

**CANADIAN ARCTIC RESOURCES COMMITTEE FINAL REMARKS:  
CRITIQUE OF THE PROPONENT'S CUMULATIVE EFFECTS ASSESSMENT  
(CEA) FOR THE MACKENZIE GAS PROJECT (MGP)**

These final remarks focus on two central points: the failure of the EIS to establish a need for the project as applied for and the failure of the EIS to adequately take into account the assessment of cumulative impacts as mandated by the *Terms of Reference*, and which according to Annex 2 to the Schedule of the *Agreement for an Environmental Impact Review of the Mackenzie Gas Project* are factors to be considered during the review.

1. The MGP EIS does not establish a need for more than 0.83 BCFD of natural gas to be shipped through the Mackenzie Valley pipeline:

**EIS Volume 1: Overview and Impact Summary**

1.1.3 Project Purpose and Need

The purpose of the project is to *develop three onshore natural gas fields (anchor fields) in the Mackenzie Delta and to transport natural gas and NGLs [natural gas liquids] by pipeline to market* [emphasis added] (See Figure 1-1). The major project priorities are to:

- design construct and operate the project safely
- meet quality, cost, and schedule expectations
- demonstrate care for the environment
- create a wide range of business and employment opportunities for Aboriginal and other northern and Canadian residents

The pipeline system will be anchored by developing about 172 billion m<sup>3</sup> of sweet natural gas from the three anchor fields in the production area. The Mackenzie Valley pipeline *is needed to transport the natural gas from the production area* [emphasis added] to southern markets over the next 25 to 30 years.

EIS August 2004, p. 1-2

[http://www.mackenziegasproject.com/theProject/regulatoryProcess/applicationSubmission/Documents/MGP\\_EIS\\_Vol1\\_Section\\_1\\_S.pdf](http://www.mackenziegasproject.com/theProject/regulatoryProcess/applicationSubmission/Documents/MGP_EIS_Vol1_Section_1_S.pdf)

2. Despite the fact that a need for no more than 0.83 BCFD has been established, the project application is for 1.2 BCFD expandable to 1.9 BCFD:

**EIS Volume 2: Project Description**

4.4 Gas Pipeline

A 1,220 km, NPS 30 gas pipeline will deliver about *34 Mm<sup>3</sup>/d [1.2 billion cubic feet per day]* [emphasis added] of sweet natural gas to a tie-in with the NGTL system just south of the Northwest Territories-Alberta boundary. This pipeline will originate on the east side of the Mackenzie River valley (see Figure 4-5). The gas pipeline will be generally buried, although certain sections might be above ground. Block valves and initial facilities are shown on Figure 4-6.

EIS August 2004, p 4-13

#### 4.7 Future Expansion...

##### 4.7.2 Gas Pipeline

Installing intermediate compressor stations could expand the capacity of the gas pipeline. At full expansion, 10 additional intermediate compressor stations would be required. Average spacing between compressor stations would be about 80km. This would result in a flow rate capability of about 49Mm<sup>3</sup>/d [1.73 billion cubic feet per day] under summer design conditions. ***The annual average flow rate capability will be about 55 Mm<sup>3</sup>/d. [1.9 billion cubic feet per day].*** [emphasis added]

EIS August 2004 p. 4-39

3. The ownership interest and financial returns of one of the MGP Proponents, the Aboriginal Pipeline Group, depend almost entirely on the likelihood of securing an additional 0.2 to 0.4 BCFD of incremental volumes, as shown in Exhibit J-APG-00005 at page 13 and 16:

##### Ownership at Decision to Construct

- Ownership and dividends grow with pipeline volumes
- No incremental volumes: APG owns 3%
- +200 mmcf/d: APG owns 18%
- +400 mmcf/d APG owns 33.3%
- APG has 10 years to realize a one-third ownership share
- APG can increase its ownership share beyond one-third (p. 13)



(p. 16)

The likelihood of the Aboriginal Pipeline Group securing an additional 0.2 to 0.4 BCFD of incremental volumes is underlined by the fact that, as of November 21, 2006, the Aboriginal Pipeline Group had borrowed and spent \$100 million to cover its share of costs during the MGP pre-development period and was also seeking to borrow an additional \$1.6 billion for its share of construction costs as

shown in Exhibit J-APG-00005 at page 12. Yet the Proponent's CEA considers all additional gas field development to be "hypothetical."

4. Despite the fact that the Proponent is applying for 1.2 BCFD of pipeline capacity, which is approximately 0.4 BCFD over and above its stated need, and despite the fact that the Proponent has issued an "Open Season Expression of Interest", the CEA considers all additional gas field development to be "hypothetical":

**EIS Volume 5: Biophysical 1A (Cumulative Impacts)**

12.1.6.3 Hypothetical Land Uses

Hypothetical land uses include future:

- hydrocarbon (oil and gas) exploration
- gas production to the Mackenzie Gas Project, additional to the project's anchor fields...

*Preliminary disclosure of other gas suppliers to the Mackenzie Gas Project has not yet been filed. Details about further gas production linked to the project are therefore also not yet known.* [emphasis added] Such production would probably include well pads, conditioning facilities, gathering pipelines and winter or all-weather roads. Proponents could include any of the current lease holders and possibly new lease holders in the Mackenzie-Beaufort, Mackenzie Valley, and Yukon regions...

EIS August 2004, p 12-14

**EIS Additional Information for the Joint Review Panel**

Hypothetical Scenario

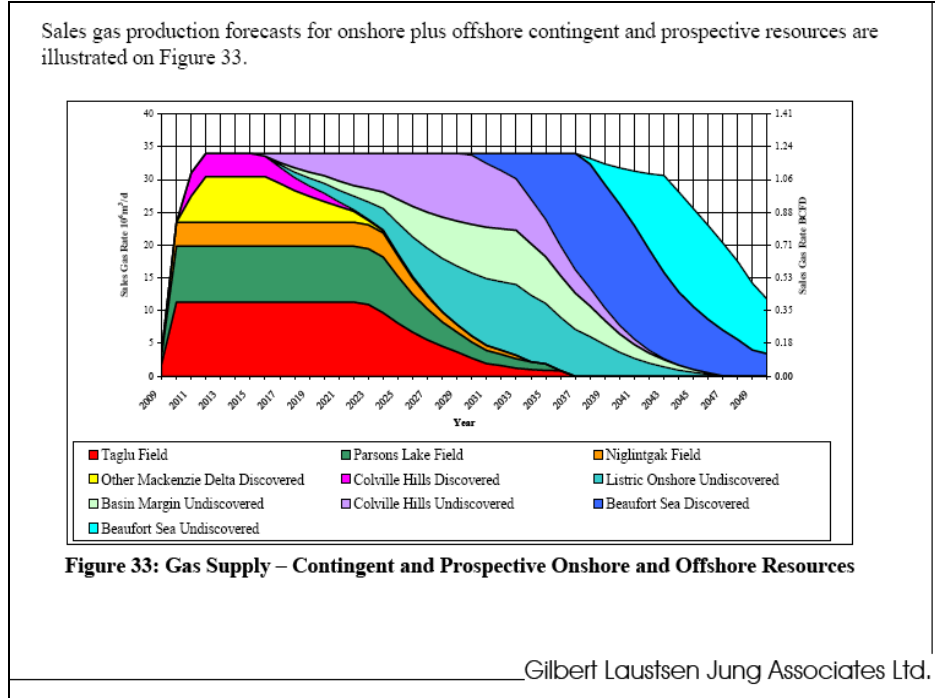
11.2.1 Introduction

*The following hypothetical natural gas development scenario and associated expansion of the Mackenzie Valley pipeline was prepared for illustration only and is highly uncertain.* [emphasis added] It represents one potential scenario that might happen. Irrespective of the extent of future natural gas development in any of the regions used in this scenario, i.e. Mackenzie Delta, Colville Hills, or Beaufort Sea, any new activity would require its own regulatory approvals and cumulative effects assessment.

The scenario is based on a report prepared by Gilbert Laustsen Jung (GLJ) Associates Ltd., Gas Resources Supply Study for Imperial Resources Ventures Limited on behalf of the Mackenzie Gas Project (GLJ 2004). The report was filed with the NEB to support the planned design pipeline capacity of 34.0 Mm<sup>3</sup>/d (1.2 bcf/d). In addition, a sensitivity forecast was prepared by GLJ for a fully expanded pipeline capacity of 51.0 Mm<sup>3</sup>/d (1.8 bcf/d). *To date, 23.5 Mm<sup>3</sup>/d (0.83 bcf/d) of the planned design capacity of the pipeline is supported by signed precedent agreements.* [emphasis added]

Mackenzie Gas Project EIS Additional Information for the Joint Review Panel, March 2005 p. 11-5

5. According to the Gilbert Laustsen Jung, Gas Resources Supply study, submitted by the Proponent as Exhibit J-IORVL-00352, additional contingent (discovered) fields in the Mackenzie Delta and Colville hills would soon need to be connected to the MGP to fill the pipeline to its applied-for capacity at 1.2 BCFD, with the connection of the first fields starting within two years after project completion:



(Gilbert Laustsen Jung, 2004. p. 63)

Table 33: Sales Gas Production Forecasts - Contingent and Prospective Onshore and Offshore Resources - Imperial Units

Best Estimate Case with Pipeline Capacity of 1.2 BCFD

Year	Total Onshore plus Offshore MNSCFD	Total Onshore MNSCFD	Contingent Resources						Prospective Resources			Total Offshore MNSCFD	Contingent Beaufort Sea Fields MNSCFD	Prospective Undiscovered Listric Fault Play MNSCFD
			Total Anchor Fields MNSCFD	Mackenzie Delta MNSCFD	Colville Hills MNSCFD	Basin Margin Play MNSCFD	Listric Fault Play MNSCFD	Colville Hills MNSCFD	Other					
2009	112.3	112.3	112.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2010	830.0	830.0	830.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2011	1095.5	1095.5	830.0	139.6	125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2012	1200.0	1200.0	830.0	245.0	125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2013	1200.0	1200.0	830.0	245.0	125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2014	1200.0	1200.0	830.0	245.0	125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2015	1200.0	1200.0	830.0	245.0	125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2016	1200.0	1200.0	830.0	245.0	109.6	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0
2017	1200.0	1200.0	830.0	208.5	86.7	21.1	24.4	49.2	0.0	0.0	0.0	0.0	0.0	0.0
2018	1200.0	1200.0	830.0	169.4	69.2	23.0	29.9	78.5	0.0	0.0	0.0	0.0	0.0	0.0
2019	1200.0	1200.0	830.0	139.0	55.8	32.3	41.9	101.0	0.0	0.0	0.0	0.0	0.0	0.0
2020	1200.0	1200.0	830.0	110.6	45.0	41.0	53.1	120.3	0.0	0.0	0.0	0.0	0.0	0.0
2021	1200.0	1200.0	830.0	84.7	24.2	48.8	63.4	148.9	0.0	0.0	0.0	0.0	0.0	0.0
2022	1200.0	1200.0	830.0	58.6	7.9	58.8	73.7	173.0	0.0	0.0	0.0	0.0	0.0	0.0
2023	1200.0	1200.0	816.0	23.6	5.1	71.7	93.1	100.5	0.0	0.0	0.0	0.0	0.0	0.0
2024	1200.0	1200.0	762.2	12.8	3.9	91.4	118.6	211.1	0.0	0.0	0.0	0.0	0.0	0.0
2025	1200.0	1200.0	628.8	10.1	3.0	132.9	172.4	252.8	0.0	0.0	0.0	0.0	0.0	0.0
2026	1200.0	1200.0	512.5	8.3	1.1	168.9	219.1	290.1	0.0	0.0	0.0	0.0	0.0	0.0
2027	1200.0	1200.0	408.8	5.9	0.0	197.5	256.9	319.5	0.0	0.0	0.0	0.0	0.0	0.0
2028	1200.0	1200.0	349.4	0.0	0.0	221.1	286.8	342.7	0.0	0.0	0.0	0.0	0.0	0.0
2029	1200.0	1200.0	292.4	0.0	0.0	236.6	307.0	338.0	0.0	0.0	0.0	0.0	0.0	0.0
2030	1200.0	1195.2	234.5	0.0	0.0	256.1	332.3	372.3	4.8	0.0	0.0	0.0	0.0	0.0
2031	1200.0	1149.9	181.7	0.0	0.0	272.2	353.1	342.9	50.1	0.0	0.0	0.0	0.0	0.0
2032	1200.0	1108.8	151.2	0.0	0.0	281.5	365.2	311.0	91.2	0.0	0.0	0.0	0.0	0.0
2033	1200.0	1066.4	123.0	0.0	0.0	290.1	376.2	275.0	135.6	0.0	0.0	0.0	0.0	0.0
2034	1200.0	957.6	89.3	0.0	0.0	274.3	355.7	238.3	242.4	0.0	0.0	0.0	0.0	0.0
2035	1200.0	853.1	78.9	0.0	0.0	249.9	324.2	200.5	346.9	0.0	0.0	0.0	0.0	0.0
2036	1200.0	702.6	39.1	0.0	0.0	223.1	289.0	161.4	496.4	0.0	0.0	0.0	0.0	0.0
2037	1200.0	575.5	0.0	0.0	0.0	195.7	253.3	126.6	624.5	0.0	0.0	0.0	0.0	0.0
2038	1171.7	476.6	0.0	0.0	0.0	165.3	214.5	96.8	695.1	0.0	0.0	0.0	29.9	0.0
2039	1142.3	370.8	0.0	0.0	0.0	131.4	172.3	67.2	771.3	0.0	0.0	0.0	108.0	0.0
2040	1112.2	277.3	0.0	0.0	0.0	100.9	130.2	46.2	843.9	0.0	0.0	0.0	191.6	0.0
2041	1104.1	202.5	0.0	0.0	0.0	75.5	98.0	29.0	901.5	0.0	0.0	0.0	288.3	0.0
2042	1092.8	144.2	0.0	0.0	0.0	56.6	72.4	15.7	946.6	0.0	0.0	0.0	345.5	0.0
2043	1081.4	100.4	0.0	0.0	0.0	40.7	53.1	6.5	981.0	0.0	0.0	0.0	427.0	0.0
2044	999.8	63.3	0.0	0.0	0.0	27.9	35.4	0.0	936.4	0.0	0.0	0.0	397.7	0.0
2045	902.1	39.4	0.0	0.0	0.0	17.3	22.0	0.0	868.8	0.0	0.0	0.0	339.3	0.0
2046	815.4	19.0	0.0	0.0	0.0	7.7	11.3	0.0	796.4	0.0	0.0	0.0	290.5	0.0
2047	720.4	3.4	0.0	0.0	0.0	1.7	1.6	0.0	717.0	0.0	0.0	0.0	246.3	0.0
2048	622.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	622.1	0.0	0.0	0.0	199.7	0.0
2049	505.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	505.3	0.0	0.0	0.0	143.2	0.0
2050	419.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	419.2	0.0	0.0	0.0	122.8	0.0
2051	347.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	347.3	0.0	0.0	0.0	106.2	0.0
2052	245.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	245.4	0.0	0.0	0.0	59.4	0.0
2053	187.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	187.1	0.0	0.0	0.0	51.8	0.0
Total (BCFD)	16694.8	12031.5	5693.7	801.6	378.7	1480.0	1894.3	1800.2	4663.3	2758.9	1904.5			

Gilbert Laustsen Jung Associates Ltd.

(Gilbert Laustsen Jung, 2004. p. 79)

6. Using the values in Table 33 on page 79 of Exhibit J-IORVL-00352, as shown above, at the applied-for pipeline capacity of 1.2 BCFD, only 34.2% of total sales gas production would come from the three anchor fields during the forty-five (45) year lifetime of the MGP. Almost two-thirds of the gas (65.9%) would have to come from induced development of both discovered and prospective (undiscovered) resources:

<b>All figures from GLJ, 2004 except for derived percentages</b>	<b>1.2 BCF/Day</b>	<b>Percent Total Gas Production @ 1.2 BCF/Day</b>
Production from Anchor Fields (BCF)	5,693.7	34.1%
Production from Discovered Resources (BCF)	3,939.2	23.6%
Production from Prospective (Undiscovered) Resources (BCF)	7,061.8	42.3%
Total Gas Production 2008-2053 (BCF)	16,694.8	100.0%

7. As listed in the Gilbert Laustsen Jung, Gas Resources Supply study on pages 53-58, submitted by the Proponent as Exhibit J-IORVL-00352, and as listed in Tables 11-1, 11-2, and 11-3 of the Proponents' March 2005 *EIS Additional Information Report*, at least twenty-five (25) of the following discovered (contingent) gas resources should have been considered as part of "reasonably foreseeable" induced development in the cumulative effects assessment as it is likely that they will be connected to the MGP, with the connection of the first fields likely starting within two years after project completion in order to fill the pipeline at a capacity of 1.2 BCFD:

Mackenzie Delta (onshore):

- 1) Adgo
- 2) Yaya
- 3) Garry North (listed as not presently economic to develop)
- 4) Garry South
- 5) Hansen
- 6) Kumak
- 7) Maillik
- 8) Pelly
- 9) Reindeer
- 10) Titalik
- 11) Tuk
- 12) Unak (may become economic to develop)
- 13) Unipkat (listed as not presently economic to develop)
- 14) Ya Ya North
- 15) Ya Ya South

Colville Hills

- 1) Bele
- 2) Tedji
- 3) Tweed

Beaufort Sea (Offshore)

- 1) Amauligak
- 2) Issungnak
- 3) Itiyok,
- 4) South Isserk
- 5) Ukalerk
- 6) Kadluk
- 7) Kiggavik
- 8) Minuk
- 9) Netserk,
- 10) South Nipterk

8. The first “certain” cumulative effect from induced development was confirmed on October 15, 2007, when MGM Energy entered into a “Mackenzie Gas Project Capacity Request Agreement” to add 0.2 BCFD into the Mackenzie Gathering System partly from the Umiak Significant Discovery Licence:

**MGM Energy Corp.**  
Calgary, Alberta  
October 15, 2007

**NEWS RELEASE: MGM ENERGY CORP.**

**Enters into Mackenzie Gas Project Capacity Request Agreement.**

Calgary, Alberta – MGM Energy Corp. (“MGM Energy”) announced today that it has entered into a Capacity Request Agreement with the owners of the Mackenzie Gathering System (MGS) portion of the Mackenzie Gas Project. The Capacity Request Agreement provides MGM Energy with 200 MMcf/d of capacity on the MGS, which will feed into the proposed Mackenzie Valley pipeline. In addition, the Capacity Request Agreement gives MGM Energy the option to own its share of the MGS.

In recognition of the magnitude of the volume commitment, MGM Energy obtains, with the signing of the Capacity Request Agreement, observer status at meetings of the MGS Management Committee, allowing it to provide input regarding system design and other issues.

The 200 MMcf/d of capacity acquired by MGM Energy will be used to transport MGM Energy owned and certain partner natural gas from the Mackenzie Delta region to the proposed Mackenzie Valley pipeline....

[http://www.mgmenergy.com/upload/news/15/01/press-release-cra\\_2007-10-15.pdf](http://www.mgmenergy.com/upload/news/15/01/press-release-cra_2007-10-15.pdf)

9. As shown in Exhibits J-CARC-00030 and J-CARC-00031, in “Mackenzie Gas Project EIS Additional Information for the Joint Review Panel, Cumulative Effects, Section 11.1”<sup>1</sup> and Exhibit J-IORVL-00330 the Proponent’s CEA significantly underestimates the:

- a) number of discovered fields;
- b) expected number of new producing fields;
- c) expected number of wells required to find the resource;
- d) total linear kilometres of new seismic; and
- e) total linear kilometres of new pipelines.

	0.8 BCFD	1.2 BCFD	1.8 BCFD	1.8 BCFD (MGP)	2.5-3.0 BCFD	4.0 BCFD
<b>Total Sales Gas (BCF)</b>	12,812.9 (Calculated)	16,694.9 (GLJ)	22,810.0 (Sproule)	<b>16,803.1 (GLJ)</b>	35,579.0 (Sproule)	67,984.1 (Sproule)
<b>Number of Discovered Fields</b>	44 (Sproule)	44 (Sproule)	44 (Sproule)	<b>31 (GLJ)</b>	44 (Sproule)	44 (Sproule)
<b>Expected Number of New Producing Fields</b>	51	111	192	<b>51</b>	348	1,060
<b>Expected Number of Exploration Wells Required to Find Resource</b>	373	811	1,198	<b>308</b>	2,177	6,854
<b>Total Linear Km of New Seismic</b>	93,088	201,472	348,630	<b>Approx. 25,094</b>	633,884	1,278,273
<b>Total Linear Km of New Winter Road</b>	3,187	4,421	5,147	<b>n/a</b>	6,727	23,962
<b>Total Linear Km of New Pipelines</b>	1,926	2,620	3,656	<b>2,590</b>	4,647	12,843

(Exhibit J-CARC-0003, page 12)

10. The Government of Canada (Indian and Northern Affairs Canada, Environment Canada, Department of Fisheries and Oceans Canada, Parks Canada) and the Government of the Northwest Territories all have concluded that:

The Proponent has likely underestimated predicted project cumulative impacts (Exhibit J-INAC-00158, p. 5).

MGP has the potential to lead to negative biophysical impacts, some of which have likely been underestimated (Exhibit J-INAC-00158, p. 16).

Environment Canada further concluded that:

“Furthermore, some of the projects listed as “hypothetical” by the proponent and assessed as such could be identified as “reasonably foreseeable” based on guidance provided by the CEA Agency (see Section 3.0), and thus require a more rigorous level of assessment.

<sup>1</sup> [http://www.ngps.nt.ca/additionalinfo/Documents/MGP\\_EIS\\_Supp\\_Section\\_11.pdf](http://www.ngps.nt.ca/additionalinfo/Documents/MGP_EIS_Supp_Section_11.pdf)

In a ruling on a motion filed by six exploration and development companies, the National Energy Board (NEB) directed Imperial to file with the Board a copy of each of the proposed Development & Operating Agreements, the proposed Transportation and Processing Agreement, and any other document or agreement that a party would be required to sign in order to become an owner of, or shipper on, the Mackenzie Gathering System. The NEB's ruling on this motion stated that "it considers it important that prospective shippers know the conditions of access to a pipeline in advance of contract negotiations in order for them to make informed decisions". This motion reflects an indication of interest to develop reserves by at least six exploration and development companies. It provides an example of induced development linked to the MGP and which is also beyond the scenario the proponent considered in the EIS as foreseeable. (Exhibit J-EC-00163, p. 9)

The MGP and associated induced development will transform the Northwest Territories. It is essential that an effective cumulative effects management regime be implemented so that the long-term ecological sustainability of northern ecosystems is conserved.

The cumulative effects of past, present, and reasonably foreseeable projects and activities that could interact with effects caused by the MGP must be considered in the planning and implementation of the project, including the design of mitigation, monitoring and follow-up programs. EC is of the view that the proponent has underestimated the potential significance of this issue and has concerns about methodology used in the EIS (Exhibit J-EC-00163, p. 21)."

11. The shortcomings of the Proponent's CEA are also confirmed by Environment Canada in Exhibit J-EC-00163 at pages 7 to 8:

The proponent acknowledges and identifies uncertainty associated with the cumulative effects analysis (biophysical) for the MGP, and a high level of uncertainty associated with induced effects of the project (Volume 5: Biophysical Impact Assessment, Part A, Section 12, Pages 12-3, 12-4, 12-7, 12-15). Despite this uncertainty, the proponent reached the following conclusions:

- 1) "the MGP does not contribute to significant cumulative effects" (Page 12-3),
- 2) "there are no significant overall cumulative effects" (Page 12-3),
- 3) "there is no reason to believe ... that in the future there will be an issue of management concern associated with cumulative effects on a valued component" (Page 12-4).

Environment Canada reviewed the proponent's cumulative effects assessment in the context of CEA Agency (2004) guidance for handling uncertainty (see Section 3.0) and concluded:

- 1) the proponent has not provided conservative conclusions in its cumulative effects analyses,
- 2) the record or audit trails in analyses provided are weak in many areas, and
- 3) there is often a lack of data and / or lack of detail in analyses used to support conclusions....

...EC recognizes and accepts that quantitative analysis is not always possible. Where a more rigorous analysis and better assessment is not possible, more conservative conclusions are appropriate (i.e. the precautionary principle should be adopted). Conservative conclusions are required to identify the need for and ultimately implement appropriate mitigation, monitoring, and adaptive management.

Compounding the problems that EC found with the proponent's CEA (i.e. lack of conservative conclusions, poor documentation of assumptions, as well as gaps and low confidence in data quality and analyses), is the lack of detail provided by the proponent with regard to mitigation, monitoring and follow-up programs and approaches to adaptive management. EC is of the view that there is uncertainty surrounding the potential effectiveness of some proposed mitigation measures and there is a need for more comprehensive monitoring and follow-up programs beyond what the proponent has proposed in the EIS and responses to Information Requests. EC made

specific recommendations on mitigation, monitoring, follow-up, and adaptive management in its written submission to the JRP for Topic 14a: Environmental Management Plans, Monitoring and Follow-up Programs.

12. As pointed out by Sierra Club of Canada and the World Wildlife Fund in Exhibit J-SCC-00077 at page 14, the Proponent has failed to assess cumulative impacts from induced development on a complete range of valued environmental/ecosystem components (VEC's) or on the full suite of species listed under the Species at Risk Act (SARA) in the project impact area:

32. However, the information from the Proponents and interveners filed to-date is not sufficient to constitute an adequate CEA, nor is it sufficient to provide an adequate basis for the cumulative effects hearing. For example:

(a) None of the CEA work to-date has attempted to quantify cumulative impacts from induced development on a complete range of appropriate valued environmental components (VECs), or considered in any detail potential mitigation measures to avoid or reduce such impacts, or satisfactorily determined the significance of residual cumulative effects on each such VEC, as is all required by the TOR<sup>62</sup>.

(b) The CEAA<sup>63</sup> and the JRP Agreement<sup>64</sup> require cumulative impacts on any species listed under the *Species at Risk Act* (SARA) to be considered. As argued above, this must include thorough consideration of the cumulative impacts from induced development. Although there are a number of SARA listed species in the area<sup>65</sup>, the CEA work to-date has only considered the impacts of induced development on one or two of them, and even in those cases it has been far from adequate.

13. The Proponent has also under-estimated the cumulative impact from induced development on in-migration to the NWT. In the cumulative effects assessment, the Proponent has continued to run its input-output model with “capacity constraints”, which limits the availability of workers residing in the NWT. Table 1 below summarizes the employment to be created by the MGP and induced development from the Proponents’ data:

**Table 1**

Activity	Person-Years Employment (Direct, Indirect, Induced) 2009-2035	Residency	Person-Years Employment (Direct, Indirect, Induced) 2009-2035	Annual Average Jobs
Operations of the MGP <sup>2</sup>	12,500	NWT and South <sup>3</sup>	6,250	250
			6,250	250
Induced Cumulative Construction <sup>4</sup>	275,000	NWT	20,000	800
		South	255,000	10,200
Induced Cumulative Operations <sup>5</sup>	75,000	NWT	15,000	600
		South	60,000	2,400
Induced Cumulative Exploration <sup>6</sup>	75,000	NWT	15,000	600
		South	60,000	2,400
Total	437,500	NWT	56,250	2,250
		South	381,250	15,250

According to the Proponent, the cumulative effects of the MGP between 2009-2035 will create an average of 2,250 jobs per year held by residents of the NWT and an average of 15,250 jobs held by southern Canadians for total annual average of 17,500 jobs. The average 2,250 jobs per year held by residents of the NWT between 2009-2035 exceeds the annual supply of 1,445 workers predicted by the SEIA for the construction phase of the MGP between 2006-2010 by 805 workers. Furthermore, the total 17,500 annual average jobs between 2009-2035 are almost two-thirds of the predicted total construction-related employment (direct, indirect, and induced) forecast between 2006-2010 at 28,474 jobs for all of Canada.<sup>7</sup> Therefore, it is clear that the induced cumulative impacts of the MGP will continue to create sustained employment for a quarter-century after construction is complete.

<sup>2</sup> [http://www.ngps.nt.ca/applicationsubmission/Documents/MGP\\_EIS\\_Vol6\\_Part\\_A\\_Section\\_3\\_S.pdf](http://www.ngps.nt.ca/applicationsubmission/Documents/MGP_EIS_Vol6_Part_A_Section_3_S.pdf), p. 3-23, Table 3-15.

<sup>3</sup> The SEIA does not provide a precise estimate about how many of the operations jobs will be held by NWT residents and how many will be held by southern rotational workers: “Currently, it is expected that many of the initial full-time operations staff and up to 50% of the operations and maintenance contractor staff will rotate from the south, but many will choose or be asked to relocate to the North.” Ibid. p. 3-121. Hence, they are divided equally between NWT and South.

<sup>4</sup> [http://www.ngps.nt.ca/additionalinfo/Documents/MGP\\_EIS\\_Supp\\_Section\\_11.pdf](http://www.ngps.nt.ca/additionalinfo/Documents/MGP_EIS_Supp_Section_11.pdf), p. 11-38.

<sup>5</sup> Ibid. p. 11-38.

<sup>6</sup> [http://www.ngps.nt.ca/Upload/Proponent/Imperial\\_Oil\\_Resources\\_Ventures\\_Limited/050921\\_IORVL\\_Resp\\_to\\_JRP\\_R2\\_Q23\\_Fig\\_JRP\\_2.23-1.pdf](http://www.ngps.nt.ca/Upload/Proponent/Imperial_Oil_Resources_Ventures_Limited/050921_IORVL_Resp_to_JRP_R2_Q23_Fig_JRP_2.23-1.pdf), p. 15

<sup>7</sup> [http://www.ngps.nt.ca/applicationsubmission/Documents/MGP\\_EIS\\_Vol6\\_Part\\_A\\_Section\\_3\\_S.pdf](http://www.ngps.nt.ca/applicationsubmission/Documents/MGP_EIS_Vol6_Part_A_Section_3_S.pdf), p. 3-96, Table 3-83.

This completely contradicts the statement made earlier in the SEIA that was used as justification for reducing the labour demand in the NWT from an annual average of 4,015 jobs to 1,445 jobs during the construction phase:

“However, for this project with a seasonal and relatively short construction period, it is unlikely that regional investors will build up capacity that could not be sustained after construction is complete, nor will many persons permanently relocate to the Northwest Territories when they could secure direct jobs on the project from their primary residence in the south, and fly to and from the project on a work rotation basis.”<sup>8</sup>

The MGP is not a “project with a seasonal and relatively short construction period”. Construction of the MGP will open up a frontier region to sustained and cumulative hydrocarbon development lasting for at least a quarter of a century. Hence, it is quite likely that regional investors will build up capacity knowing that this can be sustained after construction is complete and that many persons will decide to permanently relocate to the Northwest Territories as a result. In conclusion, the Statistics Canada Input-Output Model has been run without constraints between 2006 and 2035 to more accurately account for in-migration to the Northwest Territories. It should also be noted that running the model with constraints on in-migration has probably distorted all the other outputs and thus rendered them inaccurate. This would require a re-calculation of all the model outputs in the SEIA.

14. The Proponent has failed to adequately answer the questions set out in section 17 (Cumulative Impacts) of the Terms of Reference (TOR), nor has it conducted the required analysis as set out therein. Furthermore, under Annex 2 to the Schedule to the Agreement for an Environmental Impact Review of the Mackenzie Gas Project (the Agreement) the Joint Review Panel must address the factors outlined therein, including a consideration of any cumulative impacts that are likely to result from the Project in combination with other projects or activities that have been or will be carried out. In the absence of the Proponent filing sufficient evidence on this aspect of the EA, the Panel is not in a position to consider cumulative effects in a way that meets the requirements of the Agreement.

## **Conclusions**

The Proponent’s environmental impact statement or supplementary information filed during the hearings does not meet the Panel’s requirement for information as laid out in the Terms of Reference. Further, due to the inadequacy of the information filed, the Joint Review Panel does not have enough information to meet its obligation to consider the factors in Annex 2 of the Agreement. Given the failure of the Proponent to provide adequate information to inform the Panel’s considerations, we believe that the Panel should not forward a recommendation to the Ministers until the deficiencies in information have been remedied. Alternatively, we believe that the Panel must recommend to the Ministers that the project should not proceed due to the deficiencies in

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<sup>8</sup> Ibid. p. 3-19

information, and consequent uncertainties about the environmental impact of the project. To summarize our arguments, we find the Proponent's information deficient in the following areas:

- 1) The MGP EIS does not establish a need for more than 0.83 BCFD of natural gas to be shipped through the Mackenzie Valley pipeline.
- 2) Despite the fact that a need for no more than 0.83 BCFD has been established, the project application is for 1.2 BCFD expandable to 1.9 BCFD.
- 3) The ownership interest and financial returns of one of the MGP Proponents, the Aboriginal Pipeline Group, depend almost entirely on the likelihood of securing an additional 0.2 to 0.4 BCFD of incremental volumes, as shown in Exhibit J-APG-00005 at page 13 and 16. The likelihood of the Aboriginal Pipeline Group securing an additional 0.2 to 0.4 BCFD of incremental volumes is underlined by the fact that, as of November 21, 2006, the Aboriginal Pipeline Group had borrowed and spent \$100 million to cover its share of costs during the MGP pre-development period and was also seeking to borrow an additional \$1.6 billion for its share of construction costs, as shown in Exhibit J-APG-00005 at page 12. Yet the Proponent's CEA considers all additional gas field development to be "hypothetical."
- 4) Despite the fact that the Proponent is applying for 1.2 BCFD of pipeline capacity, which is approximately 0.4 BCFD over and above its stated need, and despite the fact that the Proponent has issued an "Open Season Expression of Interest", the Proponent's CEA considers all additional gas field development to be "hypothetical."
- 5) According to the Gilbert Laustsen Jung, Gas Resources Supply study, submitted by the Proponent as Exhibit J-IORVL-00352, additional contingent (discovered) fields in the Mackenzie Delta and Colville hills would soon need to be connected to the MGP to fill the pipeline to its applied-for capacity at 1.2 BCFD, with the connection of the first fields starting within two years after project completion. Yet the Proponent's CEA considers all additional gas field development to be "hypothetical."
- 6) Only 34.2% of total sales gas production would come from the three anchor fields during the forty-five (45) year lifetime of the MGP. Almost two-thirds of the gas (65.9%) would have to come from induced development of both discovered and prospective (undiscovered) resources. Yet the Proponent's CEA considers all additional gas field development to be "hypothetical."
- 7) At least twenty-five (25) of the discovered (contingent) gas resources should have been considered as part of "reasonably foreseeable" induced development in the cumulative effects assessment as it is likely that they will be connected to the MGP,

with the connection of the first fields likely starting within two years after project completion in order to fill the pipeline at a capacity of 1.2 BCFD.

- 8) The first “certain” cumulative effect from induced development was confirmed on October 15, 2007, when MGM Energy entered into a “Mackenzie Gas Project Capacity Request Agreement” to add 0.2 BCFD into the Mackenzie Gathering System partly from the Umiak Significant Discovery Licence.
- 9) As shown in Exhibits J-CARC-00030 and J-CARC-00031, in “Mackenzie Gas Project EIS Additional Information for the Joint Review Panel, Cumulative Effects, Section 11.1”<sup>9</sup> and Exhibit J-IORVL-00330 the Proponent significantly underestimates the:
  - a) number of discovered fields;
  - b) expected number of new producing fields;
  - c) expected number of wells required to find the resource;
  - d) total linear kilometres of new seismic; and
  - e) total linear kilometres of new pipelines
- 10) The Government of Canada (Indian and Northern Affairs Canada, Environment Canada, Department of Fisheries and Oceans Canada, Parks Canada) and the Government of the Northwest Territories all have concluded that:

The Proponent has likely underestimated predicted project cumulative impacts. (Exhibit J-INAC-00158, p. 5)

MGP has the potential to lead to negative biophysical impacts, some of which have likely been underestimated. (Exhibit J-INAC-00158, p. 16)

- 11) The shortcomings of the Proponents’ cumulative effects assessment are also confirmed by Environment Canada in Exhibit J-EC-00163 at pages 7 to 8:

The proponent acknowledges and identifies uncertainty associated with the cumulative effects analysis (biophysical) for the MGP, and a high level of uncertainty associated with induced effects of the project (Volume 5: Biophysical Impact Assessment, Part A, Section 12, Pages 12-3, 12-4, 12-7, 12-15). Despite this uncertainty, the proponent reached the following conclusions:

“the MGP does not contribute to significant cumulative effects” (Page 12-3),

“there are no significant overall cumulative effects” (Page 12-3),

“there is no reason to believe ... that in the future there will be an issue of management concern associated with cumulative effects on a valued component” (Page 12-4).

In reaching these conclusions, the Proponent has not followed the procedures mandated in the Terms of Reference, even though it is “the responsibility of the Proponent to provide the information described in the TOR” in the EIS (page 2, TOR).

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<sup>9</sup> [http://www.ngps.nt.ca/additionalinfo/Documents/MGP\\_EIS\\_Supp\\_Section\\_11.pdf](http://www.ngps.nt.ca/additionalinfo/Documents/MGP_EIS_Supp_Section_11.pdf)

- 12) As pointed out by Sierra Club of Canada and the World Wildlife Fund in Exhibit J-SCC-00077 at page 14, the Proponent has failed to assess cumulative impacts from induced development on a complete range of valued environmental/ecosystem components (VEC's) or on the full suite of species listed under the Species at Risk Act (SARA) in the project impact area.
- 13) The Proponent has also under-estimated the cumulative impact from induced development on in-migration to the NWT. In the cumulative effects assessment, the Proponent has continued to run its input-output model with "capacity constraints", which limits the availability of workers residing in the NWT.
- 14) The Proponent has failed to adequately answer the questions set out in section 17 (Cumulative Impacts) of the Terms of Reference (TOR), nor has it conducted the required analysis as set out therein. Furthermore, under Annex 2 to the Schedule to the Agreement for an Environmental Impact Review of the Mackenzie Gas Project (the Agreement) the Joint Review Panel must address the factors outlined therein, including a consideration of any cumulative impacts that are likely to result from the Project in combination with other projects or activities that have been or will be carried out. In the absence of the Proponent filing sufficient evidence on this aspect of the EA, the Panel is not in a position to consider cumulative effects in a way that meets the requirements of the Agreement.