

1 **REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section:**
2 **2.1.5; Page No.: 34 ff**

3

4 **QUESTION:**

5 For each of the transmission lines in the NFAT review process, please provide detailed
6 construction cost estimates that include; voltage, length, average span length, type(s) of
7 structures, material and weights for structures, percentage breakdown of structures by
8 tangent, angle, dead end, size and type of conductor and shield wire, insulator type and ratings,
9 types of foundations, and where they are used.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section:**
2 **2.1.5; Page No.: 34 ff**

3

4 **QUESTION:**

5 Please detail any special environmental conditions that affect the cost or timing of
6 construction, such as holds for migratory animals, ground conditions requiring mats or
7 helicopter transportation of men and materials, areas requiring winter construction, and an
8 explanation of how these conditions affect and were factored into the construction cost
9 estimates.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section:**
2 **2.1.2.2; Page No.: 12**

3

4 **QUESTION:**

5 The NFAT material indicates that the project will provide employment for First Nations workers.
6 Detail how the anticipated productivity level of workers being trained was factored into the
7 capital cost estimates for the transmission lines.

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 2: Manitoba's Preferred Development Plan Facilities; Section:**
2 **2.1.2.3; Page No.: 14**

3

4 **QUESTION:**

5 For the Keeyask Generation outlet lines: a) Are the 138 kV circuits each on its own line of
6 structures or are they on double circuit structures? b) What is the center to center separation
7 of the lines of structures on a common right of way?

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Appendix 11.1 Net Capital Expenditures; Page No.: 10, 12,14,16,18**

2

3 **QUESTION:**

4 For each line, provide details of how the capital costs were apportioned year-by-year. How
5 were the escalation and interest charges applied to the year-by-year costs?

6

7 **RESPONSE:**

8 This Information Request has been withdrawn by the IEC as no longer required, having been
9 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system

5

6 **QUESTION:**

7 Please provide the converter ratings for Bipole I and II HVDC converters. This would include
8 voltage ratings, power ratings, and short time overload ratings for each of the converters in the
9 North to South direction.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 Are there any system operating limits that restrict operation of the Bipole I or Bipole II links to
8 lower transfer levels, if so what are the existing North to South link MW ratings. If there are
9 restrictions, is there a plan to mitigate these restrictions (please describe the mitigation, the
10 new North to South Bipole I and Bipole II ratings, and when the mitigations would occur)?

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 How many days of maintenance (planned) outages are taken for Bipole I and Bipole II on an
8 annual basis for each pole and bipole?

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 What has been the forced outage performance for Bipole I and Bipole II – please provide the
8 number of outages per year and the number of hours per year for each pole over the past 15
9 years.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 What are the guaranteed no-load losses and the guaranteed variable load losses at 25%, 50%,
8 75%, and 100% load for Bipole I and Bipole II in both rectifier and inverter modes. Please note if
9 there have been any changes or modifications to the converter station that may have affected
10 these loss levels.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 Has a formula been developed for the average station losses for Bipole I and Bipole II? If so,
8 please provide these formulas.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 Please provide and describe loss calculation methodology for Bipole I and Bipole II, assuming
8 that this would include temperature, loading profile, etc.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's existing
4 and proposed DC transmission system.

5

6 **QUESTION:**

7 Have there been any modifications to the converter, such as control replacements, cooling
8 system, etc. Are future upgrades or modifications planned? If so, then please provide the
9 expected future rating and when this would occur.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 Please provide the rating for Bipole III converter. This would include voltage rating, power
8 rating and short time overload rating.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 What is the expected in-service date for Bipole III?

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 Please provide the rating for the Bipole III transmission line - voltage rating and current rating
8 at the minimum and maximum operating temperatures.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 Please provide electrical characteristics for Bipole III DC transmission line. This would include
8 conductor type, bundle information for the pole conductor and transmission line length. Please
9 include the minimum, maximum and average ambient operating temperatures specified for
10 Bipole I and Bipole II.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 What is the monopole outage rate and bipole outage rate (outages / year) for Bipole I and
8 Bipole II.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 What is the cost of DC conversion losses?

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed DC transmission system.

5

6 **QUESTION:**

7 Compare theoretical DC conversion losses with an AC system

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
5 existing and proposed AC transmission system.

6

7 **QUESTION:**

8 Are there any system operating limits that restrict operation of AC transmission or generation?

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed AC transmission system.

5

6 **QUESTION:**

7 Please provide typical planned generator maintenance outage schedules.

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been

11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Business Case**

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed AC transmission system

5

6 **QUESTION:**

7 What are Manitoba Hydro's average AC system power supply losses?

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets**

3

4 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
5 existing and proposed AC transmission system.

6

7 **QUESTION:**

8 Please provide plans for future electrical system upgrades and modifications, including in-
9 service dates and new ratings.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed AC transmission system.

5

6 **QUESTION:**

7 Please provide an assessment of delivery system reliability in terms of expected outage hours
8 with existing and future transmission topologies. We would like to see a summary of historical
9 performance, as well as goals for ongoing system reliability.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed AC transmission system.

5

6 **QUESTION:**

7 Please provide copies of study reports with contingency assessments, and voltage and reactive
8 power studies of Manitoba Hydro generation and transmission system performance in the 1-5
9 year time-frame (around the time Keeyask G.S. will begin operation), as well as in the 10-15
10 year time-frame (around the time Conawapa G.S. is expected to begin operation).

11

12 **RESPONSE:**

13 The response to this Information Request includes Commercially Sensitive Information and has
14 been filed in confidence with the Public Utilities Board.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's existing
4 and proposed AC transmission system.

5

6 **QUESTION:**

7 Please provide access to up-to-date power flow data, such as MISO 2012-series base cases, that
8 include proposed Manitoba Hydro facilities (electronic PSSE or PSLF format preferred), and
9 which model proposed GNT transmission and other planned Manitoba Hydro and Joint MH -
10 MISO transmission projects.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed AC transmission system.

5

6 **QUESTION:**

7 Please provide access to up-to-date power flow data, such as MISO 2012-series base cases, that
8 include proposed Manitoba Hydro facilities (electronic PSSE or PSLF format preferred), and
9 which model Bipole III HVDC Transmission Project.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to review and assess technical aspects of Manitoba Hydro's
4 existing and proposed AC transmission system.

5

6 **QUESTION:**

7 Please provide access to up-to-date power flow data, such as MISO 2012-series base cases, that
8 include proposed Manitoba Hydro facilities (electronic PSSE or PSLF format preferred), and
9 which model Keeyask and Conawapa generation.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE: In order to review and assess technical aspects of Manitoba Hydro's existing**
4 **and proposed AC transmission system.**

5

6 **QUESTION:**

7 Please provide access to up-to-date power flow data, such as MISO 2012-series base cases, that
8 include proposed Manitoba Hydro facilities (electronic PSSE or PSLF format preferred), and
9 which model time-frames mentioned in the previous question.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to define typical power flow, average energy flow, and
4 transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for
5 domestic load during peak and off-peak times with: (a) existing Bipoles I and II only; and
6 (b) with future Bipole III in-service.

7

8 **QUESTION:**

9 Please provide up-to-date power flow data, reflecting maximum and minimum load conditions,
10 with maximum hydro generation schedules and with excess power transferred to the U.S.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to define typical power flow, average energy flow, and
4 transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for
5 domestic load during peak and off-peak times with: (a) existing Bipoles I and II only; and
6 (b) with future Bipole III in-service.

7

8 **QUESTION:**

9 Please provide up-to-date power flow data, reflecting maximum and minimum load conditions,
10 with lower hydro generation schedules, with zero transfers scheduled to the U.S.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Business Case**

2

3 **PREAMBLE:** In order to define typical power flow, average energy flow, and
4 transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for
5 domestic load during peak and off-peak times with: (a) existing Bipoles I and II only; and
6 (b) with future Bipole III in-service

7

8 **QUESTION:**

9 Please provide up-to-date power flow data, reflecting maximum and minimum load conditions,
10 with for 1-5 and 10-15 year time-frames, as above

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to define typical power flow, average energy flow, and
4 transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for
5 domestic load during peak and off-peak times with: (a) existing Bipoles I and II only; and
6 (b) with future Bipole III in-service.

7

8 **QUESTION:**

9 Please provide the calculated transmission losses from Keeyask and Conawapa GS to Southern
10 Manitoba for domestic load during peak and off-peak times for the Bipole I and Bipole II links in
11 service for each year from 2012 until Bipole III is commissioned into service. Please describe the
12 assumptions and methodology for these calculations and what is the accuracy of these
13 calculations?

14

15 **RESPONSE:**

16 This Information Request has been withdrawn by the IEC as no longer required, having been
17 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to define typical power flow, average energy flow, and
4 transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for
5 domestic load during peak and off-peak times with: (a) existing Bipoles I and II only; and
6 (b) with future Bipole III in-service

7

8 **QUESTION:**

9 Please provide the calculated transmission losses from Keeyask and Conawapa G.S. to Southern
10 Manitoba for domestic load during peak and off-peak times for Bipole I, Bipole II and Bipole III
11 links, for a period from when Bipole III is commissioned into service for each year for a period of
12 20 years into the future after energization. Please describe the assumptions and methodology
13 for these calculations and what is the accuracy of these calculations?

14

15 **RESPONSE:**

16 This Information Request has been withdrawn by the IEC as no longer required, having been
17 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to define typical power flow, average energy flow, and
4 transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for
5 domestic load during peak and off-peak times with: (a) existing Bipoles I and II only; and
6 (b) with future Bipole III in-service

7

8 **QUESTION:**

9 Please provide up-to-date power flow data with and without the new interconnections such as
10 GNTL, with full potential contract capacity power transferred to the U.S.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to define typical power flow, average energy flow, and
4 transmission losses from Keeyask and Conawapa G.S. to Southern Manitoba for
5 domestic load during peak and off-peak times with: (a) existing Bipoles I and II only; and
6 (b) with future Bipole III in-service.

7

8 **QUESTION:**

9 Please provide up-to-date power flow data with and without the new interconnections such as
10 GNTL with zero transfers scheduled to the U.S.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to determine typical power flow and incremental transmission
4 losses for exports into MISO during peak and off-peak times

5

6 **QUESTION:**

7 Please provide your assessment of average energy flow and associated transmission losses for
8 exports into MISO during peak and off-peak times, with Bipoles I and II plus new AC
9 interconnections into the U.S.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to determine typical power flow and incremental transmission
4 losses for exports into MISO during peak and off-peak times.

5

6 **QUESTION:**

7 Please provide your assessment of average energy flow and associated transmission losses for
8 exports into MISO during peak and off-peak times, with future Bipole III plus AC
9 interconnections into the U.S.

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to better understand any Manitoba-MISO transmission
4 constraints.

5

6 **QUESTION:**

7 Please provide an assessment of Canada-MISO transmission constraints that require new
8 interconnections.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE:** In order to better understand any Manitoba-MISO transmission
5 constraints

6

7 **QUESTION:**

8 Please provide an assessment of Canada-MISO transmission constraints that either require
9 Manitoba Hydro's financial participation in U.S. transmission project(s)

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Business Case**

2

3 **PREAMBLE:** In order to evaluate Manitoba-MISO transmission capability

4

5 **QUESTION:**

6 Please provide up-to-date power flow data with and without the new interconnections such as

7 GNTL, with maximum power transfer schedules from the US into Manitoba

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been

11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to verify need for additional North-South AC transmission (within
4 Manitoba) when Conawapa GS comes on-line.

5

6 **QUESTION:**

7 Please provide a list of paths that could potentially be used to deliver Conawapa power.

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to verify need for additional North-South AC transmission (within
4 Manitoba) when Conawapa G.S. comes on-line.

5

6 **QUESTION:**

7 Please provide facility ratings of existing and proposed North-South transmission
8 interconnections.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Business Case**

2

3 **PREAMBLE:** In order to verify need for additional North-South AC transmission (within
4 Manitoba) when Conawapa GS comes on-line

5

6 **QUESTION:**

7 Please provide applicable power flow data may be included

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** In order to understand Manitoba Hydro's proposed additions of Canada -
4 U.S. transmission infrastructure to facilitate sales into MISO.

5

6 **QUESTION:**

7 Please provide reports and supporting data which shows Manitoba Hydro's technical need for
8 construction.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to understand Manitoba Hydro's proposed additions of Canada -
4 U.S. transmission infrastructure to facilitate sales into MISO.

5

6 **QUESTION:**

7 Please provide a list of proposed transmission interconnection projects with facility ratings.

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE:** In order to understand Manitoba Hydro's proposed additions of Canada -
5 U.S. transmission infrastructure to facilitate sales into MISO

6

7 **QUESTION:**

8 Please provide limitations of existing and proposed Canada-US transmission, in both directions

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE:** In order to understand Manitoba Hydro's proposed additions of Canada -
5 U.S. transmission infrastructure to facilitate sales into MISO.

6

7 **QUESTION:**

8 Please provide itemization of contracted and applicable emergency power sources in the U.S.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE:** In order to understand Manitoba Hydro's proposed additions of Canada -
5 U.S. transmission infrastructure to facilitate sales into MISO

6

7 **QUESTION:**

8 Comparison of net power sales revenue with transmission costs (existing and incremental)

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE:** In order to understand Manitoba Hydro's proposed additions of Canada -
5 U.S. transmission infrastructure to facilitate sales into MISO.

6

7 **QUESTION:**

8 Please provide Manitoba Hydro's assessment of benefits and costs of exporting power,
9 including such considerations as cost of production and delivery, projected market rates for
10 sales.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Chapter 5: The Manitoba Hydro System Interconnections and**
2 **Export Markets; Section: 5.2.2.3**

3

4 **PREAMBLE: For Power Sales from Manitoba into the U.S.**

5

6 **QUESTION:**

7 Quantify potential dollar benefits of access to markets in the United States

8

9 **RESPONSE:**

10 This Information Request has been withdrawn by the IEC as no longer required, having been
11 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE: For Power Sales from Manitoba into the U.S.**

5

6 **QUESTION:**

7 Please identify and provide continuous simultaneous ratings of transmission facilities which
8 interconnect Manitoba with U.S. utilities.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 5: The Manitoba Hydro System Interconnections and Export**
2 **Markets; Section: 5.2.2.3**

3

4 **PREAMBLE: For Power Sales from Manitoba into the U.S.**

5

6 **QUESTION:**

7 Quantify reliability improvements and import capacity increases with proposed transmission
8 facility additions

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Business Case**

2

3 **PREAMBLE:** We would like to see a "bottom line" combined summary of how
4 everything comes together economically. This has been explained in terms of separate
5 issues – environmental, improved power supply to forecast loads, and other factors.
6 Manitoba Hydro's presentations have demonstrated use of scenario analysis to
7 incorporate assessment of economic risks into the decision matrix. Risks such as load
8 growth uncertainty, hydro variability, capital cost volatility, and natural gas price
9 uncertainty have been considered in Manitoba Hydro's planning process.

10

11 **QUESTION:**

12 We would like to see information on the probability that 15-20 year sales contracts will be
13 continued beyond 50 years

14

15 **RESPONSE:**

16 This Information Request has been withdrawn by the IEC as no longer required, having been
17 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Did not appear to be specifically addressed in NFAT filing.**

2

3 **PREAMBLE:** We would like to see a "bottom line" combined summary of how
4 everything comes together economically. This has been explained in terms of separate
5 issues – environmental, improved power supply to forecast loads, and other factors.
6 Manitoba Hydro's presentations have demonstrated use of scenario analysis to
7 incorporate assessment of economic risks into the decision matrix. Risks such as load
8 growth uncertainty, hydro variability, capital cost volatility, and natural gas price
9 uncertainty have been considered in Manitoba Hydro's planning process.

10

11 **QUESTION:**

12 We would like to see information on the likelihood and potential impacts of Bipole HVDC I and
13 II transmission outages.

14

15 **RESPONSE:**

16 This Information Request has been withdrawn by the IEC as no longer required, having been
17 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Business Case**

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including:
8 revenue from sales to the U.S.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Business Case**

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan,

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including: the
8 economic benefit of added transmission due to increased reliability

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan.

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including:
8 reductions outage magnitude.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan.

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including:
8 improved load continuity.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Business Case**

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan,

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including: how
8 power surplus sales offset capital cost of transmission and generation

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Business Case**

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan,

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including: how
8 constructing hydro-electric facilities today is more economical than postponing projects

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Business Case**

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan,

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including: how
8 Surplus Energy sales offset capital costs

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Volume: Business Case**

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan,

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including:
8 financial benefit of constructing generation projects earlier in time

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE:** Did not appear to be specifically addressed in NFAT filing.

2

3 **PREAMBLE:** In order to get an overall picture of how economic factors balance in
4 Manitoba Hydro's preferred plan.

5

6 **QUESTION:**

7 It would be helpful to have a synopsis of combined cost and revenue forecasts, including: what
8 is the benefit in terms of power transmission loss savings.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.