



NETWORK ECONOMY ANNUAL REPORT TO TRANSMISSION CUSTOMERS

May 2021

Introduction

Pursuant to British Columbia Utilities Commission (the “Commission”) Order No. G-127-06, Appendix 1 (Appendix 1), BC Hydro is to convene an annual Network Economy Meeting to discuss, on a “without prejudice” basis, issues arising with respect to the use of Network Economy. The first annual meeting was to take place one year after implementation of the revised Network Economy provisions and no later than June 1, 2008. No issue with respect to the use of Network Economy had arisen and, with approval of the Commission, the meeting was not held.

In 2009, in BC Hydro’s consultation on the requirement of the Network Economy annual meeting a customer proposed that a meeting may not be necessary if BC Hydro prepared an annual Network Economy report showing trends and statistics along with explanations for the figures. This proposal was subsequently approved by the Commission via Letter No. L-32-09 (Appendix 2).

In 2010, again there was no interest by customers to hold a Network Economy annual meeting so BC Hydro requested permission from the Commission to not hold a 2010 Network Economy meeting. The Commission, via Letter No. L-45-10 (Appendix 3), approved BC Hydro’s request and furthermore stated that BC Hydro is only expected to convene an annual Network Economy meeting if customers of BC Hydro expressly ask for a meeting by way of a letter to BC Hydro and copied to the Commission. Additionally, the Commission requested BC Hydro to continue its postings of future annual Network Economy meeting bulletins and future Annual Reports.

On May 21, 2021, BC Hydro posted a bulletin (Appendix 4) attaching its annual Network Economy Report and asked customers to decide if, after reviewing the report, an annual Network Economy meeting is required. If customers felt a meeting was required it was requested that they submit their letter in accordance with Commission Letter Order L-45-10 by May 1, 2020.

Purpose

Network Economy is also known as Secondary Service under the OATT (Appendix 5). The terms and conditions for Network Economy are described in Sections 28.4 and 28.6, Attachment Q-2, the Settlement Agreement (Appendix 1, page 2 of 20 onwards), and Tariff Supplement No. 80 (Appendix 6).

There are two components that determine the priority of Network Economy Transmission Service: the Network Economy Utilization Test and the Economic Test. The procedures for calculating the Network Economy Utilization Test, and the market and trigger price determinations for calculating

the Economic Test are set out in BC Hydro Business Practice (Appendix 7) entitled Network Economy Service.

This report details the history of the use of Network Economy for the last three years until BC Hydro's recent fiscal year end (March 25, 2018 to March 27, 2021). The statistics that follow provide information on volume, the utilization rate, the frequency of times that the Network Customer passed the Economic Test and the relationship between volume and price.

Specifically, for the Utilization Test:

- Graphs 1 and 2 show the Network Economy transmission volume (MWh) that was reserved.
- Graphs 3 and 4 show the Utilization Rate.

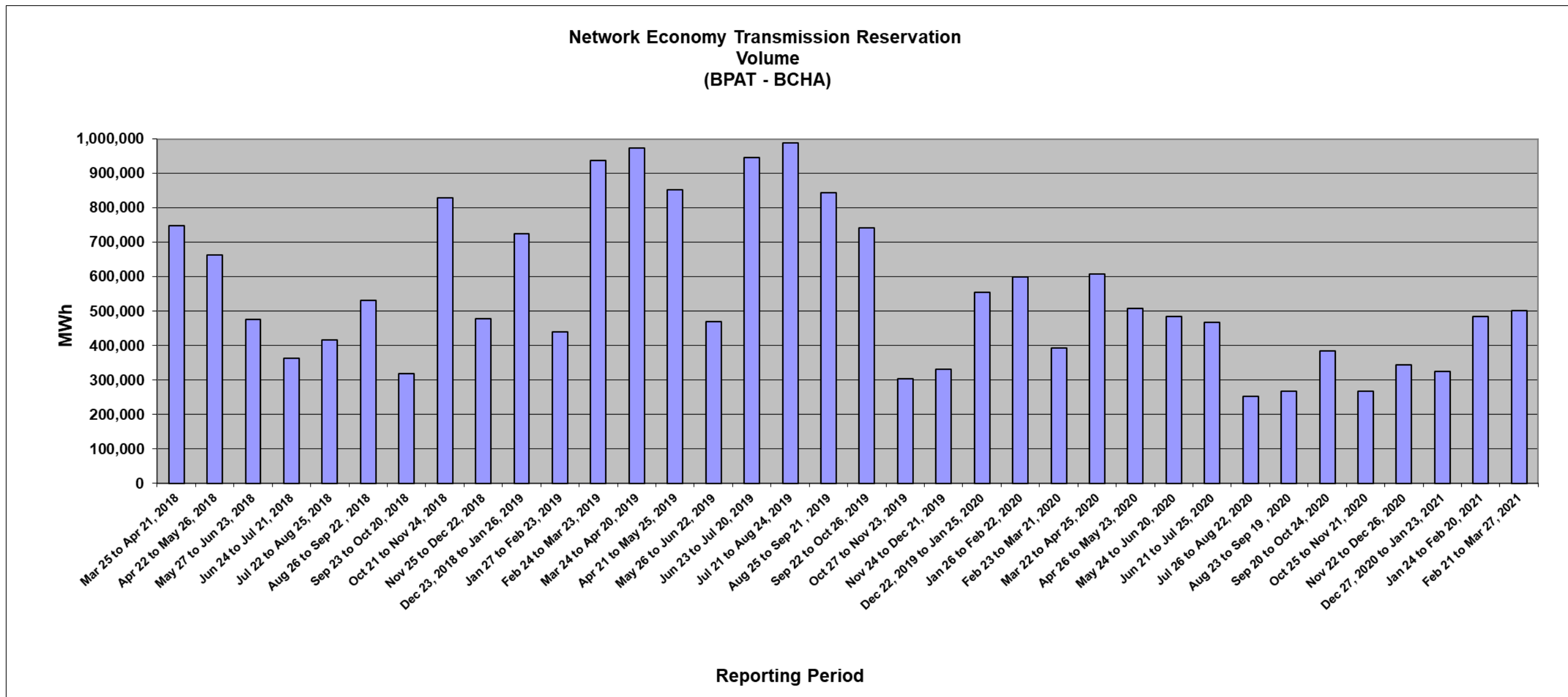
For the Economic Test:

- Table 1 summarizes the Economic Test results.
- Table 2 provides a summary of the average Market Price for the US-BC and AB-BC interties.
- Graphs 5 and 6 illustrate the relationship between the Network Economy transmission volume and the average Market Price.

Utilization Test

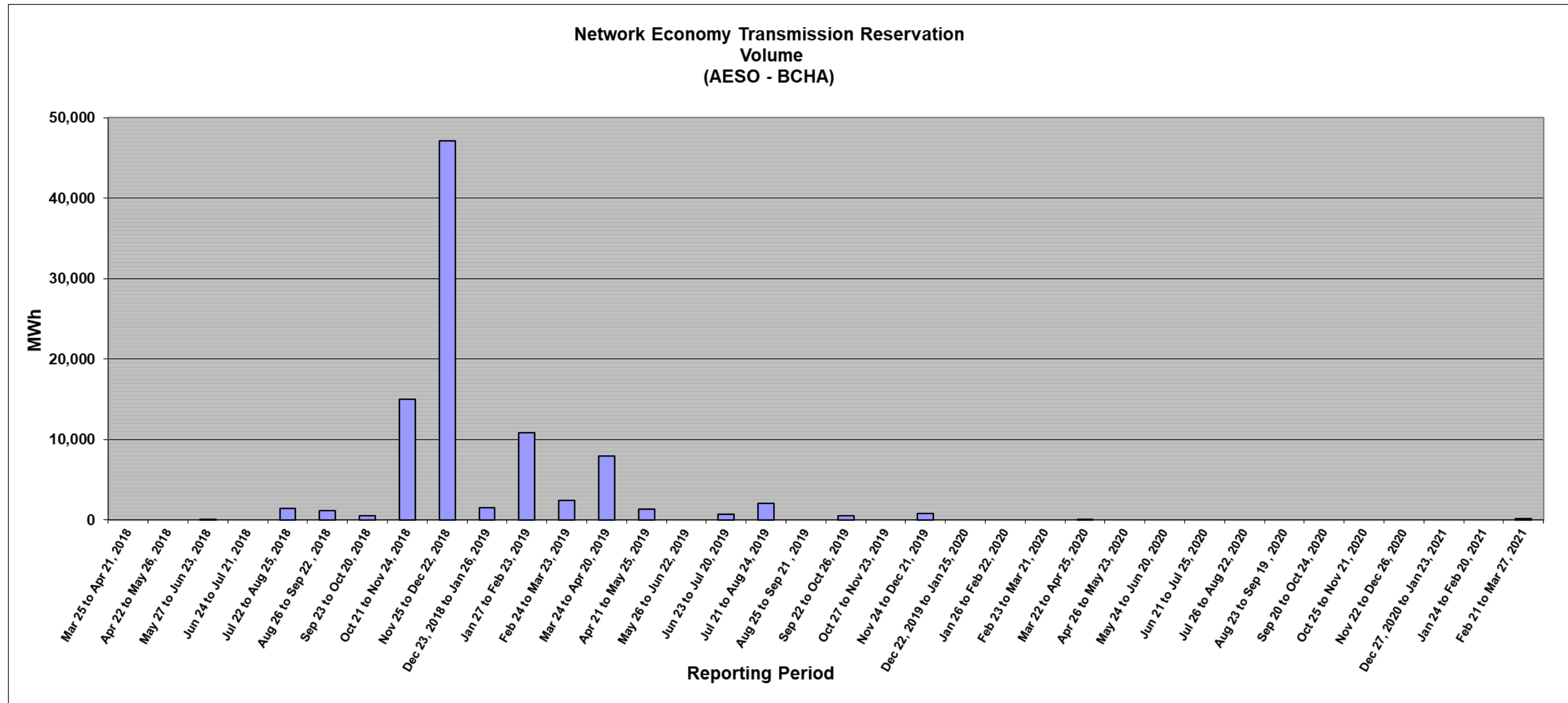
Results are shown in Graphs 1-4.

Graph 1: The graph below shows the Network Economy transmission volume (MWh) that was reserved by the Network Customer from March 25, 2018 to March 27, 2021 on the BPAT-BCHA import path.



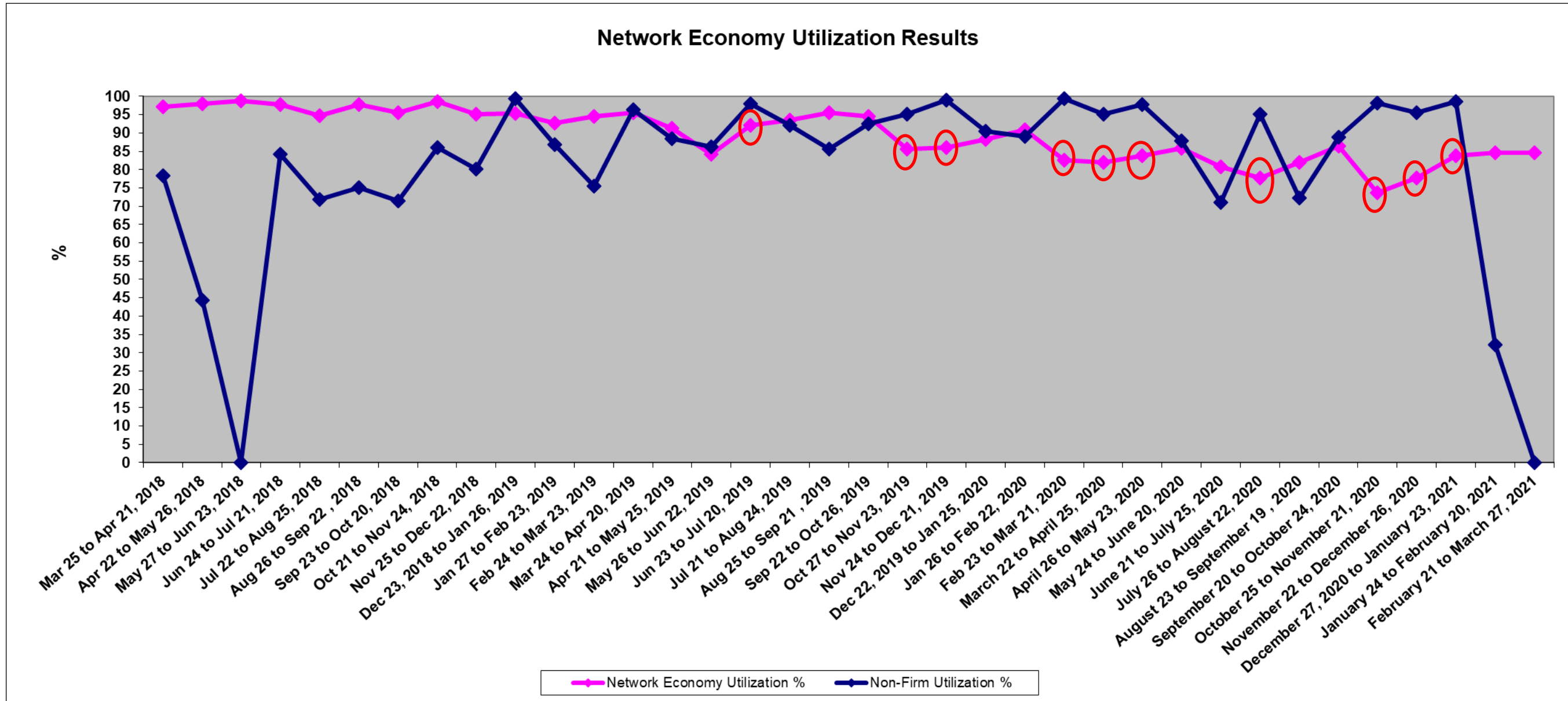
This graph shows that the highest amount of Network Economy transmission reserved for import on the BPAT – BCHA path was 987,637 MWh for the period July 21 to August 24, 2019 followed by 972,673 MWh for the period of March 24 to April 20, 2019, and 945,534 MWh for period June 23 to July 20, 2019. Import transmission reservations for all other time periods from March 25, 2018 to March 27, 2021 are below 937,000 MWh.

Graph 2: The graph below illustrates the Network Economy transmission volume (MWh) that was reserved by the Network Customer from March 25, 2018 to March 27, 2021 on the AESO - BCHA import path.



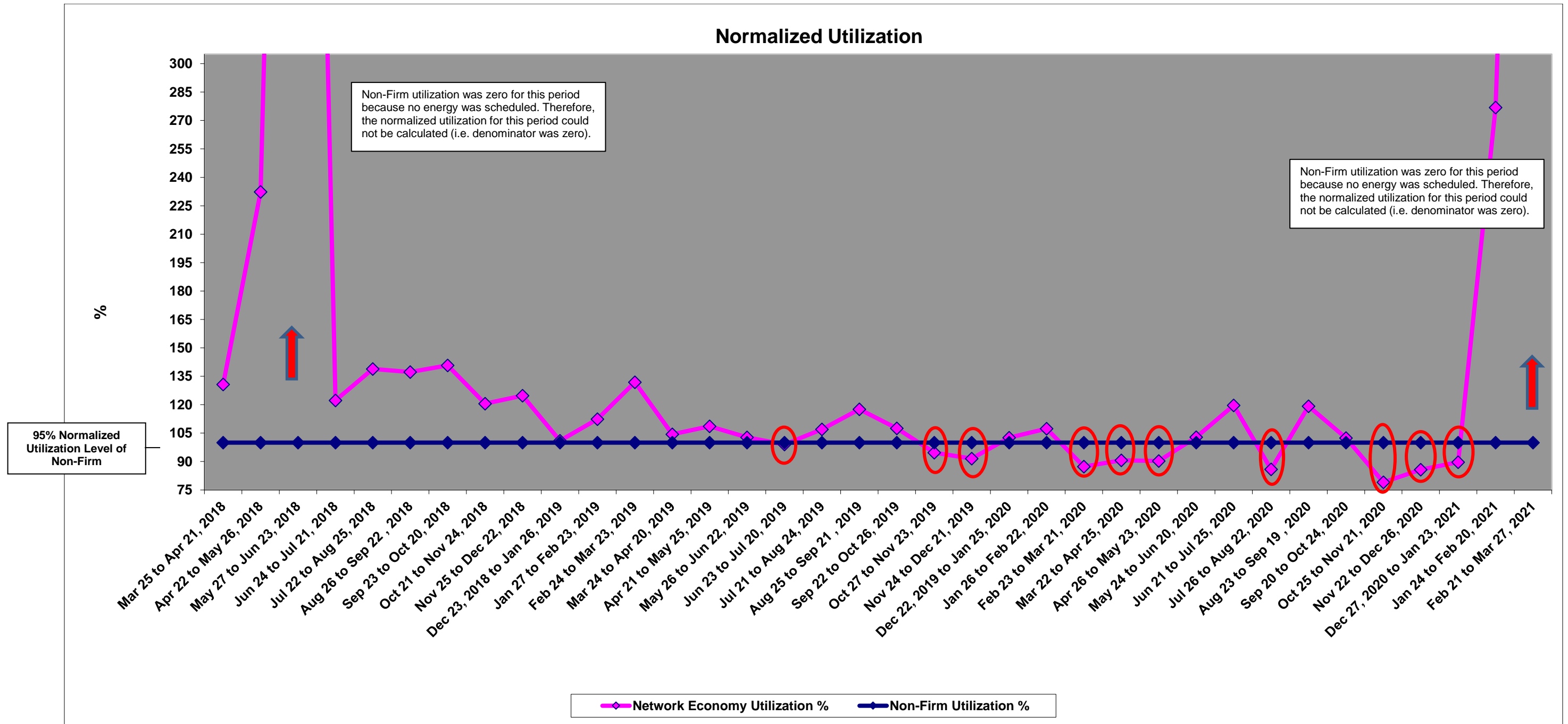
This graph shows that the highest amount of Network Economy transmission reserved for import on the AESO – BCHA path was 47,126 MWh for the period November 25 to December 22, 2018 followed by 14,995 MWh for the period October 21 to November 24, 2018, and 10,824 MWh for the period January 27 to February 23, 2019. Import transmission reservations for all other time periods from March 25, 2018 to March 27, 2021 are below 8,000 MWh. (Refer to Item 5 (in Appendix 1 to Order No. G-127-06, Page 11 of 20) in Appendix 1 for the definition of the Reporting Period).

Graph 3: The graph below shows the Utilization Rate.



In accordance with Attachment Q-2, Section 5 of the BC Hydro Open Access Transmission Tariff (OATT), “The Network Customer must, for the entirety of the reporting period,... maintain an average utilization rate of all Network Economy reservations of at least 95% of the average utilization of Daily and Hourly Non-Firm Point-to-Point service by customers, other than the Network Customer or its marketing affiliates, in pre-schedule and Real-Time, over the same reporting period.” BC Hydro calculates the average utilization rate of Network Economy Transmission reservations by the Network Customer and the Non-Firm Point-to-Point (PTP) Transmission reservations by non-Network Customers. The Network Customer passes the Utilization Test if the average utilization rate of the Network Economy transmission reservations divided by the average utilization rate of the Non-Firm PTP transmission reservations of non-Network Customers is greater than or equal to 95%. Data indicates that the Network Customer failed the Utilization Test ten times: June 23 to July 20, 2019, October 27 to November 23, 2019, November 24 to December 21, 2019, February 23 to March 21, 2020, March 22 to April 25, 2020, April 26 to May 23, 2020, July 26 to August 22, 2020, October 25 to November 21, 2020, November 22 to December 26, 2020, and December 27, 2020 to January 23, 2021 (refer to Appendix 8). Please refer to the Network Economy Business Practice for details regarding the process and calculations used in determining the Utilization Test.

Graph 4: The normalized graph below also shows red circles for each of the ten times when the Network Customer failed the Utilization Test: June 23 to July 20, 2019; October 27 to November 23, 2019; November 24 to December 21, 2019, February 23 to March 21, 2020, March 22 to April 25, 2020, April 26 to May 23, 2020, July 26 to August 22, 2020, October 25 to November 21, 2020, November 22 to December 26, 2020; and December 27, 2020 to January 23, 2021. In addition, anomalies occurred for the periods May 27 to June 23, 2018 and February 21 to March 27, 2021, in which zero energy was scheduled on the reserved Non-Firm transmission service thereby making the Non-Firm utilization not calculable (i.e. denominator was zero) for the two periods. Consequently, text boxes have been inserted in the graph indicating such anomalies. The remaining points on the graph shows Network Economy utilization during the reporting period when it was at least 95% of the average utilization of Daily and Hourly Non-Firm PTP Transmission service by customers to maintain priority. (Refer to Attachment Q-2 for details).



Economic Test

The Economic Test uses both the Market Price and the Trigger Price for both the Alberta-BC and the US-BC interties. (Refer to Appendix 7, Network Economy Service Business Practice, for definitions of these prices).

Network Economy transmission reservations will have the priority and rights provided in Section 14.7 of the OATT only if the Market Price is less than or equal to the Trigger Price for the delivery hour (“PASS”). If the Market Price is greater than the Trigger Price for the delivery hour (“FAIL”), Network Economy transmission reservations will have the same priority as Non-Firm PTP transmission service, with the exception that the provisions of Section 14.2 of the OATT providing for reservation priority based on price shall not apply.

Table 1: The table below summarizes the Economic Test results for the time periods as indicated, which are performed on a daily basis.

MONTH	BPAT - BCHA		AESO - BCHA	
	PASS	FAIL	PASS	FAIL
April/18	0%	100%	0%	100%
May/18	0%	100%	0%	100%
June/18	0%	100%	0%	100%
July/18	0%	100%	0%	100%
August/18	0%	100%	0%	100%
September/18	0%	100%	0%	100%
October/18	0%	100%	0%	100%
November/18	57%	43%	69%	31%
December/18	37%	63%	81%	19%
January/19	0%	100%	18%	82%
February/19	0%	100%	0%	100%
March/19	0%	100%	0%	100%
April/19	0%	100%	0%	100%
May/19	100%	0%	71%	29%
June/19	96%	4%	87%	13%
July/19	0%	100%	0%	100%
August/19	0%	100%	0%	100%
September/19	0%	100%	0%	100%
October/19	0%	100%	0%	100%

MONTH	BPAT - BCHA		AESO - BCHA	
	PASS	FAIL	PASS	FAIL
November/19	0%	100%	0%	100%
December/19	0%	100%	0%	100%
January/20	0%	100%	0%	100%
February/20	0%	100%	0%	100%
March/20	0%	100%	0%	100%
April/20	0%	100%	0%	100%
May/20	0%	100%	0%	100%
June/20	0%	100%	0%	100%
July/20	0%	100%	0%	100%
August/20	0%	100%	0%	100%
September/20	0%	100%	0%	100%
October/20	0%	100%	0%	100%
November/20	0%	100%	0%	100%
December/20	0%	100%	0%	100%
January/21	0%	100%	0%	100%
February/21	0%	100%	0%	100%
March/21	0%	100%	0%	100%

Table 2: The table below provides the average Market Price for the US-BC and AB-BC interties for the time periods as indicated.

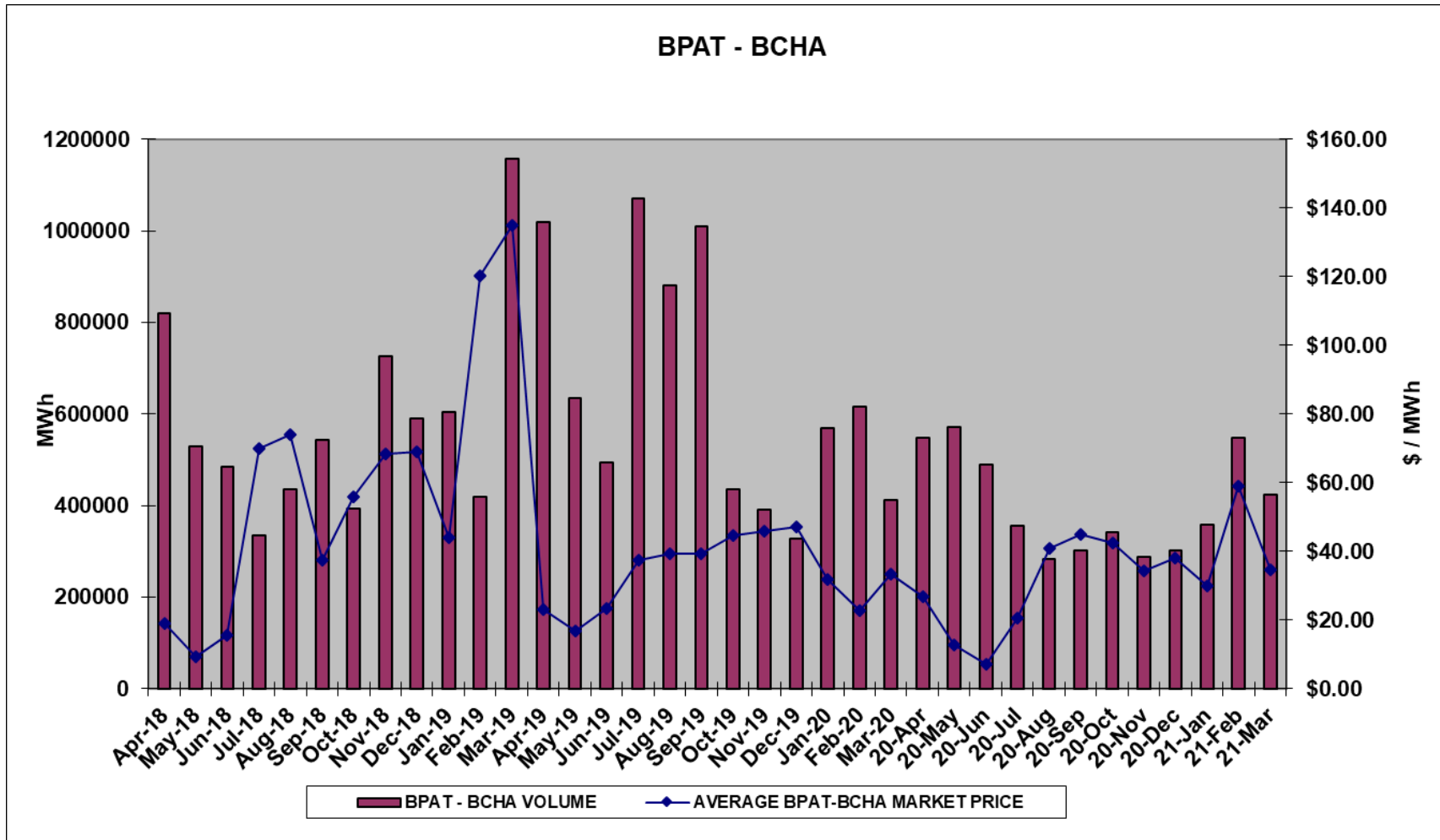
MONTH	AVERAGE MARKET PRICE ¹ (\$ / MWh)	
	US-BC	AB-BC
April/18	\$19.02	\$40.53
May/18	\$9.31	\$63.81
June/18	\$15.67	\$63.53
July/18	\$70.11	\$57.11
August/18	\$74.08	\$70.04
September/18	\$37.46	\$36.05
October/18	\$55.77	\$63.51
November/18	\$68.29	\$58.76
December/18	\$69.16	\$44.44
January/19	\$43.87	\$37.78
February/19	\$120.31	\$105.32
March/19	\$135.03	\$68.65
April/19	\$23.02	\$40.79
May/19	\$16.95	\$71.59
June/19	\$23.41	\$56.91
July/19	\$37.43	\$40.74
August/19	\$39.27	\$45.56
September/19	\$39.31	\$54.26
October/19	\$44.66	\$41.84
November/19	\$45.86	\$56.33
December/19	\$47.08	\$43.24
January/20	\$31.85	\$120.70
February/20	\$22.80	\$36.23
March/20	\$33.28	\$42.21
April/20	\$26.96	\$29.05
May/20	\$12.87	\$26.36
June/20	\$7.06	\$34.83

¹ Calculated as per BC Hydro Network Economy Business Practice

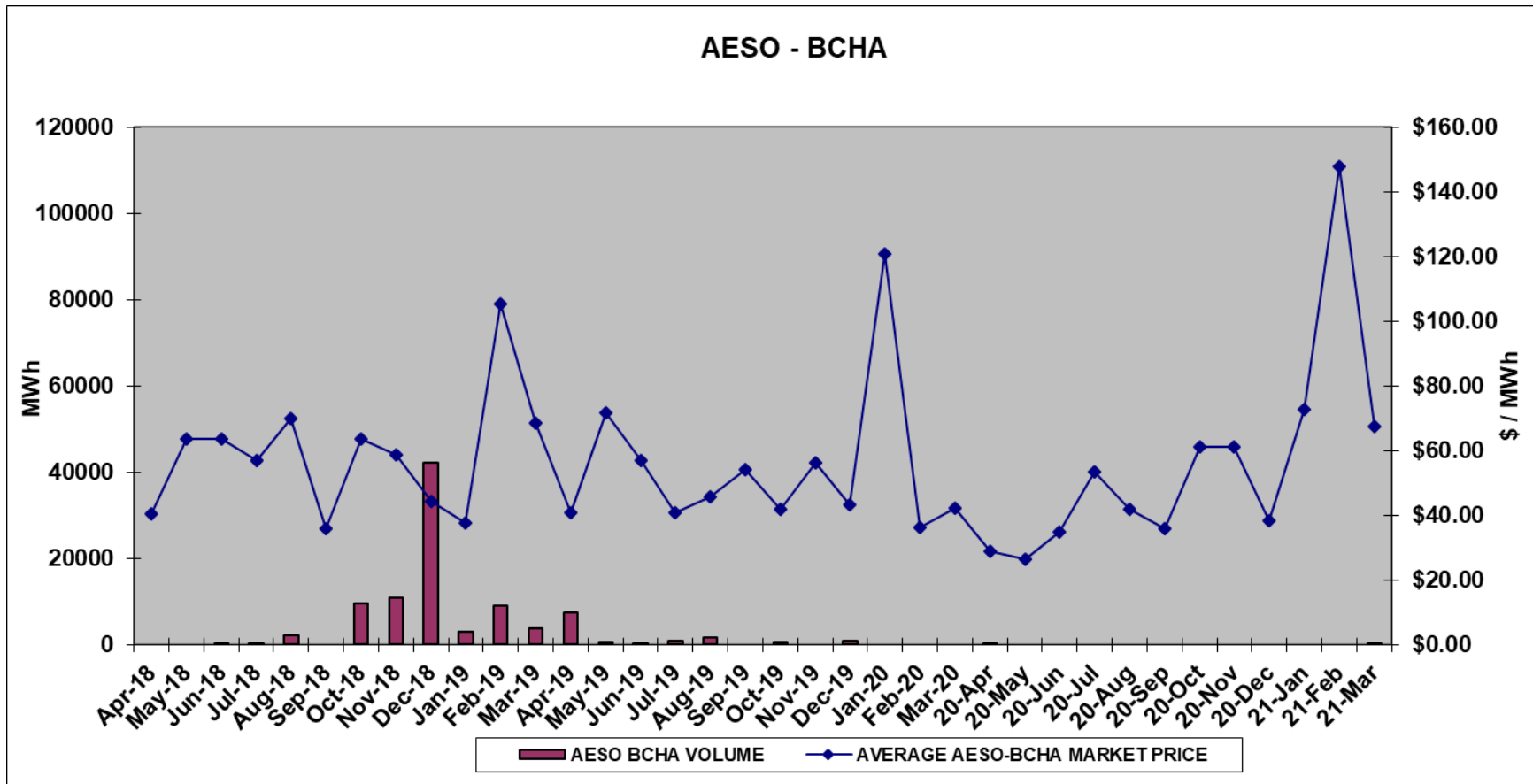
MONTH	AVERAGE MARKET PRICE ² (\$ / MWh)	
	US-BC	AB-BC
July/20	\$20.42	\$53.33
August/20	\$41.00	\$41.91
September/20	\$44.95	\$36.07
October/20	\$42.53	\$61.25
November/20	\$34.41	\$61.25
December/20	\$38.06	\$38.42
January/21	\$29.94	\$72.83
February/21	\$58.87	\$148.06
March/21	\$34.70	\$67.47

² Calculated as per BC Hydro Network Economy Business Practice

Graph 5: This graph illustrates the relationship between the Network Economy transmission volume and the average Market Price per month from April 2018 to March 2021 for the BPAT–BCHA path.



Graph 6: This graph illustrates the relationship between the Network Economy transmission volume and the average Market Price per month from April 2018 to March 2021 for the AESO–BCHA path.



List of Appendices

Appendix 1: British Columbia Utilities Commission Order No. G-127-06

http://www.bcuc.com/Documents/Orders/2006/DOC_12919_G-127-06_BCTC-NEOATT-Settlement-Agreement.pdf

Appendix 2: British Columbia Utilities Commission Letter No. L-32-09

http://www.bcuc.com/Documents/Orders/2009/DOC_21916_L-32-09_2009%20Network%20Economy%20Mtg%20Cancelled.pdf

Appendix 3: British Columbia Utilities Commission Letter No. L-45-10

http://www.bcuc.com/Documents/Orders/2010/DOC_25642_L-45-10_BCTC-2010-Network-Economy-Meeting.pdf

Appendix 4: May 21, 2021 BC Hydro Bulletin

<https://www.bchydro.com/energy-in-bc/operations/transmission/transmission-scheduling/bulletins/2021/may-august.html>

Appendix 5: OATT

https://www.bchydro.com/about/planning_regulatory/tariff_filings/oatt.html

Appendix 6: Tariff Supplement No. 80

<https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/tariff-filings/open-access-transmission-tariff/tariff-supplement-80.pdf>

Appendix 7: Network Economy Service Business Practice

https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/suppliers/transmission-scheduling/business_practices/2018%20Mar%209%20-%20Network%20Economy.pdf

Appendix 8: Monthly Network Economy Utilization Results

https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/suppliers/transmission-scheduling/transaction_data/Network%20Economy/network_economy_utilization/2021/Monthly%20Network%20Economy%20-%20Mar%202021.pdf