

HEALTH NGO REPORT OF PARTICIPATION AND
OUTCOME AS DELEGATE ON THE PETOLEUM
REFINERIES BLIERS SECTOR SUBGROUP,
PETROLEUM REFINERIES

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January, 2010

This was a joint stakeholder, exploratory exercise with no single proponent . EC provided secretariat and EC and Ont were Chair and Co-Chair.

Copied from BLIERS WHAT SECTOR SUBGROUP TERMS OF REFERENCE -

1. OBJECTIVE

Develop the Base Level Industrial Emission Requirements (BLIER) for air pollutants from a specific industrial sector.

The BLIERS are intended to be quantifiable requirements that can be imposed by regulations or permits on existing and new facilities. They should be quantitative performance standards, and may be developed on an equipment basis and then rolled up to a facility level. BLIERS may include equipment standards, process standards, facility standards, fuel-based standards or a combination.

The stringency of base-level requirements should match what leading jurisdictions – inside or outside Canada – require for comparable industrial sources in attainment areas (areas where air quality standards are being met), adjusted where necessary for Canadian circumstances. A BLIER should represent a good base level of environmental performance which would apply to every facility in the sector within a defined time period, ensuring an improvement in industry performance over time and a level playing field for facilities across Canada. BLIERS must be better than the *status quo* or the lowest common denominator in the sector, and are expected to generate significant future emission reductions and environmental improvement over time

Conferences and decision making took place across 3 teleconferences and 2 face to face meetings ---sept 17/09 to oct 30/09. The expected work was not completed, and a recommendation to continue the process was put forward.

A report was submitted with ideas for moving forward and whatever consensus was reached. I will cut and paste from that report while providing history and summarizing gains, and work to be done.

PETROLEUM REFINERIES

BLIERS SECTOR SUBGROUP REPORT

THURSDAY, NOVEMBER 5, 2009

IMPORTANT BACKGROUND:

NFPREER is a process framework for setting emissions in the petroleum refining sector. It was developed 2002 -2004 by a multi-stakeholder process.

Turning the Corner is a federal government proposal that uses similar methods but changes the data set and asks for more rigid targets.

We were asked to determine what substances would need a BLIER My interest was keeping PM on the table. There was some success.

THE FINAL SUBMISSION SAYS:

1. CRITERIA AIR CONTAMINENTS CONSIDERED FOR EMISSIONS REQUIREMENTS

RECOMMENDED CACS

The CACs that were identified in *Turning the Corner* for this sector are: SO_x, NO_x, and VOCs. There is no consensus on PM (as per decision Sept 18; revised Oct 1), thus, future work is necessary to determine how PM should be addressed. All CACs, along with PM, require further work. Details on the proposed future work are included in Section 4: Future Work.

The history provides detail of stakeholder positions¹

Work to do :

organize occ health research, pm research, local industrial impact, vanadium, heidi ii

2. CRITERIA AIR CONTAMINENTS BLIERS

Another objective for the BLIERS group was to make recommendation for BLIERS. The September 12, Draft for the face to face asked for BLIAR positions including positions on, measurement type (quantitative or qualitative), proposed emissions sources to be measured and rationale. The group did not reach a BLIERS.

There was some common ground on sources.

The group did not develop a BLIAR but rather a list of 'RECOMMENDED METHODS TO DEVELOP BLIARS. The final submission shows areas of consensus using a table (cut and pasted below).

¹ History

Sept 17 first teleconference; the first opportunity to state positions.

HNGO position was that pm was not off the table, it is very important and that I would be open to any opportunities to achieve pm reduction where it is a heavy influence on the airshed.

October 1 - First face to face - draft document states that:

The CACs that were identified in *Turning the Corner* for this sector are: SO_x (quantitative), NO_x (quantitative), and VOCs (qualitative and quantitative).

Turning the Corner (this means EC) notes that PM reductions would be achieved through meeting targets for SO_x, NO_x and VOCs

The Refineries Sector Subgroup has considered each one and is recommending that NO_x, SO_x and VOCs be considered for the BLIERS framework.

Some stakeholders would like to recommend that PM be considered for the BLIERS framework while others would like to recommend that PM not be considered for the BLIERS Framework.

I also recommended the HEIDI II emissions ranking tool to the HOW group b/c it is a tool intended for this type of application. Reason for HNGO position:

The important distinction between these methods is how rigorous the standard will be. Benchmarking is the common methodology for determining a BLIER to both *NFPRER* and *NFPRER WITH MODIFICATION* but the proposed modification would be using stricter US data for the exercise. Both propose using the US as the comparator for the standard. *NFPRER* also proposes time lines and spatial considerations that should be reviewed for consistency with the objectives of the CAMs and BLIERS.

In some cases categories were not selected by a participant b/c insufficient information at eh times.

The table as discussed is presented here:

RECOMMENDED METHODS TO DEVELOP BLIERS

Given the timeframe available to develop BLIERS, the refining sub-sector group did not reach consensus on how to develop BLIERS for the sector. Table 3 lists the approaches that were put forth by stakeholders and identifies which stakeholders are supportive of each approach. The sub-group acknowledges that more work would be needed in order to come to a consensus on the BLIERS. Details on the proposed work elements that have been identified by the sub-group are included in Section 4: Future Work.

Table 3: Stakeholder approaches to developing BLIERS

Possible Approaches to developing BLIERS	Stakeholder										
	Alberta	Saskatchewan	Québec	Newfoundland and	Ontario	ENGO / HNGO	CPPI	Irving	CCRL ⁴	Health Canada	Environment Canada
1. NFPRER as is	1		S Ox NOx VOCs	S Ox NOx VOCs	S Ox NOx VOC		N Ox SOx VOCs	N Ox SOx VOCs			
2. NFPRER modified to adjust to stakeholder concerns	N Ox S Ox VOCs	S Ox NOx	S Ox NOx VOCs	S Ox NOx VOCs	S Ox NOx VOC PM	S Ox NOx VOC				N Ox SOx VOCs	N Ox SOx
3. Equipment Based for Key Equipment	NOx SOx VOCs	S Ox NOx	S Ox NOx	S Ox NOx VOCs	S Ox NOx VOC						
4. Facility Bubble approach based on benchmarking (performance in other jurisdictions) but not NFPRER	1		S Ox NOx VOCs	S Ox NOx VOCs	S Ox NOx VOC					N Ox SOx VOCs	

5. Equipment-based rolled up to facility level	N Ox SOx VOCs		S Ox NOx VOCs	S Ox NOx VOCs	S Ox NOx VOC	S Ox NOx VOC					
6. Regulated Code of Practice (Qualitative)	V OCs ²	V OCs	V OC	N Ox V OCs	S Ox NOx VOC PM	V OCs				V OCs	V OCs

The important distinction between these methods is how rigorous the standard will be. NFPREER and Turning the Corner use similar methods but changes the data set and asks for more rigid targets. There is some indication that VOCs are not suitable for benchmarking. Also, the VOC estimation methods are not reliable. VOCs may be treated to a different BLIARS approach. The final submission says.

There were concerns from stakeholders that one single approach would not likely be appropriate for all CACs (ENGOs, and Environment Canada), and most stakeholders agreed that all six approaches would have to be explored (as outlined in section 4 Future Work) before one could be recommended.

There was also discussion about the characteristics of the BLIARS, such as timeline for implementation, appropriate measurement, temporal scale (annual vs other reporting periods), spatial scale (facility vs source)... .. Consensus was not reached on any issue or characteristic. Likewise the remaining sections of the draft final submission were not complete.

A work plan for future work was submitted. It is as follows:

The additional item below is work that could tie in to approach 2:

As a subtopic: compare projected 2015 performance in US with Canadian emissions.

- Where Canadian emissions are the 2008 emissions adjusted for 2010 regulatory requirements.

1. Suggest (to WHAT working group) that the Refining sub-group is working well together; there is intent to come to consensus on a path forward to a final product (where the final product is the BLIER). One proposed deadline for the path forward is June 2010, however, the group has not agreed.
2. Determine which BLIERS approach should be used (i.e. facility approach).
3. Compare and contrast CAMS and NFPREER to determine goals (i.e. health-based objectives)
4. Determine costs and estimated emissions reductions of approach
5. Determine what an equipment-based approach (rolled-up) would look like in terms of sector caps to compare to NFPREER approach (NGOs)
6. Determine which equipment is already being addressed by other groups and what other layers would be present in the CAMs approach
7. Recommend that further work on PM should be done.

Next tasks for this file:

- understand the numbers that will come out of requested data,
- be prepared to argue for PM
- new delegate arrangements will be needed if the work continues.

SUMMARY PREPARED BY:

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JUSTIFICATION OF PRIORITY CACS

Describe why BLIERS are being created for the pollutants in Section 2 and explain any deviation from the SSGs original sector/substances report of Sept 18. : Include the sector/equipment contribution to emissions of the pollutant (CAC 2006); data quality and ability to quantify emissions; the ability to reduce emissions, and the ability to measure any emissions reduction.

talk about health and local variation, up-coming commitments, how one can be used to meet another

CACs or other substances for which BLIERS should be considered or developed at a later date have been identified in Section Refineries Future Work

2. BLIERS RECOMMENDED BY SUB-SECTOR WORKING GROUP

NOTE – This section should be completed for each substance. consensus should be clearly documented in each section. where there are opposing views, document and include the stakeholder group or individual (with their permission) associated with each.

RECOMMENDED BLIER AND FORM OF BLIER

Provide a description of the proposed BLIER with rationale, including source and form. The form of the BLIER should be a quantitative performance standard and may be developed on an equipment basis and then rolled up to a facility level. (i.e. equipment standard, process standard, facility standard, fuel-based standard or combination of these). In some cases, a qualitative instrument (i.e. Code of Practice for fugitives) may be the best option. If this is the case, outline steps required to develop a quantitative standard in the future.

Table 2: Recommended base level industrial emissions requirements for xx industry

Criteria Air Contaminant	Stakeholder	BLIER (i.e. kg/T)	Form (Nature of BLIER)	Rationale
SO _x	Quebec		More information is required to take a position	n/a

	Saskatchewan		Equipment based bliers. Heaters and boilers to equipment subgroup and sulphur plants, flares and cracking units to refinery and oilsands subgroups	BATEA for sulphur plants and fluid catalytic cracking units Codes of practice or guidelines for flares
	Newfoundland		Equipment based. This working group should determine the requirements.	Minimum requirement to be compliant with the ambient air standards.
	Alberta		The BLIER should be a blend of equipment and sector based requirements. Equipment based BLIERs such as sulphur recovery units can be set for pieces of equipment that are common to all refineries. Sector based BLIERs can apply to those areas where there may be variation between plants and feedstocks.	Continuous improvement in environmental performance and improvements in unit operations have been made within the refining and upgrading sector. Also, equipment at these facilities have been improved, modified or replaced over time. Improvement opportunities exist within plants i.e. old equipment can be upgraded or modified. Other jurisdictions reflect performance improvements for similar operating units. In other words, similar units can achieve lower emission numbers as set by other comparable jurisdictions.

	Environment Canada		As per TTC, facility based limits were used to derive a sector based cap. The facility based limits were developed, by using a modified NFPRER methodology. Modifications included using data provided by the USEPA to account for implementation of U.S. Consent Decrees and using the best-fit correlation line.	It was determined that if all U.S. refineries were in compliance with terms of consent decree agreements then it would be equivalent to leading performance.
	NGOs		The BLIER should be based on what equipment can reasonably achieve and be rolled up to the facility level. This will ensure that all facilities in all regions are required to meet appropriate technology standards.	Based on the standards imposed in a leading jurisdiction in attainment areas

	CPPI		<p>To quote the CCME document, “the objective was to develop a new, more effective approach to reduce emissions at refineries, and approach which stimulates innovation but preserves or even enhances the competitiveness fo the Canadian Petroleum refining industry. These caps would: a) set maximum emission levels for criteria air pollutants and air toxics, which would apply to the refinery as a whole.... And b) be “performance based” rather than “prescriptive”. That is, they would not dictate the technology refineries must use in order to achieve the required emission reductions.”</p> <p>The framework does not preclude jurisdictions from undertaking other actions that they deem necessary to protect human health and the environment.</p> <p>The goals are:</p> <ul style="list-style-type: none"> - the protection of human health and the environment - achievement of real, quantifiable, verifiable emission reductions that will contribute to improved air quality both regionally and locally - convergence of the environmental performance of Canada refineries with comparable US refineries in a manner that preserves the competitiveness of <p>the refining sector in Canada and maintains superior performance that already exists in Canada.</p>	<p>The rationale for this proposed standard is based on an approach that embraces continuous improvement, competitiveness, and is based on the United States regulatory framework, considered to be the most stringent of comparable jurisdictions.</p>
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	CCRL		CCRL is an integrated facility (Refining and Heavy Oil Upgrading) therefore the BLIER should include a recovery efficiency for Sulphur Recovery Units (Upgrader) and facility based BLIER for stack emissions with consideration for high sulphur feed.	All refineries will be treated equally from a federal perspective. The standard should not put a facility or company at an economic advantage or disadvantage. Developed standards should allow for continued growth of the industry with consideration for a requirement to reduce emissions by efficiency and technological advancement.
NO_x	Quebec		More information is required to take a position	
	Saskatchewan		Equipment based blier goes to boilers and heaters subgroup. FCCUs, flares, sulphur plants go to refinery subgroup and oilsands	n/a
	Newfoundland		Equipment based	Should be practical and cost effective - BATEA
	Alberta		n/a	n/a
	Environment Canada		As per TTC, facility based limits were used to derive a sector based cap. The facility based limits were developed, by using a modified NFPRER methodology. Modifications included using data provided by the USEPA to account for implementation of U.S. Consent Decrees and using the best-fit correlation line.	The formation of NO _x can be variable

	NGOs		The BLIER should be based on what equipment can reasonably achieve and be rolled up to the facility level. The equipment groups should determine the boilers and heaters equipment targets and the refinery group should determine a reasonable facility target taking into consideration the progress of these groups. An equipment basis for the standard will ensure that all facilities in all regions are required to meet appropriate technology standards.	It was determined that if all U.S. refineries were in compliance with terms of consent decree agreements then it would be equivalent to leading performance.
	CPPI		same as SOx position	Based on the standards imposed by leading jurisdictions in attainment areas.
	CCRL		The BLIER for NOx can be based on current established codes of practice for equipment. Equipment codes of practice will span many different sectors.	same as SOx position
VOCs	Quebec		The VOC emission limits should cover the refinery as a whole, considering the high number of emission sources.	All refineries will be treated equally from a federal perspective. The standard should not put a facility or company at an economic advantage or disadvantage. Developed standards should allow for continued growth of the industry with consideration for a requirement to reduce emissions by efficiency and technological advancement.

	Saskatchewan		Above equipment noted goes to refinery subgroup Boilers and heaters go to boilers and heaters subgroup	The PRAA has standards concerning above-ground storage of VOCs and also imposes a control program on fugitive emissions that meets the CCME recommendations.
	Newfoundland		Equipment based.	BATEA
	Alberta		Sector based BLIERS based on the commonalities in the sector regarding the handling of material.	Based on the opportunities for improvements based on current monitoring technology. Given some information already available in the public domain, some measured values are not in line with estimated values for VOC emissions.
	Environment Canada		As per TTC, facility based limits were used to derive a sector based cap. The facility based limits were developed, by using a modified NFPRER methodology. Modifications included using the best-fit correlation line. In addition, qualitative standards would be established for tanks and fugitive sources to address uncertainty in emissions quantification.	VOCs primarily come from Tanks, Flanges, Valves, etc. A protocol to define the inspection and replacement of such would ensure that emissions are continually monitored and larger emitting sources are dealt with on a routine basis.

	NGOs		<p>The BLIER should take the form of a leak detection and repair code of practice as well as any other appropriate code applied to the facility. The code should be developed by the refining sub-group.</p> <p>This will ensure that all facilities in all regions are required to meet appropriate facility requirements.</p>	VOCs come from tanks and equipment. Emission performance is a function of the installed emission controls (type of seals, etc) and the inspection and maintenance of the equipment.
	CPPI		Same as SOx position	Based on common practice in the U.S. required through consent decrees for facilities in attainment areas.
	CCRL		<p>The BLIER for VOC's should be sector based.</p> <p>Refining and Upgrading</p>	same as SOx position
PM	Quebec		Section 167 of the PRAA aims to reduce emissions through a sectoral approach	<p>Section 167 seeks to harmonize the future Quebec regulation with Montreal's Reg. 2001- 10</p> <p>(Current CMM regulation: 115 mg/Nm³; PRAA: 100 mg/ Nm³)</p>
	Saskatchewan		Equipment based. Refinery group takes cracking units and flares	BATEA

	Newfoundland	none	n/a	Emissions are low and the added cost for minimal improvement is likely not warranted.
	Environment Canada			
	NGOs		Equipment based rolled up to the facility level. An equipment basis for the standard will ensure that all facilities in all regions are required to meet appropriate technology standards.	Based on a leading jurisdiction in an attainment area.
	CPPI	none	none	none

NEW VS. EXISTING FACILITIES

BLIERS within a sector may be different for existing and new facilities. BLIERS for new facilities are particularly important in sectors which anticipate significant growth.

EMISSIONS PERFORMANCE LEVELS IN COMPARABLE JURISDICTIONS

Provide a synopsis of the emissions performance levels that comparable facilities and equipment are required to achieve in attainment areas in leading jurisdictions. Charts can be provided in appendices.

ADJUSTMENT FOR CANADIAN CONTEXT

If applicable, explain any adjustments to benchmark performance requirements to address Canadian circumstances, such as the age and technology of facilities, the characteristics and availability of feed-stocks and fuels for the sector, and any other similar factors the sub-group can document.

HOW PROPOSED BLIER MEETS THE OBJECTIVE OF A BLIER

Provide a description of how the proposed standard meets the objective of a BLIER, including how it compares to what leading jurisdictions require for comparable industrial sources in attainment areas, adjusted for Canadian circumstances.

PROVINCIAL GOVERNMENTS

Quebec: n/a

Saskatchewan: SO_x/VOCs – Practical and achievable, NO_x – Technically achievable, PM – achievable and cost effective

Newfoundland: VOCs – There is continuous monitoring and emission stabilization

Alberta: SO_x - The BLIER is consistent with the principle of pollutant minimization. The intention of setting BLIERS is to achieve an overall reduction in relation to the current status quo. Unless it can be shown that a facility already meets a BLIER, remaining static with respect to emissions is not an option.

FEDERAL DEPARTMENTS

Environment Canada:

NON-GOVERNMENTAL ORGANIZATIONS

SO_x/NO_x/VOCs/PM - It meets the objective of a BLIER, i.e sets a standard that reflects what leading jurisdictions require for comparable industrial sources in attainment areas, adjusted for Canadian circumstances.

INDUSTRY

CPPI: SO_x/NO_x/VOCs - A BLIER is defined as the requirement of industry to achieve a good base level of environmental performance.

The NFPREER provides for continuous improvement, national application, and reflects requirements without regard for attainment or non-attainment areas, making it by definition, more strict than the standard definition (“of that which would be required in an attainment area”). These are the three base criteria provided by the main BLIER What group.

It is also better than the status quo.

CCRL: SO_x - This standard will allow for economic growth and maintain or reduce emissions through continuous improvements. CCRL meets ambient standards and maintains permit compliance. NO_x/VOC - This standard will allow for economic growth and maintain or reduce emissions through continuous improvements.

TIMING AND FLEXIBILITY

Provide the proposed date the BLIERS would come into effect. Unless there are extenuating circumstances, the BLIERS are expected to come into effect in the 2012-2015 period. Where there are extenuating circumstances, the Sub-group should describe them and identify what flexibility and timing allowances may be required to address them.

The Sub-group may also consider and provide recommendations for managing extenuating circumstances where flexibility may be required for existing facilities to meet the BLIER. Where longer timeframes are proposed, the environmental and economic justification is to be documented in detail.

PROVINCIAL GOVERNMENTS

Quebec: SO_x/NO_x – n/a, VOCs - Above-ground VOC storage standards and fugitive emission control programs are anticipated to come into effect when the PRAA does; these measures are already being applied in Quebec refineries. The two refineries in Montreal must meet the Reg .2001-10 requirements, PM - Article 167 will come into effect when the PRAA does

Saskatchewan: SO_x/NO_x - 2012 for new and existing should depend on certain criteria such as cost and amount of reductions achieved. VOCs - 2012 for existing and phased in, for source types, depending on the cost of implementation, PM - 2012 for new

Newfoundland: SO_x - Actions to be taken immediately with a progressive emission reduction schedule out til 2015. NO_x - As soon as reasonable, VOCs - Should be asap.

Alberta: SO_x - Equipment specific BLIERS should come into effect in 2015. Sector specific BLIERS should take a staged approach from now until 2011. Need to coordinate implementation with consideration with other BLIERS groups especially for common equipment. VOCs - On a longer term beyond 2015. Agreement on path forward and continue progressing.

FEDERAL DEPARTMENTS

Environment Canada: SO_x/NO_x/VOCs - 2012-2015

NON-GOVERNMENTAL ORGANIZATIONS

SO_x/NO_x/VOCs/PM - 2012-2015

INDUSTRY

CPPI: SO_x/NO_x/VOCs - The date should be determined by the agreed upon work plan to update the NFPRER. Performance requirements are already embedded in certificates of approval to operate and in some provincial jurisdictions, most notably Ontario, 2010 is the first year of compliance under a new regime.

If the code of practice were to be provided for under 54, or 55 of CEPA, presumably this would accommodate provincial timetables.

CCRL: SO_x/NO_x/VOCs - No comment. All Facilities are already regulated provincially.

REPORTING, ENFORCEMENT AND COMPLIANCE MECHANISMS

The group should provide information on the reporting, enforcement and compliance mechanisms required for the BLIER. In this section, discuss the ability to measure emission reductions.

OTHER CONSIDERATIONS

PROVINCIAL GOVERNMENTS

Quebec: SO_x - The ratio of SO_x emissions from QC refineries is roughly 50% combustion and 50% processes. Decisions made by the boilers and heaters group will impact SO_x reductions.

- How will refinery performance be compared from one to the next across Canada? NO_x - The ratio of NO_x emissions from QC refineries is roughly 70% combustion and 30% processes.

Decisions made by the boilers and heaters group will impact NO_x reductions. VOCs - The PRAA and Montreal Reg. 2001-10 impose a program to control fugitive VOC emissions from certain pieces of equipment

- The PRAA has standards regarding VOCs from fixed sources in construction, that are being modified, or will be increasing production

- Reg 2001-10 fixes point-source emissions for certain VOCs

Saskatchewan: PM - Don't have enough information to make a very informed decision. If not enough info exists than this should still be a BLIER because of health impacts but not required to come up with all the answers by the end of October. But if a stakeholder has enough background to defend what to move forward than we should do so

Newfoundland: SO_x - Newfoundland for does not have natural gas, so specifying a %S based on natural gas for all refineries in the country would no be achievable in NL. Specifying a %S in heavy fuel of 0.5% or similar would be acceptable. I'll note that for most of 2009, the price of 1.0%, 0.5% and 0.3% S heavy fuel is virtually identical.

Alberta: VOCs - Re-evaluation of the existing estimation techniques based on current available technologies. BLIERS will need to be reviewed and updated on a regular basis

NO_x - Should ensure co-gens are addressed either by this sector group or another BLIERS group. Must ensure the work being done by the equipment based boilers and heaters BLIERS group are acknowledged as being applicable to the refinery sector.

FEDERAL DEPARTMENTS

Environment Canada: SO_x/NO_x/VOCs - 2012-2015

NON-GOVERNMENTAL ORGANIZATIONS

SO_x - Recent consent decrees requires SO_x at FCCUs of 25ppm (365 days) and 50 ppm (7days) (Wyoming and Kansas).

- Alberta has standards for sulphur recovery that could be updated and applied
- Standards for boilers/ heaters using bunker fuel oil based on NSPS or BACT standards in the U.S.

NO_x - For example – Recent consent decrees require NO_x at FCCUs of 20 – 40 ppm (365 days) and 40-80 ppm (7 days) and at boilers and heaters of 10 ppm (Wyoming and Kansas).

VOCs - Further work should be done on improving monitoring of VOCs at refineries, this work should be commenced in the near future, i.e. in 2010.

SO_x/NO_x/VOC/PM - Depending on progress made in this group future work may need to be done to complete a more thorough analysis of what standards that are comparable to what leading jurisdictions require in attainment areas would look like. This work should start as soon as possible, e.g. January 2010.

INDUSTRY

CPPI: SO_x/NO_x/VOC - As noted in the Levelton Report (See Oprama), "...the benchmarks developed in this study should not be construed as the eventual performance standards. Ultimately, the findings of the emission performance and regulatory regime benchmarking studies will feed into an overall process to develop performance-based standards for Canadian refineries. The overall development process is expected to be consultative, involving multiple stakeholders, and drawing on information from each of the NFPRER wsub-groups.

There is a wide range of other considerations in consulting on and developing the national framework, including but not limited to: facility caps; airshed caps; inter-pollutant and inter-facility offsets and trading; implementation time frames, phasing and grandfathering; circumstances specific to implementing jurisdictions; fairness, equity and competitiveness issues; and the implications of improving performance in the U.S., should that occur."

Regarding question over the 75 confidence band, I quote Levelton, "A discussion of data quality, robustness of benchmarks, and improvement options reveals that there is uncertainty in the approach [using anything other than NFPRER]; however, improving data and benchmarks is an on-going process. There is not and likely there will not be a perfect database or approach to establishing projected emission targets."

Moreover "The midpoint of the confidence interval represents the line at which half of the refineries will be above these emissions and half will have lower emissions. It does not represent how the average refinery may be performing. For example, a refinery may be below the midpoint for NO_x, but well above the midpoint for SO₂. Achieving the midpoint may not be a realistic option for an individual refinery and there are likely only a small percentage of refineries that would meet all of the midpoints for each pollutant

The standard deviations (r^2) of the US refinery data benchmarked in the NFPRER report range from 0.0385 to 0.568

CCRL: Using benchmarking is a fair practice to ensure a level playing field, provided that the uniqueness of each facility is recognized. Consideration must be given to facilities that fall in two or more sectors. CCRL is a heavy oil upgrader and a refinery.

Efficiency and percentage recovery would recognize our heavy oil upgrader status.

3. ENVIRONMENTAL CONSIDERATIONS

Note if information is not available at this time. Consensus should be clearly documented in each section. Where there are opposing views, document and include the stakeholder group or individual (with their permission) associated with each.

EXPECTED EMISSIONS REDUCTIONS

Expected emission reductions for the sector, broken down by province. Provide explanation on data quality and ability to quantify emissions. Charts can be provided in appendices.

PROVINCIAL GOVERNMENTS

Quebec: SO_x/NO_x/ VOCs - An evaluation of emission reductions has not been executed, PM - The two refineries in Montreal are already subject to Section 167

Saskatchewan: SO_x - A sulphur plant's sulphur recovery on a quarterly average basis shall be a minimum of 98.7% quarterly average should be the performance standard, ERCB guidelines. NO_x – n/a VOCs - Follow code of practice by ERCB, AENV or CCME to minimize VOC emissions

Newfoundland: SO_x - The current NL refinery has emissions that are ~ 50% fuel, 50% process. A significant reduction in process emissions requires major investment. A significant reduction in fuel emissions is readily achievable. Therefore an expected reduction of 50% is feasible in the short term and should be the starting point for a progressive reduction schedule for continuous improvement. NO_x/VOCs - TBD

Alberta: SO_x - The exact emission reductions are unknown at this point of time. VOCs - Improvement in comparison with the current state of the sector. May not be quantifiable at this time.

FEDERAL DEPARTMENTS

Environment Canada: SO_x - Under TTC, sector reductions of 70% were projected (May 2007). No facility allocations were established under TTC. NO_x - Under TTC, sector reductions of 40% were projected (May 2007). No facility allocations were established under TTC. VOCs - Under TTC, sector reductions of 0% were projected (May 2007). No facility allocations were established under TTC.

NON-GOVERNMENTAL ORGANIZATIONS

SO_x - Emissions standards should be equipment based then rolled up to the facility level. The equipment standards should reflect what technology can reasonably achieve and be based on a study of recent consent decrees in the U.S. and other appropriate standards applied to facilities in attainment areas. See "Other" for example. Setting these standards will require a more thorough investigation of consent decrees in the US as well as other applicable standards and the appropriateness of their application to refineries in Canada. The total emissions reductions achieved by the standards will need to be calculated based on their application to Canadian refineries.

NO_x - Emissions standards should be equipment based then rolled up to the facility level. The equipment standards should reflect what technology can reasonably achieve and should draw on requirements in recent consent decrees in the U.S. in attainment areas as well as other applicable standards.

Setting these standards will require a more thorough investigation of consent decrees in the US as well as other applicable standards and the appropriateness of their application to refineries in Canada. The total emissions reductions achieved by the standards will need to be calculated based on their application to Canadian refineries. See "Other" for example

VOCs - The BLIER should be a leak detection and repair program and any other appropriate program and can be based on similar U.S. programs.

Setting these standards will require a more thorough investigation of consent decrees in the US as well as other applicable standards and the appropriateness of their application to refineries in Canada. The total emissions reductions achieved by the standards will need to be calculated based on their application to Canadian refineries.

PM - Emissions standards should be equipment based then rolled up to the facility level. The equipment standards should reflect what technology can reasonably achieve and should draw on requirements in recent consent decrees in the U.S. in attainment areas.

For example 0.5 pound per 1000 pounds of coke in FCCUs (Kansas/ Wyoming consent decrees)

Setting these standards will require a more thorough investigation of consent decrees in the US as well as other applicable standards and the appropriateness of their application to refineries in Canada. The total emissions reductions achieved by the standards will need to be calculated based on their application to Canadian refineries.

INDUSTRY

CPPI: SO_x/ NO_x/ VOCs - Environment Canada should be able to run these numbers.

CCRL: SO_x - Continuous efficiency improvements will be achieved as equipment is upgraded or replaced. NO_x/ VOCs - Continuous efficiency improvements will be achieved.

NON-AIR-QUALITY ENVIRONMENTAL IMPACTS

Provide an analysis of non-air-quality environmental impacts, including co-benefits or conflicts of potential standards, including those involving GHG emissions (e.g., the estimated co- or dis-benefits of the recommended BLIERs for GHG emissions in units of tonnes CO_{2eq}).

4. ECONOMIC CONSIDERATIONS

Note if information is not available at this time. Consensus should be clearly documented in each section. Where there are opposing views, document and include the stakeholder group or individual (with their permission) associated with each.

COMPLIANCE COSTS

Provide information on the number of facilities in compliance with the proposed BLIER versus the number that would need to take action to meet it (if relevant, flag the likelihood of plant closure(s)), and the estimated costs to the sector of implementing the proposed BLIERs. Information on sources' remaining useful life and capital cycle could also be included.

COST PER TONNE

The estimated cost per tonne of pollutant reduced associated with the proposed BLIERs, on a national or overall basis (and by province where they differ from the national value, if possible).

REGIONAL DIFFERENCES

If applicable, identify any regional differences in cost, impact or achievability which might result from application of the proposed BLIERs and which are evident from information available.

5. FUTURE WORK

BLIERS FOR FUTURE CONSIDERATION

If substances have been identified that require future work, identify them and provide an idea of work that needs to be done to develop BLIERs. Document any work that is currently underway .

6. APPENDICIES

Provide any relevant materials.

REFERENCES
