratively to develop a consensus recommendation that would be presented to the appropriate RGU (EQB) for final action. In cases where consensus cannot be reached, each agency would develop and independently submit their findings to the RGU, who would then reach a final decision and take the appropriate action. We feel that the ER and permitting process requires a better, more collaborative approach between the agencies, with the RGU authority resting with the EQB.
December 7, 2017

Erik Cedarleaf Dahl
Environmental Quality Board
520 Lafayette Road North
St. Paul, MN 55155

VIA E-MAIL

Re: Request for Comments on Possible Amendments to Rules Governing Draft Environmental Impact Statements developed for the Environmental Review Program

Dear Mr. Dahl:

Thank you for the opportunity to comment on the proposed rulemaking incorporating the statutory amendments made in the 2017 legislative session allowing project proposers to prepare their own Draft Environmental Impact Statement (DEIS). For more than 40 years, MCEA has used law and science to protect and defend Minnesota’s environment and the health of its people. As we all know, but sometimes need reminding, Minnesota is blessed with incredible environmental resources – plentiful water, clean air, forests, wetlands, wildlife. It’s the reason many of us choose to live here. These resources are the foundation of a multimillion dollar recreation and tourism industry that supports thousands of jobs in our state.

For four decades now, meaningful environmental review has allowed agency experts and the public to study the environmental impacts of big projects before it is too late and expensive to make common sense improvements. Environmental review gathers information about the project and forces consideration of alternatives that can make a large, potentially destructive and damaging project less polluting. It leads to better projects that meet existing standards, which allows agencies to permit the projects. Environmental review also serves the important role of educating the public and gathering public input.

Without proper safeguards, the proposed rulemaking endangers meaningful environmental review, agreeing to let the project proposer, an entity invested in the outcome of the project, write its own environmental review document without meaningful oversight. We strongly recommend that EQB draft the rules such that Responsible Governmental Units (RGUs) retain their existing authority and responsibilities to oversee the process. Otherwise, the foxes will be watching the henhouse.
The proposed rules should be drafted to protect the integrity of the environmental review process.

Without well-thought-out rules, this action takes environmental review out of the hands of independent agencies with expertise to regulate and puts it in the hands of project proposers with economic interests in the outcome. As it stands, industries will write their own environmental review. This is antithetical to more than 40 years of environmental regulation and turns the environmental review process on its head. The RGUs cannot abdicate their responsibility. They must retain their authority to enact meaningful environmental review.

Under Minn. R. 4410.2250 as it exists today, a proposer may submit “a preliminary draft EIS” subject to “review, modification, and determination of completeness and adequacy by the RGU.” The rule empowers the RGU to require additional studies and information from the proposer or from independent consultants. Under the current structure, the RGU ultimately produces the DEIS and is responsible for its content. Any rulemaking must preserve these powers and responsibilities of the RGU to ensure that Minnesota has meaningful environmental review.

The 2017 legislative action triggering this rulemaking requires that rules “authorize a responsible governmental unit to allow a proposer of a specific action to prepare a draft environmental impact statement.” This language is permissive, not mandatory, as to the RGU. These rules should make clear that no RGU is required to allow a project proposer to write its own environmental review. The RGU should have the discretion to manage or limit the portion of the DEIS prepared by the proposer, and retain oversight authority over all of the DEIS.

The proposed rules should make the consequences of allowing the proposer to write its own DEIS clear to the RGU. The rules should emphasize that even if the RGU allows a proposer to prepare the entire DEIS, the RGU is still wholly, legally responsible for the contents of the DEIS. The RGU will be tasked with responding to any comments or litigation triggered by inadequate environmental review. In other words, the RGU must ensure the quality and completeness of the DEIS, even if they allow industry to prepare it. The other side of this coin is that the rules must ensure that the RGUs retain the authority necessary to fulfill this responsibility.

The rules should make clear that when the proposer prepares the DEIS, the proposer must voluntarily make all underlying data available to the public for independent scrutiny and evaluation. The rule should also include a mechanism by which the public can obtain that underlying data. Allowing private industry to prepare their own DEIS is especially problematic if underlying DEIS data is not subject to the Data Practices Act when prepared by a private regulated entity. This reduces public transparency and permitting accountability.

Environmental review is one of the only places where the cumulative impacts of similar projects can be evaluated and where the public can weigh in on the full range of environmental issues raised by proposals that will impact their communities. The law generally requires an EIS on projects that are more difficult and include complex environmental issues, a much higher degree of public interest and involvement, and typically an overlay of federal environmental review and permitting requirements. Left unchecked, this new legislation could undermine the value of the
EIS process. The proposed rules must ensure that a DEIS, prepared in whole or in part by a proposer, meets the same standard of quality and completeness as under the current regime.

**EQB should use this rulemaking opportunity to take bold, immediate action on climate change.**

Handling Greenhouse gases (GHGs) and climate change in environmental review in a way that adds value for decision-makers is a nontrivial challenge. But tackling this challenge is critical if the EQB is serious about the deep, cross-sector changes its 2014 Climate Solutions and Economic Opportunities (CSEO) report suggests are needed. States like Massachusetts, Washington, and California have been leaders in drawing on the value in their environmental review programs to make better decisions on GHGs and climate change issues with a systematic, project-by-project understanding of impacts, alternatives, and potential mitigations. With good examples from these states, and the groundwork that MPCA started to develop in 2008, we believe the tools are available and the time is now to take a step forward on better-informed decision-making.

**EQB should develop a consistent framework for evaluating GHGs and climate change across all environmental reviews, including proposer produced DEIS.**

Beyond the 2017 legislative mandate that EQB must consider, there is a profound need for improvement in the treatment of GHGs emissions and climate change in environmental review. In order to actually leverage the environmental review process into better planning and decision-making on GHGs and climate, practitioners need a coherent framework for evaluating impacts, alternatives, and mitigation – particularly in Environmental Assessment Worksheets (EAWs), which account for the majority of the environmental review work in the State.

When it comes to a framework for impact assessment and alternatives evaluation, much of the groundwork could be drawn from a brief flurry of GHGs and climate change activity at MPCA that produced a small collection of guidance documents between 2008 and 2009. Combining existing (but sometimes forgotten) MPCA guidance with a survey of federal guidance from the Council of Environmental Quality (CEQ), and state-level guidance developed by the Massachusetts Office of Energy and Environmental Affairs, Washington State Department of Transportation, and California Natural Resources agency, we suggest the following framework to guide the evaluation GHGs and climate change impacts in environmental reviews:

1. Calculate GHG emissions associated with the project
2. Put project related GHG emissions in context
3. Evaluate alternatives and mitigation
4. Evaluate potential effects of climate change on the project and on project impacts

We provide more detail on each item below.
1. **Calculating GHG emissions associated with the project**

Calculations of GHG emissions can be completed using a variety of well-established and user-friendly protocols. In 2008, MPCA developed guidance on carbon-footprint development in environmental review. (See Attachment 1). Although this guidance does not appear to be accessible through the MPCA website, the guidance provided good direction and resources to assist project proponents in developing a carbon footprint, directing project proponents to use the General Reporting Protocol from the Climate Registry. This continues to be an excellent resource, however, it was last updated in 2008, we believe, and certain parts need to be revisited (incorporation of the methodologies provided in 40 C.F.R. pt. 98, updated emission factors for Scope 2 emissions from electricity use, etc.). We also attach Massachusetts’ Revised Massachusetts Environmental Policy Act (MEPA) Greenhouse Gas Emissions Policy and Protocol which provides a reasonable framework for scoping and developing an estimate of GHG emissions. (See Attachment 2).

2. **Putting projects related GHG emissions in context**

Putting projects related GHG emissions in context in a way that can help decision-makers is, of course, a major point of including them in environmental review. Past efforts often focused on comparing project emissions to other similar projects and comparing project emission numbers to state, national, or global emission estimates that are huge by comparison. As the CEQ states in their recent guidance, these comparisons do not reveal anything beyond the nature of the climate change challenge itself. As discussed during our meeting, the social cost of carbon is, at this point, a well-vetted tool to put impacts from carbon emissions into context. Placing a dollar value on project impacts and investigating how alternatives and mitigations can change the cost of impacts gives decision-makers information that is accessible and can be acted upon. Reevaluation of a Minnesota-specific social cost of carbon was recently completed at the Public Utilities Commission and produced values that could facilitate a robust, state-specific assessment of impacts.

3. **Evaluating alternatives and mitigation**

Counting emissions and putting a dollar value on their impacts means little for decision-making until there are alternatives to evaluate. In a 2008 Office Memorandum, James Warner of the MPCA established requirements for air permit applicants to evaluate GHG emissions and complete a review of GHG mitigating alternatives. The Warner Memo outlines requirements for evaluating fuel alternatives, consideration of up and down stream factors that affect GHG emissions, and justification of project planning decisions that did not favor the least GHG emitting approach. (See Attachment 3). While it does not appear to be a routine part of air permitting today, the memo does offer a useful framework for evaluating GHGs and investigating alternatives. EAWs could easily follow the same basic approach. More detailed frameworks developed by DNR and MPCA for past EIS projects continue to offer a robust starting point for a more in-depth alternatives analysis in EISs, and could easily be brought up-to-date by looking to the CEQ guidance. (See Attachment 3).
4. **Evaluating potential effects of climate change on the project and on project impacts**

This portion of the analysis should be a two part assessment: first addressing how a changing climate may affect the viability of the project and second, considering the compounding effects of climate change and project impacts – specifically evaluating resources that are vulnerable to climate change and also be impacted by the project. The latest CEQ guidance frames this component up well, but Columbia’s Sabin Center for Climate Change Law offers some great resources in identifying the right scope and tools for such an assessment. Here are links to a couple of their documents:


*The EQB should adjust the GHG threshold for mandatory EAW.*

The agency can meet the critical need for bold and immediate climate action identified through the CSEO process with this rulemaking by using it to bring the GHG rule in line with the times. We know that GHGs have impacts at levels much lower than the now defunct Tailoring Rule’s 100,000 ton-per-year threshold and we know that practical implementation of Minnesota’s GHG management and climate goals requires informed decision-making at the individual-project level. With this in mind, we propose rewriting the mandatory category to keep a GHG threshold in place, but would set it at the EPA’s mandatory reporting threshold of 25,000 metric tons per year. We see no reason that a revision of the threshold and an update to the Statement of Need and Reasonableness (SONAR) couldn’t be captured under the umbrella of this 4410 mandatory categories rulemaking. We propose the following revision to Minn. R. 4410.4300 subpt. 15(B):

> For construction of a stationary source facility that generates a combined 100,000 25,000 tons or more per year or modification of a stationary source facility that increases generation by a combined 100,000 25,000 tons or more per year of greenhouse gas emissions, after installation of air pollution control equipment, expressed as carbon dioxide equivalents, the PCA shall be the RGU. For purposes of this subpart, "greenhouse gases" include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride, and their combined carbon dioxide equivalents shall be computed by multiplying the mass amount of emissions for each of the six greenhouse gases in the pollutant GHGs by the gas’s associated global warming potential published in Table A-1 to subpart A of Code of Federal Regulations, title 40, part 98, Global Warming Potentials, as amended, and summing the resultant value for each.
The SONAR could reflect the growing understanding that GHG emissions impact the environment through climate change and that GHG emissions contribute to significant impacts at levels much lower than the 100,000 ton-per-year threshold.

Meaningful and substantive environmental review helps industry build the best projects technology allows. It gives the public, agencies, and independent experts the chance to see and understand what is proposed and to advocate for beneficial changes. Environmental accountability makes Minnesota better. Ensuring that agencies retain the responsibility for environmental review and the authority to do an effective job is just good, common-sense governance. Adopting stronger climate change transparency is the right thing to do for our children and grandchildren. This rulemaking has the possibility of leaving Minnesota’s environmental review fangless, letting the fox into the henhouse. Alternatively, if the EQB stands ready to take bold, immediate action on climate change, this rulemaking is an opportunity for Minnesota to reclaim a leadership role in cutting-edge environmental transparency and accountability.

Sincerely,

/s/ David Patton
David Patton
Staff Attorney
dpatton@mncenter.org
(651)223-5969
Attachment 1

MPCA guidance on carbon footprint development in environmental review
Introduction
This document is the Minnesota Pollution Control Agency (MPCA’s) general guidance for carbon footprint development in environmental review when the MPCA is the Responsible Governmental Unit. You could consider the carbon footprint a greenhouse gas (GHG) emission inventory for your facility.

The Environmental Assessment Worksheet (EAW) form includes GHGs in the list of pollutants to be evaluated in Item 23. In the past, GHGs have not consistently been included in Question 23 of the EAW. This guidance will assist project proposers to more fully respond to Question 23 when submitting project data to the MPCA to prepare an EAW. For Environmental Impact Statements, the scoping process will determine what information to include.

This guidance includes a list of the GHGs that must be included when responding to Question 23. You will also find information in the document about guidelines for developing the carbon footprint for your proposed facility.

This guidance includes tables on:

• global warming potentials of selected GHGs
• GHG emission sources
• offsets for biological sequestration in products or landfills
• source categories with no climate registry quantification protocol
• carbon dioxide emission rates for principal electricity providers for Minnesota firms
• carbon dioxide emissions from commercial fuels, waste fuels, and biomass
• GHG carbon dioxide equivalence values (global warming potentials)

The state of Minnesota is a founding member of the Climate Registry. The General Reporting Protocol of the Climate Registry can be found at www.theclimateregistry.org/downloads/GRP.pdf.

If you have specific questions on how to provide this information for projects, contact the MPCA environmental review project manager assigned to the proposed project.

Please note that the MPCA is in the first stages of gathering and evaluating this type of data. You should therefore be prepared for MPCA’s approach and data focus to evolve. Because of that evolution, MPCA will be flexible and adaptive with project proposers. The MPCA will accept input on this memorandum at any time.

Who should develop a facility carbon footprint?
Proposers of projects that must obtain both an air emissions permit and also complete environmental review are asked to prepare a carbon footprint for their environmental review. The MPCA will continue to be responsible for gathering and assembling the information provided by the project proposer. Staff from the Environmental Review Unit or the air permitting programs may coordinate on behalf of the MPCA. If needed, staff of the Air Policy Unit of the Environmental Analysis and Outcomes Division may provide technical assistance.

The MPCA’s Air Quality Permit Section has a GHG evaluation report for facilities which are required to prepare an Air Emission Risk Evaluation (AERA). A memorandum detailing what is included in the evaluation can be found through the permit application forms located on the MPCA’s Web site at www.pca.state.mn.us/air/permits/forms.html.
What gases should be reported for environmental review purposes?

A. The carbon footprint should report all emissions of GHGs from within the boundary of the facility, as well as emissions associated with the generation of purchased electricity. The primary GHGs that should be included are as follows.

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF₆)

Emissions of CO₂ can result from fuel combustion, the calcinations of limestone, the degradation of organic (peats) and mineral soils, permanent land-clearing, and forest harvesting. Once released to the atmosphere, emissions of CO₂ from these sources accumulate in the atmosphere. The exception is forest harvesting for fuelwood production, sawtimber, or pulp and paper production.

Because of forest regrowth, the removal of biomass from forests often can be accomplished without any net loss of carbon from forested systems averaged over periods of years to decades. For this reason, unless it can be shown that forest harvesting for fuel wood production will result in a net reduction in the aggregate size of the pool of forest carbon, emissions of CO₂ from wood fuel combustion are often treated as zero and are not inventoried. This method is the standard way of looking at wood combustion per international convention. However, specific project conditions will be taken into consideration when determining the scope of each analysis.

B. Other compounds exist that are GHGs. These include the chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), chlorocarbons, and bromocarbons, hydrofluoroethers (HFEs) and perfluoropolyethers (PFPEs). Reporting emissions of these compounds is encouraged but optional.

C. Of the criteria air pollutants, only ozone is a GHG. Precursors to ozone formation include NOₓ, hydrocarbons and CO. The reporting of emissions of these ozone precursors in the carbon footprint analysis for environmental review is also optional, although encouraged. Please note that you should include NOₓ, CO and hydrocarbons volatile organic compounds as usual in your air emission permit application.

How should a facility or project carbon footprint be reported?

For purposes of developing the carbon footprint, to the maximum degree possible project proposers should follow the guidelines found in the General Reporting Protocol of the Climate Registry, of which the state of Minnesota is a founding member. These can be found at [www.theclimateregistry.org/downloads/GRP.pdf](http://www.theclimateregistry.org/downloads/GRP.pdf).

Facility emissions should be reported in CO₂-equivalent tons. A one ton CO₂-equivalence emission of a substance is an emission with the same global warming potential over a given time period as the emission of one ton of fossil CO₂. An abbreviated list is shown below in Table 1. Appendix A contains a more detailed listing.
Table 1. Global warming potentials of selected GHGs

<table>
<thead>
<tr>
<th>Gas</th>
<th>Atmospheric Lifetime</th>
<th>CO2-Equivalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂</td>
<td>50-200</td>
<td>1</td>
</tr>
<tr>
<td>CH₄</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>N₂</td>
<td>114</td>
<td>298</td>
</tr>
<tr>
<td>HFC-125</td>
<td>29</td>
<td>3,500</td>
</tr>
<tr>
<td>HFC-134a</td>
<td>14</td>
<td>1,430</td>
</tr>
<tr>
<td>HFC-152a</td>
<td>1</td>
<td>124</td>
</tr>
<tr>
<td>HFC-227ea</td>
<td>345</td>
<td>3,220</td>
</tr>
<tr>
<td>HFC-4310mee</td>
<td>16</td>
<td>1,640</td>
</tr>
<tr>
<td>CF₄</td>
<td>50,000</td>
<td>7,390</td>
</tr>
<tr>
<td>C₂F₆</td>
<td>10,000</td>
<td>12,200</td>
</tr>
<tr>
<td>C₂F₁₀</td>
<td>2,600</td>
<td>8,860</td>
</tr>
<tr>
<td>SF₆</td>
<td>3,200</td>
<td>22,800</td>
</tr>
<tr>
<td>HCFC-141b</td>
<td>9</td>
<td>725</td>
</tr>
<tr>
<td>HCFC-142b</td>
<td>18</td>
<td>2,310</td>
</tr>
<tr>
<td>HCFC-22</td>
<td>12</td>
<td>1,810</td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>&lt;1</td>
<td>9</td>
</tr>
<tr>
<td>CO (ozone precursor)</td>
<td>&lt;1</td>
<td>1.8</td>
</tr>
</tbody>
</table>


Estimated facility emissions (or removals from the atmosphere) should be reported by emission source type and GHG. Aggregate facility emissions should be estimated. Emissions should be grouped into broad classes of emissions. These include:

- direct facility emissions of the six GHGs identified above
- indirect emissions of the six GHGs from the consumption of purchased electricity and steam
- direct emissions of other GHGs (e.g., CFC, HFCs, Halons, HCFCs, hydrocarbons, CO), the inclusion of which in the carbon footprint evaluation for environmental review is optional

The first two categories are consistent with Scope 1 and Scope 2 categories of reporting under the General Reporting Protocol of the Climate Registry. The General Reporting Protocol of the Climate Registry includes a third grouping, Scope 3, in which are found reporting categories usually associated with lifecycle or fuel cycle analysis of emissions.

For environmental review of biomass projects, MPCA highly recommends that the project proposer prepare a lifecycle analysis. A generic sector-wide lifecycle analysis will be prepared by MPCA staff for proposed biofuels facilities. Lifecycle analysis need not be included in the carbon footprint report from other facilities. If you have questions on how to provide this information for projects, contact the MPCA environmental review project manager assigned to the proposed project.

Proposers of facilities or projects including biomass combustion should report CO₂ emissions separately in a fourth emission category: biogenic CO₂ emissions. This is consistent with the General Reporting Protocol of the Climate Registry which also requires that CO₂ emissions from biomass combustion be reported, but kept separate from Scope 1-3 emissions.
Greenhouse gases are emitted from a wide variety of sources. To facilitate the identification of potential GHG sources, a table is presented below (Table 2) with those sources most pertinent to environmental review listed by source and gas. In the case of most industrial facilities, combustion emissions should predominate the assessment.

### Table 2. GHG emission sources for Minnesota facility-level carbon footprint

<table>
<thead>
<tr>
<th>Source Type</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationary combustion</td>
<td>CO₂, CH₄, N₂O</td>
</tr>
<tr>
<td>Mobile source combustion</td>
<td>CO₂, CH₄, N₂O</td>
</tr>
<tr>
<td>Purchased electricity or steam</td>
<td>CO₂, CH₄, N₂O</td>
</tr>
<tr>
<td>(emitted offsite at generation)</td>
<td></td>
</tr>
<tr>
<td>Solid waste incineration</td>
<td>CO₂ (fossil part), CH₄, N₂O</td>
</tr>
<tr>
<td>Solid waste landfilling</td>
<td>CH₄</td>
</tr>
<tr>
<td>Biosolids land application</td>
<td>N₂O</td>
</tr>
<tr>
<td>Wastewater treatment</td>
<td>N₂O, CH₄</td>
</tr>
<tr>
<td>Effluent nitrogen discharges</td>
<td>N₂O</td>
</tr>
<tr>
<td>Natural gas transmission/distribution</td>
<td>CH₄, CO₂, C₂H₆</td>
</tr>
<tr>
<td>High voltage electricity transformers</td>
<td>SF₆</td>
</tr>
<tr>
<td>Industrial solvent use (electronics, metal cleaning, precision cleaning)</td>
<td>PFCs, HFCs, PFPEs, HFEs</td>
</tr>
<tr>
<td>Semiconductor manufacture</td>
<td>PFCs, SF₆, HFEs</td>
</tr>
<tr>
<td>Cement, lime, glass manufacture</td>
<td>CO₂</td>
</tr>
<tr>
<td>Taconite induration and steel production</td>
<td>CO₂</td>
</tr>
<tr>
<td>Refrigeration and cooling</td>
<td>HFCs, PFCs, HCFCs, HFEs</td>
</tr>
<tr>
<td>Fire suppression</td>
<td>PFCs, Halons</td>
</tr>
<tr>
<td>Feedlot manure storage/management</td>
<td>CH₄, N₂O</td>
</tr>
<tr>
<td>Feedlot livestock</td>
<td>CH₄</td>
</tr>
<tr>
<td>Wetland drainage</td>
<td>CO₂, -CH₄</td>
</tr>
<tr>
<td>Forest harvesting</td>
<td>CO₂, N₂O</td>
</tr>
</tbody>
</table>

### Atmospheric GHG Removal

<table>
<thead>
<tr>
<th>Source Category</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid waste landfilling</td>
<td>biogenic CO₂</td>
</tr>
<tr>
<td>Wood products manufacture</td>
<td>biogenic CO₂</td>
</tr>
</tbody>
</table>

- Methodologies, models and emission factors for use in estimating GHGs are available from the following organizations:
  - U.S. Environmental Protection Agency (EPA) Climate Leaders [www.epa.gov/stateply/resources/index.html](http://www.epa.gov/stateply/resources/index.html).
  - EPA Inventory of Greenhouse Gases and Sinks [www.epa.gov/climatechange/emissions/usinventoryreport.html](http://www.epa.gov/climatechange/emissions/usinventoryreport.html).
  - California Climate Action Registry [www.climateregistry.org/PROTOCOLS/](http://www.climateregistry.org/PROTOCOLS/).

Where methodologies and emission factors are available from the Climate Registry, these are preferred to those from other sources. However, the quantification protocols of Climate Registry are somewhat limited in number and scope. In instances where no approved Climate Registry methodology is available, the project proposers may choose among those that are available, in consultation with MPCA staff. Table 3 lists those source categories for which no Climate Registry methodology exists or for which Climate Registry methods in themselves may be insufficient, along with substitute sources for methods and emission factors.
Table 3. Source categories for which no climate registry quantification protocol exists

<table>
<thead>
<tr>
<th>Source Type</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid waste incineration</td>
<td>USEPA GHG Inventory</td>
</tr>
<tr>
<td>Solid waste landfilling</td>
<td>IPCC/LandGem</td>
</tr>
<tr>
<td>Biosolids land application</td>
<td>PCC</td>
</tr>
<tr>
<td>Wastewater treatment</td>
<td>IPCC/WBCSD</td>
</tr>
<tr>
<td>Effluent nitrogen discharges</td>
<td>IPCC</td>
</tr>
<tr>
<td>Natural gas transmission/distribution</td>
<td>USEPA GHG Inventory</td>
</tr>
<tr>
<td>High voltage electricity transformers</td>
<td>NA</td>
</tr>
<tr>
<td>Industrial solvent use (electronics, metal leaning, precision cleaning)</td>
<td>NA</td>
</tr>
<tr>
<td>Taconite induration</td>
<td>US EPA’s AP-42</td>
</tr>
<tr>
<td>Refrigeration and cooling</td>
<td>Climate Registry/WBCSD</td>
</tr>
<tr>
<td>Fire suppression</td>
<td>NA</td>
</tr>
<tr>
<td>Feedlot manure storage/management</td>
<td>USEPA GHG Inventory</td>
</tr>
<tr>
<td>Feedlot livestock</td>
<td>USEPA GHG Inventory</td>
</tr>
<tr>
<td>Wetland drainage</td>
<td>IPCC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Atmospheric GHG Removal</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid waste landfilling</td>
<td>IPCC/LandGem</td>
</tr>
<tr>
<td>Wood products manufacture</td>
<td>USFS-1605b tools</td>
</tr>
</tbody>
</table>

For most proposed facilities, CO2 emissions from combustion will comprise the vast majority of GHG emissions by weight. To expedite the review of projects, CO2 emission factors for the most common types of commercial fuels, waste fuels and biomass fuels have been assembled and presented in Table 4. The factors shown for the solid fuels and natural gas are Minnesota-specific values calculated from data on fuel characteristics for fuels received at the borders of the state or, as in the case of biomass fuels, produced within Minnesota.
Table 4. CO₂ emission factors from commercial fuels, waste fuels and biomass  (last revision July 8, 2008)

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>MMBtu/ton</th>
<th>Fossil CO₂/ MMBtu</th>
<th>Biogenic CO₂/ MMBtu</th>
<th>Fossil tons CO₂/ ton fuel</th>
<th>Biogenic tons CO₂/ ton fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bituminous coal</td>
<td>22.18</td>
<td>202.86</td>
<td>-</td>
<td>2.25</td>
<td>-</td>
</tr>
<tr>
<td>Subbituminous coal</td>
<td>17.78</td>
<td>212.85</td>
<td>-</td>
<td>1.89</td>
<td>-</td>
</tr>
<tr>
<td>Lignite</td>
<td>13.89</td>
<td>217.30</td>
<td>-</td>
<td>1.51</td>
<td>-</td>
</tr>
<tr>
<td>Petroleum coke</td>
<td>28.10</td>
<td>222.73</td>
<td>-</td>
<td>3.13</td>
<td>-</td>
</tr>
<tr>
<td>Coal coke</td>
<td>24.80</td>
<td>222.74</td>
<td>-</td>
<td>2.76</td>
<td>-</td>
</tr>
<tr>
<td>RDF</td>
<td>12.11</td>
<td>88.95</td>
<td>118.60</td>
<td>0.54</td>
<td>0.72</td>
</tr>
<tr>
<td>MMSW-mass burn</td>
<td>11.54</td>
<td>79.15</td>
<td>128.15</td>
<td>0.46</td>
<td>0.74</td>
</tr>
<tr>
<td>TDF</td>
<td>26.87</td>
<td>187.64</td>
<td>-</td>
<td>2.52</td>
<td>-</td>
</tr>
<tr>
<td>Peat</td>
<td>8.00</td>
<td>241.41</td>
<td>-</td>
<td>0.97</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>MMBtu/ MMcf</th>
<th>Fossil CO₂/ MMBtu</th>
<th>Biogenic CO₂/ MMBtu</th>
<th>Fossil tons CO₂/ MMcf fuel</th>
<th>Biogenic tons CO₂/ MMcf fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas</td>
<td>1,011</td>
<td>115.99</td>
<td>-</td>
<td>58.61</td>
<td>-</td>
</tr>
<tr>
<td>Refinery gas</td>
<td>1,150</td>
<td>140.74</td>
<td>-</td>
<td>80.93</td>
<td>-</td>
</tr>
<tr>
<td>Landfill gas</td>
<td>490</td>
<td>-</td>
<td>114.54</td>
<td>-</td>
<td>28.06</td>
</tr>
<tr>
<td>Digester gas</td>
<td>619</td>
<td>-</td>
<td>114.54</td>
<td>-</td>
<td>35.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>MMBtu/ thous gals</th>
<th>Fossil CO₂/ MMBtu</th>
<th>Biogenic CO₂/ MMBtu</th>
<th>Fossil tons CO₂/ thous gals</th>
<th>Biogenic tons CO₂/ thous gals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure Motor gasoline</td>
<td>125.07</td>
<td>156.18</td>
<td>0</td>
<td>9.77</td>
<td>-</td>
</tr>
<tr>
<td>E10 motor gasoline</td>
<td>120.99</td>
<td>144.72</td>
<td>10.56</td>
<td>8.75</td>
<td>0.64</td>
</tr>
<tr>
<td>E85</td>
<td>90.38</td>
<td>32.29</td>
<td>120.16</td>
<td>1.46</td>
<td>5.43</td>
</tr>
<tr>
<td>Distillate fuel oil no. 1-2</td>
<td>138.69</td>
<td>159.55</td>
<td>-</td>
<td>11.06</td>
<td>-</td>
</tr>
<tr>
<td>Diesel fuel oil no. 2</td>
<td>138.69</td>
<td>159.55</td>
<td>-</td>
<td>11.06</td>
<td>-</td>
</tr>
<tr>
<td>B2</td>
<td>138.44</td>
<td>156.64</td>
<td>3.00</td>
<td>10.84</td>
<td>0.21</td>
</tr>
<tr>
<td>Distillate fuel oil no. 4</td>
<td>150.25</td>
<td>159.98</td>
<td>-</td>
<td>12.02</td>
<td>-</td>
</tr>
<tr>
<td>Residual fuel oil</td>
<td>149.69</td>
<td>173.60</td>
<td>-</td>
<td>12.99</td>
<td>-</td>
</tr>
<tr>
<td>LPG</td>
<td>86.25</td>
<td>348.19</td>
<td>-</td>
<td>15.01</td>
<td>-</td>
</tr>
<tr>
<td>Kerosene</td>
<td>135.00</td>
<td>157.71</td>
<td>-</td>
<td>10.65</td>
<td>-</td>
</tr>
<tr>
<td>Jet fuel</td>
<td>127.50</td>
<td>154.59</td>
<td>-</td>
<td>9.86</td>
<td>-</td>
</tr>
<tr>
<td>Aviation gasoline</td>
<td>120.19</td>
<td>150.91</td>
<td>-</td>
<td>9.07</td>
<td>-</td>
</tr>
<tr>
<td>Waste oil</td>
<td>144.40</td>
<td>161.87</td>
<td>-</td>
<td>11.69</td>
<td>-</td>
</tr>
<tr>
<td>Special naphtha</td>
<td>124.95</td>
<td>158.83</td>
<td>-</td>
<td>9.92</td>
<td>-</td>
</tr>
<tr>
<td>Black liquor</td>
<td>11.76</td>
<td>-</td>
<td>210.91</td>
<td>-</td>
<td>1.24</td>
</tr>
<tr>
<td>Wood sludge</td>
<td>10.07</td>
<td>-</td>
<td>210.91</td>
<td>-</td>
<td>1.06</td>
</tr>
<tr>
<td>Railroad ties</td>
<td>12.62</td>
<td>-</td>
<td>210.91</td>
<td>-</td>
<td>1.33</td>
</tr>
<tr>
<td>Sawdust</td>
<td>16.18</td>
<td>-</td>
<td>210.91</td>
<td>-</td>
<td>1.71</td>
</tr>
<tr>
<td>Manufacturing waste</td>
<td>25.83</td>
<td>-</td>
<td>210.91</td>
<td>-</td>
<td>2.72</td>
</tr>
<tr>
<td>Industrial wood and wood waste</td>
<td>9.961</td>
<td>-</td>
<td>210.91</td>
<td>-</td>
<td>1.05</td>
</tr>
<tr>
<td>Demolition/construction waste</td>
<td>14.41</td>
<td>-</td>
<td>212.18</td>
<td>-</td>
<td>1.53</td>
</tr>
<tr>
<td>Forest harvest residuals</td>
<td>8.86</td>
<td>-</td>
<td>210.50</td>
<td>-</td>
<td>0.93</td>
</tr>
<tr>
<td>Corn stover</td>
<td>14.47</td>
<td>-</td>
<td>176.36</td>
<td>-</td>
<td>1.28</td>
</tr>
<tr>
<td>DDGS solubles (dry)</td>
<td>16.964</td>
<td>-</td>
<td>200.06</td>
<td>-</td>
<td>1.70</td>
</tr>
<tr>
<td>Switchgrass</td>
<td>13.95</td>
<td>-</td>
<td>190.46</td>
<td>-</td>
<td>1.33</td>
</tr>
<tr>
<td>Hybrid poplar</td>
<td>15.23</td>
<td>-</td>
<td>222.56</td>
<td>-</td>
<td>1.69</td>
</tr>
<tr>
<td>Wheat straw</td>
<td>13.678</td>
<td>-</td>
<td>214.77</td>
<td>-</td>
<td>1.47</td>
</tr>
</tbody>
</table>

CO₂ emissions associated with electricity purchases will likely comprise the next most significant category of emissions for most industrial facilities. Emissions associated with purchases of electricity should be calculated from the emission rate (lbs CO₂/megawatt hour (MWH)) of whatever electric utility provides or will provide electric power for the facility. Where no specific electricity provider has been designated, the project proposer will use the emission rate of the electric utility within whose service territory the proposed facility will be located. Average per MWH emission rates for the principal electric utilities doing business in Minnesota are listed in Table 5 for calendar year 2006, the last year for which we have complete emissions data. These are based on the Environmental Disclosure information filed annually by the electric utilities with the Minnesota Public Utilities Commission.
Table 5. CO₂ Emission rates for the principal providers of electricity for Minnesota firms

<table>
<thead>
<tr>
<th>Electricity Provider</th>
<th>lbs CO₂/MWH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excel Energy</td>
<td>1,317.17</td>
</tr>
<tr>
<td>Minnesota Power</td>
<td>2,159.5</td>
</tr>
<tr>
<td>Otter Tail Power</td>
<td>2,099.9</td>
</tr>
<tr>
<td>Alliant Energy</td>
<td>1,782.2</td>
</tr>
<tr>
<td>Great River Energy(a)</td>
<td>2,202.2</td>
</tr>
<tr>
<td><strong>Weighted Average</strong></td>
<td><strong>1,662.3</strong></td>
</tr>
</tbody>
</table>

(a) Based on MNPUC filing of Great River Energy member Dakota Electric

Removal of CO₂ from the atmosphere

In some instances, waste disposal or forest products manufacturing can result in the removal of CO₂ from the atmosphere. During forest growth, carbon is removed from the atmosphere and photosynthetically fixed in plant matter. If that carbon finds its way to a landfill or to storage in very long-lived wood products like residential housing, that removal of carbon from the atmosphere becomes more or less permanent, essentially a net drawdown in the atmospheric pool of GHGs. If manufacturing or disposal sources onsite result in the removal of carbon from the atmosphere to a manufactured product or landfill with such storage characteristics, project proposers may want to quantify them. The numbers of tons of biological carbon sequestration in products or landfills needed to offset one ton of emitted fossil carbon is shown in Table 6 as a function of the period of storage.

Table 6. Tons of biological sequestration in products or landfills needed to offset one ton of emitted fossil carbon as a function of storage lifetime

<table>
<thead>
<tr>
<th>Product lifetime or landfill storage time</th>
<th>Needed tons of sequestration</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 years</td>
<td>0.5</td>
</tr>
<tr>
<td>50 years</td>
<td>1</td>
</tr>
<tr>
<td>25 years</td>
<td>1.9</td>
</tr>
<tr>
<td>15 years</td>
<td>3.2</td>
</tr>
<tr>
<td>10 years</td>
<td>9.7</td>
</tr>
</tbody>
</table>
Appendix A.
GHG CO₂-equivalence values (global warming potentials)

<table>
<thead>
<tr>
<th>Gas</th>
<th>Chemical Formula</th>
<th>Lifetime (years)</th>
<th>CO₂-equivalence or GWP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>CO₂</td>
<td>na</td>
<td>1</td>
</tr>
<tr>
<td>Methane</td>
<td>CH₄</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Nitrous oxide</td>
<td>N₂O</td>
<td>114</td>
<td>298</td>
</tr>
</tbody>
</table>

**Hydrofluorocarbons (HFCs)**

| HFC-23                  | CH₃F₂            | 270              | 14,800                 |
| HFC-32                  | CH₃F₂            | 5                | 675                    |
| HFC-125                 | CH₃F₂CF₃         | 29               | 3,500                  |
| HFC-134a                | CH₃FCF₃          | 14               | 1,430                  |
| HDC-143a                | CH₃CF₃          | 52               | 4,470                  |
| HFC-152a                | CH₃CHF₂          | 1                | 124                    |
| HFC-227ea               | CH₃CHFCF₃        | 34               | 3,220                  |
| HFC-236fa               | CH₃CH₂CF₃        | 240              | 9,810                  |
| HFC-245fa               | CH₂H₂CF₃         | 8                | 1,030                  |
| HFC-365mfc              | CH₃CF₂CH₂CF₃     | 9                | 794                    |
| HFC-43-10mee            | CF₃CHFCF₂CF₃     | 16               | 1,640                  |

**Perfluorinated compounds (PFCs)**

| Sulfur hexafluoride     | SF₆              | 3,200            | 22,800                 |
| Nitrogen trifluoride    | NF₃              | 740              | 17,200                 |
| PFC-14                  | CF₄              | 50,000           | 7,390                  |
| PFC-116                 | C₂F₆             | 10,000           | 12,200                 |
| PFC-218                 | C₃F₆             | 2,600            | 8,830                  |
| PFC-318                 | CF₃CF₂           | 3,200            | 10,300                 |
| PFC-3-1-10              | C₄F₁₀            | 2,600            | 8,860                  |
| PFC-4-1-12              | C₅F₁₂            | 4,100            | 9,160                  |
| PFC-5-1-14              | C₆F₁₄            | 3,200            | 9,300                  |
| PFC-9-1-18              | C₁₀F₁₈           | >1000            | >7300                  |
| Trifluoromethyl sulfur pentafluoride | SF₅CF₃ | 800               | 17,700                 |

**Fluorinated ethers**

<p>| HFE-125                 | CHF₃OCF₃         | 136              | 14,900                 |
| HFE-134                 | CHF₂OCHF₂        | 26               | 6,320                  |
| HFE-143a                | CH₃OCF₃          | 4                | 756                    |
| HCPE-235da2             | CHF₂OCHClCF₃    | 3                | 350                    |
| HFE-245cb2              | CH₃OCF₂CHF₂      | 5                | 708                    |
| HFE-245fa2              | CHF₂OCH₂CF₃      | 5                | 659                    |
| HFE-254cb2              | CH₃OCF₂CHF₂      | 3                | 359                    |
| HFE-347mcc3             | CH₃OCF₂CF₂CF₃    | 5                | 575                    |
| HFE-347pcf2             | CHF₂CF₂OCH₂CF₃  | 7                | 580                    |
| HFE-356pcc3             | CH₃OCF₂CF₂CHF₂   | 0                | 110                    |
| HFE-449sl               | C₂F₅OCH₃         | 4                | 297                    |
| HFE-569sfl              | C₂F₅OC₂H₅        | 1                | 59                     |
| HFE-43-10pcc124         | CHF₂OCF₂OC₂F₂OCHF₂ | 6              | 1,870                  |
| HFE-236CA12             | CHF₂OCF₂OCHF₂    | 12               | 2,800                  |
| HFE-338pcc13            | CHF₂OCF₂CF₂OCHF₂ | 6                | 1,500                  |</p>
<table>
<thead>
<tr>
<th>Gas</th>
<th>Chemical Formula</th>
<th>Lifetime (years)</th>
<th>CO₂-equivalence or GWP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perfluoropolyethers (PFPEs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFPMIE</td>
<td>CF₃OCF(CF₃)CF₂OCF₂OCF₃</td>
<td>800</td>
<td>10,300</td>
</tr>
<tr>
<td><strong>Hydrochlorofluorocarbons (HFCs)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCFC-22</td>
<td>CHClF₂</td>
<td>12</td>
<td>1,810</td>
</tr>
<tr>
<td>HCFC-123</td>
<td>CHCl₂CF₃</td>
<td>1</td>
<td>77</td>
</tr>
<tr>
<td>HCFC-124</td>
<td>CHClF(CF₃)CF₂</td>
<td>6</td>
<td>609</td>
</tr>
<tr>
<td>HCFC-141B</td>
<td>CH₂Cl₂F</td>
<td>9</td>
<td>725</td>
</tr>
<tr>
<td>HCFC-142B</td>
<td>CH(Cl)₂CF₃</td>
<td>18</td>
<td>2,310</td>
</tr>
<tr>
<td>HCFC-225CA</td>
<td>CHCl₂CF₃CF₃</td>
<td>2</td>
<td>122</td>
</tr>
<tr>
<td>HCFC-225CB</td>
<td>CHCl₂CF₃CCF₂</td>
<td>6</td>
<td>595</td>
</tr>
<tr>
<td><strong>Other chlorocarbons</strong></td>
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<td></td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>CH₂Cl₂</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Methyl chloride</td>
<td>CH₃Cl</td>
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<td>13</td>
</tr>
<tr>
<td><strong>Photochemically-active precursors</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ethane</td>
<td>C₂H₆</td>
<td>na</td>
<td>6</td>
</tr>
<tr>
<td>Propane</td>
<td>C₃H₈</td>
<td>na</td>
<td>3</td>
</tr>
<tr>
<td>Butane</td>
<td>C₄H₁₀</td>
<td>na</td>
<td>4</td>
</tr>
<tr>
<td>Ethylene</td>
<td>C₂H₄</td>
<td>na</td>
<td>4</td>
</tr>
<tr>
<td>Propylene</td>
<td>C₃H₆</td>
<td>na</td>
<td>2</td>
</tr>
<tr>
<td>Toluene</td>
<td>C₇H₈</td>
<td>na</td>
<td>3</td>
</tr>
<tr>
<td>Isoprene</td>
<td>C₅H₈</td>
<td>na</td>
<td>3</td>
</tr>
<tr>
<td>Methanol</td>
<td>CH₃OH</td>
<td>na</td>
<td>3</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>CH₃CHO</td>
<td>na</td>
<td>1</td>
</tr>
<tr>
<td>Acetone</td>
<td>CH₃COCH₃</td>
<td>na</td>
<td>1</td>
</tr>
<tr>
<td>Dimethylether</td>
<td>CH₃OCH₃</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>CO</td>
<td>months</td>
<td>2</td>
</tr>
</tbody>
</table>

Attachment 2

Massachusetts Environmental Policy Act GHG Policy and Protocol
REVISED MEPA GREENHOUSE GAS EMISSIONS POLICY AND PROTOCOL

Effective Date: May 5, 2010

APPLICABILITY AND PROCEDURES FOR FILING

A project is subject to this Greenhouse Gas (GHG) Emissions Policy and Protocol (the Policy” or the GHG Policy” hereinafter) if the project is required to prepare an Environmental Impact Report (EIR) in accordance with the Massachusetts Environmental Policy Act (MEPA), M.G.L. c. 30, ss. 61-62I and its implementing regulations at 301 CMR 11.00. This includes projects that receive a Waiver from the requirement to prepare an EIR in accordance with 301 CMR 11.11 (as described further below). This revised version of the GHG Policy applies to new projects that file an Environmental Notification Form (ENF) initiating MEPA review on or after the effective date of this revised Policy. Projects that filed an ENF prior to the effective date of this revised Policy shall be subject to the version of the Policy in effect at the time the ENF was filed.1 The Secretary will review Notices of Project Change (NPC) filed pursuant to 301 CMR 11.10 for projects that filed an ENF prior to the effective date of the initial GHG Policy (November 1, 2007) on an individual basis to determine whether the project will be required to comply with the Policy.2

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1 Effective dates of prior versions of the Policy are: November 1, 2007; February 2008; and February 3, 2009.
2 Although this will be a case-by-case determination by the Secretary, in making this determination the MEPA Office will consider factors such as: the nature of the overall project; whether the project changes represent a moderate or significant expansion of the original project; whether the project changes propose to add GHG-generating elements such as additional buildings or additional parking; and whether the proponent has already incorporated GHG emissions mitigation measures into its project proposal.
In response to the submission of an ENF for a project that is subject to the Policy pursuant to the paragraph above (i.e., it requires either a mandatory EIR or the Secretary requires the preparation of an EIR on a discretionary basis), the Secretary’s Certificate on the ENF will include a scope item for the quantification of project-related GHG emissions. Proponents are not required to present a quantification or estimate of GHG emissions in the ENF, but are encouraged to do so. However, proponents for projects that are subject to the requirement to prepare a mandatory EIR should attempt to qualitatively identify sources and types of GHG emissions in the ENF filing.

For projects subject to this Policy where the proponent is seeking a Single EIR pursuant to 301 CMR 11.06(8) or a full Waiver pursuant to 301 CMR 11.11, the proponent should quantify emissions, analyze proposed mitigation, and submit this information in an Expanded Environmental Notification Form (EENF) in accordance with 301 CMR 11.05(7). The Secretary will make determinations as to whether to grant Single EIR or Waiver requests based in part on the adequacy of the GHG analysis. If the proponent is seeking a Phase One Waiver pursuant to 301 CMR 11.11(4), the EENF should contain the required GHG analysis if Phase One of the project will result in material GHG emissions itself (for example, if it involves the construction of a building or parking).

DE MINIMIS EXEMPTION

The MEPA Office acknowledges that some projects that require an EIR will have little or no GHG emissions, and this Policy shall not be applied to such projects. For any project that exceeds mandatory EIR thresholds at 301 CMR 11.03, the project proponent should specify in the ENF whether it believes that the project should be exempt pursuant to this de minimis exception. The Secretary will identify in the scoping Certificate whether a project requires a GHG analysis or whether it falls within this de minimis exception.

Examples of projects that may qualify for this de minimis exemption (subject to approval by the Secretary) include (but are not limited to) the following:

- Ecological restoration projects;
- Waterways dredging projects; and
- Dam repair or removal projects.

ROLE OF THE POLICY AND CONSULTATIONS WITH THE MEPA OFFICE

The intent of this Policy is to provide general guidance for the preparation of a GHG emissions analysis that will satisfy the requirements of MEPA. The Policy does not in any way supersede or alter the Secretary’s requirements for analysis provided in any particular scoping Certificate. In addition, the Secretary retains the discretion to deviate from the procedures set forth in this Policy in the scoping Certificate.

It is strongly recommended that proponents consult with the MEPA Office prior to submission of an EIR to discuss the methodology and mitigation expectations for an individual project. The MEPA Office routinely conducts pre-filing meetings with project proponents to
discuss the required analysis of GHG emissions and can provide proponents with specific guidance concerning the methodologies and protocols outlined below.

**Emissions Quantification Protocol**

**General Guidance**

The general requirement of this Policy is that the proponent quantify the potential annual GHG emissions from a proposed project according to the quantification protocol outlined below (or other protocols that are accepted on a case-by-case basis), and report the results of that analysis in the EIR. Emissions should be expressed in short tons (2,000 lbs) per year (tpy). The MEPA Office will review the proponent’s GHG submission with technical review assistance from the Department of Environmental Protection (MassDEP), the Department of Energy Resources (DOER), and the Massachusetts Department of Transportation (MassDOT).

In the EIR, the proponent should calculate the project baseline in accordance with the protocol set forth below. The proponent should then also estimate emissions associated with the preferred alternative as well as outline and commit to a series of mitigation measures that will help to reduce GHG emissions from the proposed project. To demonstrate the efficacy of the mitigation, the proponent should measure emissions reductions and energy savings estimated to be achieved by the proponent’s preferred alternative against the project baseline and also discuss the rationale and emissions reduction potential of measures that were not selected for the preferred alternative. In summary, this is a 3-step process, as further outlined below: (1) identify a project baseline; (2) calculate estimated GHG emissions from the project baseline condition; and (3) calculate estimated emissions reductions based on mitigation measures by comparing project alternatives to the baseline.

At the current time, the analysis will focus mainly on the primary GHG, carbon dioxide (CO₂). While there are other GHGs, CO₂ is the predominant contributor to global warming, and emissions can be calculated for CO₂ with readily accessible data. The analysis of other GHGs may be required for certain projects at the Secretary’s discretion, such as methane emissions from landfills and wastewater treatment plants, emissions of hydrofluorocarbons and perfluorocarbons from the manufacturing, servicing and disposal of refrigeration and air conditioning equipment, and other GHGs emitted through various chemical and manufacturing processes. In these instances, the MEPA Office will provide guidance on quantification and analysis. In addition, the MEPA Office will continue to evaluate quantification models for the other major GHGs and the degree to which projects reviewed under MEPA emit these other gases in significant quantities, and may amend this Policy accordingly. In the meantime, proponents whose operations can be expected to cause significant emissions of GHGs other than CO₂ should identify in the ENF the nature of those emissions and whether there are readily available protocols for calculating them. If not, the proponent may still be expected to perform a qualitative analysis and identify reduction or mitigation measures. In many cases, the same

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3 A conversion to metric tons can easily be made from this number (1 short ton = 0.9072 metric tons), and the equivalent metric tons should also be provided if specifically requested in the scoping Certificate.
strategies that will reduce CO₂ emissions will also reduce other GHGs, although this may not be the case in every instance.

Categories of Emissions To Be Quantified

In order to satisfy MEPA’s requirements to analyze potential environmental impacts of a proposed project, this Policy requires that proponents quantify the majority of potential GHG emissions associated with the project. Specifically, the Policy focuses on quantification of direct and indirect mobile and stationary source emissions associated primarily with energy consumption, vehicle trip generation, and consumption of large quantities of water or wastewater generation. The Policy does not currently require quantification of other emissions categories in every instance (such as emissions associated with waste generation, materials consumption, conversion of biomass associated with land clearing, or construction period emissions). However, the Secretary may, on a case-by-case basis, require estimation of these and other additional sources of GHG emissions for a particular project if the project in question is likely to result in significant emissions from one of these other categories.

1. Required Emissions Sources

The Secretary will require analysis of both —direct” GHG emissions (e.g., stack and fugitive emissions from on-site combustion or industrial processes, and emissions from fleet vehicles operated by the project) and →indirect” emissions (e.g., emissions from vehicle trips generated by the project and emissions from generating plants supplying electricity to the proposed operation). For a more detailed discussion of direct and indirect emissions, please visit the World Resources Institute/World Business Council for Sustainable Development’s Greenhouse Gas Protocol Initiative website at www.ghgprotocol.org. This website provides a comprehensive discussion of direct vs. indirect emissions and a set of tools for quantifying GHG emissions.

With respect to stationary sources, –Direct Emissions” means the emissions from on-site stationary sources of the facility itself. Stationary sources typically emit GHGs by burning fossil fuels for heat, hot water, steam, on-site electricity generation, and other processes. Stationary sources include, but are not limited to, boilers, heaters, furnaces, incinerators, ovens, internal combustion engines (including emergency generators), combustion turbines, and any other equipment or machinery that combusts carbon bearing fuels or waste streams. See –Calculation Tool for Direct Emissions from Stationary Combustion Sources” available at the www.ghgprotocol.org website for more information on direct emissions from stationary sources. –Indirect Emissions” refer to GHG emissions caused by a project’s consumption of energy generated offsite through the combustion of fossil fuels. Indirect emissions result from the purchase and consumption of electricity, heat (steam, hot water, etc.) or cooling provided from off-site sources such as the electrical utility or district heating or cooling systems.

Projects also generate GHG emissions through traffic generation and associated fuel combustion, referred to as mobile source emissions. Direct mobile source emissions are those emitted directly by vehicles operated as part of the project’s operations. The proponent should determine whether the project will involve the ownership or operation of fleet vehicles to be
utilized directly by the project. Fleet vehicles should be generally defined as vehicles used on-site and may include: on-site mobile equipment such as forklifts, tractors, fueling trucks, maintenance and security vehicles; and/or other non-stationary equipment used on-site whose operation involves combustion of carbon containing fuels. However, a much more common and typically significant form of mobile source emissions are indirect emissions from external trips that are generated by the project—i.e., trips by third parties that are induced by the proposed project. Therefore, the Policy requires proponents to model the indirect emissions from transportation, including travel by employees, vendors, customers, and others in compliance with the methodology set forth below.

2. Optional Additional Emissions Sources

For most projects, estimating GHG emissions from the direct and indirect sources listed above will serve as a reasonably accurate estimate of the project’s overall emissions. However, some projects will have sources of emissions not explicitly covered by these three categories (e.g., a landfill that emits methane). On a case-by-case basis, the Secretary may require modeling of GHG emissions from sources other than the three categories covered by this Policy. EEA will advise the proponent of this requirement in the Certificate on the ENF or EENF. Projects potentially subject to this requirement include:

- Projects that may involve indirect emissions associated with the consumption of significant quantities of water or that will generate significant quantities of wastewater. Projects that will consume greater than 300,000 gallons per day (gpd) of water or generate greater than 300,000 gpd of wastewater will typically be considered to fall within this category. To assist in calculation of potential GHG impacts associated with water and wastewater treatment, the MEPA office will provide, with the assistance of MassDEP, average energy use data for treatment facilities, and post these data on the MEPA website. These data will be updated from time to time based upon the introduction of updated data from statewide resources. At the proponent’s discretion, actual data from project community treatment plants may be used in lieu of statewide average data to perform these calculations, so long as supporting documentation is included in the MEPA filing.
- Projects that may involve unusually large amounts of land alteration or clearing and forest conversion. Projects that will alter greater than 50 acres of land (the current review threshold for land alteration at a level that requires preparation of a mandatory EIR) may potentially be subject to this requirement.
- Projects that may involve generation of a large amount of construction-related trips. Examples of this type of project may include projects where significant amounts of soil need to be disposed of off-site through use of hauling trucks (e.g., closure of a hazardous waste disposal site).

Based upon data obtained to date under this Policy and data acquired by MassDEP, the indirect GHG emissions associated with this level of water consumption/wastewater generation would represent approximately 5% of the total emissions for a residential project and 10% of the total emissions for a commercial/office project.
It should be noted that although proponents will not be required to quantify these optional emissions categories in most cases, MEPA always requires proponents to mitigate impacts to the maximum extent feasible. Therefore, applicable mitigation measures related to these topics (e.g., water conservation, materials management, limiting land disturbance, etc.) will still need to be evaluated for feasibility in accordance with this Policy.

Quantifying Emissions

1. Establishing a Project Baseline

The proponent should establish a project baseline condition for each source of GHG emissions required to be quantified pursuant to this Policy as outlined above. The following list provides specific guidance for establishing a project baseline in the majority of circumstances. Projects that include categories of emissions other than those discussed herein should look to the MEPA Office for guidance in establishing a baseline for that particular component of the proposed project.

Building-Related Stationary Source Emissions:

The baseline for building-related stationary sources (electricity use, heating or cooling from offsite suppliers and on-site fuel consumption) assumes construction of the proposed buildings in compliance with the Massachusetts State Building Code. The proponent should be sure to use the most current version of the Massachusetts State Building Code (780 CMR) that is in effect at the time the ENF is filed. Proponents should also be aware that under the Green Communities Act (Section 55 of Chapter 169 of the Acts of 2008), the Board of Building Regulations and Standards (BBRS) must update the energy provisions of the state building code within one year of any revision to the International Energy Conservation Code (IECC). IECC updates occur every three years, and therefore the State Building Code will be updated at least every three years on a going-forward basis under current law. In order to address this changing baseline, the Secretary's Certificate on the ENF will reference the effective building code version at that particular time, which will be the baseline applicable to the project. This will be the project baseline for the life of the project and shall be the specified baseline for measuring stationary source emissions reductions in the Draft and Final EIRs (even if the State Building Code is updated during the pendency of the project). However, the Secretary may require an updated GHG analysis based upon an updated project baseline (updated State Building Code) if there are significant (multi-year) delays by the proponent in the preparation of the EIR documents. If a proponent is in doubt about the baseline building code applicable to the subject project it should contact the MEPA Office for clarification.

Process-Related Stationary Source Emissions:

For projects that will have significant stationary source GHG emissions associated with industrial processes (either direct emissions from fuel consumption or indirect emissions from electricity/energy consumption), distinct from emissions associated with project buildings, the proponent will need to establish a project baseline for the industrial component of the project by
estimating the amount of fuel or electricity to be consumed by the specific processes without any mitigation measures (sometimes referred to as the “business as usual” scenario). The intent of this calculation is to estimate emissions from GHG-intensive industrial processes such as power plants, energy-intensive manufacturing processes, or other industrial processes, in order to provide a better understanding of overall project emissions.

**Emissions from Transportation:**

The baseline condition for direct transportation-related emissions (emissions associated with operation of fleet vehicles) should be established by the proponent on a case-by-case basis by estimating the project’s annual vehicle miles traveled (VMT) by fleet vehicles without imposition of any mitigation measures.

The baseline condition for indirect transportation-related emissions (trips generated on account of the project, discussed in more detail below) should be modeled on the Build Without Mitigation condition developed using the standard methodology outlined in the EEA/MassDOT Guidelines for EIR/EIS Traffic Impact Assessment, as outlined in further detail below.

2. **Calculating Projected Baseline Emissions**

   **Building-Related Stationary Source Emissions:**

   For projects involving construction of buildings, the proponent should use energy modeling software to quantify the energy use associated with a code-compliant building. The model should estimate both direct and indirect emissions. Energy modeling uses computer-based tools to simulate the energy use of a building throughout a year of operation. The following energy modeling software has been previously reviewed and approved for ease of use and usefulness of results for MEPA review: EQUEST, Energy-10, Visual DOE, and DOE2. All of these modeling tools are appropriate for the intended use. However, proponents may use other comparable energy modeling software to achieve the required results, provided that for commercial buildings the software has been approved by the United States Internal Revenue Service (IRS) for use in supporting deductions for costs associated with installation of energy conservation measures commercial buildings. A list of IRS-approved software can be found at: [http://www1.eere.energy.gov/buildings/qualified_software.html](http://www1.eere.energy.gov/buildings/qualified_software.html)

   The MEPA Office recognizes that the IRS-approved models do not simulate energy use for certain specialized building types. In these cases another model may be used, although advance consultation with the MEPA Office is recommended. In addition, there may be versions of the tools listed by the IRS that are more current than the version listed on the above-referenced website. It is acceptable to use the latest version of IRS-listed software, even if that version is not expressly listed by the IRS.

   No model will predict the energy usage of a building with one hundred percent accuracy, as there are many uncontrollable variables. For example, the building may not be built exactly as drawn; the occupants of the building may use the building differently than predicted; or the
climate may vary from that which was modeled. The value of the model is its ability to compare alternative mitigation strategies and show the resulting differences in energy use.

The EIR should identify the energy modeling tool and version used for the analysis and include a description of the building size and configuration, occupancy, envelope attributes, operation schedule, and building systems (e.g. HVAC and lighting, etc.). The EIR should identify the input and default values for the parameters listed above used in the energy simulation model for the project baseline to assist in the validation of modeling assumptions and estimated CO$_2$ reductions. To assist in review, the EIR should either include text file output data that list the input and default modeling parameters generated by the selected modeling software, program generated reports, or tabulation of all the input and default values necessary to verify modeling conclusions.

Once building-related energy consumption has been established through modeling, the results should be converted into GHG emissions. In order to quantify direct emissions, energy modeling software should be used to estimate fuel usage. These should be counted and reported as direct emissions. Once fuel usage is estimated, the proponent can derive the approximate CO$_2$ emissions by using a reliable data source that contains emission factors for CO$_2$ based on fuel type. For most fuel types, the Energy Information Administration Emissions Factor and Global Warming Potentials data provides the appropriate factors. This document can be found at http://www.eia.doc.gov/oiaf/1605/emission_factors.html. These emissions factors have been compiled in association with the Voluntary Reporting of Greenhouse Gases Program established by Section 1605(b) of the Energy Policy Act of 1992. For fuel types not covered in this document, the proponent should use another reliable data source in consultation with the MEPA Office.

To quantify indirect emissions, the proponent should then multiply total purchased electricity usage by an emissions factor that calculates the CO$_2$ emitted through the generation of electricity. The proponent should use the current ISO-New England Marginal Emissions Report, which provides CO$_2$ emission factors expressed as pounds of CO$_2$ per megawatt hour for a variety of stationary combustion sources. The ISO-NE Marginal Emissions Report for 2007 is available at: http://www.iso-ne.com/genntion_resrcs/reports/emission/2007_mea_report.pdf. This report may be updated from time to time and proponents should check whether there is a more recent version at the time they are preparing their analysis. The ISO New England Report provides emissions factors for “average” and “marginal” emissions. The proponent should use the emissions factors for annual average emissions. Similar factors for existing district heating, cooling or cogeneration plants that will serve the project should be gathered from the plant operator.$^5$

Process-Related Stationary Sources Emissions:

Proponents should follow a similar methodology to that specified above for converting building-related energy consumption into GHG emissions when determining process-related emissions.

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$^5$ Proponents should identify the sources for these emission factors when outlining their total building-related emissions.
stationary source emissions. In order to quantify direct emissions, the proponent should estimate fuel consumption associated with industrial processes and then derive the approximate CO₂ emissions by using a reliable data source that contains emission factors for CO₂ based on fuel type. To quantify indirect emissions, the proponent should estimate the amount of electricity to be consumed by the industrial processes and then multiply total purchased electricity usage by an emissions factor that calculates the CO₂ emitted through the generation of electricity. The proponent should use the current ISO-NE Marginal Emissions Report, which provides CO₂ emission factors expressed as pounds of CO₂ per megawatt hour for a variety of stationary combustion sources. Once again the proponent should use the emissions factors for annual average emissions. Similar factors for existing district heating, cooling or cogeneration plants that will serve the project should be gathered from the plant operator.

*Indirect Emissions from Transportation:*

The following steps should be taken to calculate a baseline for indirect transportation-related emissions from most proposed projects:

1. Estimate projected net new trips within the study area identified for the project traffic study or the “mesoscale” analysis (the analysis which is required to identify project-related increases in volatile organic compounds (VOCs) and nitrogen oxides (NOx) and used to demonstrate the consistency of the project with the Massachusetts State Implementation Plan (SIP)). Net new trips should be expressed in daily vehicle miles of travel (VMT) for weekday and weekend conditions. This estimate should be consistent with the trip generation analysis included in the project's traffic study. The analysis should provide a breakdown of customer, employee and truck trips.

2. Calculate annual VMT for the project’s net new trips. Calculate VMT for employee, customer and truck trips separately.

\[(260 \times \text{weekday VMT}) + (105 \times \text{weekend-day VMT}) = \text{annual VMT}\]

3. Multiply annual VMT (miles/year) by the appropriate EPA MOBILE 6.2⁶ CO₂ emission factor ⁷ (grams/mile) and divide by 907,185 grams/ton to obtain annual CO₂ emissions (tons/year).

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⁶At the time of publication of this revised policy, MOBILE 6.2 is the appropriate approved model for estimating VMT. It is the understanding of the MEPA Office that U.S. EPA is developing a new model, entitled MOVES, which will allow for enhanced and more accurate CO₂ emissions modeling associated with vehicle trips. Upon approval of the MOVES model by U.S. EPA and MassDEP, it is anticipated that VMT will be estimated using the updated MOVES model in lieu MOBILE 6.2.

⁷MOBILE6.2 provides emission factors by vehicle type, ranging from 368.5 grams/mile for light-duty gasoline vehicles up to 1,633.1 grams/mile for the heaviest diesel trucks. These emission factors can be used for generating detailed trip by vehicle type data. If calculating total vehicle trips for a typical Project, the analysis should use the MOBILE6.2 average emission rate
**Direct Emissions from Transportation (Fleet Vehicles):**

The following steps should be taken to calculate a baseline for direct transportation-related emissions from proposed projects that involve the use of fleet vehicles at the proposed project site:

1. Estimate the projected net new trips associated with fleet vehicles owned and operated by the project proponent and associated with the project. The proponent should create realistic assumptions about the vehicle class, number of vehicles, vehicle speeds, and average number and distance of on-site trips for the various fleet vehicles and present them in the analysis.

2. Calculate annual VMT for the project fleet’s net new trips. The analysis should clearly state assumptions regarding on-site operations (e.g., fleet vehicles may not operate on weekends, thereby reducing overall annual VMT). Proponents should use their discretion when estimating VMT, but generally should follow the same methodology as used for determining VMT associated with off-site traffic trips:

\[
(260 \times \text{weekday VMT}) + (105 \times \text{weekend-day VMT}) = \text{annual VMT}
\]

3. Multiply annual VMT (miles/year) by the appropriate EPA MOBILE 6.2 CO$_2$ emission factor (grams/mile) and divide by 907,185 grams/ton to obtain annual CO$_2$ emissions (tons/year).$^8$

3. **GHG Emissions Reductions—Comparison of Project Alternatives to Baseline**

After, (1) identifying the appropriate baseline condition for each aspect of the project, and (2) calculating estimated GHG emissions associated with the baseline condition in accordance with the methodology outlined above, the proponent should calculate and compare GHG emissions associated with the preferred alternative and other mitigation measures. The Appendix to this Policy contains a partial, non-exhaustive list of mitigation measures to reduce GHG emissions. The Secretary’s scoping Certificate will identify the specific mitigation measures and project alternatives that must be quantified by the proponent. Specifically, the proponent will be required to identify:

- Estimated GHG emissions reductions from the baseline condition associated with the preferred alternative, expressed in tons per year of CO$_2$ and as a percentage of total emissions; and
- Estimated GHG emissions reductions associated with any mitigation measures that are applicable to the project type but that were dismissed by the proponent and therefore not included in the proponent’s preferred alternative, expressed in tons of CO$_2$ per year and as a percentage of total emissions.

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$^8$ See footnotes above concerning the use of EPA MOBILE 6.2.
To evaluate the impact of energy-efficiency measures designed to reduce building-related emissions, the proponent should utilize the same methodology as prescribed above for calculating emissions associated with the code-compliant baseline. The energy modeling used to estimate baseline energy use should also be used to estimate energy use associated with the preferred alternative, with the inputs changed to reflect upgrades in energy efficiency measures. The EIR should identify the input and default values used in the energy simulation model for the project alternatives to assist in the validation of modeling assumptions and estimated CO$_2$ reductions. Similar to the baseline alternative, the EIR should present data output files, program generated reports, or tabulation of modeling parameters to assist in meaningful project review.

For those measures, such as Combined Heat and Power, which cannot readily be modeled by the selected approved modeling program, the proponent should provide a separate analysis which includes all of the relevant inputs and assumptions as required for an independent verification of the results. The results of any separate analyses should be included both in the narrative and in the tabulation of the overall results.

To evaluate the impact of transportation mitigation, recent research indicates that an accurate range of trip reductions associated with Transportation Demand Management (TDM) measures can be identified. Two models are recommended for generating reasonable estimates of trip reductions associated with TDM programs. These include the US Environmental Protection Agency (EPA) COMMUTER model and the Work Trip Reduction Model. In addition, Congestion Mitigation and Air Quality (CMAQ) worksheets, available from MassDOT, can be used to calculate the benefits of specific transit measures, multi-use (bicycle/pedestrian) paths, and commuter parking facilities.

Emissions reductions attributable to other specific mitigation measures not associated with energy-efficiency or TDM measures should also be calculated by the proponent. For example, the proponent should calculate emissions reductions associated with upgrading the efficiency of industrial processes (by calculating reduced fuel or electricity consumption). A similar calculation should be presented for mitigation of direct mobile source emissions from fleet vehicles based on, for example, use of alternative fuel vehicles. Emissions reductions associated with any on-site renewable energy generation (such as from solar, geothermal or wind) should also be included as credit toward reducing overall emissions from the project. As indicated above, emissions reductions associated with all applicable mitigation measures should be calculated whenever feasible.

When identifying those measures that have been selected for the preferred alternative and those mitigation measures that have not been adopted, the proponent should explain which alternative measures were rejected, and the reasons for rejecting them. This alternatives analysis should clearly demonstrate consistency with the objectives of MEPA review, one of which is to document the means by which the proponent plans to avoid, minimize or mitigate Damage to the Environment to the maximum extent feasible. Proponents should therefore fully explain their rationale for concluding that any particular mitigation measure is infeasible. The proponent should also fully explain any trade-offs inherent in the evaluation of GHG reduction measures, such as increased impacts on some resources to avoid impacts to other resources.
PROJECT CHANGES

As with any other environmental impact that the MEPA Office considers, if the project changes after the issuance of a Certificate on a Final EIR such that there is a significant increase in GHG emissions, the proponent may be required to file a NPC pursuant to 301 CMR 11.10. The proponent should consult with the MEPA Office to determine whether a NPC would be required for a particular project change.

OFFSETS

The MEPA Office recognizes that under certain circumstances, it may not be feasible to implement all of the alternatives described in the EIR. While it is the MEPA Office's policy to encourage proponents to avoid or minimize GHG emissions on-site, MEPA will also be receptive to proposals to mitigate such emissions through off-site measures when avoidance or minimization strategies are not feasible. However, direct mitigation should be prioritized over off-site measures. If offsets are proposed, the proponent should endeavor to select offsets that have local or regional benefits. Examples include funding energy-efficiency upgrades of municipal buildings in the project’s host community, or funding fuel-efficiency upgrades for municipal vehicles. The MEPA Office will seek the assistance of other agencies to determine whether such offsets are real, additional, verifiable, permanent, and enforceable in accordance with state law and Policy. If a proponent proposes offsets consisting of monetary contributions, the proponent will be required to verify that the funds are directly responsible for GHG emissions reductions.

OPT-OUT PROVISION

The Secretary will consider, on a case-by-case basis, allowing proponents that commit in advance to exceptional GHG-reduction measures to opt out of the quantification analysis. The rationale for the opt-out provision is that if a proponent commits to such extraordinary measures, there is less reason for quantification and exploration of alternatives. A proponent seeking to opt out should present the request in the ENF and the MEPA Office will respond to the request in the Certificate on the ENF or Expanded ENF. The Secretary’s scope may require either an abbreviated GHG emissions analysis designed to document the proponent’s emissions reductions claims or allow the proponent to opt-out of emissions analysis altogether, depending on the circumstances of the particular project.

Examples of projects that may qualify for this opt-out provision (subject to approval by the Secretary) include (but are not limited to) the following:

- A project that consists solely of generation of renewable energy (e.g., a wind farm or large-scale solar installation);
- A zero net energy project;
- A commercial or residential development project that incorporates renewable technologies at a sufficient scale to significantly reduce overall GHG emissions associated with the project.
SELF-CERTIFICATIONS OF MITIGATION COMMITMENTS AND SECTION 61 FINDINGS

After conducting the GHG emissions analysis in accordance with the protocol specified above, the EIR should also specifically and clearly identify which GHG emissions reductions measures that the proponent will adopt as part of its preferred alternative, and those measures should be specifically listed as mitigation measures for the proposed project.

In order to ensure that all GHG emissions reduction measures adopted by the proponent as the preferred alternative are actually constructed or performed by the proponent, the Secretary will require proponents to provide a self-certification to the MEPA Office indicating that all of the required mitigation measures, or their equivalent, have been completed. Specifically, the Secretary will require, as a condition of a Certificate approving a Final or Single EIR or a Final Record of Decision granting a Waiver, that the proponent provide a certification to the MEPA Office signed by an appropriate professional (e.g., engineer, architect, general contractor) indicating that the all of the mitigation measures adopted by the proponent as the preferred alternative have been incorporated into the project. Alternatively, the proponent may certify that equivalent emissions reduction measures that collectively are designed to reduce GHG emissions by the same percentage as the measures outlined in the EIR, based on the same modeling assumptions, have been adopted. The certification should be supported by as-built plans. For those measures that are operational in nature (i.e. TDM, recycling) the proponent should provide an updated plan identifying the measures, the schedule for implementation and how progress towards achieving the measures will be obtained.

For those projects that are proposed to be constructed in phases over time, the proponent should discuss with the MEPA Office a phasing plan for supplying the required certifications.

In compliance with the general requirement, the EIR should contain draft Section 61 Findings for any state Agencies that will take Agency Action of the project, and these Section 61 Findings should contain the requirement that the proponent submit the self-certification described above to the MEPA Office upon completion of the project (or in accordance with a project-specific phasing plan). The Section 61 Findings shall be incorporated into state Agency land transfers, financial assistance documents, and/or permits as appropriate for the project in question.

EFFECTIVE DATE

The Secretary will require compliance with the provisions of this Policy for all projects that are subject to the Policy for which ENFs and EENFs are submitted after April 30, 2010 (and noticed for public review in the May 5, 2010 edition of the Environmental Monitor). Projects that filed an ENF or EENF prior to that date will be subject to the particular provisions of the Scoping Certificate issued for the project. The Secretary will review NPCs filed pursuant to 301 CMR 11.10 for projects that filed an ENF prior to the effective date of the initial GHG Policy (November 1, 2007) on an individual basis to determine whether the project will be required to comply with the Policy.

The MEPA Office will periodically revisit and review the Policy as necessary.
APPENDIX – SUGGESTED MITIGATION MEASURES

Note: This is not an exhaustive list and the Secretary retains the discretion to require analysis of any and all potential mitigation measures for a particular project, whether or not listed below. This is intended to be a resource for all project proponents subject to the Policy, not a mandatory list of measures that must be modeled for every project. It is not limited to measures that can be analyzed with energy modeling software and includes some measures whose GHG reduction benefits may be indirect or difficult to quantify. This list is also not limited to any particular project type and therefore certain measures may be inapplicable to any given project. In general, proponents should make a reasonable effort to quantify the benefits of mitigation measures applicable to the project type and identified in the Secretary’s scoping Certificate using available tools and resources.

Siting, Site Design, and Development:

- Develop project consistent with Commonwealth of Massachusetts Sustainable Development Principles to integrate transportation and land use [http://www.mass.gov/Agov3/docs/smart_growth/patrick-principles.pdf]
- Locate new buildings in or near areas designated for transit-oriented development (TOD) and, where possible, incorporate TOD principles in employee and customer activity patterns
- Demonstrate new tree planting
- Minimize building footprint
- Design project to support alternative transportation to site including transit, walking, and bicycling
- Size parking capacity to meet, but not exceed, local parking requirements and, where possible, seek reductions in parking supply through special permits or waivers
- Minimize energy use through proper building orientation and use of appropriate landscaping (e.g. trees for shading parking lots or southern facing facades)
- Develop or support multi-use paths to and through site

Building Design, Construction, and Operation:

Note: Use design-quality building performance simulation software to parametrically model and integrate energy conservation elements to the extent feasible.

BUILDING ENVELOPE

- Improve building envelope through higher R-value insulation in walls, roof, and if appropriate, basement walls and ceiling
- Maximize the thermal mass of walls, roofs and floor to provide thermal damping
- Conduct inspection and comprehensive air sealing of building envelope to minimize air leakage
- Install lower U-value windows to improve envelope performance
- Incorporate window glazing to balance and optimize daylighting, heat loss and solar heat gain performance
- Design roofs at a minimum to be solar-ready
- Construct green roofs to reduce heat load on roof, further insulate, and retain/filter rainwater
- Evaluate use of high-albedo roofing materials to reduce heat absorption
- Maximize interior daylighting through floor plates, and use of skylights, celestories and light wells
- Consider a Net Zero building design
- Participate in Energy Star for New Homes or LEED for Homes

BUILDING MECHANICAL SYSTEMS AND LIGHTING
- Prevent over-sizing of HVAC or other equipment by sizing only after efficiency measures have been incorporated to reduce HVAC, lighting and other electrical loads
- Install high-efficiency HVAC systems and premium efficiency motors
- Eliminate or reduce use of refrigerants in HVAC systems
- Use demand control ventilation
- Use energy efficient boilers, heaters, furnaces, incinerators, or generators
- Use ground source heat pumps
- Include heat recovery ventilation units (with regenerative desiccant beds)
- Seal and leak-check all supply air ductwork
- Incorporate motion sensors into lighting, daylighting, and climate controls
- Use efficient, directed exterior lighting, such as LED technology
- Install high efficiency lighting, including CFLs and LED technology as appropriate
- Install energy efficient elevators and escalators
- Provide automated energy management control system with the capacity to:
  - Adjust and maintain set points and schedules
  - Indicate alarms and problems
  - Provide information on trends and operating history
  - Operate mechanical and lighting systems to minimize overall energy usage

DISTRIBUTED GENERATION (ON-SITE)
- Incorporate appropriate on-site renewable energy systems into project including solar PV (both first and third-party ownership models should be evaluated), solar thermal, wind, low-impact hydro, geothermal, biomass (including pellets), and bio-gas strategies
- Incorporate combined heat and power (CHP) technologies where sufficient year-round thermal demand exists

WATER CONSERVATION
- Install efficient water fixtures that exceed building code requirements such as waterless urinals, dual flush toilets, low-flow faucets and showerheads, sensor faucets
- Re-use gray water and/or collect and re-use rainwater for landscaping and other non-potable uses
- Where outdoor watering is necessary, install water sensors to prevent unnecessary watering
- Plant only native species that need minimal watering and/or use xeriscaping
- Develop a water management plan
- Consider participation in U.S. EPA’s WaterSense Program
MATERIALS
- Re-use building materials and products
- Use building materials with recycled content
- Use building materials that are extracted and/or manufactured within the region
- Use rapidly renewable building materials
- Use wood that is certified in accordance with the Forestry Stewardship Council's Principles and Criteria
- Use low-VOC adhesives, sealants, paints, carpets, and wood

ENERGY INFORMATION (Data Acquisition)
- Track energy performance of building and develop strategy to maintain efficiency
- Install sub-meters on all floors and/or departments and/or for each specific tenant space
- Provide energy information systems to promote energy awareness to occupants
- Conduct 3rd party building commissioning to ensure energy performance

ONGOING OPERATIONS
- Design for waste reduction (i.e. provide for storage and collection of recyclables (including paper, corrugated cardboard, glass, plastic, and metals) in building design
- Provide construction and design guidelines and energy efficiency consulting services to facilitate sustainable design for build-out by tenants
- Purchase and install Energy Star-rated appliances that are the lowest energy rating
- Reduce energy demand using peak shaving or load shifting strategies – if applicable, enroll in demand response program with ISO-New England
- Conduct or provide incentives for annual audits of energy consumption for tenants
- Create and implement a tenant manual identifying GHG-reducing operations and practices
- Purchase 'green power'

Water Treatment Plants:
- Size piping systems to minimize pressure loss
- Design pumping, blower, filtration and associated control systems to achieve overall efficiency
- Select high efficiency equipment including pumps, blowers, and motors
- Where significant amounts of methane are produced as by-products of anaerobic digestion, evaluate feasibility of use as fuel for heating or for a CHP system
- Consider installing on-site renewable energy systems

Other Industrial Process Systems and/or Facilities:
- Evaluate process alternatives and select the least energy intensive option
- Evaluate use of carbon neutral fuels such as biomass, landfill gas, digester gas, or liquid renewable fuels as the energy source for the process
- Evaluate feasibility of the application of CHP technology
- Specify and procure most efficient equipment
- Design power generating systems to minimize parasitic losses
- Include heat recovery and cascading of process thermal exhaust streams
Include sufficient metering and controls for real-time monitoring and optimization of the process operations

**Construction Period Emissions:**
- Participate in MassDEP’s Clean Air Construction Initiative
- Implement a construction waste management plan
- Implement and enforce no-idling policies
- Incentivize use of public transportation, car/vanpools, for construction workers to reduce vehicle trips

**Mobile Source Emissions:**
- Purchase alternative fuel and/or fuel efficient vehicles for fleet, including maintenance or operation vehicles on-site
- Join or form a Transportation Management Association
- Provide new transit service or support extension/expansion of existing transit (buses, trains, shuttles, water transportation)
- Support expansion of parking at Park-n-Ride Lots and/or transit stations
- Pursue opportunities to minimize parking supply through shared parking or banked parking
- Develop a parking management program to minimize parking requirements such as parking cash-out, parking charges, preferential carpool or vanpool parking, limiting parking available to employees
- Develop and implement a Marketing/Information Program that includes posting and distribution of ridesharing/transit information
- Designate or hire a transportation manager
- Provide free or subsidize transit passes
- Use of pre-tax dollars for non-single occupancy vehicle (sov) commuting costs
- Reduce employee trips during peak periods through alternative work schedules, telecommuting and/or flex-time
- Provide a guaranteed ride home program
- Provide on-site amenities such as banks, dry cleaning, food service, childcare
- Provide bicycle storage and showers/changing rooms
- Roadway Improvements to improve traffic flow and reduce vehicle congestion
- Traffic Signalization and coordination to improve traffic flow and support pedestrian and bicycle safety
- Make on- and off-site improvements to reduce VMT including sidewalks, paths, traffic signals, bus shelters, lighting and landscaping
- Implement idle reduction policies
- Provide preferred parking for fuel-efficient vehicles
- Provide electric vehicle charging infrastructure
- Participate in U.S. EPA’s SmartWay Transport Partnership
- Accommodate and promote use of car-sharing (i.e. Zipcar)
DATE: July 16, 2008

TO: Affected Air Permit Applicants

FROM: James L. Warner, P.E.
Division Director
Industrial Division

PHONE: 651-296-7333

SUBJECT: Completion of a Greenhouse Gas Emissions Evaluation

PURPOSE
Increasing policy and legal activity relating to climate change, including new legislation at both the state and national level, signal that we are moving toward greater regulation of greenhouse gas emissions (GHG). In Minnesota, there are new expectations among citizens and lawmakers for maximization of energy efficiency and minimization of GHG emissions. Therefore, in an effort to proactively address these issues, the Minnesota Pollution Control Agency (MPCA) has developed an air permitting and environmental review initiative related to climate change pollutants. As part of this effort, the MPCA has begun to collect GHG data with certain air emission permit applications and environmental review submittals. This process requests that project proposers conduct and submit with their air permit application, a GHG emissions inventory for their proposed project. In addition, an evaluation to consider alternatives (fuel, energy efficiency, up/down stream operations) that may decrease overall GHG emissions may be requested on certain projects.

This guidance document provides assistance for developing your GHG emissions evaluation. A thorough evaluation may allow your permit to move forward in a more timely manner.

Please note that the MPCA is in the early stages of gathering and evaluating this type of data. You should therefore be prepared for MPCA’s approach and data focus to evolve. Because of that evolution, MPCA will be flexible and adaptive with project proposers. The MPCA will accept input on this memorandum at any time.

APPLICABILITY
If your proposed project increases the potential to emit of any regulated air pollutant in excess of 100 tons per year or meets one of the other criteria for an Air Emission Risk Analysis (AERA) (guidance for the AERA process can be found at: http://www.pca.state.mn.us/air/aera.html), you should complete and submit a GHG Emissions Evaluation with your air permitting application.

If your proposed project requires a federal Part 70 air permit to operate and has the potential to emit any regulated air pollutant in excess of 250 tons per year, you are required to complete environmental review (ER) (guidance for the ER process can be found at: http://www.pca.state.mn.us/programs/envr_p.html). If you are required to complete environmental review AND your project meets the criteria for an AERA, you should complete and submit a GHG Emissions Evaluation with your air permitting application.

Note: if you are required to complete environmental review but do NOT meet the criteria for an AERA, please discontinue using this guidance and instead use the Environmental Review Guidance found at: http://www.pca.state.mn.us/publications/p-earl-07.pdf.
GHG EMISSIONS EVALUATION

Your GHG Emissions Evaluation should include the following items:

1) A GHG emissions inventory for the proposed project using the MPCA’s General Guidance for Carbon Footprint Development in Environmental Review. The analysis should include direct emissions from the facility as well as emissions resulting from energy use from the facility. If you are proposing to modify an existing facility, please provide the net change in emissions. Include supporting calculations for the following:

   A) Direct Facility Emissions in CO₂-equivalent tons
   B) Energy Use Emissions in CO₂-equivalent tons
   C) For modifications, provide the Net Change in Emissions of A and B from your project

2) If your proposed project involves fuel combustion, a description of other fuel choices that were evaluated in the development of the project and their affect on GHG emissions. To the extent possible provide the net change in GHG emissions compared to the emission inventory under Item #1.

3) A description of other options such as up/downstream factors that were considered in the development of the project and their affect on GHG emissions. This may include but is not limited to alternative equipment, raw material choices, transportation, consumption choices, process improvements, and other energy efficiency efforts. To the extent possible provide the net change in GHG emissions compared to the emission inventory under Item #1.

4) If the proposed project is not the lowest GHG emitting option, describe why the proposed project was selected and what other factors weighed into the decision. To the extent possible, provide data to support your decision.

SUBMIT

Your completed GHG Emissions Evaluation should be labeled and submitted with your air permit application forms to:

   Air Permit Document Coordinator
   Industrial Division
   Minnesota Pollution Control Agency
   520 Lafayette Road North
   St. Paul, MN  55155

1 While the focus of this data submittal is primarily on greenhouse gases related to fuels directly or indirectly consumed, MPCA also wants to work cooperatively with project proposers to understand the extent of their programs, investments, and future potential for energy efficiency improvements. Therefore, a representative of our Prevention and Assistance Division may contact you to discuss your energy efficiency efforts. This information will be used as indicated above and to help guide the development of energy efficiency assistance and incentives in both the public and private sectors.

We also encourage you to contact your energy provider(s) to discuss their demand reduction program.
Questions may be directed to:

- The Minnesota Technical Assistance Program (MnTAP) (612-624-1300)
- The Air Policy Unit of MPCA’s Environmental Analysis and Outcomes Division can provide technical assistance on completing your submittal. (Barbara Conti, 651-296-6703)

Additional Resources:


PLB:lao
Attachment 4

MPCA/DNR EIS briefing sheet
Minnesota DNR Environmental Review
Climate Change Evaluation for the Keetac Mine Expansion Environmental Impact
Statement

Briefing Sheet

The Keetac Mine Expansion EIS is being scoped in the context of new and evolving
environmental guidance on the state and federal levels that recognizes potential consequences
of greenhouse gases (GHG) on climate change. To address this issue, a methodology to analyze
climate change has been tailored for the Keetac Mine Expansion Project.

The analysis recognizes the environmental effects from both climate change and the proposed
project. The analysis also recognizes data and analytic limitations. Where there is incomplete or
unavailable information, the analysis in the EIS will follow the provisions of Minnesota Rules,
part 4410.2500.

The proposed methodology moves the GHG analysis out of its traditional category of project-
specific impacts to cumulative effects because cumulative effects are the concern. The proxy
for defining all the existing, proposed and reasonable foreseeable projects (such as is the
normal practice with a cumulative effects analysis) is the existing and projected GHG level in
the air worldwide and nationally. Predicted environmental effects due to climate change will be
discussed at the state level. The assessment will be primarily qualitative, although some
quantitative analysis will also be present.

1. Cumulative effects

   a. Present background information on climate change.

      i. Summarize federal and State policy and law related to GHG, including
         State goals for GHG reductions.\(^1\) Acknowledge that regulations and
guidance are limited and quickly evolving.

      ii. Discuss historic trends in annual average temperatures for each season
          in the U.S. and Minnesota.

      iii. Discuss causes of climate change.

      iv. Discuss historic trends and projections of GHG releases globally and
          nationally.

      v. Discuss the general environmental effects that climate change is
          expected to have on Minnesota's environment.

   b. Relate proposed project to climate change.

      i. State that climate change could have additional impact on resources
         that the proposed project also may impact.\(^2\)

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\(^1\) Minnesota Statute 216H.02 Greenhouse Gas Emissions Control

\(^2\) Examples include Air quality such as visibility, water flows, higher stream temperatures, stream geomorphology, dissolved O\(_2\), increased blow-downs of trees, habitat and wildlife.
2. Project alternatives

a. **Perform an alternatives analysis.**
   i. Develop a carbon footprint for the proposed project including and not including proposed GHG reduction activities. This would result in two alternatives.
   ii. Develop fuel mix alternatives.
      - Specify several fuel mixes.
      - Develop a carbon footprint for each fuel mix alternative.
   iii. Discuss the alternative of producing iron pellets in another country with weaker emissions controls.

b. **Discuss conclusions.**
   i. Compare GHG air emissions from fuel and non-fuel sources, and electric generation.
   ii. Compare alternatives.
   iii. Discuss environmental and economic tradeoffs of alternatives.

3. **Options for further GHG reductions**

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3 A carbon footprint includes: GHG emissions from fuel and non-fuel sources + loss of CO₂ sequestration. Fuel sources include those from stationary and mobile sources and indirect emissions from power plants. Because much of the GHG from the project come from indirect emissions, such as power plants, buying power from sources with low GHG emissions should be considered in the fuel mix alternatives analysis. If it is not considered, the proposer needs to explain why it was not considered. Sequestration losses may be temporary depending upon reclamation activities. The carbon footprint metric should be CO₂-equivalence.

4 Alternatives should include the proposed GHG reduction activities used in establishing the base case.

5 Worst-case scenario fuel mixes are assumed for various air quality analyses. The proposer could choose several of these or construct new mixes. Selecting fuel mixes used in other analyses improves our understanding of environmental tradeoffs.

6 The information provided would be similar to the "mini-alternatives" analysis done for PCA permitting.

7 This could include decreased visibility impacts in Class I Areas.

8 Could include activities already proposed as well as additional activities such as purchasing carbon credits on the Chicago Climate Change, planting trees, and using different or additional technologies.