

ATTACHMENT 4

**SOUTH REGION LOAD AND GENERATION
FORECASTS**

1 Introduction

1.1 The AESO's responsibilities with respect to forecasting the need for transmission in Alberta are described in section 33(1) of the *Electric Utilities Act* and section 8 of the *Transmission Regulation*. System Planning studies contained in this NID use the load and generation forecasts described by this document. The load and generation forecasts chosen for this system study were chosen in accordance with the AESO Transmission Reliability Criteria principle that requires the design of the system to meet or exceed Reliability Criteria under credible worst-case loading and generation conditions¹.

1.2 Load and generation forecasts in this document are a subset of the forecasts published separately by the AESO. The corporate load and generation forecast is found in *AESO 2012 Long-term Outlook*, also referred to as 2012 LTO. This forecast is available online on the AESO Forecasting page found at: http://www.aeso.ca/downloads/AESO_2012_Long-term_Outlook_bookmarked.pdf

1.3 Forecasts for the Fort MacLeod planning area and forecasts for the South planning region are described in this report. The Study area resides in AESO South Planning Region as described in more detail in section 4 of the *AESO Long-Term Transmission System Plan*, published June 2012.

2 Historical Load

2.1 Table 2.1 summarizes historic winter load levels for the AESO Fort MacLeod planning area, and for the South planning region at region peak, and for the Alberta system, at system peak.

¹ AESO Transmission Reliability Criteria, Part II System Planning. March 11, 2005. Section 2.0

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Table 2-1: Historical Winter Load (MW)

Year	Area 53 Fort MacLeod	South Planning Region	System Load
2007 HX	35	2,799	9,710
2008 HX	33	2,837	9,806
2009 HX	33	2,982	10,236
2010 HX	25	2,956	10,226
2011 HX	32	2,970	10,609

HX = Historical

2.2 Table 2.2 summarizes summer load levels at time of region and system peak.

Table 2-2: Historical Summer Load (MW)

Year	Area 53 Fort MacLeod	South Planning Region	System Load
2007 HX	35	2,786	9,321
2008 HX	26	2,785	9,541
2009 HX	32	2,686	9,108
2010 HX	26	2,831	9,343
2011 HX	30	2,976	9,552
2012 HX (to-date)	31	2,791	9,885

HX = Historical

South Region - Load and Generation Forecasts

3 Load Forecast

3.1 Load forecasts used in the Study are based on the AESO forecast, referred to as the *2012 Long-term Outlook (2012 LTO)*, published in July 2012.

3.2 Table 3-1 below summarizes forecast winter loads for the Fort MacLeod planning area and the South planning region at region peak, and for the Alberta system at system peak.

Table 3-1: 2012LTO Winter Load (MW)

Year	Area 53 Fort MacLeod	South Planning Region	System Load
2012 F	41	3,100	10,841
2013 F	47	3,194	11,313
2014 F	47	3,276	11,768
2015 F	47	3,393	12,130
2016 F	48	3,438	12,580
2017 F	49	3,552	13,005
2018 F	50	3,597	13,383
2019 F	51	3,687	13,778
2020 F	52	3,771	14,145
2021 F	53	3,864	14,515
2022 F	54	3,981	14,801

3.3 Table 3-2 summarizes forecast summer load levels at the time of region and system peak.

Table 3-2: 2012LTO Summer Load (MW)

Year	Area 53 Fort MacLeod	South Planning Region	System Load
2012 F	31	2,960	9,857
2013 F	32	3,097	10,255
2014 F	32	3,169	10,673
2015 F	35	3,275	11,043
2016 F	35	3,320	11,457
2017 F	36	3,423	11,923
2018 F	36	3,469	12,266
2019 F	36	3,551	12,617
2020 F	36	3,630	12,948
2021 F	37	3,719	13,277
2022 F	40	3,826	13,528

The average annual load growth rate for the Fort MacLeod area is 2.5% for summer peak and 4.7% for winter peak over the study period. The average annual load growth rate for the South region is 3.2% for summer peak and 2.7% for winter peak over the study period. These growth rates are consistent with economic and other load assumptions detailed in the 2012LTO report.

4 Generation Forecast

4.1 Generation capacity in the South planning region was 2,999 MW as of December 31, 2011. This capacity is mainly from gas, hydro and wind facilities. Wind generation is an important component to the Study as it is expected to increase in the Study area.

4.2 The AESO has, as of August 2012, received applications to connect approximately 3,000 MW of wind generation in the South region. About 1,150 MW of these applications is planned within the Fort MacLeod planning area, all of which have planned in-service dates prior to the end of 2016.

4.3 Generation forecast assumptions used in the study are based on the generation outlook presented in the *2012 Long-term Outlook*. Future capacity additions in the Study area are expected to be wind power facilities. When forecasting wind capacity additions for the province the AESO takes a market level approach, considering market signals and the overall limits to development to create a forecast of the amount of wind capacity that will be added in the energy-only market. This results in a forecast of wind capacity for Alberta.

South Region - Load and Generation Forecasts

Table 4-1 2012 Long-term Outlook Alberta Installed Wind Capacity

Wind Capacity (MW)	South Planning Region	Central Planning Region	Total Alberta
Existing (as of Dec 31 2011)	783	82	865
2015	1,187	267	1,394
2022	2,088	456	2,544

4.4 The information in Table 4-1 must be brought to a locational level in order to identify transmission requirements. The project list and connection queue is a strong source of information on the location of future wind facilities. Given the investments made by developers to measure and quantify the resource at each site, acquire land rights and begin the permitting and connection process, the indication of future development in an area from planned projects is a strong signal. Further details on the methodology to allocate forecasted wind capacity additions is provided in the Fidler 312S 240/138 kV Substation System Planning Study Report.