REVIEW OF SASKPOWER'S 2016 AND 2017 RATE APPLICATION

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Saskatchewan Rate Review Panel

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Executive Summary

InterGroup Consultants Ltd was retained by the Saskatchewan Rate Review Panel to provide an independent review of SaskPower's application for rates effective July 1, 2016 and January 1, 2017, pursuant to the Minister's order for this review. In conducting this review, the Consultant considered the application and mid-application update, as well as SaskPower's responses to information requests and submissions from the public and stakeholders.

SaskPower's Application requests an average increase in rates of 5% effective July 1, 2016 and a further 5% increase effective January 1, 2017. The July 1, 2016 rate increase was implemented on an interim basis. These rate increases were forecast to result in operating net incomes of $155.9 million in 2016/17 and $208.5 million in 2017/18. The rate increases were also forecast to achieve a return on equity (ROE) of 6.9% in 2016/17 and 8.5% in 2017/18, consistent with SaskPower's long-term target ROE of 8.5%.

SaskPower filed a Mid-Application Update in September 2016 which revised the expected 2016/17 operating net income from the initial application forecast of $155.9 million to $83.3 million, a reduction of $72.6 million. SaskPower's revised ROE is now forecast to be 3.8% for 2016/17. SaskPower did not change its requested rates as a result of the mid-application update.

Based on the review of the material available to the Consultant, the main drivers of the increases in revenue requirement include the following:

- Increased finance charges ($57.1 million increase in 2016/17 over 2015 actuals) and depreciation expense ($34.8 million increase in 2016/17 over 2015 actuals). These increases are largely attributable to SaskPower's capital spending. SaskPower is forecasting capital spending of $965.2 million in 2016/17 and $1.336 billion in 2017/18 for total capital spending in these years of $2.301 billion. Of these amounts, $879.4 million relates to capital sustainment spending while $1.308 billion relates to growth and compliance spending including new generation projects such as the Chinook natural gas plant and the Tazi Twé hydro-electric project.
- Increased Operations, Maintenance and Administration expense ($47.9 million higher in 2016/17 compared to 2015 actuals). This increase is largely attributable to higher salaries and wages expense in 2016/17 compared to 2015 ($28 million increase).
- The original application included a forecast increase in operating income of $52.3 million in 2016/17 compared to 2015 actuals, in order to increase SaskPower's return on equity. Based on the mid-application update, 2016/17 operating income is now forecast to be $20.3 million lower than 2015 actuals. The reduced operating income in the mid-application update is primarily the result of lower non-electrical sales revenues ($21.4 million lower than the original application) and a $29.3 million increase in fuel and purchase power expense, primarily as a result of higher natural gas and coal expenses.

This review has highlighted that SaskPower is at the beginning of a period of substantial transition. This transition period will have implications for rates far beyond the two test years in the current application. SaskPower's 10-year capital plan includes approximately $1.1 billion of annual capital spending. Approximately 40% of the forecast capital spending in this period relates to SaskPower replacing or refurbishing existing infrastructure. The majority of the remaining capital spending relates to growth and compliance spending to address new generation requirements and the transition to new sources of generation.

The interest expense and depreciation expense associated with this capital plan is anticipated to add approximately $77 million annually to SaskPower's revenue requirement. This will require average annual rate increases in the range of 3% to keep up with capital spending. Inflation in fuel prices and OM&A will add to these annual rate increase requirements. Further, the Consultant notes that a $10/tonne carbon tax would add an additional $150 million annually to SaskPower's revenue requirement based on the existing generation mix. SaskPower is now forecasting that its debt to equity ratio will rise above the 60-75% target range in the 2016/17 and 2017/18 test years, based on the mid-application update. The Consultant notes that SaskPower's capital plan will continue to put upward pressure on the debt ratio over the next decade.

The Consultant and the Panel heard from many stakeholders that the pace of electricity rate increases is being felt across all customer classes. The recent rate increases were also noted to have reduced the competitiveness of SaskPower's rates and customer bills relative to other thermal generation utilities in Canada. The Consultant has noted these effects on competitiveness in this report.

While the current application only requests approval for rates for 2016 and 2017, the Consultant feels strongly that ratepayers should have access to the information to understand the implications of this capital program for future rate increases over the next 10 years. SaskPower's rates have increased faster than inflation for the last ten years and this trend seems likely to continue for some time. On that basis, the Consultant has made several recommendations for the Panel to consider to allow for an informed public discussion on the future direction of SaskPower's cost drivers and rates.

We have made specific observations regarding the different components of revenue and operating expenses throughout the report, as well as all other matters explored during the review. Our observations are included in the body of the report. We note that as a result of SaskPower's requested rate increases, SaskPower's rates for several customer classes are expected to increase above the average of other thermal utilities in Canada.

We recommend the Panel confirm as reasonable the 5% increase that took effect on an interim basis effective July 1, 2016. With respect to the requested rate increase effective January 1, 2017, we recommend that the Panel consider the balance between the effect of deferring or delaying the requested increase on SaskPower's debt ratio in the context of the likely effect of the rate increase on competitiveness with other jurisdictions.

With respect to SaskPower's Cost of Service (COS) study, we note that the most recent external review was completed in 2013. During our review of the current application, we identified some areas where methods and data sources should be reviewed, in order to ensure that SaskPower's COS study properly reflects how the system is planned and operated. Certain stakeholders also identified areas that should be reviewed. We provide advice to the Panel concerning the process for the next external cost of service study review and certain issues that in our view should be considered as part of that review.

In summary, the capital plan is likely to have a significant impact on rates over the next decade. The Consultant acknowledges that SaskPower has recognized the need for it to help its customers and stakeholders understand the challenges and plans for the future of electricity in Saskatchewan. While we recognize this is beyond the mandate of the Panel, we believe a public dialogue involving stakeholders and the Panel is necessary. There needs to be further discussion informed by more detailed information regarding the need for the capital spending and the implications for rates going forward. The Consultant notes that several other stakeholders made similar comments to that effect. On that basis the Consultant makes recommendations to the Panel on the importance of substantive public review and engagement on SaskPower's capital spending and resource plans.

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

1.1 TERMS OF REFERENCE AND CONSULTANT'S MANDATE

The Saskatchewan Rate Review Panel ("SRRP" or "the Panel") is a Ministerial Advisory Committee established by a Minister's Order dated December 16, 2015, pursuant to section 15 of *The Executive Government Administration Act*. The Panel's general mandate and operational terms of reference are specified in the Minister's Order. Specifically with respect to this Application, the Panel is charged with providing an opinion on the fairness and reasonableness of proposed rate changes while giving consideration to the following:

- The interests of the Crown Corporation, its customers and the public;
- Consistency with the Crown Corporation's mandate, objectives and methodologies;
- Relevant industry practices and principles; and
- The effect of the proposed rate change on the competitiveness of the Crown Corporation related to other jurisdictions.

On May 19, 2016, the Minister of Crown Investments issued Terms of Reference to the Panel for SaskPower's 2016 Rate Application. The Panel was asked to conduct a review of SaskPower's request for increases to its electricity rates to be effective on July 1, 2016 and January 1, 2017. The July 1, 2016 increase was implemented on an interim basis, pending receipt of the Panel's recommendations.

In conducting its review of the proposed electricity rate changes, the Terms of Reference require the Panel to consider:

A) The reasonableness of the proposed changes to the rates in the context of SaskPower's forecasted Cost of Service over the period 2016/17 inclusive comprised of:

    i. Anticipated costs for fuel;

    ii. Anticipated hydro facilities availability;

    iii. Load forecast;

    iv. Planned maintenance programs;

    v. Operating, administrative and maintenance expenses;

    vi. Depreciation and finance expenses; and

    vii. Corporate capital tax.

B) The revenue requirement resulting from the Cost of Service.

C) The reasonableness of the current rate structure and all components (basic charge, energy charge and demand charge) comprising the rate.

D) The future impact of the proposed rate change on different customer groups.

E) The Panel is to consider the following parameters as given:

   i. The budgeted capital allocation, the rate base, and established corporate policies over the period 2016 to 2017 inclusive;

   ii. The long-term Return on Equity (ROE) target of 8.5%;

   iii. The existing service levels;

   iv. Any existing supply contracts; and

   v. The revenue to revenue requirement ratio target range of 0.95 to 1.05.

A copy of the Minister's Order is included in Appendix A to this report.

The Panel retained InterGroup Consultants Ltd. ("the Consultant") to assist in the review of SaskPower's application and prepare an independent report summarizing observations and recommendation. This report summarizes the Consultant's analysis of the application; observations on the reasonableness of forecasts, revenue requirement, rate design and other matters; and recommendations to the Panel.

1.2 REVIEW PROCESS AND TIMELINE

In preparing this report, the following information was reviewed by the Consultant:

- SaskPower's 2016 rate change application for proposed rates effective July 1, 2016 and January 1, 2017;
- Responses to two rounds of information requests to SaskPower;
- Transcripts and videos from public meetings held by the Panel;
- Submissions made by the public to the Panel; and
- Other publicly available material from previous delivery rate applications and other regulatory tribunals.

The Consultant notes that SaskPower changed from a December 31st year end in 2015 to a March 31st year end for 2016/17 and 2017/18. Throughout this report years from 2015 and earlier reflect the December 31st year end date, while 2016/17 and future years reflect the March 31st year end date. The Consultant also notes that at times totals in tables may vary slightly from information provided by SaskPower due to rounding.

Key activities undertaken as part of the review process are summarized in Table 1-1.

Table 1-1: Review Timeline

Review Process Activity	Date
The Panel receives application from SaskPower.	June 2, 2016
The Consultant participated in SaskPower's overview presentation to the Panel and met with the Panel to discuss preliminary issues and potential concerns.	June 7, 2016
The Consultant participated in a conference call with the Panel to review initial issues and first round information requests.	June 15, 2016
The Panel hosted a public meeting with a presentation by SaskPower in Regina.	June 21, 2016
The Consultant provided first round information requests to SaskPower on behalf of the Panel.	June 22, 2016
The Panel hosted a public meeting with a presentation by SaskPower in Saskatoon.	June 23, 2016
SaskPower filed responses to first round information requests.	July 8, 2016
The Consultant and Panel Chair attended a workshop with SaskPower to review specific topics in the application and first round information request responses.	July 19, 2016
The Consultant provided second round information requests to SaskPower on behalf of the Panel.	July 28, 2016
SaskPower filed responses to second round information requests.	August 12, 2016
The Consultant met with the Panel to review initial findings and recommendations.	August 29/30, 2016
The Panel received presentations from CAPP and Meadow Lake Mechanical Pulp Inc.	August 29, 2016
The Consultant participated in a meeting with the Panel to discuss the initial draft report.	August 30, 2016
SaskPower provided its Mid-Application Update and related supporting materials.	September 13-16, 2016
The Consultant submitted the draft report to the Panel.	September 20, 2016
The Consultant met with the Panel to review the draft report.	September 22, 2016
The Consultant submitted the abridged report to SaskPower.	September 23, 2016
SaskPower provided comments on the abridged report.	September 26, 2016
The Consultant submitted the final draft report to the Panel.	September 30, 2016
The Consultant submitted the final report to the Panel.	October 11, 2016
The Panel expects to deliver its report to the Minister.	November 7, 2016

1.3 MINIMUM FILING REQUIREMENTS

SaskPower was directed by the Crown Investments Corporation to provide an application that met a set of minimum filing requirements. SaskPower provided the Consultant and the Panel with materials consistent with the minimum filing requirements.

1.3.1 Observations

The Consultant finds that the materials provided by SaskPower were consistent with the minimum filing requirements. A number of reports were provided to the Consultant initially on a confidential basis. Many of the reports were subsequently made publicly available, with redactions and alterations as necessary to remove confidential information. The Consultant accepts that there are reasonable requirements for SaskPower to maintain some information as confidential. However, in the Consultant's view, the review process would benefit from having public versions of certain key documents available to the public. In particular, the Consultant believes that public versions, omitting any commercially sensitive or customer specific information, of SaskPower's load forecast, Cost of Service study and resource plans would be valuable to the public review process. The Consultant notes that SaskPower did provide substantive additional public information on these topics during the review process. The Consultant believes this improved the public review process.

1.3.2 Recommendation

The Consultant recommends that the Panel encourage SaskPower to prepare public versions of the load forecast, Cost of Service study and resource plan as part of future rate applications.

2.0 APPLICATION OVERVIEW

2.1 REQUESTED RATES

SaskPower is applying for the following changes in rates:

- Confirmation and finalization of a 5% interim rate increase that took effect July 1, 2016; and
- A further 5% increase effective January 1, 2017.

SaskPower's proposed rates reflect a 5% increase to all elements of the rate structure for all customer classes, with two exceptions that affect a very small number of customers:

- Some Power Contract rate customers have different escalation clauses that govern the rate increases under the contracts.
- Time of Use rates for power and oilfield classes were established with reference to the new on-peak energy charge.[1]

SaskPower's application is based on its May 2016 business plan update.[2] Table 2-1 compares the 2015 forecast and actual revenues and revenue requirement to the 2016/17 and 2017/18 test year forecasts.

Table 2-1: Revenue and Revenue Requirement Comparison ($ millions)[3]

	2015 Forecast	2015 Actual	*$ change*	*% change*	2016-17 Forecast	*$ change over 2015 actual*	*% change*	2017-18 Forecast	*$ change over 2016/17 forecast*	*% change*
Revenues										
Domestic Electricity Sales	2,154.4	2,127.7	*-26.7*	*-1.2%*	2,328.2	*200.5*	*9.4%*	2,479.3	*151.1*	*6.5%*
Export Sales	34.9	8.2	*-26.7*	*-76.5%*	17.0	*8.8*	*107.3%*	20.4	*3.4*	*20.0%*
Net sales from trading	7.5	-1.6	*-9.1*	*-121.3%*	1.2	*2.8*	*-175.0%*	1.3	*0.1*	*8.3%*
Other	149.3	162.4	*13.1*	*8.8%*	134.9	*-27.5*	*-16.9%*	138.9	*4.0*	*3.0%*
Sub-total revenues	**2,346.1**	**2,296.7**	***-49.4***	***-2.1%***	**2,481.3**	***184.6***	***8.0%***	**2,639.9**	***158.6***	***6.4%***
Expenses										
Fuel and purchased power	678.4	650.4	*-28.0*	*-4.1%*	646.6	*-3.8*	*-0.6%*	687.3	*40.7*	*6.3%*
OM&A	672.4	634.2	*-38.2*	*-5.7%*	682.1	*47.9*	*7.6%*	707.7	*25.6*	*3.8%*
Depreciation	460.8	452.4	*-8.4*	*-1.8%*	487.2	*34.8*	*7.7%*	529.2	*42.0*	*8.6%*
Finance Charges	416.3	361.6	*-54.7*	*-13.1%*	418.7	*57.1*	*15.8%*	414.2	*-4.5*	*-1.1%*
Taxes	61.3	63.8	*2.5*	*4.1%*	68.0	*4.2*	*6.6%*	70.6	*2.6*	*3.8%*
Other	17.0	30.7	*13.7*	*80.6%*	22.8	*-7.9*	*-25.7%*	22.4	*-0.4*	*-1.8%*
Sub-total expenses	**2,306.2**	**2,193.1**	***-113.1***	***-4.9%***	**2,325.4**	***132.3***	***6.0%***	**2,431.4**	***106.0***	***4.6%***
Operating Income	**39.9**	**103.6**	***63.7***	***159.6%***	**155.9**	***52.3***	***50.5%***	**208.5**	***52.6***	***33.7%***
Total Revenue Requirement	**2,346.1**	**2,296.7**	***-49.4***	***-2.1%***	**2,481.3**	***184.6***	***8.0%***	**2,639.9**	***158.6***	***6.4%***

[1] SRRP Q127.
[2] SRRP Q1.
[3] Summarized from page 21 of the 2016 and 2017 rate application. 2015 forecast figures from page 20 of the 2014, 2015 and 2016 Rate Application.

With respect to 2015 forecasts and actuals, the following is noted:

- Overall actual 2015 revenues were approximately $49 million lower than forecasts. Both domestic and export sales were lower by approximately $26.7 million compared to forecasts. This is a small variation in percentage terms on total domestic sales, but represents more than a 75% variance for export sales.
- Overall expenses were lower in 2015 by $113 million compared to forecasts. Decreases in finance expense, OM&A and fuel and purchased power expenses all contributed to the lower total expenses. SaskPower noted that it reduced budgeted OM&A costs in 2015 by $38.2 million compared to the original business plan. Capital spending was also reduced by approximately $210 million in 2015 compared to the original business plan.[4]
- As a result of these variances, actual 2015 operating income was $63.7 million higher than forecast at the time of the last rate application.

The 2016/17 and 2017/18 test year forecasts indicate the following changes compared to 2015 actuals:

- Increased revenues of $184.6 million in 2016/17 and a further $158.6 million in 2017/18. Increased revenues are primarily a result of higher forecast domestic sales revenues reflecting both the proposed rate increases and load growth.
- A small decrease in fuel and purchased power expense in 2016/17 followed by an increase of $40.7 million in 2017/18.
- Increased operations and maintenance expense of $47.9 million in 2016/17 and a further $25.6 million in 2017/18.
- Depreciation expense increases of $34.8 million in 2016/17 and a further $42.0 million in 2017/8.
- Increased finance charges of $57.1 million in 2016/17 followed by a small decrease in finance charges in 2017/18.
- Operating income higher by $52.3 million in 2016/17 and a further $52.6 million in 2017/18 (total of $104.9 million increase over 2015 actuals).

Further discussion on the elements of the revenue forecast and the revenue requirements forecasts is provided in sections 5 and 6 of this report.

2.2 PROVINCIAL ECONOMIC OUTLOOK

This section provides an overview of actual and forecast changes to certain economic indicators for Saskatchewan. Actual information for 2011 through 2015 is taken from Statistics Canada. Forecast information is taken from a Conference Board of Canada outlook report. Table 2-2 summarizes the key indicator information.

[4] SaskPower 2016 and 2017 Rate Application, page 12.

Table 2-2: Saskatchewan Economic Indicators

Indicator	Actuals					Forecast				
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
GDP at Market Prices ($ millions)[1]	74,821	77,957	83,496	82,780	78,744	78,552	83,136	86,589	90,687	94,270
% Change from prior year		*4.2%*	*7.1%*	*-0.9%*	*-4.9%*	*-0.2%*	*5.8%*	*4.2%*	*4.7%*	*4.0%*
Employment (000s)[2]	535	548	565	571	574	575	579	582	583	586
% Change from prior year		*2.4%*	*3.1%*	*1.1%*	*0.5%*	*0.2%*	*0.7%*	*0.5%*	*0.2%*	*0.5%*
Labour Force Participation Rate (%)[3]	69.4	69.7	70.2	69.7	70.1	69.7	69	68.4	67.6	67.1
% Change from prior year		*0.4%*	*0.7%*	*-0.7%*	*0.6%*	*-0.6%*	*-1.0%*	*-0.9%*	*-1.2%*	*-0.7%*
Unemployment Rate (%)[4]	4.9	4.7	4.1	3.8	5	5.4	4.9	4.8	4.8	4.8
% Change from prior year		*-4.1%*	*-12.8%*	*-7.3%*	*31.6%*	*8.0%*	*-9.3%*	*-2.0%*	*0.0%*	*0.0%*
Housing Starts (number of units)[5]	7,031	9,968	8,290	8,257	5,149	4,870	4,500	4,743	5,016	5,443
% Change from prior year		*41.8%*	*-16.8%*	*-0.4%*	*-37.6%*	*-5.4%*	*-7.6%*	*5.4%*	*5.8%*	*8.5%*

Sources:

1. Gross domestic product, expenditure-based, by province and territory. Statistics Canada, CANSIM, Table 384-0038 (for data from 2011 to 2015); Conference Board of Canada. Provincial Outlook: Saskatchewan. Economic Forecast. Winter 2016 (for data from 2016 to 2020).

2. Labour force survey estimates (LFS), by sex and age group, seasonally adjusted and unadjusted. Statistics Canada, CANSIM, Table 282-0087 (for data from 2011 to 2015); Conference Board of Canada. Provincial Outlook: Saskatchewan. Economic Forecast. Winter 2016 (for data from 2016 to 2020).

3. Labour force survey estimates (LFS), by sex and age group, seasonally adjusted and unadjusted. Statistics Canada, CANSIM, Table 282-0087 (for data from 2011 to 2015); Conference Board of Canada. Provincial Outlook: Saskatchewan. Economic Forecast. Winter 2016 (for data from 2016 to 2020).

4. Labour force survey estimates (LFS), by sex and age group, seasonally adjusted and unadjusted. Statistics Canada, CANSIM, Table 282-0087 (for data from 2011 to 2015); Conference Board of Canada. Provincial Outlook: Saskatchewan. Economic Forecast. Winter 2016 (for data from 2016 to 2020).

5. Housing starts, by province. Statistics Canada, CANSIM, Table 027-0008, Canada Mortgage and Housing Corporation (CMHC)(for data from 2011 to 2015); Conference Board of Canada. Provincial Outlook: Saskatchewan. Economic Forecast. Winter 2016 (for data from 2016 to 2020).

Gross Domestic Product

From 2011 to 2013, Saskatchewan's economy experienced annual increases in Gross Domestic Product (GDP) in the range of 4% to 7%. In 2014 and 2015, GDP declined compared to prior years. This decline is forecast to continue in 2016 before returning to a growth situation in 2017 to 2020 of between 4% to 6% each year.

Employment

The number of people employed in Saskatchewan increased by 1% to 3% annually between 2011 and 2014. From 2015 through forecasts for 2020, the total number of people employed in Saskatchewan is expected in increase by less than 1% annually.

Labour Force Participation

The labour force participation rate measures the percentage of the working-age population that is either working or looking for work. From 2011 to 2015, the participation rate stayed relatively stable between 69% to 70%. The Conference Board of Canada forecasts participation rate to decline year over year from 2016 through 2020. This decline can reflect factors such as people still of working age choosing early retirement, students electing to stay in school longer before beginning a job search and other factors.

Unemployment Rate

From 2012 to 2014, the Saskatchewan unemployment rate declined year over year before increasing in 2015. The Conference Board of Canada forecasts the Saskatchewan unemployment rate to remain in a narrow range of 4.8% to 4.9% from 2017 through 2020.

Housing Starts

Saskatchewan housing starts peaked in 2012 and have declined each year since then. The Conference Board of Canada forecasts that housing starts will continue to decline through 2017, before increasing again in 2018. However total forecast housing starts through 2020 are not anticipated to recover to 2014 and earlier levels.

In summary, the Saskatchewan economy experienced a noticeable slowdown or decline in many economic indicators in 2014 and 2015 relative to prior years. Based on Conference Board of Canada forecasts, economic growth and recovery is expected to be slow from 2017 through 2020.

3.0 LOAD FORECAST

3.1 REVIEW OF METHODOLOGY

SaskPower's load forecast is developed to determine long-term energy requirements and system peak demand for SaskPower's customers. The forecast is used as an input to determining the utility's revenue requirement regarding maintenance schedules, power plant operations, fuel budgets and operational budgets. The load forecast is also used to develop forecast revenue and to determine required rate increases in the test years. Longer-term load forecasts are also required for resource and capital planning purposes.

The load forecast methodology considers historical load and weather data (a regression model to determine effects of weather on sales and normalize weather for a given period using thirty years averaged weather data),[5] economic variables from the provincial economic model (potash and oil production, population, number of households and commercial GDP growth data), residential end-use data, and forecasts provided by industrial customers. SaskPower adjusts its load forecast to remove energy and demand savings from DSM, basing its rate application on the DSM-adjusted load forecast.[6]

SaskPower has implemented new load forecasting software used for the first time in the 2016 forecast and therefore not used for this rate application. This has delayed SaskPower's usual external review, ordinarily done every five years and last completed in 2010.[7] SaskPower anticipates an external load forecast methodology review in 2017 allowing for time for maturation in implementing the new software.[8]

SaskPower's total energy requirements for each customer class are forecast individually, then combined for the total system. In addition to energy sales, the load forecast includes forecasting the number of customer accounts and the estimated billable demand per customer. Once the base forecast is complete for each rate class, the DSM energy and peak demand savings are removed, resulting in the DSM-adjusted load forecast which is used for the rate application.

For the Power, Large Oilfields and Reseller classes billed demand is estimated individually as the maximum of the forecasted on/off peak demand, where the peak demands are calculated by applying the previous year's ratio of recorded demand to energy to the forecasted monthly energy amount for that customer.

For all other classes, SaskPower forecasts billed demand monthly using the forecasted amount of energy for that class and dividing that by an average of the three most recent years historical load factor for that class, where the load factor is the ratio of energy to demand in the given period of time.[9]

[5] SRRP Q103.
[6] SaskPower 2016 and 2017 Rate Application, page 24.
[7] SaskPower 2016 and 2017 Rate Application, page 24.
[8] SRRP Q102.
[9] SRRP Q105.

Residential Class

Energy sales to the Residential class are forecast based on the forecast number of residential customers and the average use per customer.

Residential customer count forecasts are based on an economic forecast of non-farm households in Saskatchewan provided by the Government of Saskatchewan and reviewed by SaskPower's internal economist.[10] Households are split into two categories, apartments and single family dwellings.

The average use per residential customer is calculated based on the type of household, end use market conditions and efficiency standards. This methodology includes twenty-four end uses (e.g. calculating use per appliance, appliance saturation rates, etc.).

The forecast customer count is multiplied by the average use per customer to determine the base residential class forecast, which is then adjusted for DSM savings and compared to the weather-normalized actual energy sales to forecast energy sales for validation.

The Residential class is forecast to grow by 4.70% in the 2016 test year and 0.79% in 2017. For the long-term 2015 to 2025 forecast, average growth is estimated of 2.10% per year.

Farm Class

The Farm customer class includes normal farm household and agricultural use as well as irrigation loads.

The farm class forecast customer count is broken into "household" and "operations" farm customers. Household customer counts are forecast based on an Economic Forecast of farm households in Saskatchewan provided by the Government of Saskatchewan and reviewed by SaskPower's internal economist. Operations farm customer numbers are forecast using a regression analysis with the number of farm households.

Farm household customer usage is forecast in a manner similar to Residential class energy sales. The energy use for Operations Farm customers is also derived from an end use model, combined with economic indicators from the Economic Forecast. Energy consumption for irrigation is calculated based on the number of services and average use per service.

These forecasts are combined and DSM energy savings are removed to get the DSM adjusted Farm forecast. The Farm forecast is compared to economic variables and the weather-normalized actual energy sales to forecast energy sales for validation.

The Farm class is forecast to grow by 4.31% in the 2016 test year and 0.23% in 2017. For the long-term 2015 to 2025 forecast, average growth is estimated of 0.06% per year.

[10] SRRP Q104.

Commercial Class

The commercial customer count forecast is based on a regression analysis of the historic number of commercial customers compared to residential customers. Streetlight customers are forecast separately and added to the total commercial customer forecast.[11]

Forecast commercial class energy, first removes streetlight load, then uses a regression analysis of commercial energy sales to GDP indicators from the SaskPower Economic Forecast by commercial category including finance, insurance and real estate; public administration; retail and wholesale trade; and transportation and warehousing.

Streetlight energy forecast is determined by lamp count and usage for different lamp technologies with future lamp counts escalated to the number of Residential customers.

Once the forecast is complete, DSM energy savings are removed resulting in the DSM adjusted Commercial class forecast.

The Commercial class is forecast to grow by 1.11% in the 2016 test year and 0.81% in 2017. For the long-term 2015 to 2025 forecast, average growth is estimated of 0.64% per year.

Power and Oilfield Class

SaskPower's power class includes customers in the potash sector, pipeline pumping sector and northern mining sector. The power class load forecast is based on existing customer counts, with changes based on potential known new customers in the sector. The oilfield forecast customer count has two components; 1) the large oilfield customer count, derived similarly to the power class and 2) the standard oilfield customer count, which is forecast using the ratio of historic number of customers to the number of operating wells in the province applied to the operating wells forecast provided by the Saskatchewan Ministry of Economy.[12]

The primary method for forecasting energy requirements for Power and Large Oilfield customers is through individual customer discussions on a quarterly basis, aligning with the four load forecast updates per year, noting any updates or anticipated energy requirements; both short and long-term.

For the rest of the Oilfield class econometric, extrapolation and statistical regression methods are used to determine future energy requirements along with oil or fluid production forecasts, provided by the Ministry of Economy and Canadian Association of Petroleum Producers.[13]

SaskPower states that typically customers in this class do not have tremendous amounts of changes from year to year. Customer forecasts in the potash and oil sectors are compared to production forecasts for

[11] SRRP Q104.
[12] SRRP Q104.
[13] SRRP R2Q13.

these industries from the government or industry to improve estimate accuracy.[14] Once the forecast is complete, DSM energy savings are removed resulting in the DSM adjusted Power class forecast.

SaskPower's load forecast for the test years includes growth in customer forecasts for the power and oilfield sectors with growth in a number of areas including:

- The potash sector, while most expansions at existing mine sites have been completed there are two new mines under construction;
- The pipeline sector, loads are increasing as Alberta oil sands production and conventional oil production in Alberta and Saskatchewan is shipped through Saskatchewan to markets in eastern Canada and the United States; and
- Growth is also attributed to the steel sector, universities, and seed crushing.

The Power class is forecast to grow by 5.33% in the 2016 test year and 2.86% in 2017. For the long-term 2015 to 2025 forecast, average growth is estimated of 2.48% per year. The Oilfield class is forecast to reduce by -0.63% in the 2016 test year, growing by 1.53% in 2017. For the long-term 2015 to 2025 forecast, average growth is estimated of 1.15% per year.

Reseller Class

The Reseller class includes two customers, the Cities of Saskatoon and Swift Current, who purchase bulk power from SaskPower and distribute to residential and commercial customers within their jurisdictions.

The Reseller class is based on existing Reseller customers, with individual forecasts made for each customer. SaskPower meets with each customer to record their estimate future load. Adjustments are made based on known Reseller customers by customer account representatives and planning groups, which generally know of any potential new customers in this category years in advance.[15] The class forecast is compared to historical sales trends for validation.

The Reseller class is forecast to grow by 4.54% in the 2016 test year and 0.31% in 2017. For the long-term 2015 to 2025 forecast, average growth is estimated of 0.68% per year.

Corporate Use, System Losses and Unaccounted Energy

Corporate use includes electrical energy used by SaskPower for fuel supply and all other electric system internal use, excluding station service at generating plants. System Losses includes transmission and distribution losses. Transmission losses are incurred in transmitting power from generating stations to the distribution system and distribution losses are incurred in distributing power the customers on the distribution system. Unaccounted energy includes unmetered corporate and customer electric energy use, including energy use at all switching stations and distribution substations.

[14] SRRP Q107.
[15] SRRP Q104.

Internal corporate energy use is forecast using extrapolation; coal mine consumption is forecast based on production estimates projected by the Fuel Supply department. Transmission losses are determined by the Network Development department using the SPLoss program. Distribution losses and unaccounted energy usage are estimated using a five year historical average percent applied to future sales.

The Base Corporate use, system losses and unaccounted energy forecasts are reduced for DSM savings for the DSM adjusted forecasts.

The Corporate Use and System Losses classes combined are forecast to reduce by -6.73% in the 2016 test year and -0.30% in 2017. For the long-term 2015 to 2025 forecast, average growth is estimated of 0.08% per year.

Non-Grid Customers

The Non-grid forecast represents energy sold to customers in communities which do not have access to the SaskPower electrical grid. This class includes residential, commercial and corporate customers from the communities of Kinoosao, Creighton, Sturgeon Landing and Denare Beach. Energy sold to these communities comes from the Kinoosao diesel plant and power purchases from Manitoba Hydro.

System Peak Load Forecast

The system peak demand represents the highest level of demand placed on the system at any time period during the year. SaskPower forecasts an instantaneous as well as hourly interval system peak demand.

The system peak historically occurs in the winter months and is important for planning purposes to ensure SaskPower has adequate generation and transmission capacity supply available when required. Factors influencing SaskPower's peak forecast include time of day, seasonal variations (including pattern changes in electricity usage such as Christmas lighting, and increased lighting due to shorter daylight hours), industrial load and weather conditions.

Historical and current sales forecast data is used to develop an hourly interval coincident peak load factor for each Power class and Large Oilfield customer. This information is used along with that obtained in discussions with the individual customers in this class to develop an hourly interval peak demand forecast for each Power class and Large Oilfield customer.

For all other customer classes, hourly interval peak forecast is estimated using coincident peak load factors developed from SaskPower's interval meter load research. This research relates to customer class historic contribution to the system peak demand to annual energy sales. The hourly interval system peak load forecast is determined by adding the hourly interval peak load for each class and the instantaneous system load peak is calculated using the historic relationship between hourly interval and instantaneous peak demand.

Once the Base peak forecast is determined, DSM savings are deducted for the DSM adjusted system peak demand forecast.

The forecast peak load is validated by comparing against three different data sets including 1) historical peak load, 2) historical system peak load normalized for weather conditions, and 3) historical load factor (compared to forecast future system load factor).

SaskPower's forecast includes a 13% planning reserve margin for generation capacity planning purposes; i.e. SaskPower plans for an additional 13% of capacity at the time of estimated peak on reserve.[16]

SaskPower's actual system peaks are compared to the potential peak forecast amount for winter (highest peak demand) and summer (capacity restrictions in summer of up to 25% result in the summer peak being relevant to monitor for planning purposes) in Table 3-1. In every circumstance, the forecast amount was within 10% of actual and almost always higher than the actual.

Table 3-1: Winter and Summer Peak Potential Forecast vs. Actual Comparison[17]

Winter Peak Load (MW)				
Date	Forecast	Actual	% Difference	Actual Annual % Growth
12/12/2010	3,371	3,162	6.20%	-
1/12/2011	3,460	3,195	7.66%	1.04%
12/10/2012	3,591	3,314	7.71%	3.72%
12/6/2013	3,558	3,543	0.42%	6.91%
11/30/2014	3,710	3,561	4.02%	0.51%
1/8/2015	3,836	3,628	5.42%	1.88%
Average	**3,588**	**3,401**	**5.24%**	**2.81%**
Summer Peak Load (MW)				
Date	Forecast	Actual	% Difference	Actual Annual % Growth
7/26/2010	3,019	2,750	8.91%	-
7/18/2011	3,085	3,070	0.49%	11.64%
7/30/2012	3,240	3,053	5.77%	-0.55%
9/5/2013	3,175	3,187	-0.38%	4.39%
8/14/2014	3,309	3,131	5.38%	-1.76%
7/10/2015	3,471	3,331	4.03%	6.39%
Average	**3,217**	**3,087**	**4.03%**	**4.02%**

SaskPower is a winter peaking system, however the individual summer peak is not that much lower as seen in Table 3-1. On average, over the past six years, the annual summer peak has been growing at a faster pace than the winter peak, reducing the spread between the winter and summer peaks.

[16] SRRP Q109.
[17] SRRP Q108.

3.2 TEST YEAR RESULTS

SaskPower's energy sales volume for the test years April 1, 2016 to March 31, 2017 and April 1, 2017 to March 31, 2018 are based on the 2015 Q4 Load Forecast as shown in Table 3-2. Forecast total Saskatchewan sales for the Rate Application are 22,419 GWh for the 2016/17 test year. Compared to the actual sales from January 1 – December 31, 2015, this represents a 3.7% growth in Saskatchewan sales, with growth concentrated in the Residential, Farm, Power Customers and Reseller classes. The forecast Saskatchewan sales for the 2017/18 year are 23,134 GWh, or a 1.3% increase from the 2016/17 test year forecast.

Table 3-2: Test Year Sales Volume Comparison (GWh)[18]

Saskatchewan Energy Sales Volume (in GWh)	Actual Twelve months Dec. 31 2015	Twelve months March 31 2016-17	*% Growth from 2015 twelve months Dec. 31*	Twelve months March 31 2017-18	*% Growth from 2016-17 Twelve months Mar. 31*	Twelve months March 31 2018-19	*% Growth from 2017-18 Twelve months Mar. 31*
Residential	3,127.9	3,282.0	*4.9%*	3,312.1	*0.9%*	3,354.1	*1.3%*
Farm	1,276.3	1,331.9	*4.4%*	1,327.3	*-0.3%*	1,307.7	*-1.5%*
Commercial	3,795.3	3,844.9	*1.3%*	3,875.4	*0.8%*	3,903.0	*0.7%*
Oilfields	3,493.5	3,478.9	*-0.4%*	3,551.1	*2.1%*	3,651.1	*2.8%*
Power Customers	8,698.1	9,190.4	*5.7%*	9,467.3	*3.0%*	9,620.2	*1.6%*
Reseller	1,233.8	1,290.9	*4.6%*	1,294.7	*0.3%*	1,298.6	*0.3%*
Total Saskatchewan Sales	**21,624.9**	**22,419.0**	***3.7%***	**22,827.9**	***1.8%***	**23,134.7**	***1.3%***

For the test years, increases are expected to be greatest in the Power customer class, particularly for the potash and pipeline sectors. In general, due to their relative size, the greatest impact on the load forecast comes from the accuracy of the Oilfield and large-scale industrial and commercial customers.

The recently filed Mid-Application Update for Saskatchewan Energy Sales Volume, has reduced the 2016/17 forecast by 0.3% (or approximately 66.7 GWh). This is shown in Table 3-3, with increases in the Oilfield customer class of 171 GWh offset by decreases in the Residential, Farm, Reseller, Power Customer and Commercial classes totalling 237 GWh.

[18] SaskPower 2016 and 2017 Rate Application, page 23.

Table 3-3: 2016/17 Test Year Sales Volume Comparison (GWh)[19]

Saskatchewan Energy Sales Volume (in GWh)	Twelve months March 31 2016-17	Mid-Application Twelve months March 31 2016-17	*Change in 2016-17 Test Year Forecsat*	*% Change in 2016-17 Test Year Forecast*
Residential	3,282.0	3,216.2	-65.8	*-2.0%*
Farm	1,331.9	1,267.8	-64.1	*-4.8%*
Commercial	3,844.9	3,836.3	-8.6	*-0.2%*
Oilfields	3,478.9	3,650.1	171.2	*4.9%*
Power Customers	9,190.4	9,110.7	-79.7	*-0.9%*
Reseller	1,290.9	1,271.2	-19.7	*-1.5%*
Total Saskatchewan Sales	**22,419.0**	**22,352.3**	**-66.7**	**-0.30%**

SaskPower updates its load forecast four times yearly, with one official forecast and three revisions.[20] SaskPower's 2016/17 Business Plan is based on the first quarter (Q1) forecast, prepared in March 2015.[21] The Q2 forecast was updated in July to include customer expansion plans indicated by the Key Accounts department. The Q3 forecast update was completed in October reducing the forecast based on updated customer plans and to reflect a trend of higher distribution losses as a percentage of distribution loads. The Q4 forecast was prepared in December 2015[22] and includes all these changes with further revisions due to potash and oil production forecast changes from the Ministry of the Economy.[23] SaskPower's Rate Application for 2016/17 and 2017/18 is based on the Q4 Load Forecast.

The 2015 Q1 and Q4 forecasts are compared in Table 3-4 below.

[19] SaskPower Mid-Application Update: 2016 and 2017 Rate Application, page 3.
[20] SRRP Q106.
[21] SRRP Q100 and SRRP R2Q13.
[22] SRRP R2Q14.
[23] SRRP R2Q13.

Table 3-4: Customer Class Load Changes (GWh) – 2015 Q4 vs. Q1 Load Forecast[24]

Year	Power	Oilfield	Comm.	Res.	Farm	Reseller	Corp & Losses	Total Energy
2015	(184.9)	19.7	(0.8)	(76.7)	(51.9)	(52.1)	176.3	**(170.4)**
2016	(28.4)	(3.9)	7.9	19.5	(0.3)	0.1	61.4	**56.3**
2017	(27.5)	(83.0)	7.7	19.2	0.5	0.3	52.7	**(30.1)**
2018	(277.4)	(119.0)	7.1	18.8	0.1	0.5	48.9	**(321.0)**
2019	(836.5)	(21.0)	7.1	19.6	(0.2)	(0.3)	60.3	**(771.0)**
2020	(818.4)	(10.0)	7.2	19.3	0.2	0.4	62.5	**(738.8)**
2021	(959.5)	(4.5)	7.1	19.3	0.4	0.2	64.8	**(872.2)**
2022	(878.9)	(155.6)	7.3	19.2	0.0	(0.1)	48.6	**(959.5)**
2023	(875.4)	(157.8)	7.7	19.2	0.4	(0.4)	49.4	**(956.9)**
2024	(885.4)	(229.6)	8.7	19.2	(0.1)	0.3	42.3	**(1,044.6)**
2025	(875.7)	(252.2)	7.4	18.9	(0.4)	0.0	40.1	**(1,061.9)**
Avg. Change as % of Avg. Class Total	**-5.7%**	**-2.4%**	**0.2%**	**0.3%**	**-0.4%**	**-0.4%**	**3.2%**	**-2.4%**

3.3 LONG-TERM LOAD FORECAST

SaskPower's long-term 2015 Q4 load forecast predicts an average annual growth rate of 1.54% from 2015 to 2025 or growth of 3,924 GWh. This is a slight change from the Q1 forecast which forecast average annual system energy growth of 1.9% from 2015 to 2025 or 4,816 GWh, as seen in Table 3-5. Forecast long-term growth is driven primarily from the Residential, Power and Oilfield customer classes.

Table 3-5: 2015 Q4 Grid Load Forecast - Customer Class Energy (GWh) with Actuals 2004 – 2014[25]

Year	Res.	*Annual Growth*	Farm	*Annual Growth*	Comm.	*Annual Growth*	Power	*Annual Growth*	Oilfield	*Annual Growth*	Reseller	*Annual Growth*	Corp & Losses	*Annual Growth*	Total Energy	*Annual Growth*
2004	2,466	-	1,350	-	3,114	-	6,502	-	2,165	-	1,261	-	1,898	-	**18,755**	**-**
2005	2,496	*1.21%*	1,337	*-0.95%*	3,182	*2.18%*	6,552	*0.77%*	2,264	*4.58%*	1,266	*0.40%*	1,777	*-6.33%*	**18,874**	***0.63%***
2006	2,513	*0.71%*	1,272	*-4.88%*	3,232	*1.55%*	6,666	*1.74%*	2,399	*5.98%*	1,294	*2.19%*	1,910	*7.43%*	**19,285**	***2.18%***
2007	2,624	*4.42%*	1,329	*4.51%*	3,261	*0.91%*	6,855	*2.83%*	2,541	*5.92%*	1,287	*-0.52%*	1,900	*-0.49%*	**19,798**	***2.66%***
2008	2,702	*2.94%*	1,306	*-1.75%*	3,304	*1.32%*	6,898	*0.63%*	2,682	*5.53%*	1,274	*-0.98%*	1,988	*4.63%*	**20,154**	***1.80%***
2009	2,845	*5.30%*	1,338	*2.47%*	3,399	*2.88%*	6,139	*-11.01%*	2,743	*2.26%*	1,274	*0.02%*	1,980	*-0.43%*	**19,717**	***-2.16%***
2010	2,864	*0.67%*	1,292	*-3.48%*	3,379	*-0.60%*	6,932	*12.92%*	2,871	*4.70%*	1,254	*-1.58%*	2,001	*1.11%*	**20,593**	***4.44%***
2011	2,986	*4.28%*	1,298	*0.52%*	3,440	*1.79%*	7,321	*5.61%*	2,901	*1.03%*	1,253	*-0.10%*	2,043	*2.07%*	**21,242**	***3.15%***
2012	2,918	*-2.28%*	1,149	*-11.52%*	3,525	*2.47%*	7,448	*1.73%*	3,177	*9.53%*	1,254	*0.06%*	2,283	*11.76%*	**21,754**	***2.41%***
2013	3,170	*8.62%*	1,332	*15.91%*	3,655	*3.71%*	7,863	*5.58%*	3,448	*8.52%*	1,257	*0.26%*	2,005	*-12.16%*	**22,730**	***4.49%***
2014	3,260	*2.85%*	1,364	*2.43%*	3,781	*3.43%*	8,178	*4.01%*	3,503	*1.60%*	1,274	*1.34%*	2,038	*1.64%*	**23,399**	***2.94%***
2015	3,128	*-4.06%*	1,276	*-6.45%*	3,795	*0.38%*	8,698	*6.35%*	3,494	*-0.26%*	1,234	*-3.13%*	2,125	*4.26%*	**23,750**	***1.50%***
2016	3,275	*4.70%*	1,331	*4.31%*	3,837	*1.11%*	9,162	*5.33%*	3,472	*-0.63%*	1,290	*4.54%*	1,982	*-6.73%*	**24,349**	***2.52%***
2017	3,301	*0.79%*	1,334	*0.23%*	3,868	*0.81%*	9,424	*2.86%*	3,525	*1.53%*	1,294	*0.31%*	1,976	*-0.30%*	**24,722**	***1.53%***
2018	3,341	*1.21%*	1,309	*-1.87%*	3,896	*0.72%*	9,512	*0.93%*	3,621	*2.72%*	1,298	*0.31%*	2,001	*1.27%*	**24,978**	***1.04%***
2019	3,388	*1.41%*	1,304	*-0.38%*	3,921	*0.64%*	9,912	*4.21%*	3,742	*3.34%*	1,301	*0.23%*	2,086	*4.25%*	**25,654**	***2.71%***
2020	3,450	*1.83%*	1,301	*-0.23%*	3,945	*0.61%*	10,263	*3.54%*	3,848	*2.83%*	1,305	*0.31%*	2,119	*1.58%*	**26,231**	***2.25%***
2021	3,513	*1.83%*	1,296	*-0.38%*	3,967	*0.56%*	10,193	*-0.68%*	3,932	*2.18%*	1,308	*0.23%*	2,147	*1.32%*	**26,356**	***0.48%***
2022	3,579	*1.88%*	1,289	*-0.54%*	3,987	*0.50%*	10,495	*2.96%*	3,930	*-0.05%*	1,311	*0.23%*	2,165	*0.84%*	**26,756**	***1.52%***
2023	3,661	*2.29%*	1,287	*-0.16%*	4,006	*0.48%*	10,657	*1.54%*	3,934	*0.10%*	1,314	*0.23%*	2,177	*0.55%*	**27,036**	***1.05%***
2024	3,747	*2.35%*	1,285	*-0.16%*	4,024	*0.45%*	10,879	*2.08%*	3,905	*-0.74%*	1,318	*0.30%*	2,152	*-1.15%*	**27,310**	***1.01%***
2025	3,851	*2.78%*	1,284	*-0.08%*	4,043	*0.47%*	11,117	*2.19%*	3,916	*0.28%*	1,321	*0.23%*	2,142	*-0.46%*	**27,674**	***1.33%***
ACTUAL Avg. Annual Growth Rate 2004 - 2014		2.83%		0.10%		1.96%		2.32%		4.93%		0.10%		0.72%		**2.24%**
FORECAST Avg. Annual Growth Rate 2015 - 2025		2.10%		0.06%		0.64%		2.48%		1.15%		0.68%		0.08%		**1.54%**

Actual average growth rate was higher from 2004 to 2014 at 2.24% per year. Consistent long-term actual growth is largely due to expected growth in the Power, Oilfield, Commercial and Residential classes

[24] SRRP R2Q13.

[25] SRRP R2Q13.

and mostly occurred in the last five years 2009 to 2014 (with 3.5% average annual growth in this time period compared to 1% average actual growth in 2004 to 2009).

A comparisons of customer counts is provided in Table 3-6. Customer forecasts are an important element of the Residential, Farm and Commercial class forecasts. For these classes, customer numbers are used with forecast usage per customer to determine an overall class load forecast.

Table 3-6: 2015 Q1 Grid Load Forecast - Customer Class Number of Accounts with Actuals 2004 – 2014[26]

Year	Res.	*Annual Change*	Farm	*Annual Change*	Comm.	*Annual Change*	Power	*Annual Change*	Oilfield	*Annual Change*	Reseller	*Annual Change*	Corporate Use	*Annual Change*	Total Number of Accounts	*Annual Change*
2004	305,472	-	66,424	-	52,508	-	84	-	11,259	-	2	-	212	-	**435,961**	-
2005	308,221	*0.90%*	64,985	*-2.17%*	52,604	*0.18%*	78	*-7.14%*	11,508	*2.21%*	2	*0.00%*	212	*0.00%*	**437,610**	***0.38%***
2006	309,551	*0.43%*	64,601	*-0.59%*	52,869	*0.50%*	78	*0.00%*	12,045	*4.67%*	2	*0.00%*	212	*0.00%*	**439,358**	***0.40%***
2007	315,507	*1.92%*	63,751	*-1.32%*	53,421	*1.04%*	78	*0.00%*	12,805	*6.31%*	2	*0.00%*	212	*0.00%*	**445,776**	***1.46%***
2008	322,408	*2.19%*	62,553	*-1.88%*	53,911	*0.92%*	78	*0.00%*	13,453	*5.06%*	2	*0.00%*	212	*0.00%*	**452,617**	***1.53%***
2009	329,046	*2.06%*	61,993	*-0.90%*	54,525	*1.14%*	82	*5.13%*	14,174	*5.36%*	2	*0.00%*	212	*0.00%*	**460,034**	***1.64%***
2010	334,780	*1.74%*	61,404	*-0.95%*	54,945	*0.77%*	91	*10.98%*	14,756	*4.11%*	2	*0.00%*	212	*0.00%*	**466,190**	***1.34%***
2011	346,312	*3.44%*	60,871	*-0.87%*	55,501	*1.01%*	97	*6.59%*	15,015	*1.76%*	2	*0.00%*	212	*0.00%*	**478,010**	***2.54%***
2012	350,499	*1.21%*	62,063	*1.96%*	56,605	*1.99%*	100	*3.09%*	16,446	*9.53%*	2	*0.00%*	212	*0.00%*	**485,927**	***1.66%***
2013	360,431	*2.83%*	61,449	*-0.99%*	59,390	*4.92%*	101	*1.00%*	17,476	*6.26%*	2	*0.00%*	212	*0.00%*	**499,061**	***2.70%***
2014	368,373	*2.20%*	59,079	*-3.86%*	60,026	*1.07%*	101	*0.00%*	18,659	*6.77%*	2	*0.00%*	212	*0.00%*	**506,452**	***1.48%***
2015	377,858	*2.57%*	60,459	*2.34%*	60,178	*0.25%*	99	*-1.98%*	18,701	*0.23%*	2	*0.00%*	212	*0.00%*	**517,509**	***2.18%***
2016	385,189	*1.94%*	60,292	*-0.28%*	60,883	*1.17%*	99	*0.00%*	18,948	*1.32%*	2	*0.00%*	212	*0.00%*	**525,625**	***1.57%***
2017	391,324	*1.59%*	60,125	*-0.28%*	61,473	*0.97%*	102	*3.03%*	19,442	*2.61%*	2	*0.00%*	212	*0.00%*	**532,680**	***1.34%***
2018	398,618	*1.86%*	59,958	*-0.28%*	62,173	*1.14%*	104	*1.96%*	19,523	*0.42%*	2	*0.00%*	212	*0.00%*	**540,590**	***1.48%***
2019	406,096	*1.88%*	59,791	*-0.28%*	62,892	*1.16%*	104	*0.00%*	19,938	*2.13%*	2	*0.00%*	212	*0.00%*	**549,035**	***1.56%***
2020	413,583	*1.84%*	59,624	*-0.28%*	63,612	*1.14%*	106	*1.92%*	19,997	*0.30%*	2	*0.00%*	212	*0.00%*	**557,136**	***1.48%***
2021	421,149	*1.83%*	59,457	*-0.28%*	64,339	*1.14%*	106	*0.00%*	20,405	*2.04%*	2	*0.00%*	212	*0.00%*	**565,670**	***1.53%***
2022	428,707	*1.79%*	59,289	*-0.28%*	65,065	*1.13%*	106	*0.00%*	20,442	*0.18%*	2	*0.00%*	212	*0.00%*	**573,823**	***1.44%***
2023	436,293	*1.77%*	59,122	*-0.28%*	65,794	*1.12%*	106	*0.00%*	20,843	*1.96%*	2	*0.00%*	212	*0.00%*	**582,372**	***1.49%***
2024	443,874	*1.74%*	58,955	*-0.28%*	66,523	*1.11%*	106	*0.00%*	21,244	*1.92%*	2	*0.00%*	212	*0.00%*	**590,916**	***1.47%***
2025	451,594	*1.74%*	58,788	*-0.28%*	67,264	*1.11%*	106	*0.00%*	21,645	*1.89%*	2	*0.00%*	212	*0.00%*	**599,611**	***1.47%***
ACTUAL Avg. Annual Growth Rate 2004 - 2014		1.89%		-1.16%		1.35%		1.86%		5.18%		0.00%		0.00%		**1.51%**
FORECAST Avg. Annual Growth Rate 2015 - 2025		1.80%		-0.28%		1.12%		0.69%		1.47%		0.00%		0.00%		**1.48%**

As shown in Table 3-6, the actual number of residential and commercial customers has been slowly growing in all actual years. This growth is forecast to continue in the forecast years. The farm class has shown consistent customer decreases and this is projected to continue in the forecast period, although to a lesser degree. The result on a usage per customer basis for these three classes is shown in Table 3-7.

[26] SRRP R2Q13, updated customer count numbers not provided for Q4 Load Forecast.

Table 3-7: 2015 Q1 Grid Load Forecast - Customer Class Number of Accounts with Actuals 2004 – 2014[27]

Year	Residential		Farm		Commercial	
	MWh/ Customer	Annual Change	MWh/ Customer	Annual Change	MWh/ Customer	Annual Change
2004	8.07	-	20.32	-	59.31	-
2005	8.10	*0.31%*	20.57	*1.23%*	60.49	*2.00%*
2006	8.12	*0.25%*	19.69	*-4.30%*	61.13	*1.06%*
2007	8.32	*2.45%*	20.85	*5.87%*	61.04	*-0.15%*
2008	8.38	*0.77%*	20.88	*0.15%*	61.29	*0.40%*
2009	8.65	*3.17%*	21.58	*3.38%*	62.34	*1.72%*
2010	8.55	*-1.06%*	21.04	*-2.51%*	61.50	*-1.35%*
2011	8.62	*0.79%*	21.32	*1.34%*	61.98	*0.79%*
2012	8.33	*-3.44%*	18.51	*-13.18%*	62.27	*0.47%*
2013	8.80	*5.64%*	21.68	*17.09%*	61.54	*-1.17%*
2014	8.85	*0.62%*	23.09	*6.51%*	62.99	*2.35%*
2015	8.28	*-6.46%*	21.11	*-8.59%*	63.06	*0.12%*
2016	8.50	*2.71%*	22.08	*4.60%*	63.02	*-0.06%*
2017	8.44	*-0.79%*	22.19	*0.50%*	62.92	*-0.16%*
2018	8.38	*-0.64%*	21.83	*-1.60%*	62.66	*-0.41%*
2019	8.34	*-0.46%*	21.81	*-0.10%*	62.34	*-0.51%*
2020	8.34	*-0.01%*	21.82	*0.05%*	62.02	*-0.53%*
2021	8.34	*0.00%*	21.80	*-0.10%*	61.66	*-0.58%*
2022	8.35	*0.08%*	21.74	*-0.26%*	61.28	*-0.62%*
2023	8.39	*0.51%*	21.77	*0.13%*	60.89	*-0.64%*
2024	8.44	*0.60%*	21.80	*0.13%*	60.49	*-0.65%*
2025	8.53	*1.02%*	21.84	*0.21%*	60.11	*-0.63%*
ACTUAL Avg. Annual Growth Rate 2004 - 2014		0.92%		1.28%		0.60%
FORECAST Avg. Annual Growth Rate 2015 - 2025		0.30%		0.34%		-0.48%

In the long-term, low growth in energy usage per customer is forecast for residential and farm customers and reduced growth for the commercial customers reflects the expected return to normal winter weather.[28]

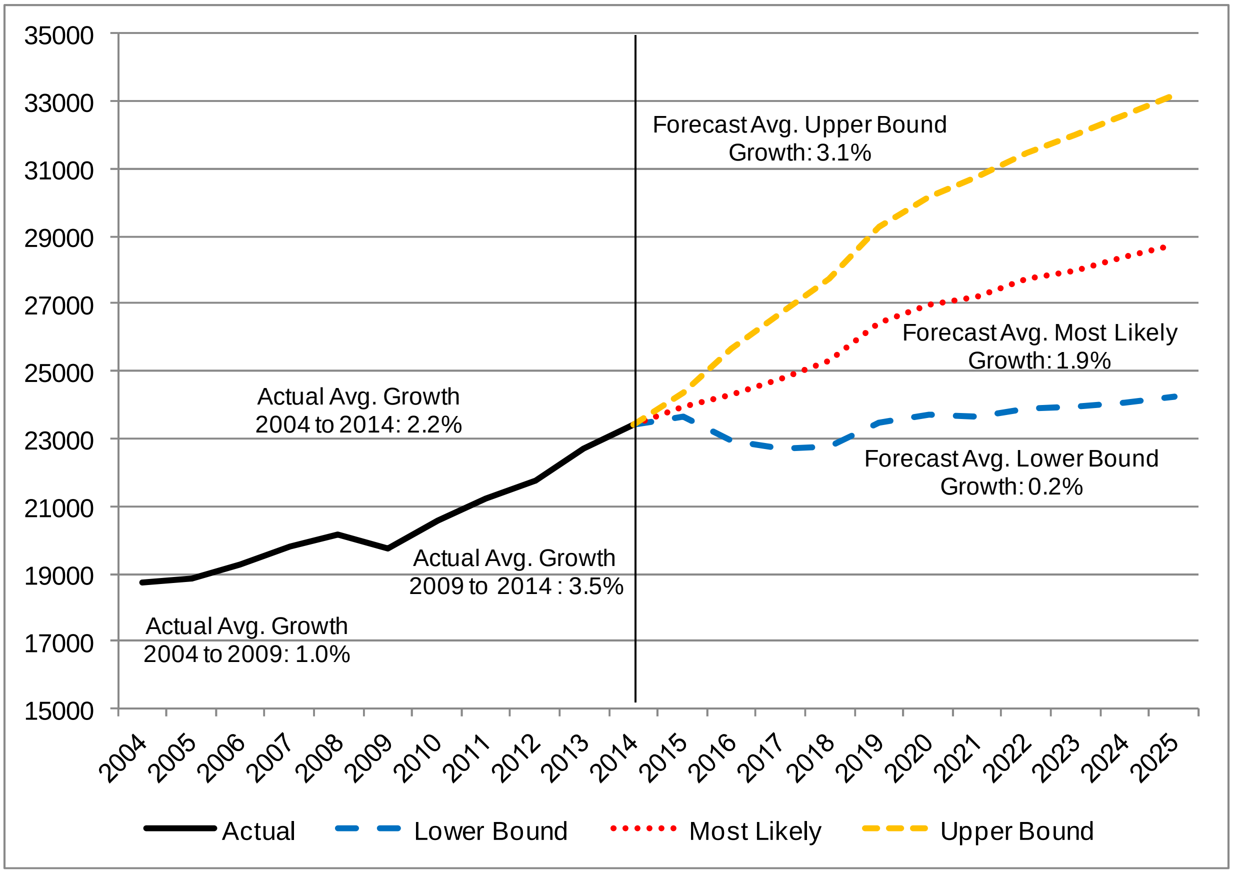
Since uncertainty exists with long-term load forecasts for a variety of reasons including population growth, economic development and weather pattern variations, SaskPower develops a most likely scenario (based on the 2015 Economic Forecast) as well as a low case and a high case scenario using a Monte Carlo simulation model which results in a 90% confidence level (i.e. 90% probability that future energy demand loads will fall within the lower and upper bound).

[27] SRRP R2Q13, Calculated as total GWh load forecast (as provided in Table 3-5) divided by Customer Class Number of Accounts (from Table 3-6).

[28] SaskPower Fourth Quarter Financial Report, for the twelve months ending December 31, 2015, page 27.

This range of long-term forecast results is shown in the Figure 3-1. In relation to the most likely scenario the higher bound is 4,434 GWh above the forecast of 28,736 GWh by 2025 while the lower bound is 4,475 GWh lower than the most likely scenario by 2025.

Figure 3-1: Actual and Q1 Forecast Grid Load Forecast (GWh) – Most Likely, Lower and Upper Bounds[29]



SaskPower's peak load forecast requirements anticipate a 1.7% annual peak growth rate or 717 MW, from 3,836 MW forecast in 2015 to 4,553 MW in 2025. This is a slight decrease from the actual average annual growth rate from 2004 to 2014 of 1.9%.

Peak growth recently has been growing at a faster rate for summer compared to winter. From 2004 to 2009 average summer peak growth was 1.4% and in winter it was 2.5%. More recently from 2009 to 2014, average summer peak growth has increased to 2.7% while average winter peak growth slowed to 2.1% per year.

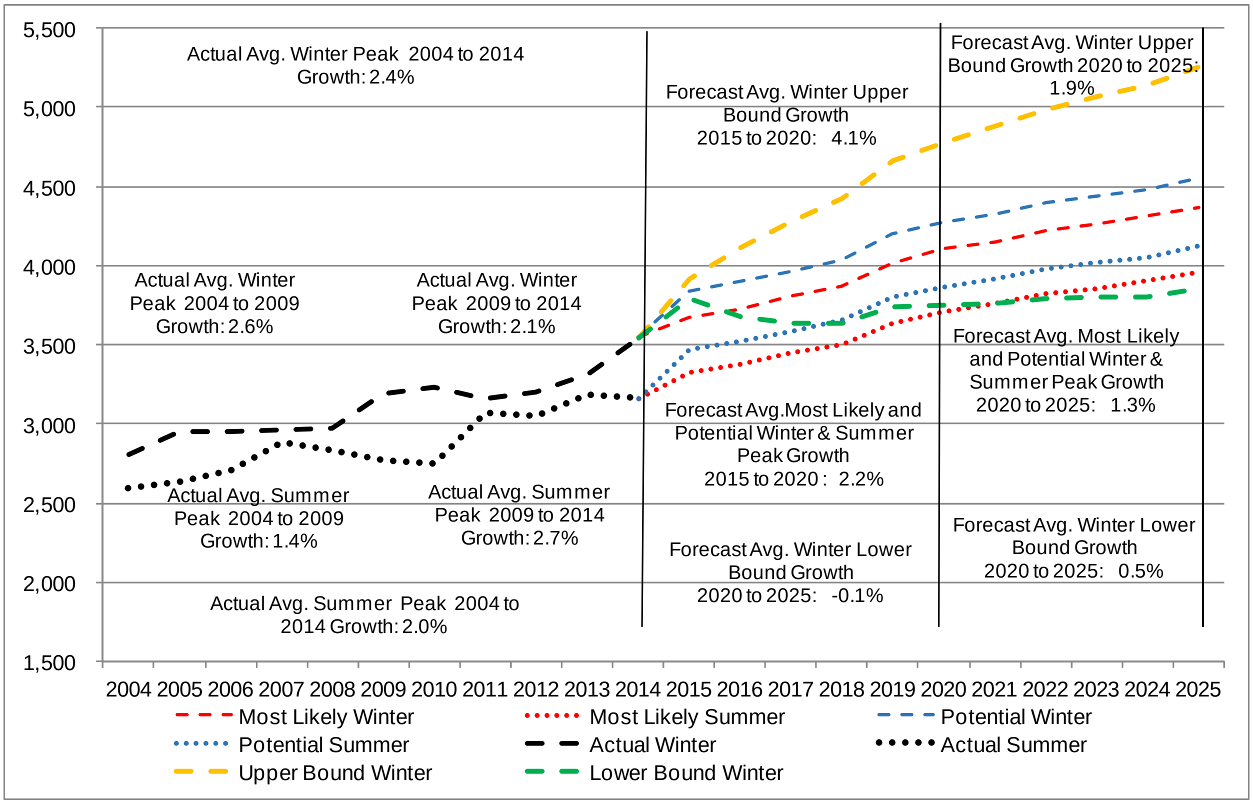
SaskPower forecasts a most likely and a potential peak forecast, for both winter and summer peak. The most likely winter and summer peak forecast is based on the actual weather experienced at the time of the system peaks over the last five years. The potential peak forecast for winter is based on sustained

[29] SRRP R2Q13.

cost weather during December prior to the holiday season and the potential summer peak forecast assumes sustained hot weather occurring in July.

Additionally, SaskPower develops an upper and lower bound for the winter peak (i.e. the system highest peak demand) similar to the energy forecast, using a Monte Carlo simulation model which results in a 90% confidence level. Compared to the potential winter peak long-term forecast, by 2025 the upper bound is forecast 697 MW higher than the potential forecast of 4,553 MW and the lower bound is forecast 703 MW lower than the most likely winter peak for 2025.

Figure 3-2: System Peak Actual and Q1 Forecast (MW) – Most Likely, Potential/Lower Bound and Upper Bound[30]



3.4 CONSULTANT OBSERVATIONS

SaskPower has a corporate level target of plus or minus 3% for its load forecast variance to actual.[31] In this respect, for its energy forecast, SaskPower has been within this target for the year immediately following its forecast in six of the last ten years.[32]

[30] SRRP R2Q13.
[31] SRRP R2Q15.
[32] SRRP Q101.

The Power and Oilfield customer classes, which make up over half of SaskPower's total Saskatchewan sales, have historically had the largest forecast variances. Starting with the 2012 Load Forecast,[33] SaskPower developed Power and Oilfield customer forecasts in coordination with the Ministry of the Economy. The results appear to be a much closer alignment in forecast to actual for the Power customer class since SaskPower implemented this addition to its forecast method.

Table 3-8: Actual vs. Preceding Year Load Forecast by Customer Class (GWh)[34]

	2010			2011			2012		
(GWh)	Sales	Forecast	% Diff	Sales	Forecast	% Diff	Sales	Forecast	% Diff
Residential	2,882	2,847	*1.23%*	3,006	2,926	*2.73%*	2,937	2,929	*0.27%*
Commercial	3,386	3,328	*1.74%*	3,447	3,497	*-1.43%*	3,532	3,480	*1.49%*
Oilfields	2,872	2,815	*2.02%*	2,901	2,865	*1.26%*	3,177	3,277	*-3.05%*
Power Customers	6,932	7,614	*-8.96%*	7,321	8,120	*-9.84%*	7,448	8,648	*-13.88%*
Farm	1,292	1,268	*1.89%*	1,298	1,297	*0.08%*	1,149	1,281	*-10.30%*
Reseller	1,254	1,283	*-2.26%*	1,253	1,277	*-1.88%*	1,254	1,281	*-2.11%*
Total Saskatchewan Sales	**18,618**	**19,154**	***-2.80%***	**19,226**	**19,982**	***-3.78%***	**19,497**	**20,896**	***-6.70%***
Losses	1,897	1,795	*5.68%*	1,936	1,754	*10.38%*	2,172	1,879	*15.59%*
Station Service	25.4	26.5	*-4.15%*	28.6	25.9	*10.42%*	39.1	27.8	*40.65%*

	2013			2014			2015		
(GWh)	Sales	Forecast	% Diff	Sales	Forecast	% Diff	Sales	Forecast	% Diff
Residential	3,190	3,011	*5.94%*	3,281	3,014	*8.86%*	3,128	3,139	*-0.35%*
Commercial	3,663	3,514	*4.24%*	3,788	3,609	*4.96%*	3,795	3,694	*2.73%*
Oilfields	3,448	3,546	*-2.76%*	3,503	3,686	*-4.96%*	3,494	3,793	*-7.88%*
Power Customers	7,863	8,469	*-7.16%*	8,179	8,234	*-0.67%*	8,698	8,547	*1.77%*
Farm	1,332	1,331	*0.08%*	1,364	1,305	*4.52%*	1,276	1,318	*-3.19%*
Reseller	1,257	1,275	*-1.41%*	1,274	1,264	*0.79%*	1,234	1,268	*-2.68%*
Total Saskatchewan Sales	**20,753**	**21,146**	***-1.86%***	**21,389**	**21,111**	***1.32%***	**21,625**	**21,758**	***-0.61%***
Losses	1,905	1,981	*-3.84%*	1,945	1,931	*0.73%*	2,047	1,878	*9.00%*
Station Service	38.9	29.3	*32.76%*	47.3	29.2	*61.99%*	47.3	29.5	*60.34%*

Forecast peak demand has growth rates for both summer and winter equal to 2.2% from 2015 to 2020 and 1.3% on average thereafter. The Consultant observes that this amount of growth is consistent with actual growth for winter, however in the past five years, actual average summer peak has been growing at a faster rate than winter peak, averaging 2.7% per year, shown in Figure 3-2. For long-term planning purposes, it may be appropriate to consider whether to reflect the observed trend in the faster growth in the actual summer peaks in future load forecasts.

3.5 CONSULTANT RECOMMENDATIONS

The Consultant notes that at a Corporate-wide level, SaskPower's load forecast has typically produced near term forecasts within SaskPower's target +/- 3%. With respect to Power Customers, which make up approximately 40% of Saskatchewan sales and therefore have a large impact on the load forecast, the Consultant finds that SaskPower's consideration of information from the provincial government as part of the forecast has improved the accuracy of the forecast for these customer groups. Based on these

[33] Final Independent Report for the SRRP, on SaskPower's 2014 – 2016 Rate Application, Forkast Consulting, April 10 2014, page 26.
[34] SRRP Q101.

findings, the Consultant recommends that the Panel accept SaskPower's load forecast for the test years as reasonable for ratemaking purposes.

The Consultant notes that the long-term load forecast is an important input to the generation resource plan. The Consultant believes SaskPower's scenario analysis approach incorporating lower bound, most likely and upper bound forecasts, for customer load and capacity requirements is reasonable. The Consultant recommends that the Panel encourage SaskPower to consider the importance of the long-term load forecast for resource planning purposes when completing future reviews of the load forecast methods.

4.0 SYSTEM OPERATION AND RESOURCE SUPPLY PLAN

4.1 SYSTEM OPERATION

SaskPower operates its system based on an hourly dispatch approach with the following parameters:

- Projected must-run generation is calculated based on minimum required hydro generation (generation from run-of-river plans or required minimum flows for environmental reasons); projected wind generation as wind generation cannot be dispatched on a planned basis and is used when the wind is available; take-or-pay portions of PPA contracted generation; contracted imports; and minimum generating points of SaskPower's other baseload units.
- The difference between each hour's projected load and SaskPower's cumulative must-run generation is the load required to be served by dispatchable generation.
- Available units are dispatched in order from the least incremental cost unit available through to the unit required to serve the generation requirement.
- The incremental cost of the last unit dispatched (the marginal cost) is compared to the spot import costs in neighbouring jurisdictions. If the import costs are less and there is tie line availability, then spot imports replace dispatchable generation up to the import transfer capability.
- The new marginal cost is then compared to the spot export prices in neighbouring jurisdictions. If the export prices are greater than the marginal cost of supply and if there is tie line availability then generation is committed to facilitate the spot export.[35]

This system operation framework is important for developing SaskPower's fuel expense forecasts and also for resource planning purposes.

4.2 RESOURCE SUPPLY PLAN

SaskPower prepares a resource supply plan to determine when additional generating capacity is needed to meet load and reliability requirements. Resource additions are planned on a least-cost basis that meets regulatory requirements and considers SaskPower's corporate objectives. The supply plans are also used to inform SaskPower's annual business plan as resource additions will affect future capital spending, OM&A and fuel expense.[36]

SaskPower's resource planning is primarily driven by the need to meet capacity needs. New generation capacity is planned when the reserve margin falls below 13%.[37] SaskPower's least cost planning method considers existing and potential regulatory requirements to select generating resources. SaskPower notes that its decision to add wind generation is an example of this as it is a low cost option which assists

[35] SaskPower 2016 and 2017 Rate Application, page 27 and SRRP Q35.
[36] SRRP Q139.
[37] SRRP R2Q33.

SaskPower in reducing greenhouse gas emissions.[38] SaskPower is undertaking a renewables integration study to help address challenges posed by the large increase in renewable generation planned between now and 2030. The study is expected to be completed by the end of 2017.[39]

In addition to capacity required by future load growth, SaskPower's current resource planning process addresses the following regulatory and planning requirements:

- Federal regulations that prevent development of any new conventional coal generation and sets requirements for the shutdown of any conventional coal units that do not meet emissions standards of 420 tonnes of CO2 per GWh. An equivalency agreement with the federal government, such as the one negotiated in Nova Scotia, may allow Saskatchewan to have more flexibility in how greenhouse gas targets are achieved. Meeting these requirements without an equivalency agreement in place would affect several existing SaskPower generation units:
    - Boundary Dam Power Station Units #4 and #5 with a total generation capacity of 278 MW will need to be retired by December 31, 2019 unless a commitment to retrofit with carbon capture technology is made.
    - Boundary Dam Power Station Unit #6 and Poplar River Power Station Units #1 and #2 must be retired between 2027 and 2029. These units have a total capacity of 866 MW.
    - Shand Power Station, with total capacity of 276 MW, must be retired by the end of 2042 unless retrofitted with carbon capture technology.
- In November 2015, SaskPower and the provincial government announced a plan to reduce SaskPower's greenhouse gas emissions by 40% from 2005 levels by 2030. SaskPower is also planning to double its renewable energy capacity to up to 50% of total generation capacity by 2030.[40]

SaskPower states that it regularly engages with industry, environmental and business organizations and Aboriginal groups in the form of presentations, online information, project open houses and an interactive customer experience tent at a variety of locations in the province.[41] SaskPower recognizes the need to help its customers and stakeholders understand the corporation's challenges with planning for future generation and transmission resources. SaskPower indicates it is developing a comprehensive stakeholder engagement strategy to accompany its integrated resource plan. The stakeholder engagement strategy will be presented to SaskPower's board of directors for review and comment by year-end 2016.[42]

4.3 CONSULTANT OBSERVATIONS

The Consultant notes that SaskPower's resource planning framework that is designed to select the least-cost resource options to meet future load growth requirements while also satisfying legal, regulatory and policy objectives is consistent with the industry standards for electric utilities in Canada. The Consultant

[38] SRRP Q145.
[39] SRRP R2Q8.
[40] SaskPower 2016 and 2017 rate application, page 10 and 11.
[41] 1st round information request 140.
[42] 2nd round information request 32.

notes that the key operational, policy and regulatory requirements influencing SaskPower's resource plan are:

- A forecast increase in the system peak that must be met from 3,705 MW in 2016 to 4,200 MW in 2025.[43]
- The requirement to retire or retrofit with carbon capture technology approximately 1,100 MW of existing conventional coal generation by 2029.
- The policy objective to increase renewable energy capacity to up to 50% of total generation capacity by 2030.

Meeting these resource planning requirements will require substantial capital investment over the next 10 to 20 years. This will put considerable upward pressure on rates during this planning period. SaskPower acknowledges the need to help customers and stakeholders understand the implications of these planning challenges and is developing a stakeholder engagement strategy. The Consultant notes that many other jurisdictions recognize the importance of including substantial public engagement as part of the resource planning process. The Consultant notes the following examples:

- BC Hydro is required under section 3 of the *Clean Energy Act* to submit an integrated resource plan to the Minister every five years. BC Hydro submitted its 2013 integrated resource plan in November 2013. Stakeholder engagement was conducted over a two year period and included three streams:
  - A technical advisory committee made up of knowledgeable representatives from customer groups, First Nations, independent power producers and environmental organizations. The advisory committee met frequently with BC Hydro over a two year period with several opportunities to provide comments.
  - Public consultation that included a discussion guide and feedback form, stakeholder meetings, public open houses and webinars.
  - First Nations engagement through facilitated regional workshops and submissions from individual First Nations and the BC First Nations Energy and Mining Council.[44]
- Manitoba Hydro completed a "Need For and Alternatives To" (NFAT) review, its most comprehensive uncertainty analysis, for its preferred development plan, which included long-term plans for two new large scale hydro-electric generating facilities, and alternative resource options in 2013 and 2014. The Minister of Consumer Affairs provided terms of reference to the Manitoba Public Utilities Board to conduct a proceeding and provide a report to the Minister. Manitoba Hydro's NFAT Business plan included a review of its current system requirements, timing and domestic need, macro environmental considerations as well as an economic and financial risk evaluation of different long-term development plans that included probabilistic analysis of the

[43] SRRP R2Q34.
[44] Summarized from Chapter 7 and associated appendices from BC Hydro's 2013 Integrated Resource Plan. Available: https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/integrated-resource-plans/current-plan/0007-nov-2013-irp-chap-7.pdf. Accessed August 22, 2016.

highest impact factors: energy price factors (natural gas, export electricity prices and carbon pricing), capital costs (generation costs for all resource types, transmission costs and escalation) and economic indicators (short and long-term interest rates, inflation and exchange rates). The review included public hearings with participant funding provided to organizations representing residential customers, business and industry, environmental organizations and Aboriginal groups. Community meetings were also held across the province.[45]

- Yukon Energy Corporation (YEC) is in the process of completing its 2016 resource plan. Public engagement opportunities include stakeholder meetings, public open houses and surveys.[46] There is no statutory requirement for YEC to prepare a resource plan, though one is typically prepared every five years. The 2006 YEC Resource Plan was subject to review by the Yukon Utilities Board at the request of the Minister of Justice.[47]

The Consultant notes that during the rate review process, stakeholders expressed an interest in understanding the future direction of SaskPower's rates over a longer term. Stakeholders also indicated they would like to see information on how SaskPower's resource plan would achieve greenhouse gas emissions targets for both SaskPower and the province as a whole and the costs of achieving these emissions targets. This information is particularly relevant given the Government of Canada's recent announcement that it intends to institute a national floor price on carbon emissions of $10 per tonne in 2018, rising by $10 a year to reach $50 per tonne in 2022. While provinces and territories will have flexibility in the implementation of carbon pricing, the Government of Canada has indicated that it will provide a pricing system to provinces that do not adopt a system by 2018.[48] SaskPower's annual greenhouse gas emissions are approximately 15 million tonnes. At $10/tonne, this would add approximately $150 million dollars annually to SaskPower's revenue requirement, based on the current generation mix.[49] In the Consultant's view, understanding the implications of SaskPower's resource planning approach and policy objectives is critical to promoting a public understanding of future electricity rates in Saskatchewan.

The Consultant notes that SaskPower is undertaking a renewables integration study to better understand the challenges associated with integrating large volumes of renewables into its system. The Consultant notes that a 2013 BC Hydro study concluded the main wind integration impacts on its system were in the areas of operating reserves and day-ahead power trading opportunity costs. BC Hydro estimated that the total costs of wind integration in 2011 was between $5/MWh to $15/MWh depending on the assumed

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[45] Summarized from Manitoba Hydro's NFAT Business Plan filing, Available http://www.pub.gov.mb.ca/nfat/mb_hydro_application.html and the proceeding schedule in Manitoba Public Utilities Board Order 92/13. Available: http://www.pub.gov.mb.ca/pdf/13hydro/92-13.pdf. Accessed August 22, 2016.
[46] Summarized from material available on Yukon Energy's 2016 Resource Plan site. Available: http://resourceplan.yukonenergy.ca/process. Accessed August 22, 2016.
[47] Summarized from Yukon Utilities Board Order 2006-6. Available: http://yukonutilitiesboard.yk.ca/pdf/Board%20Orders%202000/136_boardorder2006_6_app.pdf. Accessed August 22, 2016.
[48] Government of Canada. Available: http://news.gc.ca/web/article-en.do?nid=1132149&_ga=1.32587774.1951816118.1475070240 Accessed October 11, 2016.
[49] Saskatchewan's 2012 GHG emissions were approximately 74.8 million tonnes. SaskPower was approximately 21% of the total, or roughly 15 million tonnes. Source: Government of Saskatchewan: http://www.environment.gov.sk.ca/climatechange. Accessed October 11, 2016.

capacity factor and diversity factors.[50] In the Consultant's view it is prudent and necessary for SaskPower to complete the renewable integration study to inform its resource planning process.

4.4 CONSULTANT RECOMMENDATIONS

The Consultant recommends that the Panel request that SaskPower file a copy of the resource plan, the engagement strategy and the renewables integration study with the Panel when completed.

The Consultant recommends that the Panel support a public review process for SaskPower's resource plan, including implications for future rate increases, prior to 2019. The Consultant recommends that the resource plan include information on the following:

- SaskPower's long-term load forecast, including different load scenarios as appropriate;
- Capacity and energy gaps between existing generation resources (including planned retirements) and SaskPower's long-term load forecast;
- Options to address the future capacity and energy gaps, including the costs of each option or portfolio of options;
- Greenhouse gas emissions associated with each option or portfolio of options; and
- Forecast rate increases over the planning horizon associated with each option or portfolio of options.

The Consultant understands that the information and forecasts for a 20-year resource planning period will be at a higher level than that provided for a rate application, however the Consultant believes this information is vital for customers and stakeholders to understand the future rate and other implications of SaskPower's resource plan.

[50] BC Hydro Wind Integration Study Phase II. Appendix 3E to the 2013 Integrated Resource Plan. Available: https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/integrated-resource-plans/current-plan/0300e-nov-2013-irp-appx-3e.pdf. Accessed: August 4, 2016.

5.0 DEMAND SIDE MANAGEMENT

SaskPower states that it encourages and supports the adoption of a wide range of energy-efficient technologies and provides conservation education to residential and business customers.

For DSM programs that provide financial incentives to accelerate the adoption of energy efficient products in the market, SaskPower is guided by opportunities identified in a 2010 Conservation Potential Review (CPR). The potentials identified in the CPR are used as inputs to the type of programming SaskPower should be focusing on and provide a target for savings that could be achieved. SaskPower reviews its DSM portfolios in the context of the Utility Cost Test (UCT) and Total Resource Cost (TRC) test. The results of these tests influence SaskPower's determination of whether to pursue an opportunity, how aggressively an opportunity will be pursued and department dollar allocations.[51]

SaskPower notes that it strives to maintain a diversified portfolio of DSM programs across sectors to provide opportunities for all customers to participate.[52] SaskPower also completed a residential end use study in 2015. The information collected from this study is used to better understand electricity use by customers. This assists both with forecasting potential energy saving opportunities and the overall accuracy of load forecasting.[53] DSM savings are incorporated into the load forecast as described in chapter 3.

Table 5-1 summarizes actual and forecast DSM spending and savings (in both MWh and MW). A review of Table 5-1 indicates the following:

- On an actual basis from 2013 through 2015, residential programs have accounted for the largest portion of spending ($12.9 million over three years) and energy savings (85 GWh). Commercial programs represented the next largest portion of spending ($8.1 million) and energy savings (57 GWh). Industrial programs represented the smallest portion of both spending ($5.2 million) and energy savings (26 GWh) over the same period.
- For the test years, SaskPower is forecasting slightly higher spending for the commercial programs ($8 million) and associated energy savings (40 GWh). Residential program spending is forecast at $7.2 million with forecast energy savings of 31 GWh. Industrial program spending is forecast at $5.4 million with energy savings in 2017/18 still to be determined.

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[51] SRRP Q111.
[52] SRRP R2Q17.
[53] SRRP Q112.

Table 5-1: Actual and Forecast DSM Spending and Savings[54]

	2013	2014	2015	2016/17	2017/18
Savings (MWh)					
Residential Programs	30,525	24,120	30,470	16,930	13,630
Commercial Programs	16,070	16,551	24,610	24,170	16,210
Industrial Program	5,410	1,728	19,260	14,000	TBD
Total	**52,005**	**42,399**	**74,340**	**55,100**	**29,840**
Savings (MW)					
Residential Programs	18.7	10.2	11.2	6.4	6.0
Commercial Programs	2.2	2.5	3.4	3.3	2.2
Industrial Program	0.6	0.3	2.4	2.0	TBD
Total	**21.5**	**13.0**	**17.0**	**11.6**	**8.2**
Spending ($ millions)					
Residential Programs	4.6	3.8	4.5	4.3	2.9
Commercial Programs	2.6	2.5	2.9	4.7	3.3
Industrial Program	1.4	2.3	1.6	2.9	2.5
Total	**8.6**	**8.5**	**9.0**	**11.9**	**8.7**

5.1 CONSULTANT OBSERVATIONS

The Consultant notes that SaskPower's DSM spending represents a relatively small portion of overall OM&A spending and total revenue requirement. The Consultant recognizes that SaskPower delivers a number of programs for the major customer classes, so that there are opportunities for different types of customers to participate in DSM programs. Finally, the Consultant is satisfied that SaskPower evaluates its DSM programs using standard industry methods.

[54] SRRP Q113. Note that spending excludes salaries and wages.

6.0 REVENUE FORECAST

SaskPower's revenue forecast includes revenues from electricity sales to customers in Saskatchewan (approximately 94% of total revenue in 2016/17 and 2017/18) and revenues from export sales, gas and electrical inspections, customer contributions, CO_2 sales and miscellaneous revenues (collectively approximately 6% of total revenue in 2016/17 and 2017/18). Table 6-1 summarizes actual revenues for 2014 and 2015 and forecasts for 2016/17 and 2017/18:

- Revenues from Saskatchewan electricity sales are forecast to increase by $200.5 million in 2016/17 (9.4%) and a further $151.1 million (6.5%) in 2017-18. These increases are a result of both increases in sales volumes and the requested rate increases.
- Revenues from other sources are forecast to decrease by $15.9 million (9.4%) in 2016/17 compared to 2015. This change arises primarily as a result of decreased customer contribution revenues. Revenues from other sources are forecast to increase by $7.4 million (4.8%) in 2017/18.

Table 6-1: Actual and Forecast Revenues ($ millions)[55]

	2014 Actual	2015 Actual	*$ change*	*% change*	2016-17 Forecast	*$ change over 2015 actual*	*% change*	2017-18 Forecast	*$ change over 2016/17 forecast*	*% change*
Saskatchewan Sales										
Residential	490.4	489.6	*(0.8)*	*-0.2%*	540.3	*50.7*	*10.4%*	573.2	*32.9*	*6.1%*
Farm	163.8	159.0	*(4.8)*	*-2.9%*	176.6	*17.6*	*11.1%*	184.8	*8.2*	*4.6%*
Commercial	432.1	447.5	*15.4*	*3.6%*	484.6	*37.1*	*8.3%*	513.1	*28.5*	*5.9%*
Oilfields	323.5	332.6	*9.1*	*2.8%*	342.9	*10.3*	*3.1%*	362.9	*20.0*	*5.8%*
Power customers	545.9	609.1	*63.2*	*11.6%*	684.5	*75.4*	*12.4%*	740.7	*56.2*	*8.2%*
Reseller	87.1	89.9	*2.8*	*3.2%*	99.3	*9.4*	*10.5%*	104.6	*5.3*	*5.3%*
Total Saskatchewan Electricity Sales Revenue	**2,042.8**	**2,127.7**	***84.9***	***4.2%***	**2,328.2**	***200.5***	***9.4%***	**2,479.3**	***151.1***	***6.5%***
Export sales	7.3	8.2	*0.9*	*12.3%*	17.0	*8.8*	*107.3%*	20.4	*3.4*	*20.0%*
Net Sales from trading	(1.6)	(1.6)	*0.0*	*0.0%*	1.2	*2.8*	*-175.0%*	1.3	*0.1*	*8.3%*
Gas and electrical inspections	22.1	20.7	*(1.4)*	*-6.3%*	22.0	*1.3*	*6.3%*	22.0	*0.0*	*0.0%*
Customer contributions	46.7	92.9	*46.2*	*98.9%*	50.0	*(42.9)*	*-46.2%*	50.0	*0.0*	*0.0%*
CO2 sales	2.8	3.1	*0.3*	*10.7%*	20.3	*17.2*	*554.8%*	20.7	*0.4*	*2.0%*
CO2 test facility revenue	0.0	9.1	*9.1*	*0.0%*	13.4	*4.3*	*47.3%*	17.0	*3.6*	*26.9%*
MRM equity investment	2.0	1.3	*(0.7)*	*-35.0%*	2.1	*0.8*	*61.5%*	2.1	*0.0*	*0.0%*
Miscellaneous revenue	35.5	35.3	*(0.2)*	*-0.6%*	27.1	*(8.2)*	*-23.2%*	27.0	*(0.1)*	*-0.4%*
Total Non-Saskatchewan Sales Revenue	**114.8**	**169.0**	***54.2***	***47.2%***	**153.1**	***(15.9)***	***-9.4%***	**160.5**	***7.4***	***4.8%***
Total Revenues	**2,157.6**	**2,296.7**	***139.1***	***6.4%***	**2,481.3**	***184.6***	***8.0%***	**2,639.8**	***158.5***	***6.4%***

[55] SaskPower 2016 and 2017 rate application, page 22 to 26.

6.1 DOMESTIC SALES REVENUE

Domestic sales revenues include revenues from customer charges, demand charges and energy charges. SaskPower's domestic sales revenues are based on the load forecast as described in section 4 and the rates proposed in the application. Domestic sales revenues represent 94% of total revenues in 2016/17 and 2017/18. Revenues from sales to Power Class customers are the largest category of revenues at approximately 28% of total revenues. Revenues from sales to residential customers represent 22% of total forecast revenues in the test years. Sales to commercial customers comprise 20% of forecast revenues.

6.2 EXPORT REVENUE

SaskPower derives export revenues from sale of its surplus generation. SaskPower's export sales are made to Alberta, the Southwest Power Pool (Midwestern US including North and South Dakota) and the Midcontinent Independent System Operator (Midwestern US including Manitoba and Minnesota).[56] SaskPower has transmission rights on export paths within Saskatchewan of 15 MW to Alberta (scheduled to become 153 MW in 2018) and 150 MW to the United States. The availability of export volumes are dependent on the availability of surplus generation in Saskatchewan and transmission availability. Export prices are determined based on market conditions in other jurisdictions. Table 6-2 summarizes actual export volumes and revenues for 2014 and 2015 as well as forecasts for 2016/17 and 2017/18.[57]

A review of Table 6-2 indicates that SaskPower is forecasting additional export revenues of $8.8 million in 2016/17 and a further $3.4 million in 2017/18. These additional revenues are a result of a substantial increase in sales volumes compared to 2015 actuals but at a much lower average unit price. SaskPower attributes the increased export volume forecast for 2016/17 and 2017/18 to an expected price recovery in electricity markets and growth in US markets. SaskPower also notes that a 40 day unplanned outage on the Saskatchewan/Alberta interconnection negatively affected 2015 export volumes.[58] SaskPower's export sales occur on the spot market and SaskPower does not have any long-term or short-term export contracts.[59]

Table 6-2: Actual and Forecast Exports[60]

	2014 Actual	2015 Actual	*change*	*% change*	2016-17 Forecast	*change over 2015 actual*	*% change*	2017-18 Forecast	*change over 2016/17 forecast*	*% change*
Exports										
Revenues ($ millions)	7.3	8.2	*0.9*	*12.3%*	17.0	*8.8*	*107.3%*	20.4	*3.4*	*20.0%*
Sales (GWh)	89.9	71.4	*(18.5)*	*-20.6%*	418.7	*347.3*	*486.4%*	419.3	*0.6*	*0.1%*
Avg unit revenue ($/MWh)	81.2	114.8	*33.6*	*41.4%*	40.6	*(74.2)*	*-64.6%*	48.7	*8.1*	*19.8%*

[56] SRRP Q18.
[57] SaskPower 2016 and 2017 Rate Application, page 25.
[58] SRRP Q19.
[59] SRRP Q20.
[60] SaskPower 2016 and 2017 rate application, page 25.

6.3 ELECTRICITY TRADING

SaskPower undertakes electricity trading activities to deliver positive gross margins while operating within an acceptable level of risk. Electricity trading activities include the purchase and resale of electricity and related commodities outside of Saskatchewan. Trading activities include real time, short-term and long-term physical and financial trades in the North American market. Net sales from trading is the net contribution of trading activities calculated as revenues less trading costs.[61] SaskPower notes that it is relatively risk averse with respect to energy trading activities. The Board approved Risk Management Manual addresses the types of risks and establishes limits on what is and is not considered an acceptable level of risk.[62]

SaskPower's forecast of net sales from trading is based on an internal market transaction model that uses Monte Carlo simulations to derive an estimate of trading volume and expected profit. Variables considered in the model include current spot and forward price forecasts, estimates of transmission availability, market tariffs and foreign exchange rates. Input variables and results from the simulations are checked for reasonableness based on actual trading experience in the markets. Adjustments may be made where deemed appropriate.[63]

Table 6-3 summarizes the actual and forecast net sales from trading revenues for 2010 through 2015. A review of Table 6-3 indicates the following:

- Actual net sales from trading revenues frequently vary from forecasts. Of the six years shown in Table 6-3, actual net sales from trading revenues exceeded forecasts in two years and were lower than forecasts in four years.
- Variances from forecasts can arise both from variances in average unit prices forecasts and also as a result of low market spreads that reduce trading volumes.
- In 2014 and 2015, low market prices in Alberta meant that trading opportunities were not great enough to recover the fixed costs of transmission service.

SaskPower states that market changes in Alberta and the United States have reduced both the frequency and magnitude of profitable spreads for trading activity. SaskPower notes that in its view profitable market spreads do exist in the current market and market forecasts support the business view that trading will continue to be revenue positive.[64] SaskPower is forecasting net sales from trading revenues of $1.2 million in 2016/17 and $1.3 million in 2017/18.

[61] SaskPower 2016 and 2017 Rate Application, pages 25-26.
[62] SRRP Q23.
[63] SRRP Q22.
[64] SRRP Q24.

Table 6-3: Actual and Forecast Net Sales from Trading[65]

Year	Forecast	Actual	Variance Explanations
2010	$16.375 million	$3.430 million	Average AESO prices of $51.45 MWh were lower than expected price of $76.73/MWh. Minimal volatility and lack of spreads between markets reduced opportunities for trading.
2011	$5.230 million	$13.601 million	Average AESO price of $71.69/MWh was higher than expected price of $45.09 MWh.
2012	$6.350 million	$14.340 million	Average AESO price of $85.4/MWh was higher than expected price of $55.38/MWh.
2013	$11.810 million	$2.882 million	Low market spreads meant that volume of trading was significantly lower than expected. Average AESO market price of $80.09/MWh was slightly lower than expected price of $85/MWh.
2014	$7.200 million	($1.657 million)	Average AESO market price of $49.42/MWh was lower than forecast price of $74.72/MWh. Low market prices in Alberta meant opportunity was not great enough to exceed fixed cost of transmission service.
2015	$4.500 million	($1.629 million)	Average AESO market price of $33.34/MWh was lower than forecast price of $57.41/MWh. Low market prices in Alberta meant opportunity was not great enough to exceed fixed cost of transmission service.

6.4 OTHER REVENUE

Other revenues include non-electricity services such as gas and electrical inspection permit fees, meter reading fees, late payment charges and customer work charges. Table 6-4 summarizes actual other revenues for 2014 and 2015 as well as forecasts for 2016/17 and 2017/18 and indicates:

- The largest and most variable category of other revenue relates to customer contributions. Customer contributions are funds received from customers toward the cost of service extensions. Increased customer contribution revenues in 2015 related to a number of industrial customers requiring new transmission lines to be built to connect to their facilities.[66] SaskPower forecasts customer contribution revenues based on the five year average of revenues.[67]
- Gas and electrical inspection revenues are fees for permits, plan and code reviews, field approvals and inspections. These activities are undertaken on a full cost recovery basis with revenues of $20.7 million in 2015 offset by expenses of $15.0 million for net income of $5.7 million.[68]
- CO_2 sales represent revenues from carbon dioxide sales from the Boundary Dam Integrated Carbon Capture and Storage facility. SaskPower indicates the forecasts for 2016/17 and 2017/18 are based on both an increase in volumes and an increase in sales price based on the sales

[65] SRRP Q21.
[66] SRRP Q25.
[67] SRRP Q26.
[68] SRRP Q28.

contract. The forecasts are based on the off-taker taking the contracted minimum commitment. The off-taker has the option to take more at its discretion.[69]

- CO_2 test facility revenues arise from SaskPower providing testing services to the Mitsubishi Hitachi Power Systems at the Carbon Capture Test Facility.[70]
- Miscellaneous revenues include a variety of revenue sources such as late payment charges, joint use charges, flash revenues, meter reading and custom works. SaskPower states that the majority of the variance in miscellaneous revenues from 2015 to 2016/17 relates to the completion of the ten year Wind Power Production Incentive that was offered by the Government of Canada when the Centennial Wind Power Facility was commissioned in 2006.[71]

Table 6-4: Actual and Forecast Other Revenues ($ millions)[72]

	2014 Actual	2015 Actual	*change*	*% change*	2016-17 Forecast	*change over 2015 actual*	*% change*	2017-18 Forecast	*change over 2016/17 forecast*	*% change*
Other Revenues										
Gas and electrical inspections	22.1	20.7	*(1.4)*	*-6.3%*	22.0	*1.3*	*6.3%*	22.0	*0.0*	*0.0%*
Customer contributions	46.7	92.9	*46.2*	*98.9%*	50.0	*(42.9)*	*-46.2%*	50.0	*0.0*	*0.0%*
CO2 sales	2.8	3.1	*0.3*	*10.7%*	20.3	*17.2*	*554.8%*	20.7	*0.4*	*2.0%*
CO2 test facility revenue	0.0	9.1	*9.1*	*0.0%*	13.4	*4.3*	*47.3%*	17.0	*3.6*	*26.9%*
MRM equity investment	2.0	1.3	*(0.7)*	*-35.0%*	2.1	*0.8*	*61.5%*	2.1	*0.0*	*0.0%*
Miscellaneous revenue	35.5	35.3	*(0.2)*	*-0.6%*	27.1	*(8.2)*	*-23.2%*	27.0	*(0.1)*	*-0.4%*
Total	109.1	162.4	*53.3*	*48.9%*	134.9	*(27.5)*	*-16.9%*	138.8	*3.9*	*2.9%*

6.5 CONSULTANT OBSERVATIONS

The Consultant notes that 94% of SaskPower's total revenues in the test years are forecast to arise from sales to domestic customers in Saskatchewan. Approximately 28% of total revenues are forecast from Power class customers. The Consultant notes that there are relatively few Power class accounts and that this customer class has historically been the most difficult to forecast.[73]

Other revenues make up approximately six percent of total revenues in the 2016/17 and 2017/18 test years. Many of these categories of revenues are difficult to forecast. In particular, export revenues, net sales from trading and customer contributions can be highly variable from year to year. The Consultant notes that these revenue sources represent a small proportion of SaskPower's overall revenues, they can have noticeable impacts on SaskPower's net income when variations arise. In the mid-application update, 2016/17 export revenues are now forecast to be $8.2 million lower than the original application and 2016/17 other revenues are forecast to be $21.4 million lower. This has the effect of lowering the forecast 2016/17 operating income by $29.6 million, approximately 40% of the overall $72.6 million reduction in 2016/17 operating income forecast in the mid-application update compared to the original application.

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69 SRRP Q29.
70 SRRP Q30.
71 SRRP Q31.
72 SaskPower 2016 and 2017 Rate Application, page 26.
73 The proof of revenue schedule provided in the response to SRRP Q17 indicates a total of 103 Power Class accounts. The Consultant understands that certain customers may have more than one account with SaskPower.

7.0 REVENUE REQUIREMENT

A utility's revenue requirement includes all of the costs required to build, operate and maintain safe and reliable service to customers. SaskPower's revenue requirement includes the following components:

- Operating, maintenance and administration expense (approximately 28% of total revenue requirement);
- Fuel and purchase power expense (approximately 26.9% of total revenue requirement);
- Depreciation expense (approximately 20.5% of total revenue requirement);
- Finance charges (approximately 16.8% of total revenue requirement);
- Taxes (approximately 2.8% of total revenue requirement);
- Other expenses (less than 1% of total revenue requirement); and
- An allowance for operating income or ROE (approximately 7.1% of total revenue requirement).

Table 7-1 summarizes SaskPower's actual 2015 revenue requirement and forecasts for 2016/17 and 2017/18. Key observations from Table 7-1 include:

- 2015 actual revenue requirement was approximately $50 million lower than forecast. This was made up of lower than forecast finance charges; OM&A expense; and fuel and purchased power expenses, offset by higher than forecast operating income.
- Forecast 2016/17 revenue requirement is higher than 2015 actuals by approximately $185 million (8.0%). This increase is largely driven by higher finance charges; operating income; OM&A expense; and depreciation expense.
- Forecast 2017/18 revenue requirement is higher than 2016/17 forecasts by approximately $159 million (6.8%). This increase is largely driven by higher operating income; depreciation expense; fuel and purchase power expense; and OM&A expense.

Table 7-1: Actual and Forecast Revenue Requirement ($ millions)[74]

	2015 Forecast	2015 Actual	*$ change*	*% change*	2016-17 Forecast	*$ change over 2015 actual*	*% change*	2017-18 Forecast	*$ change over 2016/17 forecast*	*% change*
Fuel and purchased power	678.4	650.4	*-28.0*	*-4.1%*	646.6	*-3.8*	*-0.6%*	687.3	*40.7*	*6.3%*
OM&A	672.4	634.2	*-38.2*	*-5.7%*	682.1	*47.9*	*7.6%*	707.7	*25.6*	*3.8%*
Depreciation	460.8	452.4	*-8.4*	*-1.8%*	487.2	*34.8*	*7.7%*	529.2	*42.0*	*8.6%*
Finance Charges	416.3	361.6	*-54.7*	*-13.1%*	418.7	*57.1*	*15.8%*	414.2	*-4.5*	*-1.1%*
Taxes	61.3	63.8	*2.5*	*4.1%*	68.0	*4.2*	*6.6%*	70.6	*2.6*	*3.8%*
Other	17.0	30.7	*13.7*	*80.6%*	22.8	*-7.9*	*-25.7%*	22.4	*-0.4*	*-1.8%*
Sub-total expenses	**2,306.2**	**2,193.1**	***-113.1***	***-4.9%***	**2,325.4**	***132.3***	***6.0%***	**2,431.4**	***106.0***	***4.6%***
Operating Income	**39.9**	**103.6**	***63.7***	***159.6%***	**155.9**	***52.3***	***50.5%***	**208.5**	***52.6***	***33.7%***
Total Revenue Requirement	**2,346.1**	**2,296.7**	***-49.4***	***-2.1%***	**2,481.3**	***184.6***	***8.0%***	**2,639.9**	***158.6***	***6.4%***

[74] SaskPower 2016 and 2017 rate application, Page 21. 2015 forecast figures from SaskPower 2014, 2015 and 2016 Rate Application, page 20.

The remainder of this section reviews each of the components of revenue requirement in more detail.

7.1 OPERATING, MAINTENANCE & ADMINISTRATION

Operations, maintenance and administration expense (OM&A) includes SaskPower's salaries and wages expense, materials and supplies, external contractor services and other expenses such as training and travel. OM&A represents approximately 28% of total revenue requirement in the test years. Table 7-2 shows actual and forecast OM&A per customer from 2010 through 2017/18 forecasts. A review of the information in Table 7-2 indicates:

- Total actual OM&A increased from 2010 through 2015 by approximately 4.4% on average annually.
- The number of customer accounts grew by approximately 1.9% on average annually.
- OM&A per customer account grew by 2.4% on average annually, within the range of normal inflation targets of 2% to 3% per year.
- For 2016/17 total OM&A is forecast to increase by 7.6% over 2015 actuals. OM&A per customer is forecast to increase by 6.1% over 2015 actuals.
- For 2017/18, total OM&A is forecast to increase by 3.8% over 2016/17 forecasts. OM&A per customer is forecast to increase by 2.4% over 2016/17 forecasts.
- For the period from 2014 through 2017/18, average OM&A per customer is forecast to increase by approximately 1.1% on average per year.

Table 7-2: Actual and Forecast Operations, Maintenance and Administration Expense per Customer ($/customer)[75]

	Actual 2010	Actual 2011	Actual 2012	Actual 2013	Actual 2014	Actual 2015	Average Annual 2010-2015	Forecast 2016/17	Forecast 2017/18
Total OM&A ($ millions)	512	577	616	618	656	634		682	708
percent change		12.7%	6.8%	0.3%	6.1%	-3.4%	4.4%	7.6%	3.8%
Total Customer Accounts	473,007	481,985	490,611	500,879	511,941	520,315		527,389	534,658
percent change		1.9%	1.8%	2.1%	2.2%	1.6%	1.9%	1.4%	1.4%
OM&A/customer ($/customer)	1,082.4	1,197.1	1,255.6	1,233.8	1,281.4	1,218.5		1,293.2	1,324.2
percent change		10.6%	4.9%	-1.7%	3.9%	-4.9%	2.4%	6.1%	2.4%

[75] SRRP Q68.

SaskPower's application notes that OM&A decreased from $656 million in 2014 to $634 million in 2015. In 2015 the Crown Investments Corporation directed SaskPower to implement OM&A savings totalling $18.2 million. As a result, SaskPower implemented reductions in its OM&A spending including:

- Salary rollbacks ($4.0 million);
- Short-term incentive reductions ($2.5 million);
- Reduced FTEs ($3.2 million);
- Training and travel reductions ($3.7 million);
- Consulting and advertising reductions ($1.8 million); and
- Plant overhaul deferral ($3.0 million).[76]

In addition, SaskPower notes that the OM&A figures in its 2016 and 2017 rate application reflect decreases of $20.1 million in 2016/17 and $13.7 million in 2017/18, compared to the original business plan.[77]

Table 7-3 summarizes the actual and forecast OM&A expense by major category from 2013 through the 2017/18 forecasts.

Table 7-3: Actual and Forecast Operations, Maintenance and Administration Expense ($ millions)[78]

	2013	2014	2015	*$ change*	*% change*	2016/17	*$ change*	*% change*	2017/18	*$ change*	*% change*
Salaries and Wages	$277	$304	$305	*$1*	*0.3%*	$316	*$11*	*3.6%*	$327	*$11*	*3.5%*
Premium Pay	$44	$53	$40	*-$13*	*-24.5%*	$42	*$2*	*5.0%*	$43	*$1*	*2.4%*
Benefits	$62	$66	$67	*$1*	*1.5%*	$69	*$2*	*3.0%*	$72	*$3*	*4.3%*
Labour credits	($69)	($81)	($78)	*$3*	*-3.7%*	($65)	*$13*	*-16.7%*	($68)	*($3)*	*4.6%*
Subtotal salaries and wages	**$314**	**$342**	**$334**	***-$8***	***-2.3%***	**$362**	***$28***	***8.4%***	**$374**	***$12***	***3.3%***
Materials and supplies	**24**	**30**	**30**	***0***	***0.0%***	**31**	***1***	***3.3%***	**32**	***1***	***3.2%***
Contract Services	174	185	182	*-3*	*-1.6%*	189	*7*	*3.8%*	197	*8*	*4.2%*
Consulting Services	27	24	18	*-6*	*-25.0%*	21	*3*	*16.7%*	22	*1*	*4.8%*
Advertising	5	5	3	*-2*	*-40.0%*	4	*1*	*33.3%*	4	*0*	*0.0%*
Subtotal external services	**$206**	**$214**	**$203**	***-$11***	***-5.1%***	**$214**	***$11***	***5.4%***	**$223**	***$9***	***4.2%***
Training	3	4	2	*-2*	*-50.0%*	4	*2*	*100.0%*	4	*0*	*0.0%*
Travel	16	14	12	*-2*	*-14.3%*	13	*1*	*8.3%*	14	*1*	*7.7%*
Administrative	24	21	22	*1*	*4.8%*	22	*0*	*0.0%*	23	*1*	*4.5%*
Insurance	6	5	5	*0*	*0.0%*	6	*1*	*20.0%*	6	*0*	*0.0%*
Bad debt expense	3	3	6	*3*	*100.0%*	6	*0*	*0.0%*	6	*0*	*0.0%*
Tools and equipment	3	3	3	*0*	*0.0%*	3	*0*	*0.0%*	3	*0*	*0.0%*
Vehicle expenses	12	12	9	*-3*	*-25.0%*	12	*3*	*33.3%*	13	*1*	*8.3%*
Property expenses	7	8	8	*0*	*0.0%*	9	*1*	*12.5%*	10	*1*	*11.1%*
Sub-total Other	**$74**	**$70**	**$67**	***-$3***	***-4.3%***	**$75**	***$8***	***11.9%***	**$79**	***$4***	***5.3%***
Total OM&A	**$618**	**$656**	**$634**	***-$22***	***-3.4%***	**$682**	***$48***	***7.6%***	**$708**	***$26***	***3.8%***

Salaries and wages make up more than half of total OM&A expense. External services make up approximately one third of total OM&A expenses. The remaining 15% of OM&A expenses is made up of

[76] SRRP Q91.
[77] SRRP Q71.
[78] SRRP Q69.

materials and supplies and other expenses. The following section describe the components of OM&A in more detail.

7.1.1 Labour Costs

Labour costs include salaries and wages, premium pay and benefits, offset by labour credits such as capitalized salaries. Together these costs comprise more than half of SaskPower's OM&A costs in the test years. Approximately two thirds of SaskPower's employees are subject to one of two collective labour agreements. Both of SaskPower's collective agreements are set to expire December 31, 2016.[79]

Total labour costs are forecast to increase by $28 million in 2016/17 compared to 2015 (8.4% increase). A further $12 million increase is forecast in 2017/18 (3.3% increase). A review of the information summarized in Table 6-3 indicates the main components of the increase in labour costs:

- Salaries and wages expenses are forecast to increase in 2016/17 by $11 million (3.6%) compared to 2015. A further $11 million increase (3.5%) is forecast for 2016/17.
- Labour credits are forecast to decrease by $13 million (16.7% decrease) in 2016/17 compared to 2015.
- Premium pay is forecast to increase by $2 million (5%) in 2016/17 compared to 2015. However total premium pay in 2016/17 is anticipated to remain lower than actuals in 2013 and 2014.
- Benefits are forecast to increase by $2 million (3%) in 2016/17 compared to 2015. A further $3 million increase (4.6%) is forecast for 2016/17.

Labour costs are also influenced by the total number of full-time equivalent positions (FTEs) and vacancy rates. Table 7-4 summarizes actual and forecast permanent FTEs and vacancy rates for 2013 through 2017/18.

Table 7-4: Actual and Forecast Vacancy Rates[80]

	2013	2014	2015	2016/17	2017/18
Actual/Forecast Permanent FTEs	3,001	3,091	3,125	3,210	3,210
Budgeted Permanent FTEs	3,109	3,281	3,268	3,328	3,328
Variance	(108)	(190)	(143)	(118)	(118)
Vacancy Rate	3.5%	5.8%	4.4%	3.5%	3.5%

SaskPower indicates that, due to fiscal restraints, it is not forecasting increases to its FTE complement through calendar year 2020.[81] The forecast vacancy rates for 2016/17 and 2017/18 are in line with 2013 actuals, but somewhat lower than 2014 and 2015 actuals. SaskPower has developed a workforce strategy that identifies upcoming challenges with respect to the number of employees who are eligible for retirement in the near future, particularly with respect to employees in critical technical positions. To

[79] SRRP Q76.
[80] SRRP Q75.
[81] SaskPower's Five Year Corporate Workforce Plan 2016-2020, page 11.

respond to these challenges, SaskPower is focusing on sourcing and recruiting qualified applicants and development and succession planning for critical positions.[82]

7.1.2 External Services

External services include contract services, consulting services and advertising. Together these costs comprise Labour costs and include salaries and wages, premium pay and benefits, offset by labour credits such as capitalized salaries. Together these costs comprise approximately 32% of SaskPower's OM&A costs in the test years.[83]

Total external service costs are forecast to increase by $11 million in 2016/17 compared to 2015 (5.4% increase). A further $9 million increase is forecast in 2017/18 (4.2% increase). Increases in contract services represent the largest portion of the increases.

7.1.3 Other

Other OM&A expenses include materials and supplies, travel and training, administrative expenses, vehicle expenses, tools and equipment, insurance and bad debt expenses. Collectively these forecast expenses total $106 million of OM&A in 2016/17 and $111 million in 2017/18 or approximately 16% of total OM&A expenses. This represents an increase from $97 million in 2015. Key drivers of the increases include:

- Travel, training and vehicle expenses are collectively forecast to be $6 million higher in 2016/17 than in 2015. However these increases generally reflect a return to earlier levels of spending observed in 2014, prior to the budget restrictions implemented in 2015 at the request of CIC.
- Bad debt expense increased from $3 million in 2014 to $6 million in 2015. Bad debt expense is forecast to remain at the same $6 million level for 2016/17 and 2017/18.

7.1.4 Observations

The Consultant notes that OM&A is the largest component of SaskPower's revenue requirement in the test years, approximately 27% of total revenue requirement. The Consultant notes that SaskPower's average OM&A per customer increased by an average of 2.4% each year from 2010 through 2015. However this trend was made up of three years of increases higher than 2.4% annually and two years with reductions in year over year OM&A per customer. For the period from 2014 through 2017/18, SaskPower's forecast annual increase in OM&A per customer is approximately 1.1% on average. The Consultant notes that on August 31, 2016, SaskPower's executive approved a plan to reduce core OM&A costs by approximately $23.8 million.[84] The Consultant understands these savings are not fully reflected in the mid-application update. The Consultant notes that SaskPower has been successful in implementing previous reductions to OM&A spending. In view of the magnitude of the proposed rate increases the Consultant believes continued diligence on constraining growth in OM&A spending is appropriate.

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[82] SaskPower's Five Year Corporate Workforce Plan 2016-2020, page 14-15.
[83] SRRP Q69.
[84] SRRP Q69 – Mid-Application Update.

SaskPower's budgeted permanent employee complement is forecast to increase by 60 FTEs (1.8% increase) in 2016/17 compared to 2015. SaskPower is not forecasting any further increases to its budgeted permanent FTEs until at least 2020. SaskPower is forecasting a slightly lower vacancy rate in 2016/17 and 2017/18 compared to 2015 but similar to 2013 actuals. The Consultant is cognizant of the fact that labour costs represent more than half of SaskPower's total OM&A costs and should be managed carefully. However, understaffing or excessive vacancies can adversely affect service quality, reliability and safety. In the Consultant's view, SaskPower's forecast salaries and wages costs, FTE complements and vacancy rates are reasonable.

The test year forecasts for premium pay expenses are somewhat higher than 2015 actuals, but lower than 2013 and 2014 actuals. The Consultant understands that some amount of premium pay expense is necessary, particularly for a utility that must operate 24 hours a day. In the Consultant's view SaskPower's forecasts for premium pay in the test years appear reasonable.

The Consultant notes a concern with the increase in bad debt expense from $3 million in 2014 to $6 million in 2015 with forecasts for the test year expected to continue at that level. The Consultant notes that SaskPower is undertaking a number of initiatives to manage bad debts including reviewing key processes, cross training customer care and billing staff in collection activity, automation of some collection steps, reviewing technology solutions such as auto dialing and text message reminders.[85]

7.1.5 Recommendations

The Consultant recommends that the Panel encourage SaskPower continue to focus on constraining increases in OM&A spending.

7.2 FUEL AND PURCHASE POWER EXPENSE

SaskPower's fuel and purchased power (F&PP) expense includes fuel charges associated with SaskPower owned facilities, energy purchased from power purchase agreements (PPAs) and electricity imported from other jurisdictions. F&PP costs can vary year to year as a result of changes in electricity sales and total generation requirements; the unit prices of different fuel sources and as a result of changes in the mix of generation sources.

SaskPower manages its F&PP costs based on an hourly dispatch model with the following parameters:

- Projected must-run generation is calculated based on minimum required hydro generation (generation from run-of-river plans or required minimum flows for environmental reasons); projected wind generation as wind generation cannot be dispatched on a planned basis and is used when the wind is available; take-or-pay portions of PPA contracted generation; contracted imports; and minimum generating points of SaskPower's other baseload units.
- The difference between each hour's projected load and SaskPower's cumulative must-run generation is the load required to be served by dispatchable generation.

[85] SRRP R2Q9.

- Available units are dispatched in order from the least incremental cost unit available through to the unit required to serve the generation requirement.
- The incremental cost of the last unit dispatched (the marginal cost) is compared to the spot import costs in neighbouring jurisdictions. If the import costs are less and there is tie line availability, then spot imports replace dispatchable generation up to the import transfer capability.
- The new marginal cost is then compared to the spot export prices in neighbouring jurisdictions. If the export prices are greater than the marginal cost of supply and if there is tie line availability then generation is committed to facilitate the spot export.[86]

Table 7-5 summarizes the actual F&PP expenses, volumes and average unit costs for 2015 and forecasts for the 2016/17 and 2017/18 test years.

Actual F&PP expense and generation volumes were lower than forecasts in 2015, generally reflecting overall lower sales and generation volumes. Average actual unit prices for 2015 were very similar to 2015 forecasts. Forecast F&PP expense for 2016/17 is slightly lower ($3.8 million) than 2015 actuals despite generation volumes being higher (754 GWh higher). This is largely due to lower forecast unit costs for natural gas ($31.55/MWh in 2016/17 compared to $35.54/MWh in 2015).

Forecast 2017/18 F&PP expenses are $40.7 million higher than 2016/17 forecasts. This reflects both an increase in generation requirements (428 GWh higher than 2016/17) and average unit price increases. In particular, unit prices for natural gas in 2017/18 are forecast to increase to $35.2/MWh, approximately the same levels as 2015 actuals.

[86] SaskPower 2016 and 2017 Rate Application, page 27 and SRRP Q35.

Table 7-5: Actual and Forecast Fuel and Purchased Power Expense ($ millions)[87]

	2015 Forecast	2015 Actual	$ change	% change	2016-17 Forecast	$ change over 2015 actual	% change	2017-18 Forecast	$ change over 2016/17 forecast	% change
Expense ($ millions)										
Gas	319.1	283.5	-35.6	-11.2%	281.6	-1.9	-0.7%	305.3	23.7	8.4%
Coal	270.9	285.2	14.3	5.3%	272.3	-12.9	-4.5%	279.8	7.5	2.8%
Wind	10.4	16.8	6.4	61.5%	21.3	4.5	26.8%	21.7	0.4	1.9%
Hydro	18.7	17.8	-0.9	-4.8%	16.7	-1.1	-6.2%	20.4	3.7	22.2%
Imports	18.6	29.2	10.6	57.0%	29.2	0.0	0.0%	34.2	5.0	17.1%
Other	40.7	17.9	-22.8	-56.0%	25.5	7.6	42.5%	25.9	0.4	1.6%
Total	**678.4**	**650.4**	**-28.0**	**-4.1%**	**646.6**	**-3.8**	**-0.6%**	**687.3**	**40.7**	**6.3%**
Volumes (GWh)										
Gas	8,114.0	7,976.0	-138.0	-1.7%	8,927.0	951.0	11.9%	8,672.0	-255.0	-2.9%
Coal	11,693.0	11,011.0	-682.0	-5.8%	10,916.0	-95.0	-0.9%	11,016.0	100.0	0.9%
Wind	671.0	684.0	13.0	1.9%	772.0	88.0	12.9%	823.0	51.0	6.6%
Hydro	3,644.0	3,426.0	-218.0	-6.0%	3,068.0	-358.0	-10.4%	3,634.0	566.0	18.4%
Imports	316.0	506.0	190.0	60.1%	636.0	130.0	25.7%	602.0	-34.0	-5.3%
Other	364.0	141.0	-223.0	-61.3%	179.0	38.0	27.0%	179.0	0.0	0.0%
Total	**24,802.0**	**23,744.0**	**-1,058.0**	**-4.3%**	**24,498.0**	**754.0**	**3.2%**	**24,926.0**	**428.0**	**1.7%**
Unit prices ($/MWh)										
Gas	39.3	35.54	-3.8	-9.6%	31.55	-4.0	-11.2%	35.20	3.7	11.6%
Coal	23.2	25.86	2.7	11.6%	24.95	-0.9	-3.5%	25.40	0.5	1.8%
Wind	87.4	95.43	8.0	9.2%	96.55	1.1	1.2%	98.47	1.9	2.0%
Hydro	5.1	5.20	0.1	1.4%	5.45	0.3	4.8%	5.62	0.2	3.1%
Imports	58.9	57.54	-1.3	-2.2%	45.84	-11.7	-20.3%	56.88	11.0	24.1%
Other	82.7	126.95	44.3	53.5%	142.46	15.5	12.2%	144.69	2.2	1.6%
Weighted Avg	**27.35**	**27.37**	**0.0**	**0.1%**	**26.87**	**-0.5**	**-1.8%**	**27.58**	**0.7**	**2.6%**

Natural Gas

SaskPower's natural gas generation includes 987 MW of capacity owned by SaskPower and an additional 784 MW of capacity through long-term PPAs. Natural gas purchases from outside Saskatchewan have been increasing in recent years as Saskatchewan supply declines.[88] SaskPower contracts with TransGas to transport gas into and within Saskatchewan. SaskPower pays the tariff rates published by TransGas.[89]

SaskPower manages the price volatility associated with natural gas through long-term physical and financial hedges. SaskPower's Long-Term Natural Gas Exposure Management Policy was updated in 2015. The three main objectives of the policy are to ensure security of supply; maintain market access and price management.[90] In early 2016 SaskPower had hedged 70% of anticipated natural gas consumption for 2016/17 and 64% for 2017/18.[91] Financial hedges have tended to result in additional realized costs, adding approximately $29 million (5%) to natural gas costs from 2013 through 2015.[92]

[87] SaskPower 2016 and 2017 rate application, page 28. 2015 forecast figures from SaskPower 2014, 2015 and 2016 Rate Application, page 34.
[88] SRRP Q44.
[89] SRRP Q48.
[90] SRRP Q42.
[91] SaskPower2016 and 2017 Rate Application, page 29 and 30.
[92] Calculated from SRRP Q46. $28.7 million realized natural gas management activities divided by $551.8 million in total natural gas expense from 2013 through 2015. These figures exclude the gas component of PPAs where the IPP supplies its own gas.

SaskPower's reliance on natural gas generation is expected to increase in the test years compared to previous year. SaskPower notes the following plans to address the price and volumetric volatility associated with increasing reliance on gas generation:

- Fully integrate the long-term hedge program into the on-going comprehensive strategic and resource planning efforts;
- Continue to improve the long-term hedge program;
- Continue to rebalance the supply, transmission and storage service portfolio as the supply plan evolves;
- Continue to collaborate with SaskEnergy and other market participants to optimize assets;
- Continue to enhance tools, analytics and reporting; and
- Continue to evaluate the long-term people, process, technology and governance requirements associated with SaskPower's changing natural gas requirements and impending paradigm shift from fossil fuels to renewables.[93]

Coal

SaskPower has three coal generation facilities with 1,530 MW of capacity. This includes 110MW with carbon capture technology. In the test years coal is forecast to provide approximately 44% of total generation requirements. SaskPower's coal contracts are typically long-term in nature which helps support price and supply stability. In the test years, the average unit price of coal generation is forecast at approximately $25/MWh, about 20% to 30% lower than natural gas generation.[94]

Federal emissions regulations will eventually eliminate conventional coal generation. Coal generation will either be totally phased out or fitted with carbon capture technology. SaskPower notes that a decision to retire or rebuild Boundary Dam units #4 and #5 will be required by the end of 2019.[95] An equivalency agreement between the Province of Saskatchewan and the Government of Canada may provide some additional flexibility on how federal emissions requirements can be met. SaskPower notes that it has not yet made a final decision on the future of Boundary Dam units #4 and #5.[96]

Hydro

SaskPower has seven hydro facilities with a combined generation capacity of 864 MW. Hydro generation has a low marginal cost of generation, primarily related to water rentals paid to the Saskatchewan Water Security Agency. Hydro generation can vary year to year due to changes in water levels that can be difficult to forecast. For planning purposes SaskPower uses median hydro levels for the past 40 years. Variations from median flows can result in significant changes to F&PP expense (either higher or lower, depending on whether water levels are higher or lower than median).[97]

[93] SRRP Q49.
[94] SaskPower 2016 and 2017 Rate Application, page 30.
[95] SaskPower 2016 and 2017 Rate Application, page 30.
[96] SRRP Q52.
[97] SaskPower 2016 and 2017 Rate Application, page 30.

SaskPower is working with the Black Lake First Nation to develop the 50 MW Tazi Twé hydro project. If constructed, the project would add approximately 402 GWh of generation at median water conditions.[98] Federal environmental approvals have been received but the project still requires provincial environmental approvals. Approvals from SaskPower's Board, Crown Investments Corporation and the Provincial Cabinet will also be required prior to proceeding with the project. At present, SaskPower indicates it will seek a decision to proceed with the project in late 2016, with construction targeted to begin in August 2017.[99]

Wind

SaskPower owns two wind facilities with 161 MW of generation capacity and has PPAs for the supply of an additional 60MW of wind generation. There is no marginal cost for wind generation owned by SaskPower and the cost of wind purchases is governed by long-term contracts. Wind generation is dependent on wind conditions and cannot be dispatched on a planned basis. Saskatchewan wind generation has relatively high annual capacity factor of over 40%, meaning annual wind generation averages 40% of nameplate generation. SaskPower is planning to increase its wind generation significantly, adding 100 to 200 MW every two years, to achieve the target of 50% renewable capacity by 2030.[100]

SaskPower notes that in its view there is no theoretic limit to the amount of non-dispatchable generation, such as wind and solar, that can be added as long as SaskPower has the ability to balance the system. The limit to variable renewable generation becomes one of economics as it becomes increasingly expensive to deal with higher levels of variable generation. SaskPower notes it is currently undertaking a renewable generation integration study to determine what steps will be required to deal with increasing levels of renewable generation in Saskatchewan.[101] SaskPower also notes that it incurs costs to integrate wind energy into the system, including maintaining adequate generation sources to supply electrical energy during periods of low wind generation, maintaining incremental automatic generation control units to compensate for quick up and down changes in wind generation; running gas, coal and hydro units at non-optimal efficiency points to accommodate wind generation; and incremental wear and tear on units providing automatic generation control. SaskPower notes these costs are not reflected in the cost of wind energy, they are reflected in fuel costs and OM&A costs in other fuel sources.[102]

Imports

SaskPower has interconnections with Manitoba, Alberta and North Dakota. Import capabilities under normal operating conditions are currently 220 MW from Manitoba, 75 MW from Alberta and 50 MW from North Dakota. Import prices typically vary based on market prices. SaskPower has been negotiating with Manitoba Hydro for firm capacity under long-term import contracts. SaskPower began importing 25 MW of firm capacity in 2015. A further 100 MW will be imported between 2020 to 2040.[103]

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[98] SRRP Q55.
[99] SRRP Q59.
[100] SaskPower 2016 and 2017 Rate Application, page 30 and 31.
[101] SRRP Q63.
[102] SRRP Q65.
[103] SaskPower 2016 and 2017 Rate Application, page 31.

<u>Other</u>

SaskPower has a small amount of generation provided from PPAs with small wind generation, flare gas, geothermal, heat recovery facilities and demand response programs. These sources provide approximately 26MW of capacity.[104]

7.2.1 Observations

SaskPower manages a generation portfolio that includes a mixture of coal, gas, hydro, wind, imports and other sources. These resources have different characteristics in terms of fuel prices and operating characteristics. In the Consultant's view SaskPower's methods for managing the dispatch order of its different generation resources is prudent and consistent with good utility practice.

Natural gas represents approximately 35% of generation by volume (MWh) but approximately 44% of forecast F&PP expense in the test years as a result of the higher average unit costs of natural gas compared to other generation sources. The Consultant notes that SaskPower's reliance on natural gas is expected to increase beyond the test years as coal plants are phased out. The consultant notes SaskPower is appropriately focused on measures to manage its financial and operating risks related to increased natural gas supply, including its hedge program.

Coal generation is forecast to be the largest percentage of generation by volume (MWh) at approximately 44% of total generation. Coal represents between 41% to 42% of total F&PP expense in the 2016/17 and 2017/18 test years. SaskPower is facing some uncertainty with respect to the future of its coal generation resources. Without an equivalency agreement with the federal government, SaskPower will need to make a decision to retire or rebuild the Boundary Dam #4 and #5 units by 2019.

Hydro represents approximately 14% of total generation at median water flows. Lower than median water flows are expected for 2016/17 such that hydro generation is forecast at approximately 12% of total generation.[105] However, hydro represents only 2% to 3% of F&PP expense in the test years. Hydroelectric generation has high capital costs to construct, but relatively low operating costs once built. Hydroelectric generation also typically has long lead times for planning and environmental permitting.

Wind represents approximately 3% of the total forecast generation in the test years. However, SaskPower has plans to substantially increase its wind generation capacity to meet its target of 50% of generation from renewable sources by 2030. SaskPower notes that it does incur costs to integrate wind generation into its system, but does not report these costs as fuel or OM&A costs for wind. In the Consultant's view, costs incurred to integrate wind into the system could reasonably be considered wind related costs at least for planning purposes, if not operational reporting.

Imports represent between 2% to 3% of total generation requirements in the test years, but between 4% to 5% of total costs. Import prices can be volatile, particularly when sourced on the spot market. Firm import contracts can help provide some price certainty and SaskPower is exploring firm import contract possibilities with Manitoba Hydro.

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[104] SaskPower 2016 and 2017 Rate Application, page 31.
[105] Based on information from SaskPower's 2016 and 2017 Rate Application, page 28.

7.2.2 Recommendations

The Consultant recommends that the Panel request SaskPower consider the results of the renewable integration study and how best to reflect integration costs of intermittent renewable generation in its reporting of F&PP expenses and in its resource supply plan evaluations of generation costs.

7.3 DEPRECIATION AND AMORTIZATION EXPENSE

SaskPower amortizes capital expenditures on a straight-line basis over the estimated life of the asset group. Depreciation expense is an annual charge to income. SaskPower last conducted an external depreciation study in 2010. At that time, the Consultant did not recommend any major changes to the depreciation rates used by SaskPower. SaskPower also conducts internal reviews of its depreciation rates annually.[106] SaskPower states that its external auditors have reviewed and accepted all changes to depreciation rates and estimated service lives since the last external depreciation review was completed.[107] SaskPower is planning to conduct its next external depreciation study in fiscal 2017/18.[108]

Table 7-6 summarizes actual depreciation and amortization expense for 2014 and 2015 and forecasts for 2016/17 and 2017/18.

Table 7-6: Actual and Forecast Depreciation and Amortization Expense ($ millions)[109]

	2014 Actual	2015 Actual	$ change	% change	2016-17 Forecast	$ change over 2015 actual	% change	2017-18 Forecast	$ change over 2016/17 forecast	% change
Expense ($ millions)										
Depreciation expense	333.1	396.1	63.0	18.9%	430.8	34.7	8.8%	472.9	42.1	9.8%
Capital lease amortization	56.3	56.3	0.0	0.0%	56.4	0.1	0.2%	56.3	(0.1)	-0.2%
Total	**389.4**	**452.4**	63.0	16.2%	**487.2**	34.8	7.7%	**529.2**	42.0	8.6%

Depreciation and amortization expense is forecast to increase by $34.8 million in 2016/17 (7.7%) and a further $42.0 million (8.6%) in 2017/18. A major driver of increased depreciation and amortization expense is capital spending. SaskPower is forecasting total capital spending of $899 million in 2016/17 and $952 million in 2017/18.[110] As the asset base grows, so does the annual depreciation and amortization expense. SaskPower notes that on average each $100 million of capital spending increases depreciation expense by approximately $3.3 million annually, assuming an average 30 year amortization period. For a capital program of approximately $900 million each year this results in an increase to annual depreciation expense of approximately $30 million.

In addition, SaskPower conducts internal annual reviews of its depreciation rates. Recent changes to depreciation rates as a result of these annual internal reviews include:

- In 2015 SaskPower revised the estimated asset retirement dates and depreciation rates for Boundary Dam units 4, 5 and 6 and Poplar River units 1 and 2. SaskPower also revised the

[106] SaskPower 2016 and 2017 Rate Application, page 33.
[107] SRRP Q14.
[108] SRRP Q16.
[109] SaskPower 2016 and 2017 Rate Application, page 34.
[110] SaskPower 2016 and 2017 Rate Application, page 35.

estimated decommissioning dates and cost estimates for a number of its power stations and wind facilities. The combined effect on depreciation and amortization expense of the changes recommended in 2015 was an annual increase of $7 million.

- In 2016 SaskPower revised the depreciation rates for Boundary Dam units 4, 5 and 6, Poplar River units 1 and 2, Landis, Meadow Lake and Queen Elizabeth unit 3. SaskPower also shortened the average estimated service life for generation controls and protection equipment, power operated vehicles and track mounted vehicles. The combined effect on depreciation and amortization expense of these changes is an estimated annual increase $10.7 million.[111]

7.3.1 Observations

Depreciation expense is forecast to increase by approximately $34.8 million in 2016/17 and a further $42.0 million in 2017/18. The Consultant notes this is largely a result of increased capital spending. Depreciation expense is also adjusted based on SaskPower's annual internal review of depreciation expense. The Consultant notes that SaskPower's revisions to its depreciation rates have been reviewed and accepted by its auditors. On that basis the Consultants accepts that SaskPower's forecast depreciation and amortization expense is reasonable for rate making purposes.

The Consultant also notes that an external review of depreciation rates is planned for 2017/18. The Consultant understands that many electric utilities undertake external depreciation studies approximately every five years. The Consultant believes it is prudent to undertake such external reviews at regular intervals.

7.4 FINANCE CHARGES

Finance charges reflect interest expense on SaskPower's long-term and short-term borrowings and capital leases offset by capitalized interest costs and debt retirement fund earnings. Table 7-7 summarizes SaskPower's actual interest charges for 2014 and 2015 as well as forecasts for 2016/17 and 2017/18. Interest expense is generally increasing due to increased capital spending. Total finance charges are forecast to increase from $362 million in 2015 to $419 million in 2016/17 ($57 million or 15.7% increase). This increase is driven in part by an increase of $16 million in interest expense on long-term debt. Table 7-8 shows the increase in SaskPower's actual debt financing from 2010 to 2015 and forecasts for 2016/17 and 2017/18. Total net debt is forecast to increase from $6.5 billion in 2015 to $7.1 billion in 2017/18. Gross long-term debt is forecast to increase from $5.0 billion in 2015 to $5.6 billion in 2017/18. This new debt is required to finance SaskPower's forecast capital spending of $899 million in 2016/17 and $952 million in 2017/18. A more detailed review of the capital plan is provided in section 8. The current borrowing limit for SaskPower pursuant to the *Power Corporation Act* is $8 billion. SaskPower has requested a change in the legislation to increase this limit to $10 billion.[112]

SaskPower currently has a strategy of maintaining a 15% short-term debt mix as a percentage of total debt. Short-term debt interest rates are typically lower than long-term debt interest rates and can provide short-term savings and flexibility in financing. However there is a risk that short-term interest rates or

[111] SRRP Q13.
[112] SRRP Q79.

long-term interest rates could increase making debt financing more costly in the long run. SaskPower also notes that its short-term debt is borrowed through the Ministry of Finance who manages the size of total short-term borrowings of the province and provincial crown corporations.[113]

SaskPower is forecasting short-term interest rates of 0.8% in 2016/17 and 1.0% in 2017/18. SaskPower's forecast for long-term interest rates is 3.1% in 2016/17 and 3.9% in 2017/18. These forecasts are largely consistent with 2015 actual interest rates of 0.7% for short-term debt and 3.1% for long-term debt.[114]

Table 7-7: Actual and Forecast Finance Charges ($ millions)[115]

	2014 Actual	2015 Actual	*$ change*	*% change*	2016-17 Forecast	*$ change over 2015 actual*	*% change*	2017-18 Forecast	*$ change over 2016/17 forecast*	*% change*
Expense ($ millions)										
Interest on long-term debt	217.0	238.0	*21.0*	*9.7%*	254.0	*16.0*	*6.7%*	262.0	*8.0*	*3.1%*
Interest on finance lease	165.0	165.0	*0.0*	*0.0%*	165.0	*0.0*	*0.0%*	164.0	*(1.0)*	*-0.6%*
Interest on short-term debt	7.0	6.0	*(1.0)*	*-14.3%*	8.0	*2.0*	*33.3%*	10.0	*2.0*	*25.0%*
Accretion	6.0	5.0	*(1.0)*	*-16.7%*	5.0	*0.0*	*0.0%*	5.0	*0.0*	*0.0%*
Capitalized Interest	(62.0)	(31.0)	*31.0*	*-50.0%*	(5.0)	*26.0*	*-83.9%*	(11.0)	*(6.0)*	*120.0%*
Amortization of debt premiums/discounts	(1.0)	(2.0)	*(1.0)*	*100.0%*	(1.0)	*1.0*	*-50.0%*	(1.0)	*0.0*	*0.0%*
Interest on employee benefits	11.0	9.0	*(2.0)*	*-18.2%*	11.0	*2.0*	*22.2%*	10.0	*(1.0)*	*-9.1%*
Other interest and charges	1.0	1.0	*0.0*	*0.0%*	2.0	*1.0*	*100.0%*	1.0	*(1.0)*	*-50.0%*
Finance Expense	**344.0**	**391.0**	***47.0***	***13.7%***	**439.0**	***48.0***	***12.3%***	**440.0**	***1.0***	***0.2%***
Income ($ millions)										
Debt retirement fund earnings	(18.0)	(28.0)	*(10.0)*	*55.6%*	(19.0)	*9.0*	*-32.1%*	*(25.0)*	*(6.0)*	*31.6%*
Interest income	0.0	(1.0)	*(1.0)*		(1.0)	*0.0*	*0.0%*	*(1.0)*	*0.0*	*0.0%*
Finance Income	**(18.0)**	**(29.0)**	***(11.0)***	***61.1%***	**(20.0)**	***9.0***	***-31.0%***	**(26.0)**	***(6.0)***	***30.0%***
Total Finance Charges	**326.0**	**362.0**	***36.0***	***11.0%***	**419.0**	***57.0***	***15.7%***	**414.0**	***-5.0***	***-1.2%***

Table 7-8: Actual and Forecast Net Debt ($ millions)[116]

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016/17**	**2017/18**
Gross long-term debt	2,783	2,778	2,980	3,568	4,355	4,954	5,372	5,614
Finance lease obligation	294	437	435	1,137	1,138	1,136	1,130	1,119
Short-term advances	159	251	763	804	890	950	1,066	1,122
Debt retirement funds	(291)	(353)	(390)	(368)	(457)	(511)	(599)	(672)
Cash and cash equivalents	5	4	(2)	2	2	2	(25)	(46)
Total net debt	2,950	3,117	3,786	5,143	5,928	6,531	6,944	7,137

SaskPower's forecast finance charges reflect a $26 million decrease in capitalized interest from 2015 actuals to 2016/17 forecasts. SaskPower notes that the decrease in capitalized interest relates to the completion of three major multi-year capital projects, Boundary Dam Integrated Carbon Capture and Storage project, the I1k Transmission Line and the Queen Elizabeth Power Station Expansion. There are no significant multi-year capital projects planned for 2016/17 or 2017/18 and as a result the forecast of capitalized interest expense is reduced.[117]

[113] SRRP Q78.
[114] SRRP Q8.
[115] SRRP Q9.
[116] SRRP Q80.
[117] SRRP Q12.

7.4.1 Observations

The Consultant notes that several factors influence the total finance charges included in revenue requirement in the test years including SaskPower's total debt requirements; the mixture of short-term and long-term debt; and the interest rate forecasts.

Total Debt Requirements

SaskPower's capital plan includes spending of $899 million in 2016/17 and $952 million in 2017/18. The Minister's terms of reference to the Panel instruct the Panel to accept the budgeted capital allocation as given. The Consultant notes that capital spending is a major driver of the increase in finance charges in the test years compared to 2015 actuals.

Interest Rate Forecasts

The Consultant notes that SaskPower's interest rate forecasts for 2016/17 of 0.8% for short-term debt and 3.1% for long-term debt are essentially the same as 2015 actual interest rates. SaskPower is forecasting increases in interest rates to 1.0% for short-term debt and 3.9% for long-term debt in 2017/18. The 2017/18 short-term interest rate forecast is very similar to the current short-term interest rate. The long-term interest rate is somewhat higher than current rates, although the Consultant notes that a 1% variance in SaskPower's long-term interest rate forecast would result in a $4 million change to revenue requirement, about a 1% change in total finance expense.[118] The Consultant therefore accepts SaskPower's interest rate forecasts as reasonable for ratemaking purposes.

Debt Portfolio

The Consultant notes that SaskPower has a strategy of maintaining a 15% debt mix as a percentage of its total debt but that there is some flexibility around the 15% ratio. The Consultant reviewed the debt management practices of other crown-owned electric utilities in Canada and notes the following:

- Manitoba Hydro's interest rate guidelines including maintaining an aggregate of floating rate debt and short-term debt within 15% to 25% of its total debt portfolio and having the fixed rate long-term debt to be refinanced within a 12 month period being less than 15% of the total debt portfolio.[119]
- BC Hydro has reported short-term debt of between 15% to 21% of its debt portfolio in 2015 and 2016.[120]
- A 2009 report prepared for Manitoba Hydro by National Bank Financial indicated an observed range of short-term debt of between 6% to 20% for other crown owned electric utilities included New Brunswick Power, Hydro Quebec and Newfoundland and Labrador Hydro.[121]

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[118] Based on the sensitivity analysis in SRRP Q2 and a total finance expense of approximately $440 million in 2017/18.
[119] Manitoba Hydro 2015 debt management strategy filed as part of its 2015/16 and 2016/17 General Rate Application. Available: https://www.hydro.mb.ca/regulatory_affairs/electric/gra_2014_2015/pdf/appendix_3_7.pdf. Accessed: August 24, 2016.
[120] $3.546 billion in short-term debt of $16.224 billion total net debt in 2015 and $2.376 billion in short-term debt out of $17.487 billion in total net debt in 2016 per schedule 8, page 49 of Appendix A of BC Hydro's 2017-2019 revenue requirement application. Available: https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/revenue-requirements/f17-f19-rra-20160728.pdf. Accessed: August 24, 2016.

Based on this review the Consultant notes that SaskPower's short-term debt mixture is within the range of other peer electric utilities and appears reasonable.

<u>Total Finance Charges</u>

Finance charges included in revenue requirement are calculated based on the forecast debt requirements, including the mix of long-term and short-term debt and forecast interest rates. The forecast finance charges are also influenced by the forecast of capitalized interest. SaskPower is forecasting a reduction in capitalized interest as a result of the completion of three large multi-year projects. The Consultant understands that no significant multi-year projects are planned for 2016/17 or 2017/18. On that basis the Consultant accepts SaskPower's explanation for the reduction in forecast capitalized interest and the resulting forecast finance charges as reasonable for ratemaking purposes.

7.5 TAX EXPENSE

SaskPower incurs tax expenses related to corporate capital tax obligations and grants in lieu of taxes. Tax expenses are forecast to be $68.0 million in 2016/17 and $70.6 million in 2017/18, as summarized in Table 7-9.

Table 7-9: Actual and Forecast Tax Expense ($ millions)[122]

	2015 Actual	2016-17 Forecast	*$ change over 2015 actual*	*% change*	2017-18 Forecast	*$ change over 2016/17 forecast*	*% change*
Tax Expense							
Corporate capital tax	39.4	43.0	*3.6*	*9.1%*	45.2	*2.2*	*5.1%*
Grants in lieu of taxes	24.4	25.0	*0.6*	*2.5%*	25.4	*0.4*	*1.6%*
Sub-total	**63.8**	**68.0**	***4.2***	***6.6%***	**70.6**	***2.6***	***3.8%***

SaskPower's Corporate Tax expense obligation is calculated based on SaskPower's paid-up capital. Increases in SaskPower's forecast taxable paid-up capital result in the higher corporate tax expense obligation in the test years. The tax rate remains unchanged.

[121] National Bank Financial 2009. Independent assessment of corporate policy fixed vs floating rate debt. Filed with the Manitoba Public Utilities Board as part of Manitoba Hydro's 2010-2012 General Rate Application.
[122] SaskPower 2016 and 2017 Rate Application, page 34.

Table 7-10: Calculation of Actual and Forecast Corporate Tax Expense ($ millions)[123]

	2015 Actual	2016-17 Forecast	$ change over 2015 actual	% change	2017-18 Forecast	$ change over 2016/17 forecast	% change
Calculation of Paid-Up Capital							
Surpluses - earned	1,682	1,518	(164)	-9.8%	1,530	12	0.8%
Surpluses - contributed	660	660	0	0.0%	660	0	0.0%
Loans and advances	1,105	1,087	(18)	-1.6%	1,177	90	8.3%
Reserves not allowed as deductions for income tax	248	252	4	1.6%	261	9	3.6%
Indebtedness	4,387	5,094	707	16.1%	5,520	426	8.4%
Sub-total	**8,082**	**8,611**	529	6.5%	**9,148**	537	6.2%
Excess of Net book value over undepreciated capital cost	(1,438)	(1,620)	(182)	12.7%	-1,757	-137	8.5%
Total Paid-Up Capital	**6,644**	**6,991**	347	5.2%	**7,391**	400	5.7%
Deduct Allowances							
Standard exemption	10	10			10		
Additional exemptions	4	4			4		
Investment Allowance	51	37			38		
Taxable Paid-Up Capital	**6,579**	**6,940**	361	5.5%	**7,339**	399	5.7%
Corporation Capital Tax Payable at 0.6%	**39**	**42**	2	5.5%	**44**	2	5.7%

Grants-in-lieu of taxes are payments made to 13 communities across Saskatchewan. The payments are based on the electrical revenues received from customers in those areas. As revenues increase, so do the grants-in-lieu payments.[124]

7.5.1 Observations

The Consultant notes that corporate capital taxes and grants-in-lieu of taxes are legislated requirements. These types of charges are typically recovered through rates for electric utilities. The Consultant notes that as SaskPower's capital investment and sales revenues increase these tax obligations will continue to increase as well.

7.6 OTHER EXPENSES

SaskPower's other expenses category includes gains or losses on disposals and retirements as well as environmental and decommissioning expenses. Other expenses are forecast to decrease by $8 million in 2016/17 compared to 2015 as shown in Table 7-11.

[123] SRRP Q85.
[124] SaskPower 2016 and 2017 Rate Application, page 34.

Table 7-11: Other Expenses ($ millions)[125]

Expense ($ millions)	2014 Actual	2015 Actual	$ change	% change	2016-17 Forecast	$ change over 2015 actual	% change	2017-18 Forecast	$ change over 2016/17 forecast	% change
Gain/Loss on asset retirements	12.0	21.0	*9.0*	*75.0%*	8.0	*(13.0)*	*-61.9%*	8.0	*0.0*	*0.0%*
Gain/Loss on asset disposal	3.0	3.0	*0.0*	*0.0%*	5.0	*2.0*	*66.7%*	5.0	*0.0*	*0.0%*
Inventory adjustments	7.0	2.0	*(5.0)*	*-71.4%*	3.0	*1.0*	*50.0%*	3.0	*0.0*	*0.0%*
Loss on impairment of assets	17.0	0.0	*(17.0)*	*-100.0%*	0.0	*0.0*	*0.0%*	0.0	*0.0*	*0.0%*
Foreign exchange	0.0	(2.0)	*(2.0)*	*0.0%*	0.0	*2.0*	*0.0%*	0.0	*0.0*	*0.0%*
Environmental expense	7.0	7.0	*0.0*	*0.0%*	7.0	*0.0*	*0.0%*	7.0	*0.0*	*0.0%*
Total	**46.0**	**31.0**	***-15.0***	***-32.6%***	**23.0**	***-8.0***	***-25.8%***	**23.0**	***0.0***	***0.0%***

Losses on asset retirements are forecast to decrease by $13 million in 2016/17 compared to 2015 actuals. This is partially offset by small forecast increases in losses on asset disposals and inventory adjustments. Environmental expenses are forecast to remain at the same level as 2014 and 2015 actuals.

7.6.1 Observations

The Consultant notes that the changes in other expenses are relatively small compared to SaskPower's total revenue requirement. The Consultant accepts SaskPower's forecasts as reasonable for ratemaking purposes.

7.7 CAPITAL STRUCTURE, RATE BASE AND RETURN ON EQUITY

SaskPower finances its capital through a mixture of debt and equity. Debt servicing costs are included in revenue requirement through finance expense. Most utilities in Canada are also allowed to include a ROE component in revenue requirement for ratemaking purposes. Table 7-12 summarizes SaskPower's actual capital structure and operating ROE for 2010 through 2015 and forecasts for 2016/17 and 2017/18.

SaskPower states that its target debt ratio is 60% to 75%.[126] A review of Table 7-12 indicates that SaskPower is at the upper end of this target in 2016/17 and 2017/18.

[125] SRRP Q77.
[126] SaskPower 2016 and 2017 Rate Application, page 15.

Table 7-12: Actual and Forecast Capital Structure and Return on Equity ($ millions)[127]

	2010	2011	2012	2013	2014	2015	2016/17	2017/18
Gross long-term debt	2,783	2,778	2,980	3,568	4,355	4,954	5,372	5,614
Finance lease obligation	294	437	435	1,137	1,138	1,136	1,130	1,119
Short-term advances	159	251	763	804	890	950	1,066	1,122
Debt retirement funds	(291)	(353)	(390)	(368)	(457)	(511)	(599)	(672)
Cash and cash equivalents	5	4	(2)	2	2	2	(25)	(46)
Total net debt	2,950	3,117	3,786	5,143	5,928	6,531	6,944	7,137
Equity Advances	660	660	660	660	660	660	660	660
Retained Earnings	1,095	1,332	1,347	1,461	1,521	1,561	1,697	1,885
Accumulated OCI	3	(128)	(149)	102	(3)	(17)	0	0
Total Capital	**4,708**	**4,981**	**5,644**	**7,366**	**8,106**	**8,735**	**9,301**	**9,682**
Debt ratio	**62.7%**	**62.6%**	**67.1%**	**69.8%**	**73.1%**	**74.8%**	**74.7%**	**73.7%**
Operating Income	216	228	129	167	43	104	156	209
Equity Advances	660	660	660	660	660	660	660	660
Retained Earnings	1,095	1,332	1,347	1,461	1,521	1,561	1,697	1,885
Accumulated OCI	3	(128)	(149)	102	(3)	(17)	0	0
Average Equity	1,657	1,811	1,861	2,041	2,201	2,191	2,251	2,451
Operating Return on Equity	**13.0%**	**12.6%**	**7.0%**	**8.2%**	**2.0%**	**4.7%**	**6.9%**	**8.5%**

7.7.1 Observations

- SaskPower's total capitalization is forecast to more than double from $4.708 billion in 2010 to $9.682 billion in 2017/18.
- SaskPower's equity is not forecast to increase at the same rate as total capitalization. This results in the debt ratio increasing from 62.7% in 2010 to a forecast 73.7% in the 2017/18 test year.
- The Panel's terms of reference instruct the Panel to consider the targeted long-term ROE target of 8.5% as a given. SaskPower's rate application is based on achieving the 8.5% ROE by 2017/18. This increases revenue requirement by approximately $105 million in 2017/18 compared to 2015.
- SaskPower is also forecasting a dividend payment to the province of $20.7 million in 2017/18.[128]
- SaskPower indicates that a 1% change in the requested rate increase reduces net income by approximately $22 million.[129] Thus a 1% reduction in the requested rate increase effective January 1st, 2017 would reduce SaskPower's forecast operating income by $22 million to approximately $187 million.

[127] SRRP Q80 and SRRP Q81.
[128] SaskPower 2016 and 2017 Rate Application, page 39.
[129] SRRP Q2.

7.8 MID-APPLICATION UPDATE

SaskPower provided its Mid-Application update on September 13, 2016. The Mid-Application update compares the initial rate application submission to the most recent financial forecast available as of August 31, 2016. Table 7-13 summarizes the changes to forecast 2016/17 revenues and revenue requirements. Overall, forecast operating income is lower at $83.3 million (a reduction of $72.6 million) compared to the original application. This represents an operating ROE of 3.8% compared to the forecast of 6.9% in the original application. Key drivers of the reduced operating income forecast include:

- Lower revenues of $31.8 million made up of:
  - $21.4 million lower other revenues, primarily as a result of lower customer contributions ($15.0 million lower) and CO2 sales ($4.3 million lower).
  - $8.2 million lower export revenues made up of both a decrease in forecast export volumes and average export price.
  - $2.2 million lower Saskatchewan sales revenues made up of decreases in most customer classes but largely offset by a forecast increase in oilfield customer revenues.
- Increased expenses of $40.8 million made up of:
  - $29.3 million increase in fuel and purchase power, primarily as a result of higher forecast gas expense and coal expense. Natural gas costs are approximately $1.84/MWh higher than in the original application.
  - $8.4 million increase in OM&A expenses primarily driven by higher consulting and legal fees ($5.5 million), increased DSM spending ($4 million) and increased bad debt expense ($2.5 million). Reductions in other OM&A accounts offset some of these increases.
  - $6.9 million increase in depreciation expense as a result of new depreciation rates implemented after SaskPower's annual review of depreciation rates.
  - $2.8 million increase in corporate capital tax obligation as a result of a forecasted increase in debt and a decrease in the deductible reserve portion of the corporate capital tax calculation.
  - These increases are partially offset by a decrease in finance expense of $6.6 million that arises largely as a result in an increase in forecast capitalized interest.

The Mid-Application update also notes that capital spending in 2016/17 is forecast to increase from $899 million to $965 million (increase of $66 million). SaskPower states this is largely attributed to the increase in generation growth and compliance spending related to the new combined cycle natural gas generation facility near Swift Current.[130]

[130] SaskPower 2016 and 2017 Mid-Application Update, pages 2 to 9.

Table 7-13: Comparison of 2016/17 Revenue and Revenue Requirement Forecasts from Original Application and Mid-Application Update ($ millions)[131]

	2016/17 Application	2016/17 Mid-Application Update	*$ change*	*% change*
Revenues				
Saskatchewan electricity sales	2,328.2	2,326.0	*-2.2*	*-0.1%*
Exports	17.0	8.8	*-8.2*	*-48.2%*
Net sales from trading	1.2	1.2	*0.0*	*0.0%*
Other	134.9	113.5	*-21.4*	*-15.9%*
Total Revenues	**2,481.3**	**2,449.5**	***-31.8***	***-1.3%***
Revenue Requirement				
Fuel and purchased power	646.6	675.9	*29.3*	*4.5%*
OM&A	682.1	690.5	*8.4*	*1.2%*
Depreciation	487.2	494.1	*6.9*	*1.4%*
Finance Charges	418.7	412.1	*-6.6*	*-1.6%*
Taxes	68.0	70.8	*2.8*	*4.1%*
Other	22.8	22.8	*0.0*	*0.0%*
Sub-total expenses	**2,325.4**	**2,366.2**	***40.8***	***1.8%***
Operating Income	**155.9**	**83.3**	***-72.6***	***-46.6%***
Total Revenue Requirement	**2,481.3**	**2,449.5**	***-31.8***	***-1.3%***
Operating ROE	**6.9%**	**3.8%**		

Finally, SaskPower indicates that the debt equity ratio is forecast to increase to 75.8% in 2016/17, based on the information provided in the Mid-Application update.

[131] SaskPower 2016 and 2017 Mid-Application Update, page 2.

7.9 REVENUE REQUIREMENT SENSITIVITY

SaskPower identified the main financial risks it faces as the approval of its requested rate increases, domestic electricity sales, natural gas prices and hydro levels. Table 7-14 summarizes the estimated impacts on SaskPower's net income of certain variations from the assumptions included in the business plan. Key observations from a review of Table 7-14 include:

- A 1% decrease in the requested rate increase would reduce SaskPower's net income by approximately $22 million annually.
- A $1/GJ increase in natural gas prices would reduce SaskPower's net income by approximately $16 million annually.
- A 10% decrease in hydro generation would reduce SaskPower's net income by approximately $13 million.
- A 1% increase in short-term interest rates would reduce SaskPower's net income by approximately $11 million.
- A $100 million reduction in capital spending would increase SaskPower's net income by $7 million.

Table 7-14: SaskPower Business Plan Sensitivity Analysis[132]

	2016-17 Forecast	2017-18 Forecast	Sensitivity Analysis	Net Income Impact ($ millions)
Revenue				
Rate Increase (%)	10.0%	0.0%	1% change in rate increase	22
Domestic Sales Growth (%)	3.7%	1.8%	100 GWh change in Power Class	4
			100 GWh change in Residential Class	9
Fuel and Purchased Power				
Natural Gas Price ($/GJ)	3.79	4.25	$1/GJ in natural gas price	16
Hydro Generation (GWh)	3,068.0	3,634.0	10% change in hydro generation	13
Capital				
Capital Spending ($ millions)	899.0	952.0	$100 million change in capital budget	7
Short-term interest rates	0.8%	1.0%	1% change in short-term interest rates	11
Long-term interest rates	3.1%	3.9%	1% change in long-term interest rates	4

7.10 IMPLICATIONS OF POTENTIAL RATE CHANGES

During its review, the Panel canvassed the potential impact of changes to the requested rate increases. A number of scenarios were canvassed that adjusted the implementation date of the next rate increase (from January 1, 2017 to April 1, 2017) and the magnitude of the second rate increase. Table 7-15 summarizes the results of these scenarios. With respect to the original filing, a review of the information in Table 7-15 indicates the following:

[132] SRRP Q2.

- Delaying the next 5% rate increase from January 1, 2017 to April 1, 2017 would:
  - Reduce SaskPower's net income by $29 million in 2016/17 and $2 million in 2017/18;
  - Increase SaskPower's debt ratio by approximately 0.3% but still be under the 75% upper target range in 2017/18; and
  - Reduce SaskPower's ROE by 1.3% in 2016/17 but keep the ROE at 8.5% in 2017/18.
- Reducing the January 1, 2017 rate increase from 5% to 2.5% would:
  - Reduce SaskPower's net income by $14.5 million in 2016/17 and $61.2 million in 2017/18;
  - Increase SaskPower's debt ratio by approximately 0.1% in 2016/17 and 0.7% in 2017/18 but still be under the 75% upper target range in both years; and
  - Reduce SaskPower's ROE by 0.6% in 2016/17 and 2.4% in 2017/18. SaskPower would not achieve the target ROE of 8.5% in either test year.
- Delaying the next rate increase from January 1, 2017 to April 1, 2017 and reducing the rate increase from 5% to 2.5% would:
  - Reduce SaskPower's net income by $14.5 million in 2016/17 and $61.2 million in 2017/18;
  - Increase SaskPower's debt ratio by approximately 0.1% in 2016/17 and 0.7% in 2017/18 but still be under the 75% upper target range in both years; and
  - Reduce SaskPower's ROE by 0.6% in 2016/17 and 2.4% in 2017/18. SaskPower would not achieve the target ROE of 8.5% in either test year.
- Eliminating the 5% rate increase requested for January 1, 2017 would:
  - Reduce SaskPower's net income by $29 million in 2016/17 and $120 million in 2017/18;
  - Increase SaskPower's debt ratio to 75% in 2016/17 and 75.2% in 2017/18; and
  - Reduce SaskPower's ROE to 5.6% in 2016/17 and 3.7% in 2017/18.

With respect to the Mid-Application update, the Consultant notes that SaskPower now forecasts its debt to equity ratio will increase to 75.8% in 2016/17. SaskPower did not provide updated 2017/18 numbers as part of its Mid-Application update. Generally the rate scenarios now show poorer operating performance forecasts, consistent with the lowered operating performance expectations in the Mid-Application update. The only rate scenarios that do not result in the debt ratio climbing over 77% are deferring the second 5% rate increase to April 1, 2017, reducing the January 1, 2017 rate increase to 2.5%, or deferring the second rate increase to April 1, 2017 and reducing it from 5% to 4.5%.

Table 7-15: Effect of Alternative Rate Proposals on SaskPower's Financial Results[133]

	Based on Original Filing				Based on Mid-Application Update		
	2016-17 Forecast	*change compared to rate application*	2017-18 Forecast	*change compared to rate application*	2016-17 Forecast	*change compared to mid-application update*	2017-18 Forecast
Rate Application							
Avg customer rate increase	10.0%		0.0%		10.0%		
Operating net income (millions $)	155.9		208.5		83.3		
Domestic sales revenue (millions $)	2,328.2		2,479.6		2,326.0		
Return on equity	6.9%		8.5%		3.8%		
Debt ratio	74.7%		73.7%		75.8%		
5% 2016, 5% Apr 1, 2017							
Avg customer rate increase	5.0%	-5.0%	5.0%	5.0%	5.0%	-5.0%	5.0%
Operating net income (millions $)	126.9	*(29.0)*	206.5	*(2.0)*	54.1	*(29.2)*	167.9
Domestic sales revenue (millions $)	2,299.2	*(29.0)*	2,477.6	*(2.0)*	2,296.9	*(29.1)*	2,470.0
Return on equity	5.6%	-1.3%	8.5%	0.0%	2.6%	-1.2%	7.5%
Debt ratio	75.0%	0.3%	74.0%	0.3%	76.5%	0.7%	76.6%
5% 2016, 2.5% Jan 1, 2017							
Avg customer rate increase	7.5%	-2.5%	0.0%	0.0%	7.5%	-2.5%	0.0%
Operating net income (millions $)	141.4	*(14.5)*	147.3	*(61.2)*	68.6	*(14.7)*	108.8
Domestic sales revenue (millions $)	2,313.7	*(14.5)*	2,418.7	*(60.9)*	2,311.4	*(14.6)*	2,411.2
Return on equity	6.3%	-0.6%	6.1%	-2.4%	3.2%	-0.6%	4.9%
Debt ratio	74.8%	0.1%	74.4%	0.7%	76.4%	0.6%	77.0%
5% 2016, 2.5% Apr 1, 2017							
Avg customer rate increase	5.0%	-5.0%	2.5%	2.5%	5.0%	-5.0%	2.5%
Operating net income (millions $)	126.9	*(29.0)*	147.2	*(61.3)*	54.1	*(29.2)*	108.8
Domestic sales revenue (millions $)	2,299.2	*(29.0)*	2,418.7	*(60.9)*	2,296.9	*(29.1)*	2,411.2
Return on equity	5.6%	-1.3%	6.1%	-2.4%	2.6%	-1.2%	4.9%
Debt ratio	75.0%	0.3%	74.6%	0.9%	76.5%	0.7%	77.2%
5% 2016, 0% in 2017							
Avg customer rate increase	5.0%	-5.0%	0.0%	0.0%	5.0%	-5.0%	0.0%
Operating net income (millions $)	126.9	*(29.0)*	87.9	*(120.6)*	54.1	*(29.2)*	49.6
Domestic sales revenue (millions $)	2,299.2	*(29.0)*	2,359.7	*(119.9)*	2,296.9	*(29.1)*	2,352.4
Return on equity	5.6%	-1.3%	3.7%	-4.8%	2.6%	-1.2%	2.3%
Debt ratio	75.0%	0.3%	75.2%	1.5%	76.5%	0.7%	77.7%
5% 2016, 4.5% April 1, 2017							
Avg customer rate increase					5.0%	-5.0%	4.5%
Operating net income (millions $)					54.1	*(29.2)*	156.0
Domestic sales revenue (millions $)					2,296.9	*(29.1)*	2,458.3
Return on equity					2.6%	-1.2%	7.0%
Debt ratio					76.5%	0.7%	76.7%

[133] SRRP Q4 and SRRP R2Q5. SaskPower also provided updated responses to reflect the Mid-Application update.

7.10.1 Observations

The Consultant notes that the Panel's terms of reference require it to provide an opinion on the fairness and reasonableness of the proposed rate changes. In particular, the Consultant notes the following aspects of the terms of reference:

- The Panel shall consider the effect of the proposed rate change on the competitiveness of the Crown Corporation related to other jurisdictions.
- The Panel shall consider the reasonableness of the forecasted Cost of Service including fuel costs, hydro facilities availability; load forecast; planned maintenance programs; operating, administrative and maintenance expenses; depreciation and finance expense; and corporate capital tax.
- The future impact of the proposed rate change on different customer groups.
- The Panel is instructed to consider the targeted long-term ROE of 8.5% as given.

With respect to these considerations, the Consultant provides the following observations:

- Section 14 of this report compares bills for typical customers of SaskPower to other jurisdictions. SaskPower's bills for residential customers in particular are noted to be higher than the average for thermal utilities in Canada.
- The Consultant has generally found that SaskPower's fuel expense, finance expense, load forecast and corporate capital tax forecasts are reasonable for rate-making purposes.
- With respect to the impact of proposed rate changes on different customer groups, the Consultant notes that other regulators in Canada have expressed caution about approving more than one material rate increase in a 12 month period. For example, the Manitoba Hydro Public Utilities Board delayed the implementation of a rate increase from April 1, 2016 to August 1, 2016 noting its concern that the earlier implementation date would result in two significant increases in less than a one year time period. The rate increases in this case were on the order of 3 to 4%.[134] As discussed in section 14.2.3, typically utilities apply for rate increases only once in a 12-month period.
- Based on the Mid-Application update, SaskPower is now forecasting that its debt ratio will increase about 75% in the test years, even with the requested rate increases. SaskPower is also now forecasting a substantially lower return on equity for 2016/17.
- SaskPower is forecasting a dividend payment to the province of $20.7 million in 2017/18.[135]
- SaskPower indicates that a 1% change in the requested rate increase reduces net income by approximately $22 million.[136]

[134] Manitoba Public Utilities Board Order 59/16, page 4.
[135] SaskPower 2016 and 2017 Rate Application, page 39.
[136] SRRP Q2.

7.10.2 Recommendations

The Consultant recommends that the Panel recommend confirming the 5% interim rate increase that took effect July 1, 2016.

With respect to the 5% rate increase requested for January 1, 2017, the Consultant recommends that the Panel consider the effects of reducing or deferring the requested rate increases on SaskPower's ability to achieve the long-term target ROE in the test years and balance those considerations with the bill impacts on customers and the effects on competitiveness.

8.0 BUSINESS RENEWAL PROGRAM

SaskPower implemented its business renewal program in response to the Panel's recommendations regarding the 2009 Rate Application. The intent of the program is to identify initiatives that will increase efficiency and effectiveness through SaskPower's business including OM&A expense, fuel and purchased power costs, capital spending and finance charges. SaskPower cites its business renewal program as one of the activities it is undertaking to address financial risks including increasing capital and debt requirements.[137]

SaskPower indicates it has realized gross benefits of more than $528 million since the inception of the program and forecast net savings of $138.4 million in 2015.[138] Multi-year initiatives that SaskPower indicates have contributed to the gross benefits include:

- Reallocating a portion of borrowing to the short-term to take advantage of low floating interest rates.
- Extending the run time between power plant overhauls.
- Optimizing purchase arrangements to provide cost savings.
- Implementing a number of initiatives to lower information technology costs.
- Developing customer connect process improvements including the introduction of standardized quick quotes, new expediter roles and improved crew efficiencies.
- Lowering office costs by standardizing designs and reducing workspace areas.
- Outsourcing head office caretaking activities.
- Implementing automated work scheduling and dispatching tools.

During 2015/16, SaskPower identified and began planning for a number of new initiatives including:

- Enhancing procurement efficiency, including activities with the provincial government's Priority Saskatchewan initiative which aims to address disparity in competitive practices across government.
- Completing a thorough examination of operations within a single generation plant to create a model plant with improved processes and performance measures that can be applied across the Power Production business unit.
- Increasing process efficiency and business performance in the Transmission business unit.[139]

[137] SaskPower 2015-16 Annual Report, page 89.
[138] SaskPower 2016 and 2017 Rate Application, page 13.
[139] SaskPower 2016 and 2017 Rate Application, page 14.

SaskPower provided additional information on aspects of the Business Renewal Program in responses to information requests from the Panel, including:

- SaskPower notes savings to date from the debt-mix program of $123.4 million. The savings arise as a result of the rate differential between short-term borrowing rates and long-term borrowing rates.[140]
- The Joint Servicing Program with SaskPower, SaskEnergy and SaskTel went live on March 1, 2015. A cost sharing structure as developed under an agreement amongst these Crowns for the joint installation of certain new residential service. The program covers typical residential installations in Regina, Saskatoon, Dalmeny, Martensville and Warman. SaskPower notes it has achieved an overall 15% cost saving since the project started, largely because of the very competitive pricing available by having a unit-based contract on a very narrow spectrum of work. Other benefits of this program include improved customer experience and timeliness of installation.[141]
- With respect to the overhaul maintenance program, SaskPower provided information on the performance of the program. SaskPower notes that coal plant overhaul maintenance intervals have been extended, and this extension provides more operating time, increasing energy production from the units. In 2011, the thermal steam unit fleet equivalent availability factor (EAF) was 2.6% under SaskPower's target. The declining trend continued to 2014 but recovered in 2015 to be within targets. SaskPower notes the overhaul maintenance program continues to improve.[142]

8.1 CONSULTANT OBSERVATIONS

In its 2010 report to the Minister, the Panel stated that at a minimum, it expected SaskPower to achieve an annual efficiency gain of 2% in the OM&A cost category.[143] The Consultant notes that SaskPower has continued to make progress in implementing its business renewal program. Annual net OM&A savings (less savings related to the debt mix program) are forecast to be approximately $120 million in 2017.

The Consultant notes that these savings reduce, but do not eliminate, the need for increases in OM&A spending and resulting rate increases. However the program can have a positive effect for customers on rates that would otherwise be higher in the absence of the program. The Consultant is satisfied that SaskPower has placed appropriate emphasis on the business renewal program and finding efficiencies in its operations. However, the Consultant notes that in the environment of increased capital spending requirements and increased rates, it will continue to be important for SaskPower to identify and maximize new potentials for efficiency savings.

[140] SRRP Q90.
[141] SRRP Q87.
[142] SRRP Q88.
[143] Saskatchewan Rate Review Panel Report to the Minister for rates effective August 1, 2010, pages 15 to 16.

9.0 CAPITAL PLANNING AND EXPENDITURES

9.1 SASKPOWER'S CAPITAL PLAN

SaskPower's capital planning process involves the following steps:

- Preliminary capital targets are set for the various business units in Q4 (January to March).
- Business units prepare detailed capital plans based on the targets in Q2 (July to September).
- Crown Investments Corporation reviews and approves SaskPower's ten year business plan.[144]

SaskPower provided its ten year capital plan as part of the Mid-Application update. SaskPower notes that it invested almost $8.2 billion in infrastructure over the past decade compared to $2.2 billion for the previous decade. Substantial capital investments are expected to continue in the 2016/17 and 2017/18 test years, as well as throughout the ten year planning period.[145] Table 9-1 summarizes actual capital spending for 2015 and forecasts for 2016/17 through 2026/27. Total capital spending is forecast at $965 million in 2016/17 and $1.336 billion in 2017/18. This compares to $1.279 billion in 2014 and $990 million in 2015. Total capital investment in the ten year period from 2017/18 through 2026/27 is forecast at $10.902 billion.

Capital Sustainment Spending

Capital sustainment investments include generation, transmission and distribution projects that involve renewing or replacing existing infrastructure. Sustainment spending is forecast at $472 million in 2016/17 and $408 million in 2017/18. The ten year forecast for sustainment spending is $4.6 billion from 2017/18 through 2026/27. Major categories or programs of ongoing sustainment spending include:

- **Transmission Wood Pole Remediation:** This program involves extending the life of transmission wood poles. Poles are evaluated and replaced as necessary.[146] SaskPower's ten year plan includes approximately $790 million in spending in this program area.[147]
- **Rural Distribution Rebuild and Improvement:** This program involves the strategic replacement of the aging rural electrical distribution system. The program replaces lines with poor reliability performance and facilitates removal of power lines from farm fields.[148] SaskPower's ten year plan includes approximately $209 million in spending in this program area.[149]

[144] SRRP Q32.
[145] SaskPower 2016 and 2017 Rate Application, page 35.
[146] SaskPower 2016 and 2017 Rate Application, page 36.
[147] SaskPower 10 year capital plan 2017/18 – 2026/27.
[148] SaskPower 2016 and 2017 Rate Application, page 36.
[149] SaskPower 10 year capital plan 2017/18 – 2026/27.

- **Distribution Wood Pole Remediation:** This program involves the inspection, life extension and replacement of aging distribution wood infrastructure.[150] SaskPower's ten year plan includes approximately $330 million in spending in this program area.[151]
- **E.B. Campbell Life Extension:** SaskPower is undertaking work to extend the life of units 1 through 6 at the E.B. Campbell Hydroelectric Station. The first six units were commissioned in 1963/64.[152] SaskPower's ten year plan includes approximately $244 million in spending on this project with an in-service date of 2025.[153]

Growth and Compliance

Capital growth and compliance projects include new generation, transmission or distribution additions to accommodate growth in demand, customer connections and other projects. Growth and compliance spending is forecast at $440 million in 2016/17 and $869 million in 2017/18. The ten year forecast for sustainment spending is $5.6 billion from 2017/18 through 2026/27. Major categories or programs of ongoing sustainment spending include:

- **Pasqua to Swift Current Transmission Line:** This project is a new 230kV double circuit line and related infrastructure to facilitate transmission service from SaskPower's planned gas plant near Swift Current, supply expected load growth in Swift Current and mitigate end of life issues for other lines. The project has a total cost of $260 million and an in-service date of 2019.[154]
- **Distribution Customer Connects:** This program involves connection of new electrical services and upgrading existing customer services.[155] SaskPower is forecasting $106 million in spending in 2016/17 and $100 million in 2017/18. SaskPower's ten year plan includes approximately $1.1 billion in spending in this program area.[156]
- **Tazi Twé Hydroelectric Station:** This project is a proposed 50 MW power generation project in partnership with the Black Lake First Nation. The project does not require a dam structure and will not create any flooding. The total cost of the project is an estimated $630 million with construction targeted to begin in 2017[157] and an in-service date of 2020.[158]

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[150] SaskPower 2016 and 2017 Rate Application, page 36.
[151] SaskPower 10 year capital plan 2017/18 – 2026/27.
[152] SaskPower 2016 and 2017 Rate Application, page 36.
[153] SaskPower 10 year capital plan 2017/18 – 2026/27.
[154] SaskPower 2016 and 2017 Rate Application, page 37.
[155] SaskPower 2016 and 2017 Rate Application, page 37.
[156] SaskPower 10 year capital plan 2017/18 – 2026/27.
[157] SRRP Q59.
[158] SaskPower 2016 and 2017 Rate Application, page 37.

Table 9-1: Actual and Forecast Capital Spending ($ millions)[159]

	2015	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2018-2027
Capital Sustainment Investment													
Transmission	79.8	109.6	96.6	106.2	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	1,120.4
Distribution	50.0	74.3	72.0	86.4	103.7	124.4	133.7	133.7	133.7	133.7	133.7	133.7	1,188.7
Generation	171.0	183.0	164.1	146.1	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	1,510.2
IT&S	37.5	22.3	11.0	10.3	14.0	19.7	10.9	11.1	11.8	12.0	12.1	12.2	125.1
Buildings & Furniture	10.9	25.5	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	200.0
Mining Land	1.5	7.8	5.2	5.4	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	50.6
Meters	26.3	29.1	16.1	16.2	18.3	10.7	13.4	19.5	19.7	19.2	21.2	20.3	174.6
Vehicles	22.7	20.0	22.8	22.8	22.6	22.5	22.5	22.4	22.3	22.2	22.0	22.0	224.1
Other													
Total Sustainment Investment	**399.7**	**471.6**	**407.8**	**413.4**	**448.3**	**467.0**	**470.2**	**476.4**	**477.2**	**476.8**	**478.7**	**477.9**	**4,593.7**
Growth and Compliance Investment													
Transmission	163.8	157.2	237.2	261.7	251.8	245.9	186.2	111.8	75.1	112.9	158.3	155.8	1,796.7
Distribution	80.3	27.6	40.5	47.0	32.5	32.2	30.0	30.0	30.0	30.0	30.0	30.0	332.2
Transmission Connects	45.1	21.9	78.0	95.3	25.4	25.0	25.0	25.0	28.9	45.0	58.6	40.0	446.2
Distribution Connects	125.1	106.1	100.0	100.0	103.0	106.1	109.3	112.6	115.9	119.4	123.0	120.0	1,109.3
New Generation													
QE Expansion	167.5	2.8											0.0
Tazi Twe	4.9	9.5	81.7	148.4	290.4	63.9							584.4
Chinook Gas Plant		114.4	331.2	186.6	33.5								551.3
XCG2 (natural gas plant)							142.1	364.2	205.2	36.9			748.4
Total Growth and Compliance	**586.7**	**439.5**	**868.6**	**839.0**	**736.6**	**473.1**	**492.6**	**643.6**	**455.1**	**344.2**	**369.9**	**345.8**	**5,568.5**
Strategic Other Investments													
Mining Equipment		26.0	16.5	4.4	9.9	7.5							38.3
New Buildings/Refurbishments	3.0	1.2	12.8	23.5	25.0	48.9	76.0	151.6	80.0				417.8
Information Technology & Security		26.9	30.5	29.4	33.7	31.7	27.0	26.8	26.1	25.8	25.4	27.8	284.2
Other	0.9												0.0
Total Strategic & Other Investments	**3.9**	**54.1**	**59.8**	**57.3**	**68.6**	**88.1**	**103.0**	**178.4**	**106.1**	**25.8**	**25.4**	**27.8**	**740.3**
Total Capital Budget	**990.3**	**965.2**	**1,336.2**	**1,309.7**	**1,253.5**	**1,028.2**	**1,065.8**	**1,298.4**	**1,038.4**	**846.8**	**874.0**	**851.5**	**10,902.5**

[159] SaskPower 10 year capital plan 2017/18 – 2026/27.

9.2 CONSULTANT OBSERVATIONS

The Minister's terms of reference instruct the Panel to consider the budgeted capital allocation as given. The Consultant notes that capital spending ultimately results in increases to revenue requirement through depreciation expense, finance expense, capital taxes and ROE. SaskPower notes that for every $100 million capital spending, SaskPower requires an additional $7 million depreciation and interest expense.[160] On that basis the Consultant believes it is important for the Panel and SaskPower's stakeholders to understand SaskPower's capital plan, as it will influence the future direction of rates for the utility's customers.

SaskPower's capital program reflects the need to replace and refurbish existing utility infrastructure as well as plan for future load growth. The Consultant notes that SaskPower's average annual capital spending is anticipated to be approximately $1.1 billion for the period from 2017/18 through 2026/27. This would add approximately $77 million in interest expense and depreciation expense each year. This would require average annual rate increases of approximately 3% per year simply to keep up with added interest and depreciation expense related to the implementing the ten year capital plan.

Approximately 42% of SaskPower's ten year capital plan relates to capital sustainment spending to replace or refurbish existing infrastructure. The need for infrastructure renewal is a common issue for electric utilities in Canada. A 2011 Conference Board of Canada report noted that of approximately $17.5 billion in capital investment in the electric utility industry in 2010, roughly two-thirds was required to repair or replace retired capital assets.[161]

Approximately 51% of SaskPower's ten year capital plan relates to growth and compliance spending. This includes new transmission and distribution customer connections as well as major generation projects. While there is a risk that the forecast future loads and customer additions will not materialize, the Consultant understands that new generation is costly and often requires a number of years of planning and licensing to bring on-line. On-going reviews of SaskPower's load forecast and resource plans will help assess and revisit the need for additional generation resources.

The Consultant notes that SaskPower has shown a good ability to maintain annual capital spending within budget limits. For the actual period from 2013 through 2015, SaskPower's capital spending was over budget in 2013 and 2014, largely as a result of the carbon capture and storage projects. For 2015, SaskPower's annual capital spending was somewhat under budget.[162]

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[160] SRRP R2Q3.
[161] Page 10. Canada's Electricity Infrastructure. The Conference Board of Canada. April 2011. Available: http://www.electricity.ca/media/ReportsPublications/11-257_ElectricityInfrastructure[1].pdf. Accessed: September 17, 2016.
[162] SRRP Q93. 2013 capital spending was over budget by $169 million with the carbon capture project accounting for $160 million of the over spending. In 2014 capital spending was over budget by $79 million with the carbon capture and storage project accounting for $41 million of the over spending.

10.0 COST OF SERVICE STUDY

A Cost of Service study is an analytical tool used by utilities and regulators to determine a fair allocation of the utility's costs to its customer classes. Some of the uses of a Cost of Service that are relevant for SaskPower include:

- To attribute a utility's costs to different categories of customers based on how those customers cause costs to be incurred.
- To determine how costs will be recovered from customers within each customer class.
- To calculate costs of individual types of services based on the costs each service requires the utility to expend.[163]

The Cost of Service Study is used to aid in the design of rates that recover an appropriate level of costs based on the costs to serve each customer class. SaskPower's Cost of Service study is calculated on a prospective basis and uses test year forecast information. Inputs to the Cost of Service Study include SaskPower's revenue requirement (operating expenses, fuel expense, depreciation expense, finance costs and a return on equity) for the test year and the load forecast including forecast energy sales, peak demand and customer forecasts.

In the Cost of Service Study, costs that are incurred to serve only one customer class are directly assigned to that class. Costs that are incurred jointly by several customer classes or that are common to all customer classes are allocated to the classes based on cost causation principles. While there are many potential allocation methods, the core objective is to allocate costs to the customer classes based on customer characteristics such as energy consumption and peak demand. There is no single industry-accepted allocation method as each utility's operating circumstances and cost drivers are different. The utility's operating circumstances also change over time, so that methods that may once have been appropriate should be revisited in light of new circumstances.

SaskPower's 2017F Test Cost of Service study analyses the annual cost to serve each of SaskPower's customer classes. SaskPower provides information based on revenues at rates effective July 1, 2016 and at revenues based on proposed rates effective January 1, 2017. The revenue to revenue requirement ratios are similar for the two scenarios. This section focuses primarily on discussing the results for rates in place effective July 1, 2016.

10.1 OVERVIEW OF LAST COST OF SERVICE REVIEW

SaskPower's Cost of Service (COS) model is reviewed approximately every five years by an external consultant.[164] SaskPower last reviewed the cost of service study in 2012/13. SaskPower hired a technical consultant to review SaskPower's COS methodology and survey other Canadian utility COS methods. Following the preparation of a draft report in 2012, SaskPower conducted a stakeholder meeting in Regina attended by the Panel and representatives from the industrial, commercial, and oilfield sectors

[163] The National Association of Regulatory Utility Commissioners (NARUC), Electric Utility Cost Allocation Manual, January, 1992, pages 12 – 13.
[164] SIECA Q3.

and the general public. Stakeholders were invited to submit written questions, which were responded to by the technical consultant. The consultant's final report included responses to stakeholder questions and submissions. SaskPower filed its response to the report and proposed actions resulting from it in February 2013.

SaskPower proposed the following actions based on the technical consultant's final report:

i. Incorporate SaskPower's load research results into its COS methodology before the next rate application (completed).

ii. Use the customer classes' contribution to SaskPower's most likely winter peak as opposed to potential (i.e. worst case – very cold weather in December) peak when SaskPower switches from Alberta to Saskatchewan based load research (completed).

iii. Change the demand allocator used to allocate generation, transmission and most of the distribution demand-related costs from the contribution to SaskPower's winter peak to a combination of SaskPower's winter and summer peaks (completed).

iv. Continue with rate simplification (ongoing).

v. Classify distribution lines and transformers to demand and customer using the minimum system method (ongoing).[165]

Based on the results of the 2012/13 review, SaskPower changed its method for allocating demand classified costs from one coincident peak (in the winter known as 1CP) to the winter and summer coincident peak (2CP) method. The 2CP peaks are calculated based on the average of SaskPower's top three winter and summer hourly peaks each year.[166]

SaskPower has not made any other COS methodology changes since the 2013 review process.[167] SaskPower plans to initiate its next COS review in April 2017, with an expected completion date by the end of March 2018.[168]

10.2 REVIEW OF COST OF SERVICE METHODS

SaskPower has six stated key objectives for its COSS and resulting rate design including:

1. Meeting Revenue Requirement;
2. Fairness and Equity;
3. Economic Efficiency;
4. Conservation of Resources;
5. Simplicity and Administrative Ease; and
6. Stability and Gradualism.

[165] SRRP R2Q23.
[166] SRRP R2Q24.
[167] SRRP Q117.
[168] SRRP Q118.

SaskPower's COS methodology follows the generally accepted COS steps including Functionalization, Classification and Allocation of SaskPower's revenue requirement to each customer class. SaskPower sub-functionalizes transmission, distribution and customer service costs where different allocation methods are employed for different assets within functions. This breakdown is shown in Table 10-1.

Table 10-1: 2017 Fiscal Test Year Embedded Cost of Service Revenue Requirement[169]

Functionalization	Classification	Subfunctionalization	Allocation Methodology
Generation ($1,620.2M)	Demand ($648.7M)	Facilities ($648.7M)	Coincident Peak Method (2CP)
	Energy ($971.5M)	Facilities & Fuel Expense ($971.5M)	Actual Energy Cost Plus Losses
Transmission ($232M)	Demand ($232M)	Main Grid ($124M)	2CP - at output of transmission
		138kV Radials ($54.4M)	2CP - at output of 138kV Radials
		138/72kV Substations ($14.6M)	2CP - at output of Substations
		72kV Radials ($39M)	2CP - at output of 72kV Radials
Distribution ($407.1M)	Demand ($294.6M)	Area Substations ($38.5M)	2CP - at output of Substations
		Distribution Mains ($124.7M)	2CP - at output of Distribution Mains
		Urban Laterals ($30.3M)	2CP - at output of Urban Laterals
		Rural Laterals ($59.3M)	2CP - At output of Rural Laterals
		Transformers ($41.8M)	Non-Coincident Peak (NCP) - At output of Rural Laterals
	Customer ($112.5M)	Urban Laterals ($16.3M)	# of Urban Customers Supplied through Laterals
		Rural Laterals ($31.9M)	# of Rural Customers Supplied through Laterals
		Transformers ($19.1M)	# of Rural Customers Supplied through Laterals
		Services ($51.9M)	# of Customers Supplied through Laterals
		Meters ($10.6M)	# of Metered Customers Weighted by Installed cost of a Meter
		Streetlights ($8.7M)	Direct to Streetlight Class
		Customer Contributions (-$26M)	Direct to classes which made contributions
Customer Services ($67.6M)	Customer	Customer Service ($67.6M)	Weighted # of Customers
Interruptible Adjustment	Demand	Interruptible Adjustment	Coincident Peak Method (2CP)

SaskPower's COS is calculated on a prospective basis and first identifies accounting costs to be allocated to customers in the COSS; this includes annual Revenue Requirement costs and Return on Rate Base. For the 2017 Fiscal Test Year (starting July 1, 2016 including the proposed 5% rate increase); the total company Revenue Requirement in the COSS is $2,326.9 million.[170]

Functionalization

SaskPower groups all accounting costs of a similar nature, in terms of plant and expenses into four main functions of SaskPower's integrated electric system:

1. **Generation** – the costs associated with power production, including generating facility costs, load, losses, reserves, fuel expense, DSM costs[171], purchased power and export/net electricity trading revenue. For the 2017 Fiscal Test Year COSS (including the projected rate increase of 5%

[169] From 2017 Cost of Service Supporting Schedules for January 1, 2016 – 5%, Schedules 3.0, 6.0, 6.1, 6.2 and 6.3 (pages 69, 75 – 78).
[170] Cost of Service Study, Table 1 – Summary of Functionalized Revenue Requirement (July 1, 2016), page 7; SRRP Q124 Allocated Revenue Requirement Year 2017F with July 1 Adjusted Rates.
[171] SRRP Q123.

for July 1, 2016) the Generation function is $1,620.2 million in costs, or approximately 70% of total costs.

2. **Transmission** – the costs of assets used to move power from generating facilities to load centers including the main transmission grid (power lines 72kV and greater) and the supporting radials and substations. For the 2017 Fiscal Test Year COSS (including the projected rate increase of 5% for July 1, 2016) the Generation function is $232 million in costs, or approximately 10% of total costs.
3. **Distribution** – the costs associated with connecting customers to the transmission system including area substations, distribution mains, laterals, transformers, meters and street lights. Customer Contributions are deducted in this function directly to the classes that make the contributions. Streetlight costs are also included in this function directly assigned to the streetlight class. For the 2017 Fiscal Test Year COSS (including the projected rate increase of 5% for July 1, 2016) the Distribution function is $407.1 million in costs, or approximately 17% of total costs.
4. **Customer Service** – the costs and facilities associated with providing service to customers including meter reading and services, billing and general customer service and collections, and marketing. For the 2017 Fiscal Test Year COSS (including the projected rate increase of 5% for July 1, 2016) the Customer Service function is $67.6 million in costs, or approximately 3% of total costs.

Classification

The next step is to separate functionalized costs based on the cost drivers of the utility service being provided. SaskPower has three different classification categories:

1. Energy-Related – Costs that vary with the energy or kilowatt-hours provided by the utility. A portion of generation function costs are classified as energy-related. Fuel expenses are classified as 100% energy-related. Generation facilities (including IPP assets)[172] are classified between energy and demand using the equivalent peaker method.
2. Demand-Related – Costs that vary with the kilowatt demand imposed on the system. Transmission functionalized costs are classified as 100% demand related. The remaining portion of generation costs not classified as energy-related are classified to demand using the equivalent peaker method. For Distribution functionalized assets, area substations and distribution mains are classified as 100% demand-related, urban and rural laterals are classified as 65% demand-related and line transformer are classified as 70% demand-related.
3. Customer-Related – Costs related to the number of customers served. Customer Service costs are classified 100% as customer-related costs. For Distribution functionalized costs, 100% of distribution services, customer contributions, meters and streetlights are customer-related. The remainder urban and rural laterals (35%) and line transformers (30%) are considered customer-related.

[172] CAPP Q20(j).

Total Classified Costs by Customer Class are shown in Table 10-2.

Table 10-2: F2017 Cost of Service Costs by Function and Classification[173]

	Generation		Trans.	Distribution		Customer	Total	Total	Total	Total
($ Millions)	Energy	Demand	Demand	Demand	Customer	Customer	Energy	Demand	Customer	Costs
Urban Residential	126.9	108.8	39.8	80.5	33.3	34.5	126.9	229.1	67.8	**423.8**
Rural Residential	32.4	31.4	11.5	29.3	16.2	5.9	32.4	72.2	22.1	**126.7**
Farms	58.4	45.7	16.8	40.9	12.3	6.5	58.4	103.4	18.8	**180.6**
Urban Commercial	133.5	86.2	31.5	56.1	17.3	6.6	133.5	173.8	23.9	**331.2**
Rural Commercial	44.6	32.1	11.7	25.7	9.0	1.9	44.6	69.5	10.9	**125.0**
Power Published Rates	272.6	157.9	57.8	3.8	0.5	4.5	272.6	219.5	5.0	**497.1**
Power Contract Rates	98.1	61.9	22.7	-	-	0.7	98.1	84.6	0.7	**183.4**
Oilfields	150.4	83.0	30.3	57.0	13.3	6.4	150.4	170.3	19.7	**340.4**
Streetlights	2.7	1.3	0.6	1.1	10.7	0.3	2.7	3.0	11.0	**16.7**
Reseller	51.7	40.3	9.4	0.1	-	0.2	51.7	49.8	0.2	**101.7**
Total	**971.3**	**648.6**	**232.1**	**294.5**	**112.6**	**67.5**	**971.3**	**1,175.2**	**180.1**	**2,326.6**

The equivalent peaker method is used to classify generation facility costs between energy and demand. The approach uses the ratio of the unit cost of new peaking capacity to the new cost of base load capacity for different generation types to classify costs between demand and energy. The method is described in the National Association of Regulatory Utility Commissioners (NARUC) Electric Utility Cost Allocation Manual.

Table 10-3 shows the calculation of the equivalent peaker classification ratios. The equivalent peaker method calculation results in 42.5% of generation facilities being classified as demand-related and 57.5% being classified as energy-related. Data for this calculation is based on a mixture of embedded costs indexed to inflation, designated inputs directly from SaskPower's Supply Planning department, and estimated new costs of construction for each type of generation. The Supply Planning group provided input for wind power (which has approximately 20% capacity to the system) and diesel, which has a high fuel cost and therefore is classified 100% to demand. All other types of generation are classified based on the estimated costs of new construction to that of a simple cycle gas (peaking) plant.[174]

[173] 2017 Fiscal Test Embedded Cost of Service Results Schedules 6.0 to 6.3.
[174] SRRP R2Q26.

Table 10-3: Equivalent Peaker Classification Method Weighted-Average Calculation for 2017 Fiscal Test Year (2014 Base)[175]

	Average Demand Related	Average Energy Related	Total Average Related
Single Cycle Gas Plants	100.0%	0.0%	100.00%
Convention Coal	51.9%	48.1%	100.00%
Clean Coal	19.2%	80.8%	100.00%
Combined Cycle Gas	81.5%	18.5%	100.00%
Hydro	18.6%	81.4%	100.00%
Wind	20.0%	80.0%	100.00%
Diesel	100.0%	0.0%	100.00%
Total All Units %	**42.5%**	**57.5%**	**100.00%**
Total All Units $	**3,500,082,901.0**	**4,739,336,708.0**	**8,239,419,609**

The previous COS application had a demand/energy split of 52.6%/47.4% based on 2011 data. This ratio has changed from the previous application with the updated 2014 base data from 1) the inclusion of the Boundary Dam carbon capture unit and 2) the hydro demand/energy ratio shifting due to updated cost figures in 2014.[176]

With respect to the ongoing external consultant recommendation to classify distribution lines and transformers to demand and customer using the minimum system method, SaskPower states this action as ongoing.[177] The Minimum System method calculates the proportion of distribution asset costs that are customer related by taking the ratio of the costs of the smallest distribution assets, e.g. shortest poles, to the costs of all similar assets, e.g. all poles. This process is used to determine the customer components for transformers and line conductors.[178] When implemented, this change will likely re-distribute the costs of area substations, distribution mains, laterals and transformers between demand-related distribution and customer-related distribution.

Allocation

After costs are functionalized and classified, the next step is to allocate to the customer classes based on appropriate parameters that reflect cost causality. SaskPower has the following cost allocation methodologies:

- Energy Consumed - Energy classified costs are allocated to each customer class based on kWh or energy consumed by each class plus an estimate for losses.
- Two Coincident Peak (2CP) - All Generation and Transmission demand classified costs, most of Distribution demand classified costs and the Interruptible cost and credit are allocated to each customer class based on the 2CP summer and winter peaks with an estimate for losses. The 2CP method allocates costs based on the contribution each customer class makes to the average of

[175] SRRP Q121.
[176] CAPP Q20.
[177] SRRP R2Q23.
[178] SRRP R2Q23, Elenchus Consultant report, January 25, 2013.

SaskPower's top three winter and top three summer hourly peaks using five years of historical data from 2010 to 2014 (i.e. average of the top three hours of power consumption in the winter months November to February and the average of the top three hours for the summer months June to September).[179] The underlying data collection used for the 2CP method is taken at different output locations based on the asset costs being allocated. For example, transmission main grid assets use 2CP measured at the output of transmission, while 72kV Radial costs use 2CP measured at the output of the 72kV radials. The 2CP method replaced the previous 1CP method (using the highest one hour of demand in the winter period plus an estimate of losses[180]) after the 2013 external consultant review.

- Non-Coincident Peak (NCP) - Distribution functionalized, demand classified costs for transformer costs are allocated to customers based on NCP. The NCP method is based on the ratio of the sum of the maximum demands of all customers within a class whenever they occur, to the sum of all the class peaks, similarly determined. NCP demand for each class is the aggregate of the class' individual customer's maximum annual demand regardless of the month in which it occurred.
- Customer Numbers - Classified costs are allocated based on customer class numbers serviced by the sub-function. For example, Customer classified rural laterals are allocated based on the number of rural customers supplied through laterals and meter costs are allocated by the number of metered customers weighted by the installed cost of a meter. Customer classified streetlight costs are directly assigned to the streetlight customer class. Customer contributions are allocated back directly to customer classes which made the contribution. Specifically for customer service costs, number of customers is weighted based on the responsible department's estimate of labour time spent on each customer class.

The CP and NCP allocators are calculated using the average of five years of load data results from SaskPower's MV-90 (for Power and Reseller classes), sample EIS interval meters (for Residential, Commercial, Oilfield and Farm classes) and ATCO electric's Streetlight load profile. These results are applied to each customer class' forecast energy to determine maximum and coincident peak loads. Prior to the installation of a representative sample of interval meters in 2006, SaskPower used load profiles from a neighbouring utility to derive load factors for mass market customers.[181]

Since SaskPower uses the same methodology but uses different underlying data for a number of assets, there are many different allocators used, as summarized in Table 10-3. Table 10-4 provides an estimate of the average allocation percentage for each class at the classification level.

[179] SRRP R2Q24.
[180] SRRP R2Q23, Review of Cost Allocation and Rate Design Methodologies Report by Elenchus, January 25, 2013, page 59.
[181] SIECA Q2 Supplementary 2.

Table 10-4: SaskPower F2017 Cost of Service Total Allocated Costs[182]

		Generation				Transmission		Distribution								Customer Service	
($ Millions)	Total Costs	Energy ($ Millions)	Avg. Energy Allocation	Demand ($ Millions)	Avg. CP Allocation	Demand ($ Millions)	Avg. CP Allocation	Demand - CP ($ Millions)	Avg. CP Allocation	Demand - NCP ($ Millions)	NCP Allocation %	Customer ($ Millions)	Avg. Customer % Allocation	Customer Contribution ($ Millions)	Customer Contribution % Allocation	Customer Service	Avg. Customer % Allocation
Urban Residential	423.8	126.9	13.1%	108.8	16.8%	39.8	17.1%	62.6	24.8%	17.9	42.8%	38.4	27.7%	-5.1	19.6%	34.5	51.1%
Rural Residential	126.7	32.4	3.3%	31.4	4.8%	11.5	5.0%	24.1	9.5%	5.2	12.4%	20.2	14.6%	-4	15.4%	5.9	8.7%
Farms	180.6	58.4	6.0%	45.7	7.0%	16.8	7.2%	34.8	13.8%	6.1	14.6%	16.4	11.8%	-4.1	15.8%	6.5	9.6%
Urban Commercial	331.2	133.5	13.7%	86.2	13.3%	31.5	13.6%	49.5	19.6%	6.6	15.8%	20.6	14.9%	-3.3	12.7%	6.6	9.8%
Rural Commercial	125	44.6	4.6%	32.1	4.9%	11.7	5.0%	23.3	9.2%	2.4	5.7%	12.4	8.9%	-3.4	13.1%	1.9	2.8%
Power Published Rates	497.1	272.6	28.1%	157.9	24.3%	57.8	24.9%	3.8	1.5%	0	0.0%	0.5	0.4%		0.0%	4.5	6.7%
Power Contract Rates	183.4	98.1	10.1%	61.9	9.5%	22.7	9.8%	0	0.0%	0	0.0%	0	0.0%		0.0%	0.7	1.0%
Oilfields	340.4	150.4	15.5%	83	12.8%	30.3	13.1%	53.5	21.2%	3.5	8.4%	19.4	14.0%	-6.1	23.5%	6.4	9.5%
Streetlights	16.7	2.7	0.3%	1.3	0.2%	0.6	0.3%	1	0.4%	0.1	0.2%	10.7	7.7%		0.0%	0.3	0.4%
Reseller	101.7	51.7	5.3%	40.3	6.2%	9.4	4.0%	0.1	0.0%	0	0.0%	0	0.0%		0.0%	0.2	0.3%
Total	**2,326.6**	**971.3**	**100.0%**	**648.6**	**100.0%**	**232.1**	**100.0%**	**252.7**	**100.0%**	**41.8**	**100.0%**	**138.6**	**100.0%**	**-26**	**100.0%**	**67.5**	**100.0%**

Table 10-4 indicates that the Demand-CP allocator is used to allocate approximately $1.1 billion of the total $2.3 billion costs. The allocation percentages for each rate class varies depending on where the output measurement is taken (generation, transmission and distribution) in SaskPower's system and which classes are included in the assignment of costs. As an example, the distribution CP allocation is more heavily weighted to residential, farms, commercial and oilfield classes than generation or transmission CP allocators since the majority of the Power class is not assigned distribution related costs. The energy allocator is used for $971 million of total costs, while the NCP and Customer focused allocators are used for $42 million and $180 million respectively.

SaskPower uses the results of the COSS to compare customer class level costs to forecast class revenues, using the Revenue to Revenue Requirement (R/RR) ratio. The Minister's terms of reference specify that the Panel should accept a revenue to revenue requirement ratio target range of 0.95 to 1.05.

Table 10-5: Revenue to Revenue Requirement Ratios for Rates July 1, 2016 and January 1, 2017

	For Rates July 1, 2016 (5.0%)			For Rates January 1, 2017 (5.0% & 5.0%)		
($Millions)	Annual Revenue ($)	Revenue Requirement ($)	R/RR Ratio	Annual Revenue ($)	Revenue Requirement ($)	R/RR Ratio
Urban Residential	421.8	423.7	1.00	443.3	444.7	1.00
Rural Residential	118.6	126.6	0.94	124.6	133.6	0.93
Farms	176.6	180.8	0.98	185.6	190.1	0.98
Urban Commercial	340.1	331.3	1.03	357.4	348.2	1.03
Rural Commercial	128.3	124.9	1.03	134.8	131.8	1.02
Power - Published Rates	500.2	497.0	1.01	525.7	520.2	1.01
Power - Contract Rates	182.3	183.5	0.99	189.4	192.1	0.99
Oilfields	343.1	340.5	1.01	360.6	358.2	1.01
Streetlights	16.5	16.9	0.98	17.3	18.0	0.96
Reseller	99.3	101.7	0.98	104.4	106.3	0.98
Total	**2,326.8**	**2,326.9**	**1.00**	**2,443.1**	**2,443.2**	**1.00**

10.3 CONSULTANT OBSERVATIONS

The results of SaskPower's COSS for the test years July 1, 2016 and January 1, 2017 show Revenue to Revenue Requirement for all but the rural residential class within the target range of 0.95 and 1.05.

[182] 2017 Fiscal Test Embedded Cost of Service Results Schedules 6.0 to 6.3.

SaskPower notes that it is planning to consolidate the urban residential and rural residential classes in the future. The Consultant accepts this explanation as reasonable.

The Consultant's observations are based on the material provided by SaskPower, including information request responses to the Panel and other stakeholders. The Consultant focused on testing the reasonableness of SaskPower's information, but did not independently confirm all of SaskPower's calculations.

Generation Classification Method

In the Consultant's view, SaskPower's use of the equivalent peaker method to classify generation costs between demand and energy is an acceptable method for a predominantly thermal generation utility, and is one of the main approaches described in the NARUC Cost Allocation Manual:

> Equivalent peaker methods are based on generation expansion planning practices, which consider peak demand loads and energy loads separately in determining the need for additional generating capacity and the most cost-effective type of capacity to be added. They generally result in significant percentages (40 to 75 percent) of total production plant costs being classified as energy-related, with the results that energy unit costs are relatively high and the revenue responsibility of high load factor classes and customers is significantly greater than indicated by pure peak demand responsibility methods.[183]

SaskPower's system operation framework is based on an hourly dispatch approach based on capacity demand requirements. SaskPower's resource planning methods are based on the need for additional generating capacity for load and reliability requirements. In the Consultant's view it is appropriate to identify the energy-related generation costs associated with each type of generation resource (coal, natural gas, wind, hydro, etc.) for classification purposes as generation provides both energy and capacity/demand uses. It is noted that as generation expansion takes place it is likely that the classification proportions produced by the equivalent peaker method will vary, which could introduce variations in cost allocation and rates over time.

A recent survey done for BC Hydro of COS methods by jurisdiction concluded that there is not a single predominant method used to classify generation costs. However, the majority of utilities reviewed in BC Hydro's study used similar approaches to classify costs for hydro, non-peaking thermal, thermal and purchased power. Some utilities used different classification methods within the same study based on the type of generation (especially for peaking thermal generation vs. hydro and non-peaking thermal). Utilities with predominantly peaking thermal generation costs generally classified a higher percentage of costs as demand-related over energy-related. Generation costs for peaking thermal generation ranged from 19% to 85% classified demand-related. For Hydro and non-peaking thermal generation plant in service costs, the range of observed utilities was lower, at 19% to 46% classified as demand-related.[184]

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[183] The National Association of Regulatory Utility Commissioners (NARUC), Electric Utility Cost Allocation Manual, January, 1992, page 52.

[184] BC Hydro 2015 Rate Design Application, Leidos, Inc. Cost of Service Review, Appendix C-2A, pages 3-8 to 3-10. Available online: https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-matters/2015-rda-appendices.pdf.

The results of SaskPower's the equivalent peaker method, of 42.5% demand-related and 57.5% energy-related falls in the middle of the range for demand classification of generation costs for thermal peaking utilities, and towards the higher end of the range for non-peaking thermal generation utilities. As SaskPower's coal, natural gas and purchased power natural gas currently make up 75%[185] of 2015 generation resources SaskPower's results are in line with industry average for generation classification as a predominantly thermal peaking utility. However, given the importance of the equivalent peaker calculations to the allocation of costs in SaskPower's COS study, in the Consultant's view it is prudent to revisit the calculations as part of a COS methods review.

Demand-Related Allocation Method

The major method change resulting from the 2013 external consultant review was changing the allocation of demand-related costs from one Coincident Peak (1CP) to two Coincident Peak (2CP). The Consultant's review for this rate application focused on the reasonableness of existing methods, not on a full analysis to recommend specific change considerations on approach.

The Consultant notes there are several important aspects to SaskPower's calculation of the CP-demand allocator:

1. Selecting the 1CP, 2CP or some other number of coincident peaks. Previously SaskPower used only the winter peak period (1CP), now SaskPower is using the winter and summer peaks (2CP);
2. The use of actual historical load data to calculate estimated peaks for each class in the test period. SaskPower changed the historical data used from 10 years to 5 years (MV-90 meter data for Industrial and Reseller customers) to calculate forecast average load factors; and
3. The use of a tri-average (top three winter and summer peaks) over the use of only the maximum peak per year for Energy Information System (EIS) meter customers (Residential, Farm, Oilfield and Commercial) to calculate annual 2CP demand, which matches the methodology used for MV-90 customers.

With respect to the change from 1CP to 2CP, while the winter period has the highest maximum peak, it also has higher system capacity. The 2013 Elenchus review noted that the summer period has restricted capacity by upwards of 25% due to higher summer temperatures.[186] The NARUC manual describes the 'Summer and Winter Peak Method' (i.e. SaskPower's 2CP method) as appropriate if the summer and winter peaks are close in value, and if both significantly affect the utility's generation expansion planning.[187] The Consultant notes that recently SaskPower's summer peaks have been growing at a faster rate than the winter peak. Based on these factors, the Consultant considers that SaskPower's use of the 2CP method seems reasonable.

With respect to the change from ten years of actual historical data to five years of actual historical data, conceptually more data helps to ensure cost allocation is not unduly influenced by an irregularity such as an extreme weather event. However, there is a risk that using historical data to allocate prospective costs

[185] SaskPower 2016-2030 Supply Plan, page 8.
[186] SRRP R2Q23, Review of Cost Allocation and Rate Design Methodologies Report by Elenchus, January 25, 2013, page 40.
[187] The National Association of Regulatory Utility Commissioners (NARUC), Electric Utility Cost Allocation Manual, January, 1992, page 45.

will not appropriately reflect cost causation, particularly if there have been substantial changes to customer class load characteristics. For example, economic conditions influence changes to some customers classes (such as power, farm, oilfield) more than others (such as residential or streetlighting customers). Retaining historical data that no longer reflects the current system may result in an allocator that does not accurately reflect how system costs are likely to be incurred in the test period. In general, using multiple years of historical data can help protect against anomalistic results, but in the Consultant's view the continued relevance of the historic years used in the COS study should be reviewed.

With respect to the change from using one individual hour to three averaged hours to calculate the CP allocator, using only one data point also runs the risk of an anomalous event influencing the allocator. The NARUC notes that the use of multiple-hours reduces the possibility of atypical conditions influencing the load data used in the cost allocation[188] and states:

> The number of summer and winter peak hours may be determined judgmentally or by applying specified criteria. One method is simply to average the class contributions to the summer peak hour demand and the winter peak hour demand. Another method is to choose those summer and winter hours where the peak demand or reliability index passes a specified threshold value. Clearly the selection of the hours is critical and the establishment of selection criteria is particularly important. These cost of service judgements must be made jointly with system planners and supported with good data.[189]

Table 10-6 shows the effects of the change from the 1-CP method to the 2-CP method on the costs allocated to each customer class. The Consultant notes that the differences arise in part because some customer classes have different seasonalities to their load profiles. Commercial and Power customers are assigned more costs under the 2-CP method while Residential, Farm and Oilfield customers are assigned lower costs. The Consultant notes that SaskPower's COS study allocates substantial costs on the basis of the CP-allocator and that the change from 1-CP to 2-CP was material to the results of the COS study.

[188] The National Association of Regulatory Utility Commissioners (NARUC), Electric Utility Cost Allocation Manual, January, 1992, page 39.
[189] The National Association of Regulatory Utility Commissioners (NARUC), Electric Utility Cost Allocation Manual, January, 1992, page 45.

Table 10-6: Comparison of 1CP vs. 2CP Results by Customer Class[190]

Class of Service ($ Millions)	1 CP Methodology Allocated Revenue Requirement ($)	Percentage Cost Allocation	1CP Methodology RCC Ratio	2 CP Methodology Allocated Revenue Requirement ($)	Percentage Cost Allocation	2CP Methodology RCC Ratio	Dollar Change ($)
Urban Residential	428	18.4%	0.99	424	18.2%	1.00	*-5*
Rural Residential	127	5.4%	0.94	127	5.4%	0.94	*0*
Farms	200	8.6%	0.88	181	7.8%	0.98	*-19*
Urban Commercial	317	13.6%	1.07	331	14.2%	1.03	*14*
Rural Commercial	118	5.1%	1.08	125	5.4%	1.03	*7*
Power - Published Rates	491	21.1%	1.02	497	21.4%	1.01	*6*
Power - Contract Rates	175	7.5%	1.04	183	7.9%	0.99	*8*
Oilfields	351	15.1%	0.98	341	14.6%	1.01	*-11*
Streetlights	20	0.9%	0.82	17	0.7%	0.97	*-3*
Reseller	98	4.2%	1.01	102	4.4%	0.98	*3*
Total	**2,327**	**100.0%**	**1.00**	**2,327**	**100.0%**	**1.00**	***0***

The external consultant retained for the 2013 COS review noted that of the North American utilities surveyed with demand-related generation, five out of seven utilities use more than one coincident peak as allocators (three, four or twelve coincident peak values are used). For demand-related transmission, seven out of eleven utilities use more than one coincident peak as an allocator (two, three, four or twelve peaks used).[191] For example, Manitoba Hydro, a winter peaking system included in the utility survey, uses a 2CP method for transmission (it does not classify any demand-related generation) but uses the average of the top 50 hours during the on-peak period for each Coincident Peak with the highest system kW demand.[192] BC Hydro, another winter peaking utility included in the survey, uses the 4CP method for demand-related generation and transmission for the top peak demand in each of the November to February winter months.[193] The Consultant also notes that other jurisdictions have addressed how to recognize the influence of demand-response programs on the calculation of peaks for cost allocation purposes.

10.4 CONSULTANT RECOMMENDATIONS

The Consultant recommends that the Panel encourage SaskPower to provide stakeholders the opportunity to meaningfully participate in the next COSS review. In the Consultant's view this would include participation in an issue identification process at the beginning of the review, the ability to review and ask questions about preliminary results prior to a report being drafted, and the opportunity to review and comment on a draft report before it is finalized.

The Consultant recommends that the Panel request that as part of this review SaskPower provide sufficient information to interested parties to allow them to understand and test the reasonableness of SaskPower's COS methods. The Consultant understands that data may need to be aggregated so as to protect confidential information. The Consultant recommends that the scope of the next external COS study review include:

[190] SRRP Q120.
[191] SRRP R2Q23, Review of Cost Allocation and Rate Design Methodologies Report by Elenchus, January 25, 2013, page 39 – 40.
[192] PUB/MH-I-54a-b from the 2015 Manitoba Hydro Cost of Service Review, April 21, 2016, Available online: https://www.hydro.mb.ca/regulatory_affairs/pdf/electric/cost_of_service_study_submission/information_requests/pub_round1_irs.pdf.
[193] BCUC Decision in the 2007 BC Hydro Rate Design Application – Phase 1, October 26, 2007, pages 81 – 82, Available online: http://www.bcuc.com/Documents/Proceedings/2007/DOC_17004_10-26_BCHydro-Rate-Design-Phase-1-Decision.pdf.

- Reviewing whether the 2CP allocation method continues to be reasonable for demand-related costs functionalized as generation, transmission and distribution and the data inputs used to determine overall customer class demand allocation.
- Review the calculations associated with the equivalent peaker method.
- Reviewing the calculation of class coincident peaks and non-coincident peaks including the appropriate number of historic years of data and number of peaks to include. As described in the NARUC Manual, the number of system peaks used should ultimately be based on the utility's annual load shape and on system planning considerations.[194]
    - Helpful for this analysis is hourly peak data graphed by year, for the years included in the historic range (i.e. the last five years) to view trends and consider the appropriate number of data points to use in CP method.
- Consider the implications of any class consolidation that SaskPower may consider reasonable to propose.
- Review the calculation of the minimum system method used to classify distribution lines and transformers.
- Documentation and explanation on how the demand response program affects participating customer class historical peak demand used as input data for cost allocation and any resulting adjustments in the COS study.

[194] The National Association of Regulatory Utility Commissioners (NARUC), Electric Utility Cost Allocation Manual, January, 1992, page 41.

11.0 RATE DESIGN

Rate design is the process that determines the rates to be charged to each customer class. Cost causation, as measured by a cost of service study, is an important input into the rate design process. However, rate design may also consider other criteria such as revenue stability, economic efficiency and administrative simplicity. The Bonbright Criteria are often cited as providing guidance for rate design:

1. The related, "practical" attributes of simplicity, understandability, public acceptability, and feasibility of application.
2. Freedom from controversies as to proper interpretation.
3. Effectiveness in yielding total revenue requirements under the fair-return standard.
4. Revenue stability from year to year.
5. Stability of the rates themselves, with a minimum of unexpected changes seriously adverse to existing customers.
6. Fairness of the specific rates in the apportionment of total costs of service among the different consumers.
7. Avoidance of "undue discrimination" in rate relationships.
8. Efficiency of the rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use:
    a. In the control of the total amounts of service supplied by the company; and
    b. In the control of the relative uses of alternative types of service.[195]

Of these, Bonbright identifies three as "primary" criteria both because of their widespread acceptance and because most of the more detailed criteria are ancillary to these:

1. That rates return the revenue requirement, or the financial need objective.
2. The fair cost apportionment objective.
3. The optimum-use objective under which rates are designed to discourage wasteful use of services while promoting use that is economically justified.[196]

SaskPower is proposing to implement its revenue requirement increase largely by equal percentage increases to all components of the rate structure. There are a few exceptions for a limited number of customers noted by SaskPower:

- Contract customer rate increases are calculated using the escalation factors contained in each electrical service agreement (ESA). The nature and type of these escalation factors varies by

[195] Principles of Public Utilities Rates. James C. Bonbright Criteria of a S. Columbia University Press. 1961, page 291.
[196] Principles of Public Utilities Rates. James C. Bonbright Criteria of a S. Columbia University Press. 1961, page 292.

contract and can be dependent on factors beyond SaskPower's control.[197] There are two customers in the power contract class.[198]

- For time of use rates for the Power and Oilfield classes, the rate increase is established by adding a flat amount of 0.5728 cents to the standard energy rate to determine the on-peak energy charge and subtracting 1 cent from the new on-peak energy rate to determine the off-peak energy charge.[199]

Table 11-1 summarizes the revenue to revenue requirement ratios following the two rate increases requested in the application. SaskPower notes that the only class outside of the 0.95 to 1.05 range defined in the Minister's terms of reference is the rural residential class. SaskPower notes that it is planning to implement a rate simplification plan in the next application to combine urban and rural rate codes. As rural rates are already higher than urban rates, leaving the rural residential rate at 0.93 will help smooth out any rate volatility during the next rate application.[200]

Table 11-1: Class Revenue to Revenue Requirement Ratios Following Requested Rate Increases[201]

	R/RR Ratio after rate increases
Urban Residential	1.00
Rural Residential	0.93
Total Residential	**0.98**
Farms	0.98
Urban Commercial	1.03
Rural Commercial	1.02
Total Commercial	**1.03**
Power - published rates	1.01
Power - contract rates	0.99
Total Power	**1.00**
Oilfields	1.01
Streetlights	0.96
Reseller	0.98

[197] SRRP Q125.
[198] SRRP Q126.
[199] SRRP Q127.
[200] SaskPower 2016 and 2017 Rate Application, page 4.
[201] SaskPower 2016 and 2017 Rate Application, page 4.

Table 11-2 compares the 2017 unit costs of demand, customer and energy calculated in SaskPower's Cost of Service study with the proposed rates for 2017. Residential customers and Streetlight customers do not have demand charges so Table 11-2 combines demand and energy unit costs in the Cost of Service study for those customers. All other major customer classes have separate demand, energy and customer charges. A review of Table 11-2 indicates the following:

- SaskPower's proposed customer charges recover somewhat more than the average unit customer costs calculated in the Cost of Service study.
- Streetlight customers have only a customer charge, which must recover all demand, energy and customer related costs.
- For all other customer classes:
  - Proposed energy rates are higher than the unit energy costs calculated in the Cost of Service study (between 108% and 256%).
  - Proposed demand charges are lower than the average unit demand costs calculated in the Cost of Service study (between 5% to 88%).
  - Proposed customer charges range between 62% and 170% of unit costs calculated in the Cost of Service study.

Table 11-2: Class Revenue to Revenue Requirement Ratios Following Requested Rate Increases[202]

	2017 Cost of Service Study				2017 Proposed Rates				% Unit Cost Recovery			
	Demand ($/kVa)	Energy (c/kWh)	Demand & Energy (c/kWh)	Customer ($/mo)	Demand ($/kVa)	Energy (c/kWh)	Demand & Energy (c/kWh)	Customer ($/mo)	Demand ($/kVa)	Energy (c/kWh)	Demand & Energy (c/kWh)	Customer ($/mo)
Urban Residential			14.68	17.94			13.94	22.33			95%	124%
Rural Residential			14.91	34.89			13.94	32.24			93%	92%
Total Residential			**14.73**	**20.42**			**13.94**	**23.78**			95%	116%
Farms	122.12	4.57		27.36	5.50	11.69		34.33	5%	256%		125%
Urban Commercial	51.22	5.01		48.47	13.68	10.50		30.46	27%	210%		63%
Rural Commercial	57.18	4.55		74.53	20.07	10.16		46.08	35%	223%		62%
Total Commercial	**52.79**	**4.89**		**54.50**	**15.36**	**10.41**		**34.07**	**29%**	**213%**		**63%**
Power - published rates	17.60	4.20		4,710.60	8.26	6.08		6,449.25	47%	145%		137%
Power - contract rates	15.50	4.18		4,751.09	6.72	6.14		4,658.47	43%	147%		98%
Total Power	**16.96**	**4.20**		**4,716.10**	**7.79**	**6.09**		**6,205.84**	**46%**	**145%**		**132%**
Oilfields	63.07	4.50		95.00	33.32	7.19		67.99	53%	160%		72%
Streetlights			9.93	346.16				507.73				147%
Reseller	21.40	4.17		5,352.71	18.74	4.51		9,084.22	88%	108%		170%

202 SRRP Q122.

11.1 CONSULTANT OBSERVATIONS

The Consultant notes that SaskPower is generally proposing equal percentage increases to all components of the rate structure, with certain limited exceptions. SaskPower provided a proof of revenue for 2016/17 and 2017/18 confirming that the proposed rates would recover the test year revenue requirements.[203]

The resulting revenue to revenue requirement ratios (as measured by the Cost of Service study) fall within the 0.95 to 1.05 target range identified in the Minister's terms of reference, with the exception of the rural residential class at 0.93. The Consultant accepts SaskPower's explanation for this outcome that it intends to pursue rate structure simplification as part of its next rate application as reasonable.

The Consultant compared the average 2017 unit demand, energy and customer revenues at rates proposed by SaskPower to the average 2017 unit costs calculated in the Cost of Service study. The Consultant notes that for most rate classes the proposed energy rates are higher than the unit energy costs calculated in the Cost of Service study. In the Consultant's experience this is not unusual, as many electric utilities have higher than average cost energy charges. However, the Consultant notes a concern that the proposed demand charges for certain customer classes are substantially lower than the average unit costs of demand calculated in the Cost of Service study. In particular the Consultant notes that the proposed demand charges for the Farm customer class recovers approximately 5% of the unit demand costs calculated in the Cost of Service study and the demand charges for the Commercial class recover on average 29% of the calculated unit cost of demand. In the Consultant's view this would normally suggest that rate increases should be weighted toward the demand component of the rate structure for these customers with a resulting lower percentage increase to the energy charge. However, the Consultant notes that timelines for the current application may have required a more simplified approach to rate design and accepts the proposed rate design as reasonable.

The Consultant notes that for time-of-use rates, SaskPower's rates include a 1 cent/kWh differential between off-peak and on-peak periods. In comparison, BC Hydro's transmission service time of use rate has differential rates between High Load Hours and Low Load Hours that apply only to consumption over 90% of the customer's baseline load. The difference between the prices in winter High Load Hours (the highest price period) and the spring period (the lowest time of use period) is about 1.9 cents/kWh. The differences in price between winter high load hours and winter low load hours is approximately 0.9 cents.[204] Manitoba Hydro has proposed time-of-use rates on several occasions; however no such rate is currently approved. In general Manitoba Hydro's TOU rate proposals large industrial customer exceeding 100 kV has included a spread between on-peak and off-peak of 3.1 cents per kWh in the winter (5.7 cents per kWh on-peak winter vs. 2.6 cents per kWh off-peak) and 2.1 cents during non-winter (4.7 cents per kWh on-peak winter vs. 2.6 cents per kWh off-peak).[205]

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[203] SRRP Q17.
[204] B.C. Hydro, Rate Schedules, Schedule 1825 Transmission Service Time of Use Rate, p 48-51. Accessed September 20, 2016 at https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/tariff-filings/electric-tariff/bchydro-electric-tariff.pdf.
[205] Manitoba Hydro, Proposed Rate Schedules to be Effective April 1, 2016, Appendix 6.4, p. 13. Accessed September 20, 2016 at https://www.hydro.mb.ca/regulatory_affairs/electric/gra_2014_2015/pdf/appendix_6_4.pdf.

11.2 CONSULTANT RECOMMENDATIONS

The Consultant recommends that the Panel accept SaskPower's proposed rate design for the purposes of the current application.

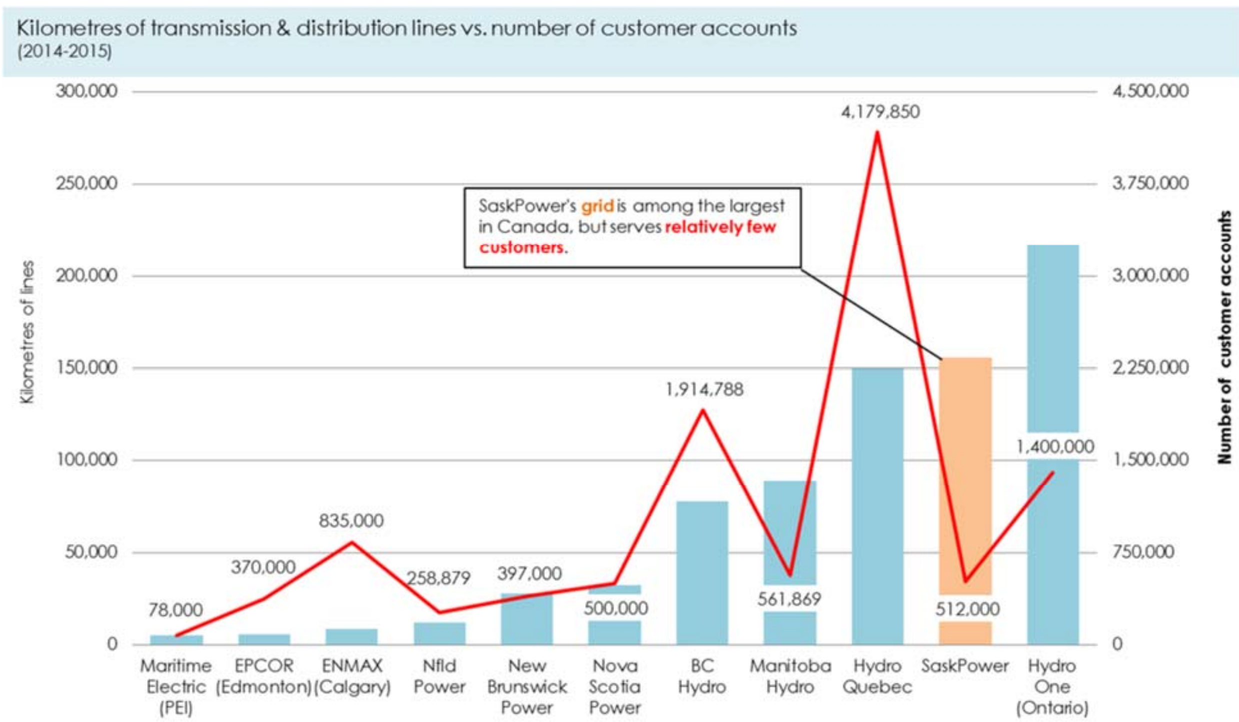
The Consultant recommends that the Panel encourage SaskPower in its next rate application to consider rebalancing rates between customer classes and also between demand charges and energy charges based on the average unit costs calculated in SaskPower's Cost of Service study.

12.0 SAFETY AND RELIABILITY

12.1 RELIABILITY

SaskPower's system includes approximately 156,000 circuit kilometers of power lines and more than 511,000 customer accounts over a geographic region of approximately 652,000 square kilometers.[206] Figure 12-1 compares the number of customer accounts and total kilometers of transmission and distribution lines for a number of Canadian utilities. SaskPower maintains one of the largest transmission and distribution systems but has relatively few customer accounts.

Figure 12-1: Kilometers of Transmission and Distribution Lines vs Number of Customer Accounts



SaskPower measures grid reliability using the System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) measures for both distribution and transmission. SAIDI describes the amount of time an average customer experiences outages in a year. SAIFI describes the average number of interruptions per customer per year.[207] SaskPower's test year outage targets for distribution are a SAIDI (duration) target of 5.9 hours and a SAIFI (frequency) target of 2.4 outages. SaskPower's transmission outage targets for the test years are a SAIDI (duration) outage target of 200 minutes and SAIFI (frequency) of 2.4 outages.[208]

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[206] SRRP Q136.
[207] 2016-17 Corporate Balanced Scorecard Definitions document, page 11-12 provided in the response to SRRP Q149.
[208] SaskPower's 2015 annual report, page 53 and 54.

Actual annual SaskPower outages compared to Canadian Utility averages are shown in Table 12-1.

Table 12-1: Actual SaskPower (SPC) and Canadian Utility Average (CAD) Reliability Statistics[209]

	2011		2012		2013		2014		2015			
	SPC	CAD	SPC	CAD	SPC	CAD	SPC	CAD	SPC	CAD	SPC Avg	CAD Avg
Transmission SAIDI (minutes)	195	144	328	90	131	153	191	186	144	N/A	197.8	143.25
Transmission SAIFI (outages)	2.17	0.9	3.05	0.98	1.89	0.93	3.6	0.89	2.4	N/A	2.62	0.93
Distribution SAIDI (hours)	6.4	6.2	5.8	4.7	5.9	9.5	5.1	6.4	5.2	5.1	5.68	6.38
Distribution SAIFI (outages)	2.6	2.6	2.3	2.5	2.2	2.7	2.5	2.4	2.4	2.3	2.40	2.50

A review of the information in Table 12-1 indicates the following:

- SaskPower's transmission SAIDI and SAIFI tend to be higher than the average for other Canadian utilities. For the four years for which transmission data were provided, SaskPower's transmission SAIDI was higher than the Canadian utility average in three out of four years and SaskPower's SAIFI was higher than the Canadian utility average in all four years. It should be noted that the transmission SAIDI and SAIFI results include only unplanned outages.
- SaskPower's distribution SAIDI and SAIFI tended to be closer to the average for Canadian utilities. Distribution SAIDI was higher than the Canadian utility average in three years and lower in two years. Distribution SAIFI was higher than the Canadian utility average in two years and lower in three years.

Adverse weather was the most common cause of transmission outages for the period from 2013 to 2015. Equipment failures were the second most common cause for transmission outages.[210] SaskPower notes that its low customer density mean response times in rural areas are often longer due to extra time required to identify the required repair location and travel time. Funding capacity increases and ongoing maintenance requirements can also be challenging due to SaskPower's smaller revenue base relative to the size of the provincial grid.[211] To address transmission outages, SaskPower has been enhancing its asset management strategy for transmission facilities. SaskPower has committed to growing the capital investment for sustainment funding over the next 10 years with a target of improved reliability for customers.[212]

Planned outages are the most common reason for distribution outages; approximately 20% of total outages from 2013 through 2015. Lightning strikes were responsible for 17% of outages between 2013 and 2015. Bird and animal contacts were the cause of 16% of outages during the same period.[213] SaskPower notes that the majority of its rural distribution system was built between 1950 and 1965 and that its underground systems are also aging.[214] SaskPower notes two distribution capital sustainment programs being implemented to improve distribution reliability. This includes the rural rebuild &

209 SRRP Q136.
210 SRRP R2Q29.
211 SRRP Q136.
212 SRRP Q138.
213 SRRP Q137.
214 SaskPower 2016 and 2017 Rate Application, page 8.

improvement program ($96 million over next five years) and the distribution wood pole remediation program ($126 million over next five years).[215]

Planned distribution and transmission outages occur for a variety of reasons include connecting new customers, performing system upgrades or repairing damage to facilities. Other situations include escorting over-dimension loads along roadways, completing oil sampling of oil-filled apparatus, trimming vegetation along right-of-ways, and other preventative maintenance activities.[216]

SaskPower's safety protocol for planned outages includes service personnel first determining if work on the system can be performed in an energized state in a safe manner. If there are no safety concerns, work is performed in an energized state to reduce disruptions to customers. However, outages are often required to reduce risks associated with working on or near energized high voltage facilities as the safety of employees and the public is always SaskPower's first priority.[217]

SaskPower uses a variety of methods to contact customers who will be affected by planned outages to ensure maximum exposure to customers including radio, digital (display, online banners, mobile and social media), newspaper, out-of-home (outdoor advertising), and door hangers. SaskPower is also pursuing the use of a new application including an interactive mapping solution for affected areas.[218]

12.2 SAFETY

SaskPower monitors its safety performance using a Safety Index, which includes eight measures. Four of the measures are leading indicators that measure proactive activities to identify hazards and assess, eliminate and control risks. These indicators include:

- Safety objectives completed;
- Safety audits corrective/preventative actions completed;
- Scheduled work observations completed; and
- Safety training completed.

The other four measures are lagging indicators that record safety performance related to the occurrence of safety incidents. These indicators include:

- Lost-time injury frequency rate;
- Lost-time injury severity rate;
- Recordable injury frequency rate; and

[215] SaskPower 2016 and 2017 Rate Application, page 36.
[216] SRRP R2Q30.
[217] SRRP R2Q30.
[218] SRRP R2Q30.

- Recordable licensed fleet motor vehicle frequency rate.[219]

For 2015, SaskPower reported its safety indicators on a scale from 1 to 4, with a lower score indicating better performance. The actual 2015 Safety Index was 1.1, indicating that SaskPower achieved its safety targets. For the test years, SaskPower has changed its Safety Index reporting to a percentage based system where a higher percentage indicates better results. SaskPower's targets for the test years are 85% for 2016/17; 87% for 2017/18 and a long-term target of 100%.[220]

12.3 CONSULTANT OBSERVATIONS

The Consultant recognizes that SaskPower has a unique operating environment due to its large service territory; relatively low customer density and extreme weather than can occur throughout the province. These conditions can understandably create reliability challenges. The Consultant notes that SaskPower's actual 2015 performance on the distribution and transmission SAIDI and SAIFI reliability indicators met or exceeded the five year average performance, generally indicating improvement relative to the five year average. The Consultant further notes that SaskPower has identified several capital sustainment spending program areas that are intended to improve transmission and distribution reliability performance.

The Consultant notes that SaskPower has changes its method of monitoring and measuring safety performance. The Consultant reviewed SaskPower's safety performance metrics and is of the view that they represent an appropriate mix of proactive, forward looking activities and evaluations of recent actual safety events.

[219] SRRP R2Q31.
[220] 2015-16 SaskPower Annual Report, page 43.

13.0 CUSTOMER BILL IMPACTS

SaskPower is proposing to increase almost all components of its existing rate structure by approximately 5% on July 1, 2016 and a further 5% on January 1, 2017. As a result of the equal percentage increases customers will see approximately the same percentage increases in their bills. Table 13-1 provides a summary of estimated bill increases for typical customers in major customer classes.

Table 13-1: SaskPower Monthly Bill with Rate Increase

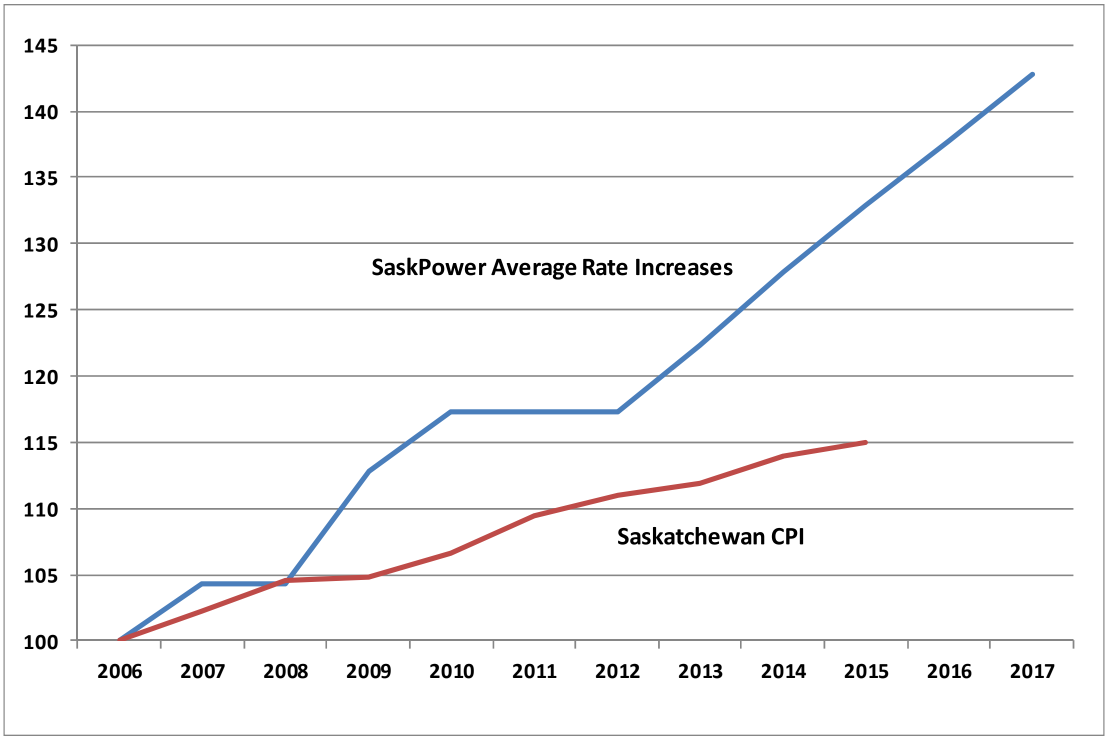
Customer Class	SaskPower Monthly Bill in CAD$[221]				
	April 1, 2015 Monthly Bill	July 1, 2016 (5% Increase) Monthly Bill	July 1, 2016 (5% Increase) Bill Increase	January 1, 2017 (5% Increase) Monthly Bill	January 1, 2017 (5% Increase) Bill Increase
Urban Residential 625 kWh	99.11	104.17	5.05	109.47	5.30
Urban Small Commercial 14 kW & 2,0000 kWh	270.18	283.95	13.77	298.43	14.48
Urban Standard Commercial 100 kW & 25,000 kWh	3,059.62	3,215.53	155.91	3,379.52	163.99
Large Industrial 10,000 kW & 5,760,000 kWh	392,506.60	412,498.71	19,992.11	433,504.46	21,005.75

- A SaskPower urban residential customer using 625 kWh in a month will see a monthly bill increase of $5.05 at July 1, 2016 and an additional $5.30 at January 1, 2017.
- A SaskPower urban commercial customer using 14 kW & 2,000 kWh in a month will see a monthly bill increase of $13.77 at July 1, 2016 and a further $14.48 at January 1, 2017.
- A SaskPower urban standard commercial customer using 100 kW & 25,000 kWh per month will see a monthly bill increase of $155.91 at July 1, 2016 and an additional $163.99 at January 1, 2017.
- A SaskPower large industrial customer using 10,000 kW & 5,760,000 kWh per month will see a monthly bill increase of $19,992.11 at July 1, 2016 and a further $21,005.75 at January 1, 2017.

[221] Data obtained and calculated from SaskPower Minimum Filing Requirements Presented to: Saskatchewan Rate Review Panel (2016 and 2017 Rate Application) Appendix C.

Since 2006 SaskPower's average annual rate increases have exceeded the increase in the Saskatchewan Consumer Price Index (CPI). Figure 13-1 compares the change in average 2006 electricity prices (where 2006 prices are indexed to 100) compared to the change in the Saskatchewan CPI during the same period. The average increase in the CPI from 2006 to 2015 was 1.67% while the average SaskPower rate increase for the same period was 3.64%.

Figure 13-1: SaskPower Average Rate Increases Compared to Saskatchewan CPI Since 2006
2006 = 100



SaskPower also provided information that utility bills make up approximately 6.5% of a household's expenditures for low-income customers. SaskPower estimated that in 2015 there were approximately 80,000 low income households in Saskatchewan. SaskPower notes that rate changes can have higher impacts on this customer segment.[222]

13.1 CONSULTANT OBSERVATIONS

The Consultant notes that if the current application (2016/17) rate increases are accepted, the total rate increase over 2006 prices through 2016/17 will be approximately 42%. This represents an average annual rate increase of 3.9%. By contrast, the Saskatchewan CPI increased by 15% over 2006 prices through 2015, or an average annual increase of 1.67%. Based on SaskPower's ten year capital plan, the Consultant notes that it appears likely SaskPower average annual rate increases will continue to exceed 2% inflation for the foreseeable future.

[222] SRRP R2Q17.

14.0 COMPETITIVENESS

The Minister's terms of reference requires the Panel to consider, among other factors, the effect of the proposed rate change on the competitiveness of the Crown Corporation related to other jurisdictions.[223] SaskPower's application provides information on rates for typical customers in Saskatchewan compared to other jurisdictions. SaskPower also provides information on its capital structure and ROE targets compared to other Canadian electric utilities.

14.1 RATE COMPARISON WITH OTHER JURISDICTIONS

SaskPower notes that rate comparisons across jurisdictions can be difficult for a number of reasons. For example, Ontario and Alberta have deregulated markets with competition for service with varying pricing and service options. In other cases, some utilities use deferral accounts and rate riders to smooth out rate adjustments or address variances from forecasts. SaskPower does not use deferral accounts or rate riders. Some utilities also have natural advantages, such as access to substantial hydro-electric generation resources which can provide lower prices to customers in many cases.

However, comparisons with other jurisdictions can provide some useful context in considering the effects of proposed rate increases on competitiveness. In this section, comparisons are shown based on Hydro Quebec's Comparison of Electricity Prices in Major North American Cities at April 1, 2016. This is a standard reference document used by electric utilities and analysts to compare rates and bills with other jurisdictions.[224] SaskPower provided the 2015 Hydro Quebec information as part of its filing. The 2016 version of the report became available after SaskPower prepared its mid-application update. This section references the 2016 version of the report.

Throughout this section comparisons of SaskPower's rates are made to rates in other jurisdictions in Canada and the United States. The following utility groupings are also used:

- The Thermal Utility average includes Canadian jurisdictions Calgary, Edmonton, Regina, Toronto, Ottawa, Moncton, Halifax, Charlottetown, and St. John's.
- The Hydro Utility average includes Montreal, Winnipeg and Vancouver, jurisdictions with primarily hydro generation.
- The all utilities average includes all utilities referenced in the Thermal Utility average and Hydro Utility average.

Figure 14-1[225] compares SaskPower's rates effective April 1, 2016 with these groups of utilities. A review of Figure 14-1 indicates:

- SaskPower's average residential rates were higher than the average for the thermal utilities and all utilities average in the survey.

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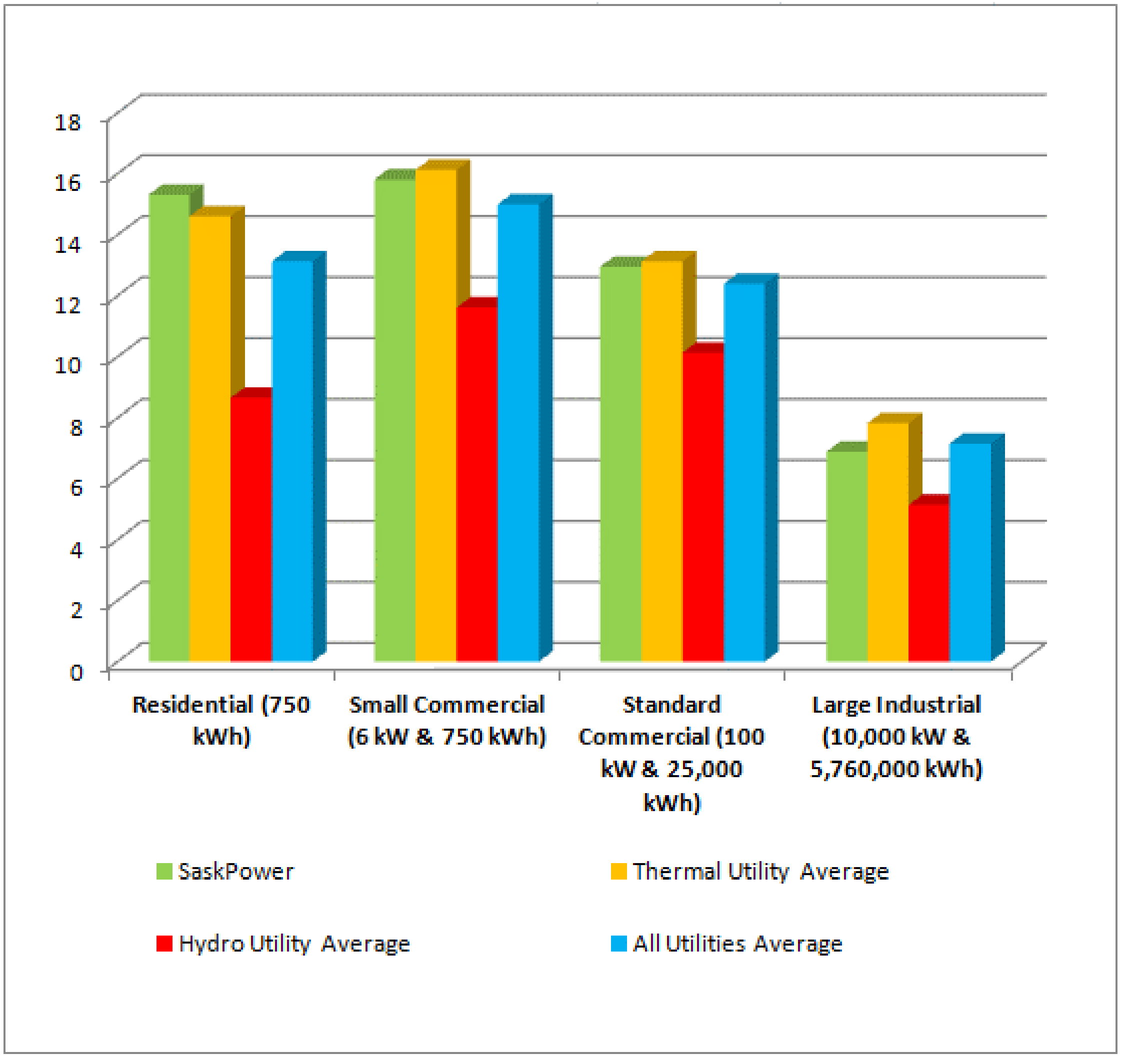
[223] Schedule A to the Minister's Order to the Saskatchewan Rate Review Panel dated May 19, 2016.
[224] The document is available at: http://www.hydroquebec.com/publications/en/corporate-documents/comparaison-electricity-prices.html. Accessed: October 5, 2016.
[225] Hydro Quebec Report 2016, pages 31, 37, and 49.

- SaskPower's average small commercial rates were slightly lower than the average for thermal utilities and slightly higher than the all utilities average in the survey.
- SaskPower's average standard commercial rates were slightly lower than the thermal utilities average and slightly higher than the all utilities average in the survey.
- SaskPower's average large industrial rates were lower than the average for thermal utilities and for the all utilities average in the survey.

Further information on the results for individual customer categories is provided in the following sections.

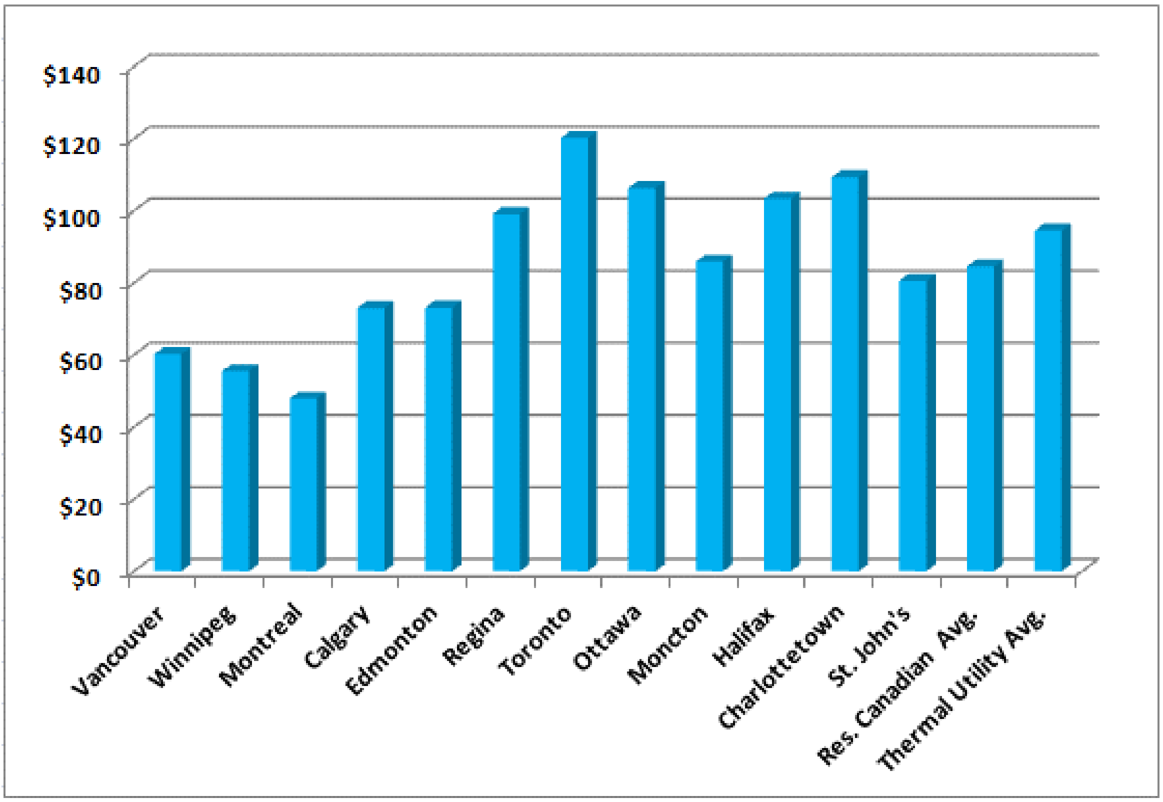
Figure 14-1: Rate Comparison to Utility Averages at April 1, 2016 Average Cents/kWh



14.1.1 Residential

Figure 14-2[226] compares the monthly bill for residential customers using 625 kWh/month. This is approximately the mid-point of average monthly consumption for SaskPower's urban residential customers.[227] It is noted that rankings across utilities may change at different consumption levels due to the magnitude of the customer charge and the influence of multiple energy rate blocks.

Figure 14-2: Residential Monthly Bill Comparison Rates in place April 1, 2016 625 kWh/month



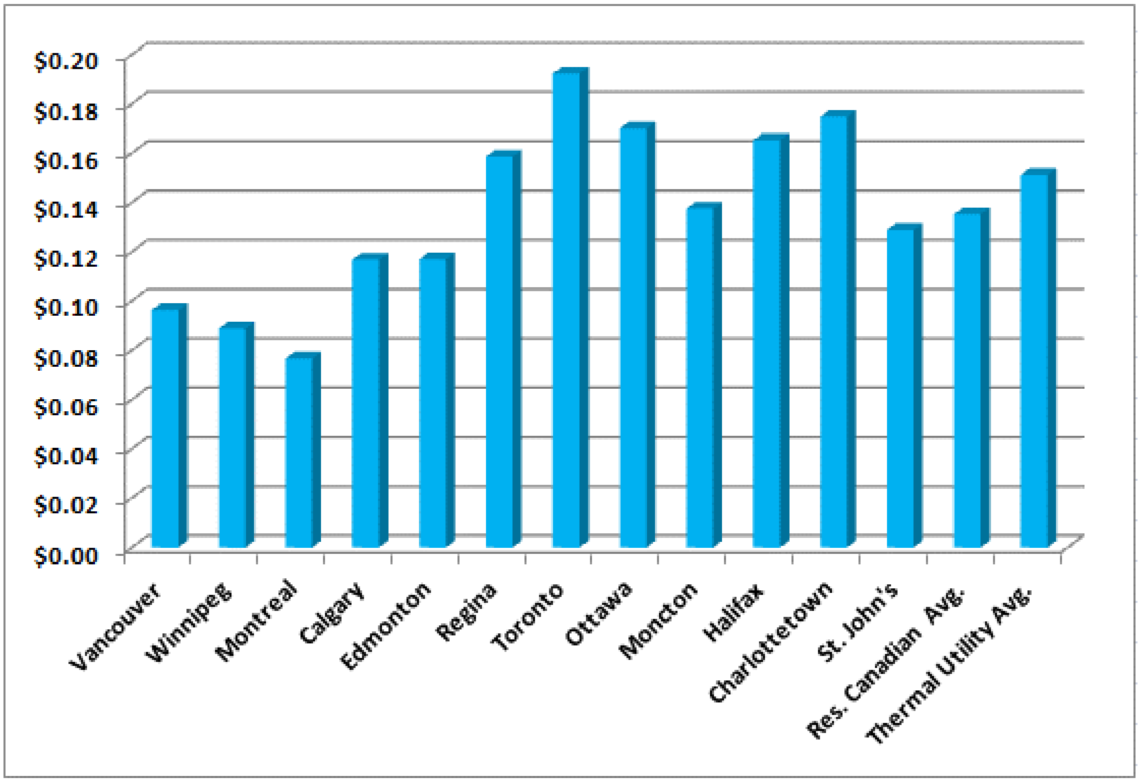
A review of the information in Figure 14-2 indicates the following:

- SaskPower is the fifth highest of the utilities in Figure 14-2, behind Charlottetown, Halifax, Toronto, and Ottawa.
- SaskPower's bills are higher than the average for the thermal utilities.

[226] Hydro Quebec Report 2016, page 31.
[227] Page 2 of Appendix C to SaskPower's 2016 and 2017 Rate Application shows approximately 51% of SaskPower's urban residential customers use 600kWh/month or less.

Figure 14-3[228] compares the average cost per kWh for residential customers using 625 kWh/month.

Figure 14-3: Residential Average Cost per kWh Comparison Rates in place April 1, 2016 625 kWh/month



A review of the information in Figure 14-3 indicates the following:

- The range of average cost per kWh for residential customers (625 kWh/month) across Canada is $0.077/kWh (Montreal) to $0.192/kWh (Toronto).
- SaskPower has an average cost per kWh for residential customers of $0.159/kWh.

[228] Hydro Quebec Report 2016, page 32.

Table 14-1[229] compares average monthly bills for SaskPower customers in Regina to Edmonton and Calgary for urban residential customers using 625 kWh/month from 2012 to 2016.[230] It is important to note that Edmonton and Calgary are deregulated markets and this can affect prices for customers in these jurisdictions.

Table 14-1: Comparison of SaskPower to Alberta Markets – Residential Average (625 kWh/month) Monthly Bill at Rates in Place April 1st

Year	Calgary	Edmonton	SaskPower
2012	$93.80	$88.80	$85.59
2013	$99.59	$94.64	$89.78
2014	$92.39	$82.05	$94.79
2015	$80.88	$80.67	$97.41
2016	$73.03	$73.13	$99.11

A review of the information in Table 14-1 indicates the following:

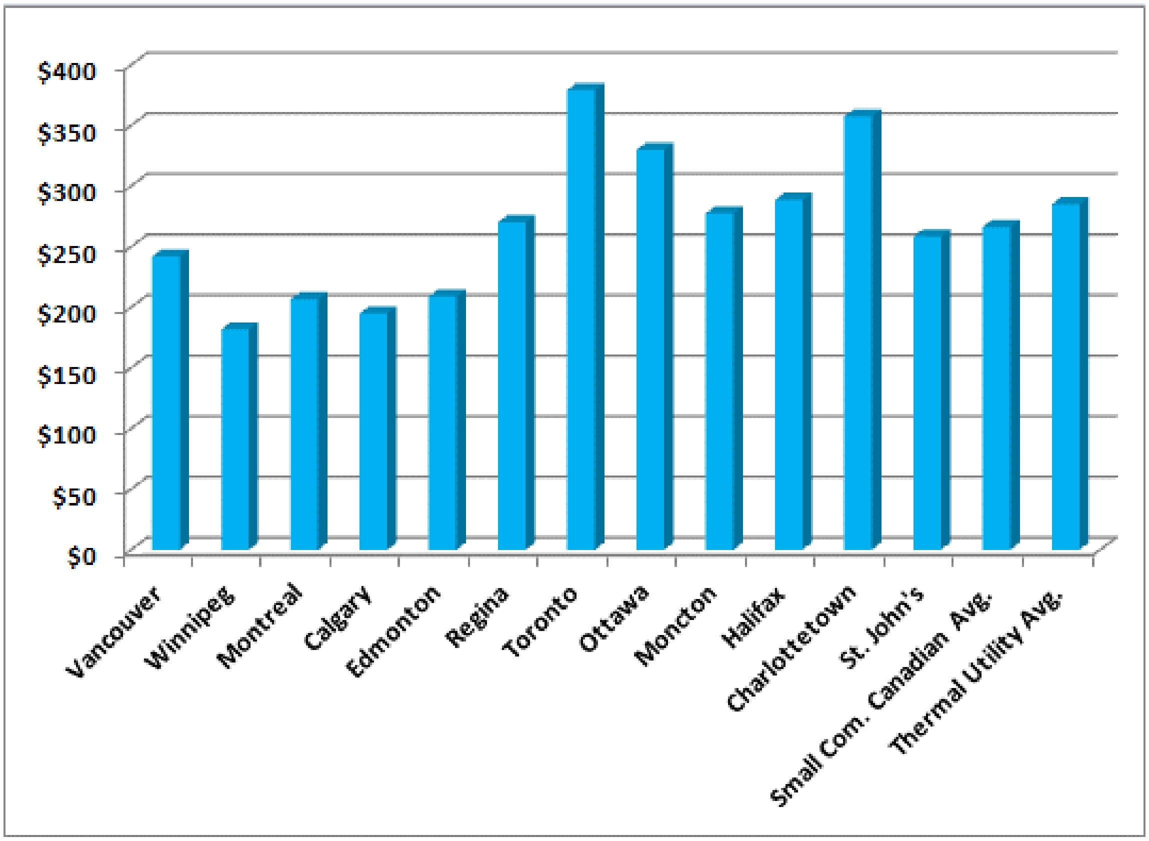
- In 2012 and 2013 SaskPower average urban residential monthly bills were lower than Calgary and Edmonton.
- In 2014 to 2016 SaskPower average urban residential monthly bills were greater than Calgary and Edmonton. In 2016 average urban residential monthly bills for SaskPower were approximately $26 (36%) greater than Calgary and Edmonton.

[229] Hydro Quebec, Hydro Quebec Comparison of Electricity Prices in Major North American Cities 2012 to 2016, page 31 for each of 2012 to 2016. Available at: http://www.hydroquebec.com/publications/en/corporate-documents/comparaison-electricity-prices.html.
[230] Hydro Quebec Comparison of Electricity Prices in Major North American Cities calculates average monthly bills on April 1 for each year 2012 to 2016.

14.1.2 Urban Small Commercial

Figure 14-4[231] compares the monthly bill for small commercial customers using 14 kW & 2,000 kWh/month. This accounts for over half of the monthly consumption for SaskPower's small commercial customers.[232] It is noted that rankings across utilities may change at different consumption levels due to the magnitude of the customer charge and the influence of multiple energy rate blocks.

Figure 14-4: Small Commercial Bill Comparison Rates in place April 1, 2016 14 kW & 2,000 kWh/month



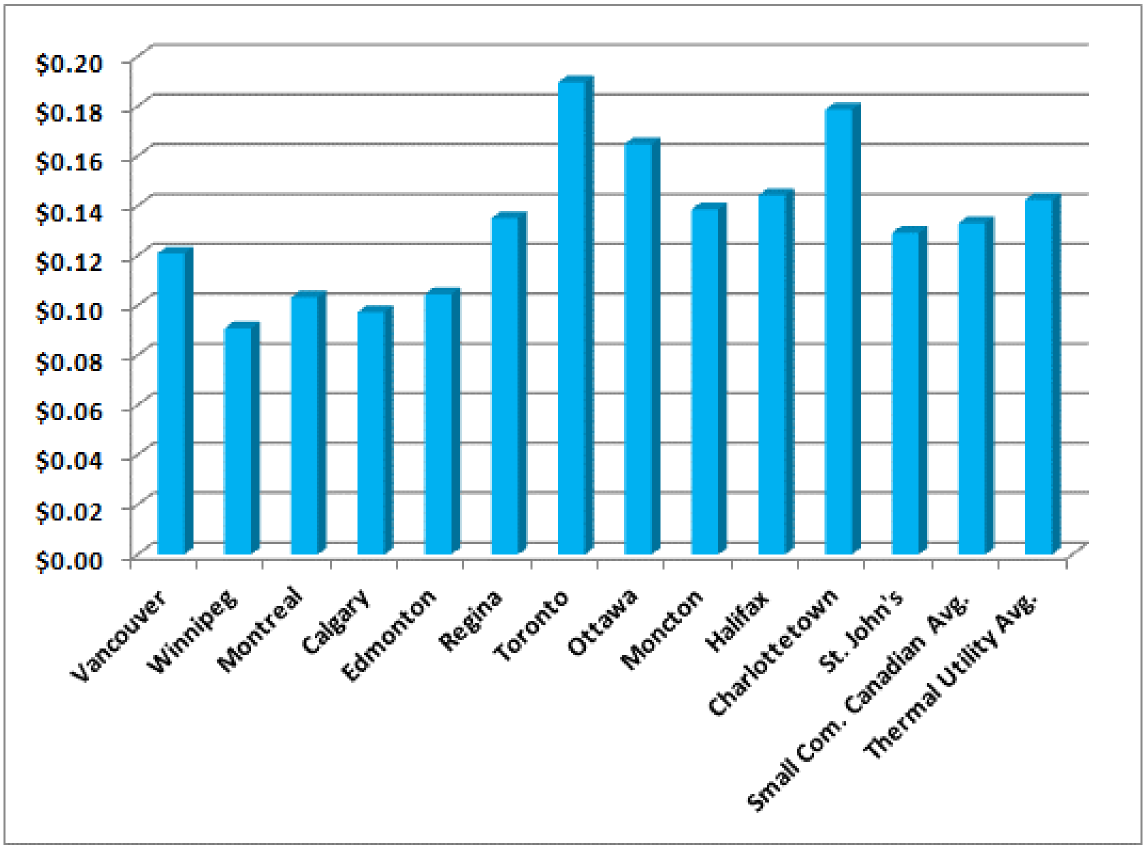
A review of the information in Figure 14-4 indicates the following:

- SaskPower is the median of the utilities in Figure 14-4.
- SaskPower's bills are slightly lower than the average for the thermal utilities.

[231] Hydro Quebec Report 2016, page 37.
[232] Page 20 of Appendix C to SaskPower's 2016 and 2017 Rate Application shows approximately 65% of SaskPower's urban small commercial customers use 2,000kWh/month or less.

Figure 14-5[233] compares the average cost per kWh for small commercial customers using 14 kW & 2,000 kWh/month.

Figure 14-5: Small Commercial Cost per kWh Comparison Rates in place April 1, 2016 14 kW & 2,000 kWh/month



A review of the information in Figure 14-5 indicates the following:

- The range of average cost per kWh for small commercial customers (14 kW and 2,000 kWh/month) across Canada is $0.091/kWh (Winnipeg) to $0.190/kWh (Toronto).
- SaskPower has an average cost per kWh for small commercial customers of $0.135/kWh.

[233] Hydro Quebec Report 2016, page 38.

Table 14-2[234] compares average monthly bills for SaskPower customers in Regina to Edmonton and Calgary for small commercial customers using 14 kW and 2,000 kWh/month from 2012 to 2016.[235]

Table 14-2: Comparison of SaskPower to Alberta Markets – Small Commercial (14 kW & 2,000 kWh/month) Average Monthly Bill at Rates in Place April 1st

Year	Calgary	Edmonton	SaskPower
2012	$262.59	$259.78	$225.70
2013	$282.06	$276.14	$236.75
2014	$273.42	$232.60	$254.13
2015	$219.90	$229.58	$263.76
2016	$194.84	$209.05	$270.18

A review of the information in Table 14-2 indicates the following:

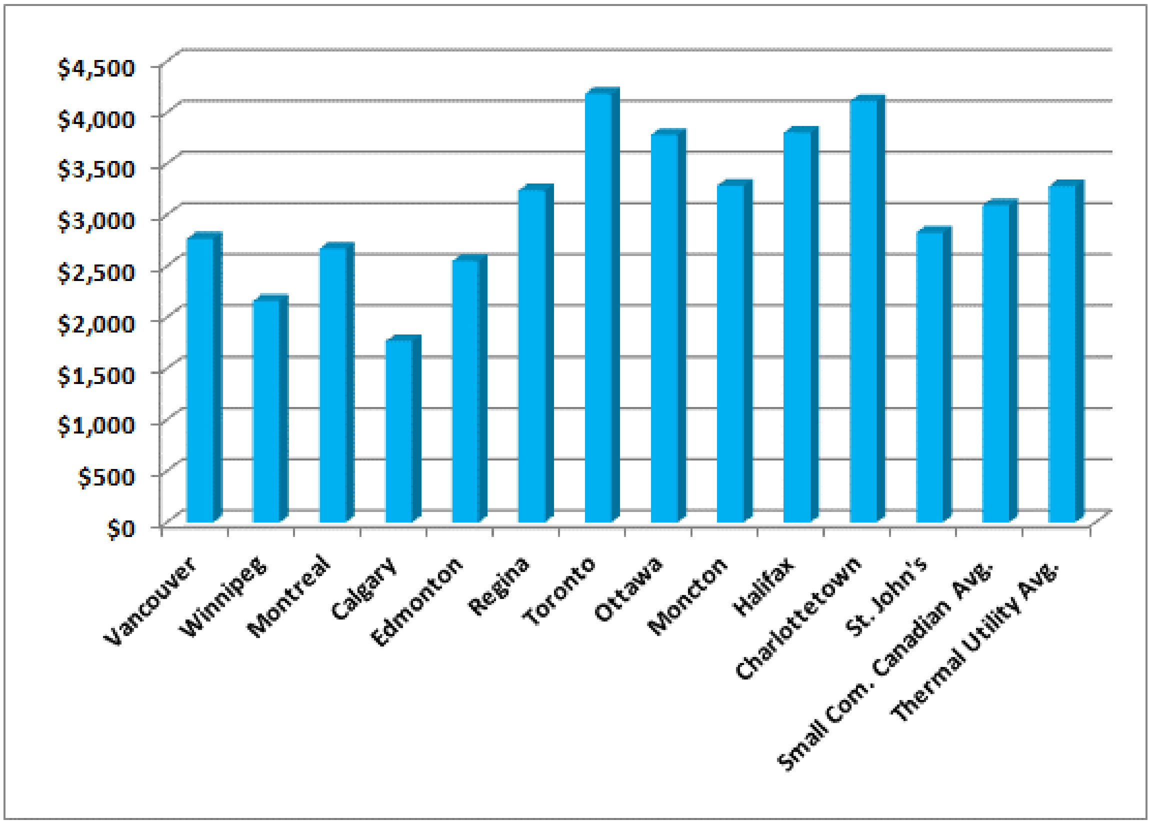
- SaskPower average small commercial (14 kW and 2,000 kWh/month) monthly bills were lower than Calgary from 2012 to 2014 and greater than Calgary for 2015 and 2016. In 2016 SaskPower monthly bills were approximately $75 (37%) greater than Calgary.
- SaskPower average small commercial monthly bills were lower than Edmonton for 2012 and 2013 and greater than Edmonton for 2014 to 2016. In 2016 SaskPower monthly bills were approximately $61 (29%) greater than Edmonton.

[234] Hydro Quebec, Hydro Quebec Comparison of Electricity Prices in Major North American Cities 2012 to 2016, page 37 for each of 2012 to 2016. Available at: http://www.hydroquebec.com/publications/en/corporate-documents/comparaison-electricity-prices.html.
[235] Hydro Quebec Comparison of Electricity Prices in Major North American Cities calculates average monthly bills on April 1 for each year 2012 to 2016.

14.1.3 Standard Commercial

Figure 14-6[236] compares the monthly bill for standard commercial customers using 100 kW & 25,000 kWh/month. It is noted that rankings across utilities may change at different consumption levels due to the magnitude of the customer charge and the influence of multiple energy rate blocks.

Figure 14-6: Standard Commercial Bill Comparison Rates in place April 1, 2016 100 kW & 25,000 kWh/month



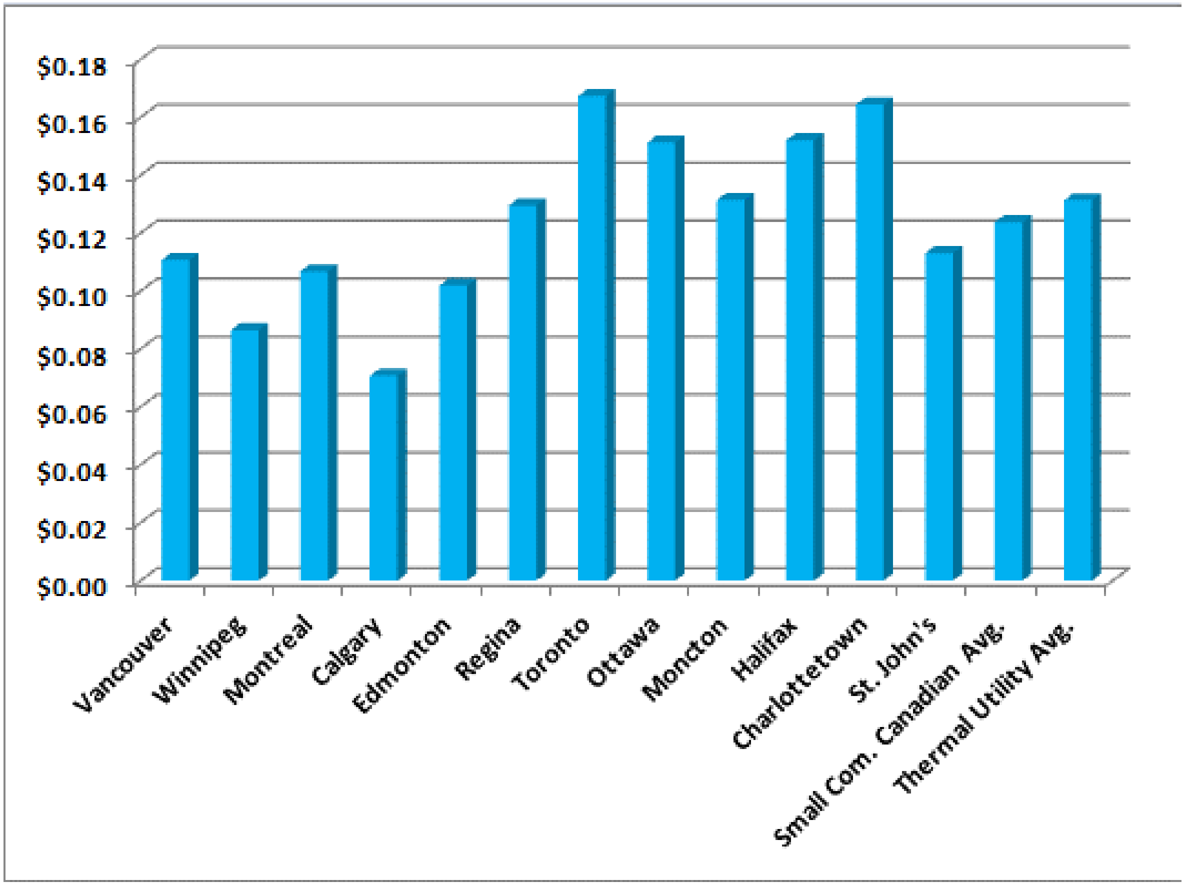
A review of the information in Figure 14-6 indicates the following:

- SaskPower is the median of the utilities in Figure 14-6.
- SaskPower's bills are slightly lower than the average for the thermal utilities.

[236] Hydro Quebec Report 2016, page 37.

Figure 14-7[237] compares the cost per kWh for standard commercial customers using 100 kW & 25,000 kWh/month.

Figure 14-7: Standard Commercial Cost per kWh Comparison Rates in place April 1, 2016 100 kW & 25,000 kWh/month



A review of the information in Figure 14-7 indicates the following:

- The range of average cost per kWh for standard commercial customers (100 kW and 25,000 kWh/month) across Canada is $0.071/kWh (Calgary) to $0.167/kWh (Toronto).
- SaskPower has an average cost per kWh for standard commercial customers of $0.130/kWh.

[237] Hydro Quebec Report 2016, page 38.

Table 14-3[238] compares average monthly bills for SaskPower customers in Regina to Edmonton and Calgary for standard commercial customers using 100 kW and 25,000 kWh/month from 2012 to 2016.[239]

Table 14-3: Comparison of SaskPower to Alberta Markets – Standard Commercial (100 kW & 25,000 kWh/month) Average Monthly Bill at Rates in Place April 1st

Year	Calgary	Edmonton	SaskPower
2012	$2,584.99	$3,029.02	$2,724.60
2013	$4,005.71	$3,362.08	$2,857.76
2014	$2,338.45	$2,831.17	$2,989.50
2015	$1,747.69	$2,741.99	$3,173.00
2016	$1,766.37	$2,547.93	$3,238.75

A review of the information in Table 14-3 indicates the following:

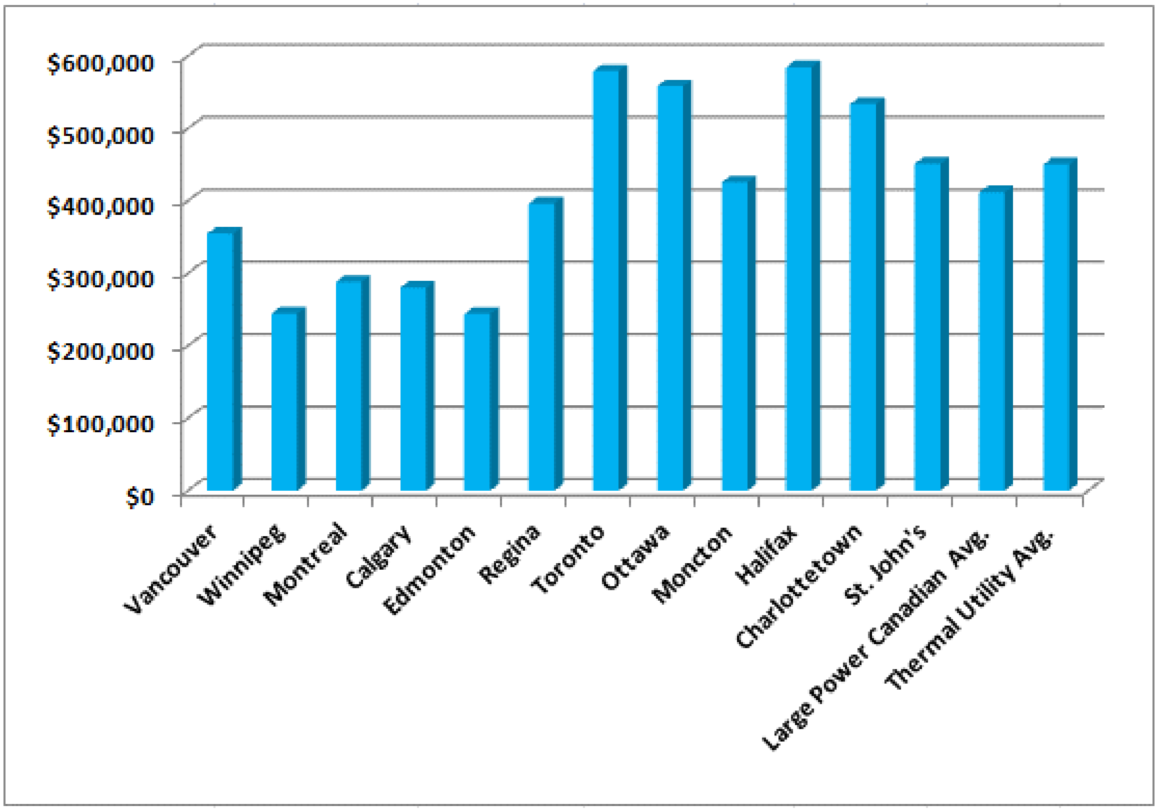
- SaskPower average standard commercial (100 kW and 25,000 kWh/month) monthly bills were greater than Calgary for 2012 and 2014 to 2016. SaskPower monthly bills were lower than Calgary in 2013. In 2016 SaskPower monthly bills were approximately $1472 (83%) greater than Calgary.
- SaskPower average standard commercial monthly bills were lower than Edmonton in 2012 and 2013 and greater than Edmonton for 2014 to 2016. In 2016 SaskPower monthly bills were approximately $691 (27%) greater than Edmonton.

[238] Hydro Quebec, Hydro Quebec Comparison of Electricity Prices in Major North American Cities 2012 to 2016, page 37 for each of 2012 to 2016. Available at: http://www.hydroquebec.com/publications/en/corporate-documents/comparaison-electricity-prices.html.
[239] Hydro Quebec Comparison of Electricity Prices in Major North American Cities calculates average monthly bills on April 1 for each year 2012 to 2016.

14.1.4 Large Industrial

Figure 14-8[240] compares the monthly bill for large industrial customers using 10,000 kW & 5,760,000 kWh/month. Large industrial customers under 10,000,000 kWh/month account for 80% of SaskPower's large industrial customers.[241] It is noted that rankings across utilities may change at different consumption levels due to the magnitude of the customer charge and the influence of multiple energy rate blocks.

Figure 14-8: Large Industrial Bill Comparison Rates in place April 1, 2016 10,000 kW & 5,760,000 kWh/month



A review of the information in Figure 14-8 indicates the following:

- SaskPower is the median of the utilities in Figure 14-8.
- SaskPower's bills are lower than the average for the thermal utilities.

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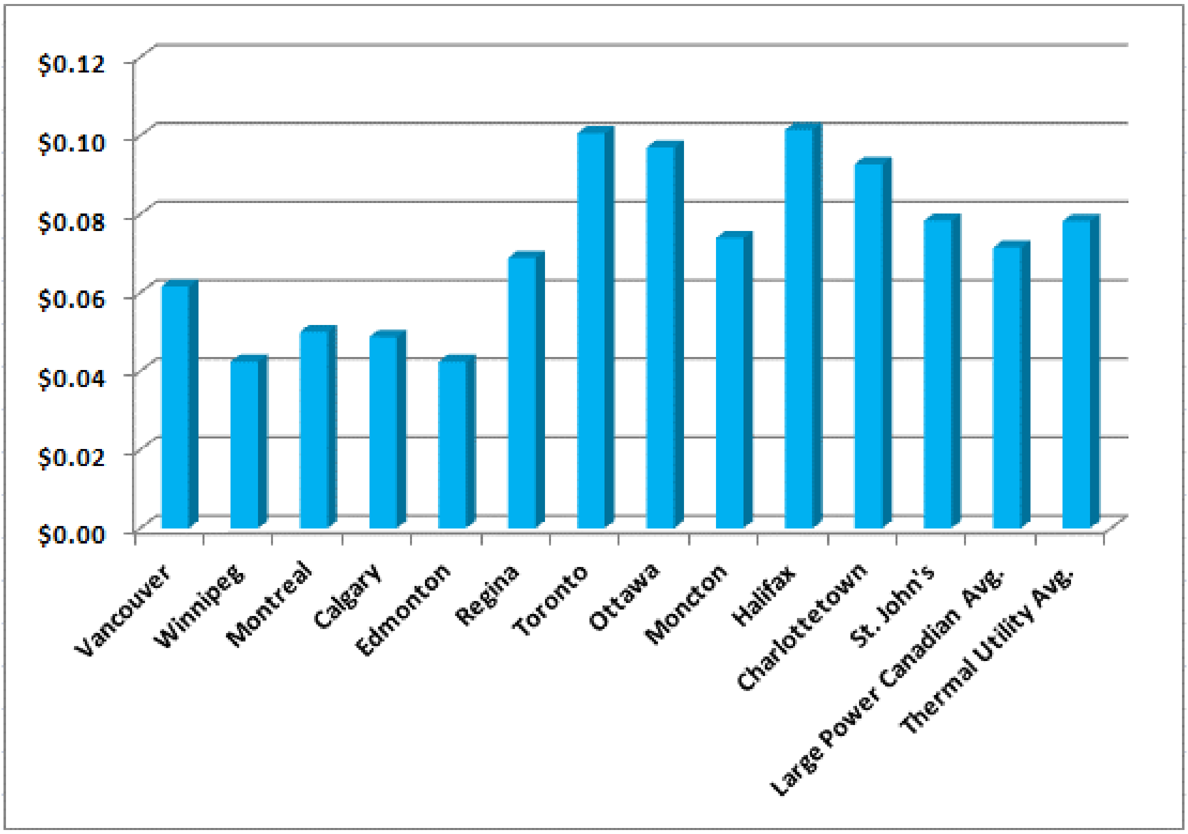
[240] Hydro Quebec Report 2016, page 49.
[241] Page 15 of Appendix C to SaskPower's 2016 and 2017 Rate Application shows approximately 80% of SaskPower's power customers use 10,000,000kWh/month or less.

Figure 14-9[242] compares the average cost per kWh for large industrial customers using 10,000 kW & 5,760,000 kWh/month.

Figure 14-9: Large Industrial Cost per kWh Comparison Rates in place April 1, 2016 10,000 kW & 5,760,000 kWh/month



A review of the information in Figure 14-9 indicates the following:

- The range of average cost per kWh for large industrial customers (10,000 kW and 5,760,000 kWh/month) across Canada is $0.042/kWh (Winnipeg and Edmonton) to $0.102/kWh (Halifax).
- SaskPower has an average cost per kWh for large industrial customers of $0.069/kWh.

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[242] Hydro Quebec Report 2016, page 50.

Table 14-4[243] compares average monthly bills for SaskPower customers in Regina to Edmonton and Calgary for large power customers using 10,000 kW and 5,760,000 kWh/month from 2012 to 2016.[244]

Table 14-4: Comparison of SaskPower to Alberta Markets – Large Industrial (10,000 kW & 5,760,000 kWh/month) Average Monthly Bill at Rates in Place April 1st

Year	Calgary	Edmonton	SaskPower
2012	$480,393.69	$412,199.82	$335,599.92
2013	$811,221.55	$766,693.06	$351,996.00
2014	$430,033.27	$446,775.50	$373,631.18
2015	$276,667.29	$257,453.66	$387,289.72
2016	$280,331.48	$244,071.33	$396,372.70

A review of the information in Table 14-4 indicates the following:

- SaskPower average large industrial (10,000 kW and 5,760,000 kWh/month) monthly bills were lower than Calgary for 2012 to 2014 and greater than Calgary for 2015 and 2016. In 2016 SaskPower monthly bills were approximately $116,041 (41%) greater than Calgary.
- SaskPower average large industrial monthly bills were lower than Edmonton for 2012 to2014 and greater than Edmonton in 2015 and 2016. In 2016 SaskPower monthly bills were approximately $152,301 (62%) greater than Edmonton.

14.2 CAPITAL STRUCTURE AND RETURN ON EQUITY

SaskPower's application provides a comparison of its debt ratio and ROE with other electric utilities in Canada. As with bill and rate comparisons, these comparisons can be challenging. Crown owned utilities may have different tolerances for debt ratios compared to investor-owned utilities. Business risks may also be different for vertically integrated utilities (those that provide generation, transmission and distribution services to their customers) compared to those utilities that provide only a portion of these services, leading to different debt ratios and returns on equity. However, this information can still provide useful context for evaluating SaskPower's position relative to its peer utilities.

14.2.1 Debt Ratio

The debt ratio provides a measure of total debt to total corporate capital structure. In general, the higher the debt ratio, the more leveraged the company is and the greater its financial risk. SaskPower's target ratio is 60% to 75%. Since 2011 SaskPower has increased its borrowing to support the delivery of its

243 Hydro Quebec, Hydro Quebec Comparison of Electricity Prices in Major North American Cities 2012 to 2016, page 49 for each of 2012 to 2016. Available at: http://www.hydroquebec.com/publications/en/corporate-documents/comparaison-electricity-prices.html.
244 Hydro Quebec Comparison of Electricity Prices in Major North American Cities calculates average monthly bills on April 1 for each year 2012 to 2016.

capital program. SaskPower's debt ratio is forecast to be at the upper end of the target range in the test years.[245]

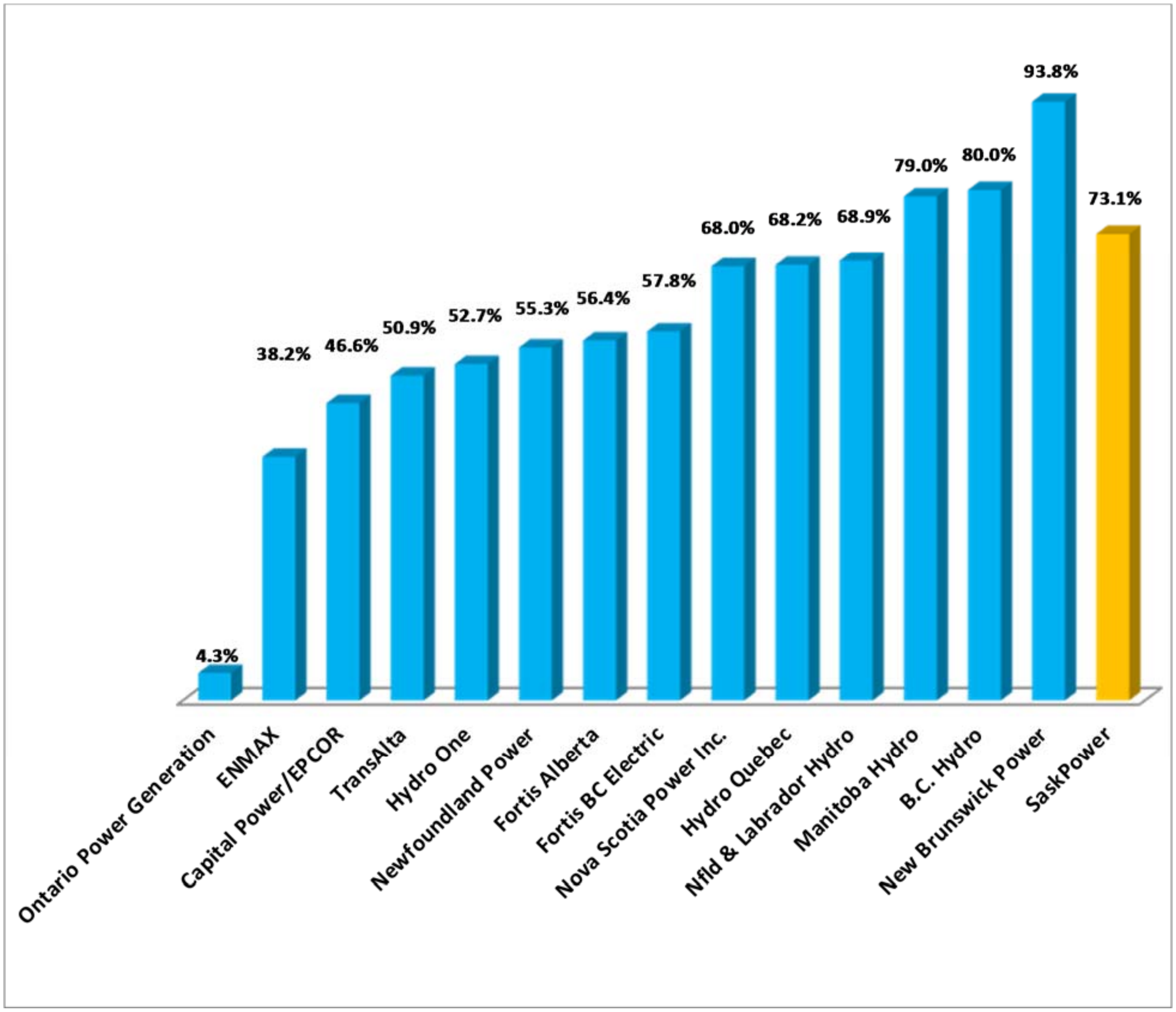
Figure 14-10 compares the debt ratios for a number of electric utilities in Canada. It should be noted that the utilities shown in Figure 14-10 include a mixture of:

- Government owned versus privately owned utilities.
- Vertically integrated (generation, transmission and distribution) versus utilities that only provide distribution or generation services to their customers.
- Primary sources of generation. Hydro utilities often have a higher debt ratio due to the substantial construction costs associated with building hydro-electric facilities.
- Different accounting standards including US GAAP, Canadian GAAP, IFRS or various modifications to these standards. Different accounting standards may affect how some costs are reflected in a utility's capital structure.

A review of Figure 14-10 indicates that SaskPower has the fourth highest percent debt ratio in the sample. Of the three utilities with higher debt ratios, all are government owned and two (Manitoba Hydro and BC Hydro) are primarily hydro-electric generation utilities.

[245] SaskPower 2016 and 2017 Rate Application, page 15.

Figure 14-10: Canadian Utility Comparison of Debt Ratio 2014 and 2015



14.2.2 Return on Equity

Return on equity measures the utility's profit relative to the equity invested in the utility. SaskPower states that in recent years it has attempted to cap its rate increases at 5% per year. The result has been that the Corporation has not achieved its long-term target ROE of 8.5%. This has resulted in increased debt levels. SaskPower states that achieving an adequate ROE is a prerequisite for the Corporation to maintain a reasonable capital structure.[246]

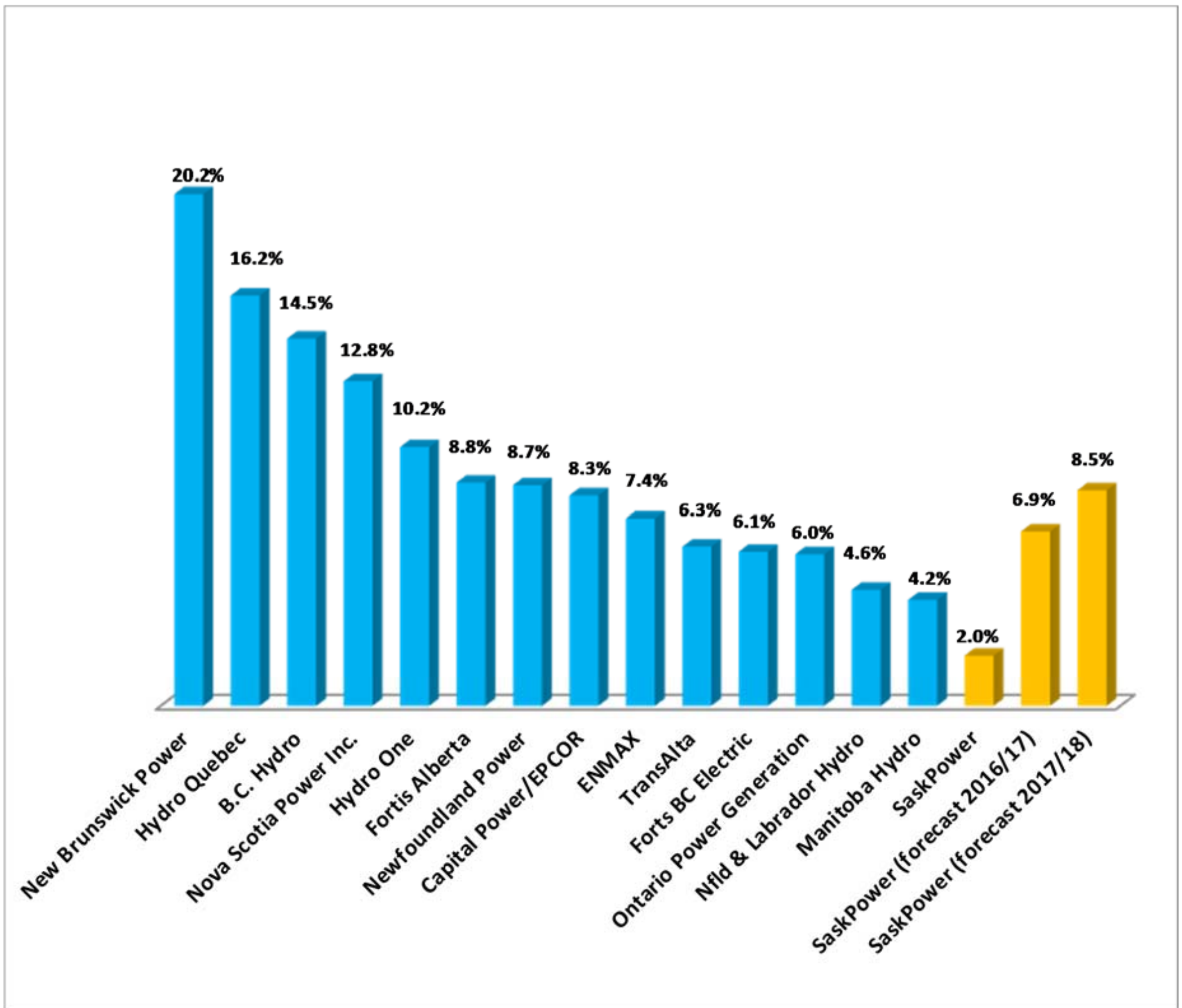
Figure 14-11 compares the actual 2014 and 2015 ROE for a number of electric utilities in Canada. As with the debt ratio, differences in ownership (government versus privately owned), accounting standards and

[246] SaskPower 2016 and 2017 Rate Application, page 14 and 15.

other factors may influence the calculation of the ROE and the business risks that influences what an acceptable ROE would be.

A review of Figure 14-11 indicates that SaskPower had the lowest ROE of the utilities in the sample in 2014. The rate increases proposed in the current application are projected to increase SaskPower's ROE to 6.9% in 2016/17 and 8.5% in 2017/18. Actual returns on equity vary from year to year for a variety of reasons, including weather, increased or decreased number of customers, changes to fuel prices and other factors. SaskPower provided information in its application that indicated its long-term target ROE is within the range of other Canadian utilities. Considering only government owned utilities, the lowest allowed ROE cited by SaskPower was 7.4% for NALCOR (Newfoundland and Labrador Hydro) the upper end of the observed range was approximately 12% (New Brunswick Power and BC Hydro). Most other government owned utilities had allowed ROEs of between 8% to 9%.[247]

Figure 14-11: Canadian Utility Comparison of Return on Equity 2014 and 2015



[247] SaskPower 2016 and 2017 Rate Application, page 15.

14.3 UTILITY RATE COMPARISONS

SaskPower is a thermal utility as it relies primarily on non-hydro electrical generation. This is important to note in utility rate comparisons as thermal rates are typically higher than rates in predominantly hydro jurisdictions. As of April 1, 2016 SaskPower average rates were above the Canadian thermal utility average for some customer types and below the Canadian thermal utility average for other customer types. Historically, SaskPower rates have been lower than the Canadian thermal utility average.[248]

With respect to future rate directions, many utilities in Canada are facing increasing rate pressure driven by the need to reinvest in infrastructure. The Consultant notes the following rate strategies announced in other jurisdictions:

- BC Hydro has a ten year rates plan that included proposed increases of 9% in 2015, 6% in 2016, 4% in 2017, 3.5% in 2018, 3% in 2019, and rates to be set by the BC Utilities Commission from 2020 to 2024.[249] Over the period 2015 to 2019 BC Hydro rates are expected to increase by an average of 25.5%.
- Manitoba Hydro indicates that 3.95% annual rate increases may be sought for the next 15 years.[250] Manitoba Hydro forecasts electricity rates will need to increase by 42% by 2024, as the utility plans to spend about $20 billion over the coming 10 years. Revenue requirement increases are attributable to new major projects including the Bipole III transmission project, Keeyask Hydro-electric Generating Station, Manitoba/Minnesota Transmission Project, and Conawapa hydro-electric sunk planning costs.[251] A Manitoba Hydro rate increase was approved by Manitoba Public Utilities Board for 3.36% effective August 1, 2016.[252]
- Hydro Quebec received approval for a 0.7% rate increase effective April 1, 2016 from the Régie de l'Energie. Hydro Quebec indicated the rate increase was required largely due to the costs from the harsh temperatures of the 2013/14 and 2014/15 winters.[253] In its 2017/18 rate application Hydro Quebec is requesting a rate increase of 1.6% effective April 1, 2017 for residential customers and most business customers.[254] Hydro Quebec indicates the increase is required mainly due to capital investment needed to ensure transmission asset sustainment. In Hydro Quebec's five year strategic plan the utility states it plans to keep any rate increases from 2016

[248] Forkast Consulting, Final Independent Report for the Saskatchewan Rate Review Panel on SaskPower's 2014-2016 Rate Application. April 10, 2014.
[249] BC Hydro, BC Hydro files interim rate application for year three of 10-Year Rates Plan, February 26, 2016. Accessed September 6, 2016 at https://www.bchydro.com/news/press_centre/news_releases/2016/interim-rate-application.html.
[250] PUB, Order 73/15, July 24, 2015, page 7. Accessed September 6, 2016 at http://www.pub.gov.mb.ca/pdf/15hydro/73-15.pdf.
[251] PUB, Order 73/15, July 24, 2015, page 7. Accessed September 6, 2016 at http://www.pub.gov.mb.ca/pdf/15hydro/73-15.pdf.
[252] PUB, Order No. 59/16, April 28, 2016, page 3. Accessed September 6, 2016 at http://www.pub.gov.mb.ca/pdf/16hydro/59-16.pdf.
[253] Hydro Quebec, 2016-2017 Rate Application – An electricity rate increase below inflation, March 8, 2016. Accessed September 6, 2016 at http://news.hydroquebec.com/en/press-releases/994/2016-2017-rate-application-an-electricity-rate-increase-below-inflation/.
[254] Hydro Quebec, 2017-2018 Rate Application, July 29, 2016. Accessed September 6, 2016 at http://news.hydroquebec.com/en/news/186/2017-2018-rate-application/.

to 2020 lower than or equal to inflation, with average capital investments in this period between $3.1 and $4.0 billion dollars.[255]

- New Brunswick Power applied for a 2% rate increase in its 2016/17 General Rate Application and it is still under review.[256] In October 2015 New Brunswick Power released a ten year plan for the fiscal years 2017 to 2026. In the ten year plan NB Power is looking for rate increases of 2% from fiscal years 2017 to 2021 and rate increases of 1% from fiscal years 2022 to 2026.[257] NB Power plans to reduce debt and achieve its legislated minimum targeted debt to equity ratio of 80/20 by 2021. The utility states this reduction in debt and creation of equity provides NB Power with some flexibility to respond to changing markets and technologies and to better prepare for future investment requirements, in particular the investments potentially required to replace the Mactaquac Hydro Generating Station.[258]
- Nova Scotia Power has created a Rate Stability Plan where it will not file a General Rate Application for the period from 2017 through 2019. The Nova Scotia Utility and Review Board came to a decision in 2009 that rate adjustments for the Fuel Adjustment Mechanism (FAM) are separate from general rate adjustments.[259] Over the years 2017, 2018, and 2019 Nova Scotia Power is only seeking fuel cost adjustments at less than the rate of inflation through to the end of 2019. For residential customers, this means rate increase of 1.5% - less than inflation – for 2017, 2018, and 2019.[260] In a report released in July of 2016 by the Nova Scotia Utility and Review Board, the Board approved Nova Scotia Power's application for the Base Cost of Fuel for 2017, 2018, and 2019, with an average rate increase of 1.3% across all customer classes.[261]
    - The FAM is a mechanism that allows periodic adjustments to customer rates, outside general rate proceedings, to reflect increases and decreases in Nova Scotia Power's cost of fuel.[262] The FAM developed out of consistent and large rate increases, particularly to the residential (domestic) class. For example, rate increases to the residential (domestic) class prior to the FAM were 7.1% in 2005, 9.9%in 2006, 5.3% in 2007, and 10.6% in 2008.[263] As a result of the FAM Nova Scotia Power focused on the impact that non-fuel components of the business have on net earnings, while retaining focus on managing fuel costs for customers. Post FAM implementation system wide rate increases and fuel

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[255] Hydro Quebec, Strategic Plan 2016-2020, p. 39. Accessed September 8, 2016 at http://www.hydroquebec.com/publications/en/docs/strategic-plan/plan-strategique-2016-2020.pdf.
[256] NBEUB, Decision 07/21/2016, July 21, 2016, Page 1. Accessed September 8, 2016 at http://www.nbeub.ca/opt/M/browserecord.php?-action=browse&-recid=492.
[257] Energie NB Power, NB Power's 10 Year Plan, Fiscal Years 2017 to 2026, October 2015, Page 2. Accessed September 8, 2016 at https://www.nbpower.com/media/169786/2017-26-ten-year-plan-en.pdf.
[258] Energie NB Power, NB Power's 10 Year Plan, Fiscal Years 2017 to 2026, October 2015, Page 2. Accessed September 8, 2016 at https://www.nbpower.com/media/169786/2017-26-ten-year-plan-en.pdf.
[259] Nova Scotia Utility and Review Board, Electricity. Accessed September 8, 2016 at https://nsuarb.novascotia.ca/mandates/electricity#general-rate-applications-29.
[260] Nova Scotia Power, Rate Stability Plan, 2016. Accessed September 8, 2016 at http://www.nspower.ca/en/home/about-us/electricity-rates-and-regulations/regulatory-initiatives/rate-stabilization-plan.aspx.
[261] Nova Scotia Utility and Review Board, The Board Sets the Base Cost of Fuel for 2017, 2018, and 2019, July 2016, p 4. Accessed September 8, 2016 at http://www.nspower.ca/site/media/Parent/M07348%20-%20Board%20Decision.pdf.
[262] Nova Scotia Power Incorporated's (Re), 2015 NSUARB 9 (CanLII), http://www.canlii.org/en/ns/nsuarb/doc/2015/2015nsuarb9/2015nsuarb9.html, retrieved September 22, 2016.
[263] NSUARB, Electricity Mandate – History of Rate Changes – Domestic Class. Retrieved on September 27, 2016 at https://nsuarb.novascotia.ca/sites/default/files/Electricity_Mandate_-_History_of_Rate_Changes_-_Domestic_Class_-_FAQ.pdf.

adjustments were 0.1% in 2009, 0% in 2010, 4.5% in 2011, 5.6% in 2012, 3% in 2013 and 2014, and 0% in 2015.[264]

- The Northwest Territories Power Corporation filed its 2016 to 2019 rate application with the Northwest Territories Public Utilities Board in June 2016. The Corporation notes it is seeking to transition customers to a required higher level of rates over a three year period, with proposed increases of 4.8% for 2016/17, 4% for 2017/18, and 4% in 2018/19, for an aggregate increase of 12.8%.[265] The proposed rate increases are currently being reviewed. An interim refundable rate increase of 4.8% effective August 1, 2016 was approved by the NWT PUB in its Decision 12-2016.
- The Yukon Electrical Company Limited is seeking approval of an interim refundable rate rider of 11.62%, effective July 1, 2016.[266] YECL is also seeking approval of revenue requirements of $53. 8 million for 2016 and $56.2 million for 2017, which represents year-over-year rate increases of 4.4% and 3.1% respectively.[267]
- The Government of Ontario has announced it will provide rebates on January 1, 2017 for electricity bills to urban and rural residents and small businesses to help offset high electricity rates, with an intention to implement new measures for commercial and industrial rate payers in the near future. Ontario residents will receive a rebate that is equal to the provincial portion (8%) of the 13% harmonized sales tax.[268] To further reduce pressure on rising electricity costs the Liberal government cancelled plans for up to 1,000 MW of power from solar, wind, and other renewable energy sources which is estimated to save up to $3.8 billion of the costs projected in the 2013 Long-Term Energy Plan.[269] The next long-term energy plan is to be released in 2017.
- Fargo, North Dakota has several electrical utility providers including Cass County Electric Cooperative, Xcel Energy (Northern States Power Company), Ottertail Power Company, and Moorhead Public Service. Using Xcel Energy as an example the North Dakota Public Service Commission accepted Xcel Energy's rate application for rate increases of 4.9% in each of 2013, 2014, and 2015 and a rate freeze in 2016 for Xcel's approximately 90,000 customers in North Dakota, primarily in Fargo, Grand Forks, Minot and West Fargo.[270] A news release on March 9,

[264] Nova Scotia Power Inc., Nova Scotia Power: Electricity Rate Stability Through 2015, April 1, 2014. Accessed September 22, 2016 at http://www.nspower.ca/en/home/newsroom/news-releases/rates2015.aspx.
[265] NTPC, General Rate Application 2016/19, June 2016, Page 1-1. Accessed September 6, 2016 at http://www.ntpc.com/docs/default-source/default-document-library/ntpc-2016_19-general-rate-application.pdf?sfvrsn=2.
[266] Yukon Utilities Board, Board Order 2016-02, June 24, 2016. Accessed September 6, 2016 at http://yukonutilitiesboard.yk.ca/pdf/Board_Orders_2010/Board_Order_2016-02.pdf.
[267] Yukon Utilities Board, Board Order 2016-02, June 24, 2016. Accessed September 6, 2016 at http://yukonutilitiesboard.yk.ca/pdf/Board_Orders_2010/Board_Order_2016-02.pdf.
[268] CBC News, Ontario Throne Speech Promises Electricity Bill Rebates, September 12, 2016. Accessed September 30, 2016 at http://www.cbc.ca/news/canada/toronto/ontario-government-throne-speech-electricity-rates-1.3758002.
[269] CBC News, Ontario Cancels Plans for More Green Energy Citing Strong Electricity Supply, September 27, 2016. Accessed September 30, 2016 at http://www.cbc.ca/news/canada/toronto/ontario-electricity-plans-1.3780440.
[270] Julie Fedorchak, N.D. Regulators Approve Four-Year Rate Increase Plan for Xcel Energy, February 28, 2014. Accessed September 28, 2016 at http://juliefedorchak.com/n-d-regulators-approve-four-year-rate-increase-plan-for-xcel-energy-mike-nowatzki-forum-news-service/.

2016 by the North Dakota Public Service Commission stated a rate freeze for base electric rates until at least 2018.[271]

- Montana has two regulated utilities of the Montana Dakota Utilities and NorthWestern Energy. Montana Dakota Utilities applied for a proposed 21.1% rate increase in June 2015. The Montana Public Service Commission reduced the proposed rate increase to be phased in over two years.[272] The first phase occurred on April 1, 2016 with a system wide rate increase of 5.4% and the second phase will occur on April 1, 2017 with a system wide rate increase of 7.5%.[273] Prior to the rate increase, the last increase in electric rates was 13.1% effective May 1, 2010.[274] NorthWestern Energy provides electricity to Montana, South Dakota, and Nebraska and the utility is subject to the approval of each states individual public utility commission. Montana law allows NorthWestern and other utilities to pass along 60% of its property taxes to customers via monthly bills and was approved for a rate increase in December 2015.[275] A typical residential customer (750 kWh/month) saw a rate increase of 0.45%. In South Dakota, NorthWestern Energy was approved for a system wide rate increase of 15.5% effective December 29, 2015.[276]

14.4 CONSULTANT OBSERVATIONS

The Consultant notes that SaskPower's proposed rate increases of 5% July 1, 2016 and 5% January 1, 2017 (10.25% total in six months) are higher than rate increases sought by most other utilities within a 12-month span. The rate approaches discussed in section 14.2.3 indicate most utilities in the sample plan their rate adjustments 12 months apart. The Public Utility Board in Manitoba recently delayed a Manitoba Hydro applied rate increase that was implemented on August 1, 2016; initially the rate increase was planned for an earlier date and would have occurred within a year from the previous rate increase, however the PUB delayed the increase to minimize the impact on rate payers.[277] In the Consultant's view it is likely that SaskPower's requested rate increases will result in higher increases than customers in other Canadian jurisdictions are likely to experience in the near term. For SaskPower customers who already pay rates higher than the thermal utility average, this difference is likely to increase in the near term. Some stakeholders also noted that Alberta energy prices are an important benchmark for them. SaskPower's average bills for the customer types examined in this section are higher in 2016 than for similar customers in Calgary and Edmonton.

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[271] North Dakota Public Service Commission, News Release, March 9, 2016. Accessed September 28, 2016 at http://www.psc.nd.gov/public/newsroom/2016/3-9-16CommissionMeetingNewsRound-up.pdf.

[272] Montana Public Service Commission, MPSC Approves Settlement Between MDU, Consumer Advocates, March 25, 2016. Accessed September 28, 2016 at http://psc.mt.gov/news/pr/2016pr/MDU%20Rate%20Case%20Order%20Press%20Release%20FINAL.pdf.

[273] Montana Electric Rates, Effective April 1, 2016, Page 2. Accessed September 30, 2016 at https://www.montana-dakota.com/docs/default-source/rates-and-services/rate-cases/mt-electric-distribution-rate-increase.pdf?sfvrsn=2.

[274] Montana Dakota Utilities Co., News from Montana-Dakota Utilities, June 13, 2016. Accessed September 28, 2016 at https://www.montana-dakota.com/utility-menu/news.

[275] Northwestern Energy, Northwestern Energy Clarifies 2015 Customer Property Tax Impact. Accessed September 30, 2016 at http://www.northwesternenergy.com/news/2016/08/10/NorthWestern-Energy-Clarifies-2015-Customer-Property-Tax-Impact.

[276] Northwestern Energy, Northwestern Energy Customer Notice Electric Rate Increase. Accessed September 30, 2016 at http://www.northwesternenergy.com/docs/default-source/documents/connections/2016/rate_increase.pdf.

[277] PUB Order No. 59/16, Page 4. Accessed September 19, 2016 at http://www.pub.gov.mb.ca/pdf/16hydro/59-16.pdf.

14.5 CONSULTANT RECOMMENDATIONS

The Consultant recommends the Panel carefully consider how the proposed rate increases will affect the competitiveness of SaskPower's rates compared to its peer utilities, balanced with the understanding that SaskPower's targets for debt ratio and ROE are within the range observed for other electric utilities in Canada.

15.0 PUBLIC AND STAKEHOLDER SUBMISSIONS

The Panel provided a number of opportunities and methods for the public and stakeholders to provide input. These included:

- **Public meetings –** The Panel hosted public meetings in Regina on June 21, 2016 and Saskatoon on June 23, 2016. SaskPower was invited to make a presentation at each meeting. The purpose of the meetings was to inform the public of the General Rate Application for 2016 and 2017 and to receive public feedback. Stakeholders were also invited to provide submissions at these public meetings.
- **Written, online, and voicemail submissions –** The Panel provide the opportunity for the public to provide comments through its website, feedback forms, email, and voicemail.
- **Stakeholder submissions –** Stakeholders were provided the opportunity to ask questions of SaskPower and submit written comments to the Panel.

15.1 PUBLIC MEETINGS

The Panel hosted public meetings in Regina on June 21, 2016 and Saskatoon on June 23, 2016. SaskPower was invited to make a presentation at each meeting. The purpose of the meetings was to inform the public of the 2016 and 2017 rate application and to receive public feedback regarding the application. Four online submissions from the public were provided at the June 21, 2016 meeting in Regina. At the June 23, 2016 meeting in Saskatoon, members from the Saskatoon Chamber of Commerce (Chamber) were in attendance and participated by providing a presentation and asking questions (summarized in section 14.2 – "Public Meeting Submissions"). Discussion topics during the public meetings included:

- Question and concern regarding SaskPower's capital spending program and the cancellation or deferrals of some of the projects in the original budget and SaskPower's ability to "spend it all prudently" if the money was available.[278]
    - o SaskPower's response indicated that capital spending is currently large compared to what it has been historically as it has been built to deliver the required infrastructure for growth and sustainment needs.[279]
- Question and comment regarding The Saskatchewan Government's ability to arbitrarily "dictate whatever ROE it wants" versus a privately held industry who answers to "real shareholders" who demand and expect returns.[280]
    - o SaskPower commented that the ROE should not be looked at in isolation. There are two ways of looking at ROE, through industry comparison and from the financial health and viability of the company. The financial health and viability of the company intertwines

[278] June 21, 2016 Transcript, page 37.
[279] June 21, 2016 Transcript, page 38.
[280] June 21, 2016 Transcript, page 39.

with the debt ratio and long-term debt target of 60% to 75%. SaskPower is now at the point where the leverage to be able to maintain a debt ratio around 75% has been used up and rate increases will help sustain this.[281]

- Question regarding unavailable data of the year 2016 for fuel and purchased power.[282]
    - SaskPower commented that all Crown corporations of Saskatchewan changed their fiscal year to March 31st. During this change, from a December 31st fiscal year-end, a 15 month fiscal year ending March 31st, 2016 was required. The three month stub period of January to March 31st, 2016 was not included in the presentation to ensure an equal comparison of 12 month periods.[283]
- Question regarding the expected annual interest payments for the stated debt until 2019.[284]
    - SaskPower stated that the expected annual interest payments are around $250 million a year on long-term debt. The overall finance charge, including capital leases short-term, is about $413 million a year.[285]

At the June 23, 2016 public meeting in Saskatoon, members from the Chamber were in attendance and participated by providing a presentation and asking questions. The Chamber submitted that SaskPower's proposed rate increase "calls for a rate increase four times greater than the consumer price index in 2016 followed by further application for an increase yet again four times the current rate of inflation."[286] This would place certain Saskatoon businesses at a disadvantage with its competitors, particularly those in the United States. In support of this point, the Chamber presented a graph comparing Saskatoon's cost of electricity to Billings, Montana and Fargo, North Dakota for 2012 to 2016. The study was completed by KPMG as a competitive alternatives analysis for 2016 in the agri-food: food processing industry for the annual forecast of electricity costs. The graph showed that SaskPower's electricity costs were currently higher than its comparisons and the gap would become even greater if SaskPower's proposed rate increases were approved.

- SaskPower commented on the rate increases stating that average rates have increased at approximately the same rate as inflation from 1980 through 2015. Increases in those past 35 years have been sporadic to meet large investments in capital projects. A large increase in a year of large capital projects would be followed by periods of low rate increases. SaskPower furthered their justification by stating $1 billion per year will be going towards capital spending, with a strategy to smooth out any possible volatility in its rates by requesting regular and moderate increases to reduce rate shock caused by spikes.[287]

[281] June 21, 2016 Transcript, page 40.
[282] June 21, 2016 Transcript, page 41.
[283] June 21, 2016 Transcript, page 41-42.
[284] June 21, 2016 Transcript, page 42.
[285] June 21, 2016 Transcript, page 42.
[286] June 23, 2016 Submission to the Saskatchewan Rate Review Panel for the SaskPower 2016, 2017 Rate Application.
[287] SaskPower, RE: Greater Saskatoon Chamber of Commerce Submission, July 29, 2016.

- SaskPower commented on the need for competitive and comparable US jurisdictions in analysis by including the comparison of US jurisdictions in the *Comparison of Electricity Prices in Major North American Cities* analysis completed by Hydro Quebec.[288]

As part of its submission, the Chamber also provided the following comments:

- SaskPower's dispersed grid serving a sparse population should no longer be used as a justification for rate increase as this fact has long been known as Saskatchewan's borders were established in 1905.[289]
  - SaskPower disputes the Chambers claim stating that a dispersed grid and Saskatchewan's sparse population are even more relevant for grid sustainment than in the past due to the low amount of money historically spent on the grid, the old age of the grid, and the few ratepayers per kilometre.[290]
- Saskatchewan's growth should allow SaskPower to realize economies of scale and incremental efficiencies. It should not be used as a justification for rate increases.[291]
  - SaskPower commented that the Chambers observation would be true if accommodation of growth could be achieved with existing infrastructure, however new growth requires the addition of capital assets which are more expensive than SaskPower's legacy assets dating back to the 1950s and 1960s.[292]
- OM&A costs are the largest area of increase, which are forecast to rise from $416 million in 2007 to $634 in 2014. This equates to a compounding rate of about 5.5% and is forecast to increase in 2018 again about 5.5%. These rates of increased expenditures far exceed any evident inflation pressure. [293]
  - SaskPower commented that the largest increase by 2017/18, dollars and percentage over 2015, is in depreciation expense, directly related to capital investment. SaskPower further commented that OM&A in 2015 had reduced its budgeted spending by $38.2 million, with additional budget reductions for a total savings of $91.1 million over four years.[294]
- SaskPower has consistently overestimated fuel and purchased power expenses (which SaskPower cites as a reason for the rate increase) and underestimated OM&A costs. In past applications, SaskPower forecasted lower hydroelectric generation then what actually resulted. Fuel and Purchased Power expenses have essentially remained stable over the past decade, yet SaskPower is forecasting an increase of over 48% from $513 million in 2012 to $707 million in 2019.[295]

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[288] SaskPower, RE: Greater Saskatoon Chamber of Commerce Submission, July 29, 2016.
[289] June 23, 2016 Submission to the Saskatchewan Rate Review Panel for the SaskPower 2016, 2017 Rate Application.
[290] SaskPower, RE: Greater Saskatoon Chamber of Commerce Submission, July 29, 2016.
[291] June 23, 2016 Submission to the Saskatchewan Rate Review Panel for the SaskPower 2016, 2017 Rate Application.
[292] SaskPower, RE: Greater Saskatoon Chamber of Commerce Submission, July 29, 2016.
[293] June 23, 2016 Submission to the Saskatchewan Rate Review Panel for the SaskPower 2016, 2017 Rate Application.
[294] SaskPower, RE: Greater Saskatoon Chamber of Commerce Submission, July 29, 2016.
[295] June 23, 2016 Submission to the Saskatchewan Rate Review Panel for the SaskPower 2016, 2017 Rate Application.

- SaskPower commented that prior to 2012, fuel expense was relatively steady for a decade, however since then fuel expense has been steadily increasing, from $513 million in 2012 to $650 million in 2015, despite the presence of a cheaper natural gas environment. Factors affecting purchased power and fuel expense include unfavourable change in SaskPower's fuel mix as a result of a forecasted below-average hydro year, increase in generation volumes (2016/17) to supply growth in electricity sales, unfavourable price and volume variances offset by a favourable mix variance and unfavourable price variance (2017/18) due to expected increase in load. SaskPower states that the culmination of these factors has led to an increase in purchased power and fuel expenses. SaskPower further commented that fuel is a relatively minor part of the rate increase request as the majority of the rate increase is driven by capital spending.[296]

The Chamber recommended that SaskPower's fuel consumption estimates for this application be regularly reviewed due to its history of overestimating. If actual fuel costs are found to be lower than those forecast, rebates or future rate reductions should be considered. If this recommendation is not accepted, the Chamber asked that rate increases be much closer to the CPI or the Bank of Canada target inflation rate.[297]

15.2 WRITTEN, ONLINE, AND VOICEMAIL SUBMISSIONS

- The Panel encouraged written and online submissions received from individuals. Public comments (total of 26) were received over a period from May 20 to September 9, 2016. Comments received indicated concerns regarding the number of rate increases, the collective total of the rate increases, the short time span of the rate increases, the current economic state (rate of inflation and salary increases vs the increase of the utility rate), the ability of low income and fixed income individuals to afford the rate increases, the high salaries of SaskPower executives versus the continued rate increases, donation contributions, a suggestion of privatization to encourage competition, and how the Panel should not approve an interim rate increase in July 2016 until the entire Application is approved. Examples include:
  - September 9, 2016 "All comments fall on deaf ears! More more…… and less for the consumer! Privatise all crowns and get some competition happening."
  - July 18, 2016 "Yeah I think before they charge any more money on SaskPower they should cut back on wages and millions of dollars that they spend (?) on donations (?) like dragon boat festival and all kinds of charity events and I think they should charge your lowest possible amount they can without having to get out to customers (?) in order for them to make millions of dollars. Thank you."

[296] SaskPower, RE: Greater Saskatoon Chamber of Commerce Submission, July 29, 2016.
[297] June 23, 2016 Submission to the Saskatchewan Rate Review Panel for the SaskPower 2016, 2017 Rate Application.

  - June 15, 2016 "A 10.5% increase in a span of six months is outrageously high. Rate increase should be limited to once per year and tied to inflation."[298]
  - June 15, 2016 "SaskPower should NOT be allowed to implement a rate increase before the Rate Review Panel has completed its report. To do so undermines the entire rate review process. I feel that my comments will not heard, and the Panel is meaningless. If the July 1st rate increase is allowed to proceed before the Panel approves, the government may as well dismantle the Rate Review Panel and use the savings to cancel the second proposed rate increase on Jan 1 2017. I urge you to DECLINE SaskPower's proposed rate increase for July 1 2016. Show them that the rate review process is important and that implementing a rate increase before the process is complete is unacceptable!"[299]
  - June 4, 2016 "There does not seem to be any accountability as far as management is concerned. Maybe there should be some wage cuts at the top of this mismanaged crown corporation. Furthermore how much of the profits have been misappropriated by governments and not reinvested to maintain this utility?????"[300]
  - May 28, 2016 "Hi Sask Rate Review, As a resident of Saskatchewan for the past 48 years, I am concerned with the idea of basically a 10% rate increase by SaskPower. I understand that inflation rates are exceedingly much less than 10% and as a senior on a fixed income, the frequent rate increases are affecting my financial bottom line. I hope when you are assessing the needs of SaskPower, you also consider the definite burden to the consumer. Thank you. Sincerely,"[301]
  - May 27, 2016 "I feel that 2 large increases 6 months apart is totally unacceptable for the average household to swallow! We are lucky if we get a 1% increase in our wages plus everything else is going up food, water etc. They should be allowed no more than the average wage in this province of 1% and only one increase a year! Thanks"[302]
  - May 26, 2016 "Enough is enough, the general public didn't buy the Smart Meters, nor did we sign a contract for Carbon Capture that pays the buyer millions. Wages are dropping in the province and the cost of living is getting out of control. Perhaps SPC should start trimming the fat from its head offices and start looking at how they are operating. Someone else has to held accountable for their over spending and not the consumers. Thanks"[303]

- In response to the text of written submissions including electronic messages received from individuals over a period of May 20 to September 9, 2016:
  - As the majority of individuals raised questions and concerns relating to similar content SaskPower responded to the majority of individual with a similar response:

[298] SaskPower, 2016 and 2017 Rate Application SRRP Website Public Comments Q1-Q21, page 18.
[299] SaskPower, 2016 and 2017 Rate Application SRRP Website Public Comments Q1-Q21, page 17.
[300] SaskPower, 2016 and 2017 Rate Application SRRP Website Public Comments Q1-Q21, page 16.
[301] SaskPower, 2016 and 2017 Rate Application SRRP Website Public Comments Q1-Q21, page 14.
[302] SaskPower, 2016 and 2017 Rate Application SRRP Website Public Comments Q1-Q21, page 11.
[303] SaskPower, 2016 and 2017 Rate Application SRRP Website Public Comments Q1-Q21, page 8.

> "We understand that rate increases can be a burden for our customers. We have attempted to minimize rate increases over the past few years through various cost-cutting measures, such as hiring freezes, wage freezes for out-of-scope employees, reductions in training and travel, deferred maintenance and reduced capital spending. In addition to cutting costs, SaskPower has also increased its borrowings and has only paid a dividend to the Crown Investments Corporation of Saskatchewan once since 2008.
>
> Our capital investment program has increased significantly over the past few years, made necessary by the need to upgrade an aging system as well as to keep up with the growth in electricity demand in our province. In fact, substantial investments in capital are necessary just to maintain the current level of reliability.
>
> SaskPower offers a number of energy efficiency programs and energy savings tips that can help our customers reduce their electricity bills. Related information can be found on our company's website at: http://www.saskpower.com/efficiency-programs-and-tips/."[304]

15.3 SASKPOWER PRESENTATION

At the June 21, 2016 and June 23, 2016 meetings SaskPower provided information on the proposed rate increases of 5.0% effective July 1, 2016 and 5.0% effective January 1, 2017. SaskPower explained that an interim rate increase effective July 1, 2016 was requested and granted. However, the regular review process would continue and a final decision would be made on the entire application, including the July 1, 2016 interim increase of 5.0%. To justify the proposed rate increase SaskPower supplied a presentation at the June 21, 2016 and June 23, 2016 meetings.

As part of its presentation, SaskPower supplied charts that provide the following information:

- Customer class rate impacts for each of the application years;
- Thermal average utility rate comparison to SaskPower for different customer classes;
- The average number of customer accounts per one km of transmission/distribution line compared to other Canadian utilities;
- SaskPower's system average rate increases compared to changes in inflation from 1980 to 2015 showing that SaskPower's system average rate increases have increased at approximately the same rate as inflation (3.5% versus 3.3% respectively) for that time period;
- SaskPower's operating income and ROE for the years 2011 to fiscal year 2018/19 where SaskPower is intending to bring the operating ROE to a targeted level of 8.5%;
- Canadian utility comparison of ROE for fiscal year 2014/15;
- Saskatchewan sales volume and forecasted load growth for the years 2011 to fiscal year 2018/19;

[304] SaskPower. 2016 and 2017 Rate Application SRRP Website Public Comments Q1-Q21, page 5.

- SaskPower's normalized energy sales variance for the years 2012 to 2015, where total variance (including power class and all other classes) has decreased from -6.5% in year 2012 to -0.2% in year 2015;
- SaskPower's export and trading margins for the years 2011 to fiscal year 2018/19;
- SaskPower's other revenue for the years 2011 to fiscal year 2018/19;
- SaskPower's fuel and purchased power by expense and volume for the years 2011 to fiscal year 2018/19;
- OM&A including budget, growth, Saskatchewan sales growth and Saskatchewan sales growth plus inflation for the years 2013 to fiscal year 2018/19;
- Capital investment expense including depreciation, finance charges, capital taxes and other expense for the years 2011 to fiscal year 2018/19;
- SaskPower's rate increase cost drivers for the years 2013 to fiscal year 2017/18. Cost drivers include capital related expenses (62%), fuel and purchased power (25%) and OM&A (13%);
- SaskPower's capital spending for the years 2013 to fiscal year 2018/19;
- SaskPower's debt and debt ratio for the years 2011 to fiscal year 2018/19; and
- Canadian utility comparison of percent debt ratio for fiscal year 2014/15 including a debt ratio benchmark.

SaskPower indicated that the primary driver for the rate increases is capital spending. The rate increases would also enable SaskPower to meet an ROE target of 8.5% in fiscal year 2017/18 and keep the debt ratio around 75%.

SaskPower advised that the rate increases would be a flat rate increase with no rate rebalancing. All customer classes would see a 5.1% rate increase other than commercial power contract rates which would see a rate increase of 3.9%. SaskPower stated that rates are currently comparable to those charged by other thermal utilities in Canada. However, residential rates are about 7% higher than the thermal average. SaskPower attributed the higher residential rates to Saskatchewan dispersed grid and sparse population compared to other Canadian utilities.

SaskPower also indicated concern of its aging infrastructure. Coal generation was largely built in the 1970s and 1980s (34% of generation capacity), hydro generation was constructed in late 1950s and 1960s with some as early as 1930s (20% of generation), nearly 70% of distribution poles were installed prior to 1990 and have a mean age of 38 years where the industry recommended average is 25 and the transmission system was largely built between 1950 and 1980.

SaskPower also cited examples of their many capital investments, which include:

- Sustainment Investments:
    - Transmission wood pole remediation program ($372 million over next 5 years);
    - Circuit breaker and relay replacement program ($60 million over next 5 years);
    - Rural rebuild and improvement program ($126 million over next 5 years); and

  - E.B. Campbell life extension ($245 million complete in 2025).
- Growth and Compliance Investments:
  - Pasqua to Swift Current transmission line ($260 million complete in 2019);
  - Kennedy to Tantallon transmission line ($113 million complete in 2017);
  - Regina to Pasqua transmission line ($100 million completion date TBD);
  - Tazi Twe hydroelectric station (approximately $630 million completion date TBD); and
  - Distribution customer connects ($509 million over next 5 years).

SaskPower advised that the initiatives it has undertaken to reduce the impact of rate increases on customer classes have resulted in OM&A budget reductions forecast at $91.1 million over the years 2015 to fiscal year 2018/19, capital budget reductions forecast at $1,000 million over the years 2015 to fiscal year 2018/19, realized business renewal savings of $528 million since 2009 through overhaul maintenance, financing and capital structure, strategic sourcing and new connect, and realized conservation program savings through DSM of 107 MW total capacity savings and 303 GWh total energy savings since 2009.

SaskPower's presentation summarized its application as follows:

- Rate increases are required primarily to fund SaskPower's capital investments;
- SaskPower expects to meet its targeted ROE of 8.5% in fiscal year 2017/18;
- Without the rate increases, the financial health of the Corporation would be at risk; and
- The request is consistent with the Corporation's strategy of capping annual rate increases at 5% or less.

15.4 WRITTEN SUBMISSIONS FROM STAKEHOLDERS

The Canadian Association of Petroleum Producers (CAPP), Saskatchewan Industrial Energy Consumers Association (SIECA), the Saskatchewan Chamber of Commerce, and Meadow Lake Mechanical Pulp (MLMP) made written submissions or a presentation to the Panel. Those submissions along with SaskPower's responses, if any, are summarized below.

Canadian Association of Petroleum Producers

In a written submission dated September 9, 2016, the Canadian Association of Petroleum Producers (CAPP) indicated they were not supportive of SaskPower's rate increase implemented on July 1, 2016 or the additional increase in 2017 and made the following recommendations to the Panel.[305]

1. For the present application, SaskPower should restrict rate increases to that required to satisfy the 75% debt limit and forgo the additional return necessary to meet the long-term ROE target.

[305] CAPP, Submission to SRRP, Review of SaskPower's 2016 and 2017 Rate Application, Project No. 161573, September 9, 2016, page 2-3.

- o SaskPower commented that responsibly managing the company's debt load must remain a primary area of focus. Since 2011 SaskPower has borrowed significantly to enable a capital program and has now reached the upper level of the debt ratio target range. SaskPower must raise rates to have sufficient revenue to levelize debt ratio at the upper end of the target range. Since 2011, SaskPower has not achieved its target ROE and the debt ratio has climbed to manage customer rate pressures. In the initial submission SaskPower forecast an operating ROE of 6.9%, which was adjusted to 3.8% for the Mid-Application Update, both are substantially lower than the target of 8.5% set by the CIC. Debt ratio forecast also increased from 74.7 in the original Application to 75.8% in the Mid-Application Update, slightly higher than 75% debt limit.

2. The horizon of SaskPower's hedging program raises concerns and CAPP requests that its concerns with the program be brought to the attention of the Panel.
    - o SaskPower indicated it will share the concern with the SaskPower Board of Directors.
3. A request that SaskPower clarify how the potential benefit of declining wind generation costs will be recognized in evaluating new wind projects. Additionally, a request that SaskPower clarify the commitments required of wind generators under IPP contracts with SaskPower, and specifically clarify the expectations in respect of the Chaplin facility.
    - o SaskPower commented that the addition of approximately 1,700 MW of new wind generation projects will be expected to occur by 2030. As a result, benefits are expected from any declining costs and/or advancements in technology that are available at the time of each project's procurement. As these projects are procured through a competitive process, it is anticipated that IPPs will propose the lowest cost and most efficient equipment models at their disposal. SaskPower believes the company's wind generation IPP contracts are similar to what is typical in the industry, but SaskPower is not in a position to share confidential information related to specific IPP contracts. The Chaplin Wind Energy Project proposed development site has been denied by the Government of Saskatchewan following a review by the Saskatchewan Environmental Assessment Review Panel. The proponent is currently working to find a new site that will meet sitting guidelines.
4. A request that SaskPower confirm that in IPP versus build comparisons, SaskPower recognizes the cost of equity that is, or will be, required in its capital structure to support the capital lease.
    - o SaskPower commented that a discounted future cash flow approach to arrive at relative net present values of costs is used to weigh the alternatives. The discount rate is normally equal to SaskPower's weighted average cost of capital. The weighted average cost of capital reflects a cost, currently 8.5%, for the equity component.
5. A request to encourage future capital expenditures of SaskPower to examine all possible alternatives to obtain the lowest possible source of supply.
    - o SaskPower commented that an exhaustive list of criteria is used when making any decisions regarding potential investments in new electricity generation sources. Cost is primary consideration, with considerations of other issues such as greenhouse gas emissions and fuel diversity in Saskatchewan's complete generation mix. SaskPower is

currently in the final decision regarding Tazi Twe Hydroelectric Project. When making the decision on whether to proceed, SaskPower will consider all supply options to service northern load using the same comprehensive evaluation criteria that are used in all of SaskPower's electricity supply decisions.

6. CAPP supports efficient and effective means of providing customers with consumption data that will assist in managing site energy consumption and enable improved forecasts of site consumption.
    - o SaskPower commented that it is continuing to work on delivery of a viable metering solution that will provide customers with information they require. SaskPower's plan is to begin working with commercial customers – including oilfield customers – on implementation of a new technology beginning in 2017. When the metering solution becomes operable, oilfield customers will have the tools they require to better manage site loads on an individual basis.
7. The application of the equivalent peaker methodology should be examined more closely in the next Cost of Service study.
    - o SaskPower commented that during its most recent Cost of Service Review in 2012, an independent consultant validated SaskPower's use of the Equivalent Peaker Method and saw no compelling reason to suggest changing the company's classification methodology. However, SaskPower plans to re-examine the Equivalent Peaker Method during its 2017 Cost of Service review to ensure its classifications still fall in line with industry standards.

CAPP believes that the discussion still remains with government on whether SaskPower's chosen method of implicitly pricing carbon is the most efficient way of driving emissions reductions in Saskatchewan.[306] CAPP also states that the increase in revenue requirement has not been matched by increases in sales: sales have been growing at roughly half the rate costs have been increasing, resulting in large annual rate increase with significant future rate increases likely.[307]

Saskatchewan Industrial Energy Consumers Association

In a letter dated July 15, 2016 the Saskatchewan Industrial Energy Consumers Association (SIECA) made the following comments:[308]

- SIECA noted concern with the magnitude of rate increases for both 2016 and 2017 and states that many of SIECA's members are energy intensive, trade exposed (EITE) entities that are currently facing extraordinarily challenging commodity market conditions. This is not a time for SaskPower to raise rates for the purpose of balance sheet or capital structure, this is a time for SaskPower to aggressively reduce OM&A spending, restrain capital investment and move rates transitionally over time to achieve target ROE levels.

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[306] CAPP, Submission to SRRP, Review of SaskPower's 2016 and 2017 Rate Application, Project No. 161573, September 9, 2016, page 3.
[307] CAPP, Submission to SRRP, Review of SaskPower's 2016 and 2017 Rate Application, Project No. 161573, September 9, 2016, page 5.
[308] SIECA, Re: Interrogatory Requests Regarding SaskPower 2016-2017 Rate Application, July 15, 2016.

- SIECA members are concerned about the trajectory of future rate increases and the rate burdens borne by large high load factor Power Class customers relative to other classes of customers.
- SIECA members remain unable to adequately perform independent due diligence on SaskPower's rates as SaskPower does not allow customers to access the assumptions, information and data contained in their Cost of Service models.

A report released September 2016 and prepared by SIECA made the following recommendations to the Panel:[309]

- SaskPower must ensure that system sustainment investment priority is preserved by exercising stringent control on the overall level of system growth related capital spending and the load efficacy of that spending.
    - o SaskPower commented that system sustainment spending must remain a major focus. In last number of years growth and compliance component of capital spending has outweighed sustainment component. Under the Power Corporation Act SaskPower has a duty to focus on growth investments. Going forward, spending on growth investments will continue to be a critical component of the Capital Plan, with targets of up to 50% renewable energy capacity of 2030. On a go-forward basis the plan includes about 30% of its total capital spending directed to sustainment.
- Management and Board of SaskPower need to review the capital management and commercial processes within SaskPower to ensure that there is direct and timely correlation between capital deployment to connect new customers or loads on the system and revenue realization from the growth.
    - o SaskPower commented that it reviews load forecast with its Executive Board of Directors on a quarterly basis, with a target to have forecasts to come within 3% of actual results in any given year. The greatest volatility has been with Power (industrial) and Oilfield customer classes. More recently, SaskPower has balanced customer demand forecasts against Government of Saskatchewan Ministry of Economy natural resource development data, bringing forecasts significantly more in line with actual results. In recent years sales forecasts to actual results have improved in forecasting, SaskPower's 2014-16 Rate Application sales forecast demonstrates a reasonable level of accuracy:

(in GWh)	**2013**	**2014**	**2015**
2014-16 Rate Application Forecast	20,714	21,111	22,033
Actual Results	20,753	21,389	21,625
Variance	(39)	(278)	408
% difference from forecast	-0.2%	-1.3%	1.9%

[309] SIECA, Submission to the SRRP Regarding the SaskPower 2016 and 2017 Rate Application, September 2016.

- Recommendation of the Panel to incorporate a detailed and critical evaluation of electricity rate competitiveness in its final report and recommendations.
    - SaskPower commented that data supplied in the 2016/17 Rate Application is provided from *Hydro Quebec's Comparison of Electricity Prices in Major North American Cities*. The same independent source SaskPower has been using to compare rates in Canada for many years.
- Timing and magnitude of the rate increases are not appropriate in current economic environment resulting in a need to incorporate suitable emphasis on the economic backdrop in Saskatchewan into its calculus for reviewing the Application.
    - SaskPower commented that despite struggles in certain sectors, demand for electricity continues to increase overall. SaskPower is working hard to ensure power is available to customers and must continue to accommodate growth while refurbishing and replacing the existing system to maintain reliable service. SaskPower further states that many initiatives have been implemented, such as Business Renewal Program, to help reduced need for and scale of rate increases. Meanwhile, since 2014-16 Rate Application was launched in 2013, a below-target ROE has been pursued and, other then 2012, CIC has not collected a dividend since 2009.
- Senior Management and Board of SaskPower to take aggressive action to reduce OM&A costs.
    - SaskPower commented that it benchmarks its OM&A spending over a longer period of time to smooth out year-to-year maintenance fluctuations. From 2013 to 2018-19, OM&A is forecast to grow at a rate about the same as the growth in Saskatchewan sales volumes. When factoring in inflation on sales growth, the increase in OM&A spending falls well short of Saskatchewan sales growth throughout this application's time period. OM&A spending is continually monitored and controlled. In 2015, real savings were found through freezing management salaries, reducing spending on training, travel and contract services, and reducing the budgeted number of employees by not filling vacancies as people retire or leave company.
- Recommendation of immediate review of SaskPower cost allocation methodology. SIECA, along with consultant KTM Inc., commented that the current cost allocation methodology fails to appropriately assign fixed generation and transmission costs among customer classes. A distortion of residential and farm classes have led to over allocation of generation and transmission demand costs to high load factor customers in Power, Commercial, and Reseller customer classes which inappropriately increase their electricity costs. SIECA further commented that data obtained from SaskPower through interrogatory requests revealed that SaskPower uses a non-standard mathematical averaging method to manipulate customer peak load data that is not a standardized or classically accepted 2CP allocation method. Other concerns of SIECA include the appropriateness of the Equivalent Peaker method and lack of information access and transparency that customers face in trying to perform due diligence under current regulatory construct.
    - SaskPower commented that a public review of its Cost of Service methodology occurs every five years, under guidance of SRRP and external consultants. The last public review

was completed in 2012 with implemented recommendations in 2014. The next public review is scheduled for 2017. As SaskPower is recommending a flat rate increase a cost of service study would have no impact on the proposed rate increase.

- Recommendation of suspension of the rate increase requested for January 1, 2017.
  - SaskPower commented that it has provided all material required under the MFR set out by SRRP and has responded to all subsequent requests for information. Additionally, SaskPower has traditionally only provided cost of service studies for those years in which the rate increases are effective, in this case the 2016/17 fiscal period.
- A recommendation of a no dividend policy.
  - SaskPower commented that other than a special dividend paid in 2012 based on 2011 financial results, CIC has not collected a dividend from SaskPower since 2009. When it comes to the potential for the payment of dividends, SaskPower cannot comment as that decision rests with CIC and the Government of Saskatchewan.

Saskatchewan Chamber of Commerce

In a letter dated July 29, 2016 the Saskatchewan Chamber of Commerce urged the Panel to take careful evaluation of the 2016/17 Rate Application and made the following recommendations:[310]

- Recommend SaskPower undertake more efforts to maximize demand-side management;
- Recommend that the Government of Saskatchewan continue to refrain from taking dividends from SaskPower;
- Direct SaskPower to continually look for additional efficiencies in operations, management, and administration; and
- Recommend SaskPower continue to limit the time horizon for multiple rate increase applications and refrain from instituting rate increases prior to the conclusion of the Rate Review Panel process.

Meadow Lake Mechanical Pulp

In a presentation date August 29, 2016 Meadow Lake Mechanical Pulp (MLMP) indicated there is an element of unfairness in the rate proposal being advanced by SaskPower and made the following recommendations of the Panel and SaskPower:[311]

- The Panel shall provide an opinion of the fairness and reasonableness of SaskPower's proposed rate change having consideration for (amongst other things) the interest of the Crown Corporation, its customers, and the public;
- The Panel, in conducting the electricity rate change review, will consider the reasonableness of the current rate structure and all components (basic charge, energy, and demand charge)

[310] Saskatchewan Chamber of Commerce, re: SaskPower 2016-17 Rate Application, July 29, 2016.
[311] Meadow Lake Mechanical Pulp, Points and Excerpts from Presentation to the SRRP, August 29, 2016.

comprising the rate and the future impact of the proposed rate change on different customer groups;

- A recommendation around the E25 and E85 rate codes and time-of-use rate split including different rates for the demand charge and energy charge between the E24 and E25 rate codes and, correspondingly, the E84 and E85 rate codes. Including a further recommendation of implementation of a larger differential between the on/off peak energy charge for the E85 rate code. That change would provide a more meaningful incentive for major users, such as MLMP, to make investments or adopt operating practices to shift time-of-day use;
- Recommendation on demand-side management by implementing an enhanced Industrial Energy Optimization Program (IEOP). Through amending the IEOP a major EITE manufacturer, like MLMP, would be eligible for an IEOP capital cost incentive of up to 10% if its SaskPower annual billing. Through rate adjustments and IEOP enhancement MLMP recommends finding a way to avoid "X%" of the increase impact; and
- Recommendation on timing of implementation of the rate increase. The short rate increase implementation period does not allow MLMP time to continue to implement thoughtful cost reduction initiatives. MLMP is requesting the Panel to recommend that the increases be stepped through four equal increases, at six month intervals, also noting that when the increase was announced by SaskPower the CEO suggested no further increases would be required for a year thereafter. MLMP requests a delay to the implementation so there is time to implement mitigation measures.

15.5 CONSULTANT OBSERVATIONS

The Consultant notes that the majority of public comments are not in favour of the SaskPower rate increases. Submissions were received from the public and the Saskatoon Chamber of Commerce during public meetings, online submissions, and stakeholder submissions. Common themes raised in the public and stakeholder submissions included:

- Concern over two rate increases in a six month period, including the large cumulative rate increase and the trajectory of rate increases that this represents.
- Concern over rate increases compared to inflation and how this will affect low income households and businesses, particularly personal affordability and cost of living for households and competitive advantages for businesses.
- Concern over the accuracy and reasonableness of SaskPower's operating forecasts and budgets, in particular stakeholders commented on the accuracy of forecast fuel and purchased power expenses and increases in OM&A spending.
- Concern over the magnitude and justification for SaskPower's planned capital program.

15.6 CONSULTANT RECOMMENDATIONS

The Consultant recommends that the Panel consider the perspectives of the public and stakeholders in its final recommendation on rates.

16.0 PAST PANEL RECOMMENDATIONS

For the 2014 to 2016 rate application the Panel was encouraged to make recommendations to SaskPower. The Panel provided three recommendations of SaskPower for the rate application including an update of SaskPower responses:

- That the interim system average rate increase of 5.5% implemented on January 1, 2014, be confirmed and finalized.[312]
  - SaskPower's response accepted as recommended.
- That a system-average rate increase of 5% effective January 1, 2015 be conditionally approved, subject to the following requirements:[313]
  - An updated summary of any changes in SaskPower's operating environment;
  - The latest annual report;
  - The most recent quarterly report;
  - An updated forecast for 2014, 2015 and 2016;
  - A detailed update on the capital plan from 2014 to 2016;
  - Updated reports on the Business Renewal Program, Advance Metering Infrastructure Project and Demand Side Management; and
  - Any other pertinent information requested by the Panel at that time, including the applicable cost of service study.
    - SaskPower's response accepted as recommended.
- That the proposed system-wide rate increase of 5% effective January 1, 2016, be denied due to the number of variables and assumptions in the 2014 forecast.[314]
  - SaskPower's response accepted as recommended.

The Panel was encouraged to make observations based on the 2014/16 rate application. The Panel provided three observations to SaskPower:[315]

- Capital projects: SaskPower has had discussions with key stakeholders regarding its future plans, including capital projects. SaskPower has also included a section in the 2016 and 2017 rate application with more detailed information regarding our capital plan.

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[312] SaskPower, Minimum Filing Requirements Presented to: Saskatchewan Rate Review Panel [2016 and 2017 Rate Application], section 6, page 1.
[313] SaskPower, Minimum Filing Requirements Presented to: Saskatchewan Rate Review Panel [2016 and 2017 Rate Application], section 6, page 1.
[314] SaskPower, Minimum Filing Requirements Presented to: Saskatchewan Rate Review Panel [2016 and 2017 Rate Application], section 6, page 1.
[315] SaskPower, Minimum Filing Requirements Presented to: Saskatchewan Rate Review Panel [2016 and 2017 Rate Application], section 6, page 2.

- Public education: In order to help our customers better understand our province's power infrastructure challenge, SaskPower launched the province-wide Power to Grow tour in 2014. Since then it has made 227 stops in communities throughout Saskatchewan and has reached nearly 70,000 people. 82% of participants surveyed believe that our province is facing an electricity infrastructure challenge.
- Donations policy: SaskPower has reviewed its sponsorship policy.

17.0 SUMMARY OF CONSULTANT'S RECOMMENDATIONS

This review has highlighted that SaskPower is at the beginning of a period of substantial transition. This transition period will have implications for rates far beyond the two test years in the current application. SaskPower's 10-year capital plan includes approximately $1.1 billion of annual capital spending. Approximately 40% of the forecast capital spending in this period relates to SaskPower replacing or refurbishing existing infrastructure. The majority of the remaining capital spending relates to growth and compliance spending to address new generation requirements and the transition to new sources of generation to reduce greenhouse gas emissions.

The interest expense and depreciation expense associated with this capital plan is anticipated to add approximately $77 million annually to SaskPower's revenue requirement. This will require average annual rate increases in the range of 3% to keep up with capital spending. Inflation in fuel prices and OM&A will add to these annual rate increase requirements. SaskPower is now forecasting that its debt to equity ratio will rise above the 60-75% target range in the 2016/17 and 2017/18 test years, based on the mid-application update. The Consultant notes that SaskPower's capital plan will continue to put upward pressure on the debt ratio over the next decade.

The Consultant and the Panel heard from many stakeholders that the pace of electricity rate increases is being felt across all customer classes. The recent rate increases were also noted to have reduced the competitiveness of SaskPower's rates and customer bills relative to other thermal generation utilities in Canada. The Consultant has noted these effects on competitiveness in this report.

While the current application only requests approval for rates for 2016 and 2017, the Consultant feels strongly that ratepayers should have access to the information to understand the implications of this capital program for future rate increases over the next 10 years. SaskPower's rates have increased faster than inflation for the last ten years and this trend seems likely to continue for some time. On that basis, the Consultant has made several recommendations for the Panel to consider.

Requested Rate Increase and Competitiveness:

The Consultant recommends that the Panel recommend confirming the 5% interim rate increase that took effect July 1, 2016.

With respect to the 5% rate increase requested for January 1, 2017, the Consultant recommends that the Panel consider the effects of reducing or deferring the requested rate increases on SaskPower's ability to achieve the long-term target ROE in the test years and balance those considerations with the bill impacts on customers and the effects on competitiveness.

The Consultant recommends the Panel carefully consider how the proposed rate increases will affect the competitiveness of SaskPower's rates compared to its peer utilities, balanced with the understanding that SaskPower's targets for debt ratio and ROE are within the range observed for other electric utilities in Canada.

The Consultant recommends that the Panel consider the perspectives of the public and stakeholders in its final recommendation on rates.

Future Rate Applications:

The Consultant recommends that the Panel encourage SaskPower to prepare public versions of the load forecast, Cost of Service study, and resource plan as part of future rate applications.

Load Forecast:

The Consultant recommends that the Panel accept SaskPower's load forecast for the test years as reasonable for ratemaking purposes.

The Consultant recommends that the Panel encourage SaskPower to consider the importance of the long-term load forecast for resource planning purposes when completing future reviews of the load forecast methods.

Resource Plan:

The Consultant recommends that the Panel request that SaskPower file a copy of the resource plan, the engagement strategy and the renewable integration study with the Panel when completed.

The Consultant recommends that the Panel support a public review process for SaskPower's resource plan, including implications for future rate increases, prior to 2019. The Consultant recommends that the resource plan include information on the following:

- SaskPower's long-term load forecast, including different load scenarios as appropriate;
- Capacity and energy gaps between existing generation resources (including planned retirements) and SaskPower's long-term load forecast;
- Options to address the future capacity and energy gaps, including the costs of each option or portfolio of options;
- Greenhouse gas emissions associated with each option or portfolio of options; and
- Forecast rate increases over the planning horizon associated with each option or portfolio of options.

The Consultant understands that the information and forecasts for a 20-year resource planning period will be at a higher level than that provided for a rate application, however the Consultant believes this information is vital for customers and stakeholders to understand the future rate and other implications of SaskPower's resource plan.

Revenue Requirement:

The Consultant recommends that the Panel encourage SaskPower continue to focus on constraining increases in OM&A spending.

The Consultant recommends that the Panel request SaskPower consider the results of the renewable integration study and how best to reflect integration costs of intermittent renewable generation in its reporting of F&PP expenses and in its resource supply plan evaluations of generation costs.

Cost of Service Study:

The Consultant recommends that the Panel encourage SaskPower to provide stakeholders the opportunity to meaningfully participate in the next COS study review. In the Consultant's view this would include participation in an issue identification process at the beginning of the review, the ability to review and ask questions about preliminary results prior to a report being drafted, and the opportunity to review and comment on a draft report before it is finalized.

The Consultant recommends that the Panel request that as part of this review SaskPower provide sufficient information to interested parties to allow them to understand and test the reasonableness of SaskPower's COS methods. The Consultant understands that data may need to be aggregated so as to protect confidential information. The Consultant recommends that the scope of the next external COSS review include:

- Reviewing whether the 2CP allocation method continues to be reasonable for demand-related costs functionalized as generation, transmission and distribution and the data inputs used to determine overall customer class demand allocation.
- Review the calculations associated with the equivalent peaker method.
- Reviewing the calculation of class coincident peaks and non-coincident peaks including the appropriate number of historic years of data and number of peaks to include. As described in the NARUC Manual, the number of system peaks used should ultimately be based on the utility's annual load shape and on system planning considerations.[316]
    - Helpful for this analysis is hourly peak data graphed by year, for the years included in the historic range (i.e. the last five years) to view trends and consider the appropriate number of data points to use in CP method.
- Consider the implications of any class consolidation that SaskPower may consider reasonable to propose.
- Review the calculation of the minimum system method used to classify distribution lines and transformers.
- Documentation and explanation on how the demand response program affects participating customer class historical peak demand used as input data for cost allocation and any resulting adjustments in the COS study.

Rate Design:

The Consultant recommends that the Panel accept SaskPower's proposed rate design for the purposes of the current application.

[316] The National Association of Regulatory Utility Commissioners (NARUC), Electric Utility Cost Allocation Manual, January, 1992, page 41.

The Consultant recommends that the Panel encourage SaskPower in its next rate application to consider rebalancing rates between customer classes and also between demand charges and energy charges based on the average unit costs calculated in SaskPower's Cost of Service study.

18.0 ACKNOWLEDGEMENTS

Throughout this review the Consultant was assisted by representatives from SaskPower including Mr. Troy King, Director, Corporate Planning, Finance; Mr. Tim Council, Rate Regulation; and Mr. Darren Foster Manger, Rate Regulation. We wish to thank them for their timely and thorough responses to information requests of the Panel and stakeholders throughout the process.

We would also like to acknowledge the public and stakeholders for their participation in the process. We recognize the effort required to review the proceeding materials and thank them for their thoughtful submissions. The review process was greatly enhanced by their participation.

Finally we wish to thank the Chair and the Panel for their insight and perspectives. We recognize the challenge the Panel members accept in balancing the financial needs of the utility with the effects of rate increases on customers and competitiveness with other jurisdictions.

APPENDIX A

TERMS OF REFERENCE

Government of Saskatchewan

Minister's Order
Saskatchewan Rate Review Panel
SaskPower Rate Change Proposal Terms of Reference

WHEREAS by an Order dated December 16, 2015, issued pursuant to Section 15 of *The Executive Government Administration Act*, the Minister of Crown Investments appointed a Ministerial Advisory Committee known as the Saskatchewan Rate Review Panel;

AND WHEREAS that Order provides for specific terms of reference for particular Crown Corporation rate change reviews to be attached by further Minister's Order;

AND WHEREAS it is desirable to establish terms of reference for a SaskPower electricity rate change review and to attach the terms of reference to the previously mentioned Minister's Order;

NOW THEREFORE, I hereby amend the said Minister's Order by attaching Appendix A affixed hereto as **"Schedule A: 2016 - SaskPower Rate Change Proposal Terms of Reference"** to the said Minister's Order.

Dated at Regina, Saskatchewan this ______19____ day of________May______, 2016

Minister of Crown Investments

Schedule A

Schedule A: 2016 - SaskPower Rate Change Proposal Terms of Reference

The Saskatchewan Rate Review Panel is requested to conduct a review of SaskPower's request for increases in its electricity rates targeted for implementation on July 1, 2016, and January 1, 2017

The July 1, 2016, increase will be implemented on an interim basis. Cabinet may implement any rate change adjustment on an interim basis pending receipt of the Panel's recommendation(s).

The Panel shall function within its mandate and operational terms of reference as specified in the Minister's Order dated December 16, 2015. The Panel shall provide an opinion of the fairness and reasonableness of SaskPower's proposed rate change having consideration for the following:

- The interests of the Crown Corporation, its customers and the public;
- Consistency with the Crown Corporation's mandate, objectives and methodologies;
- Relevant industry practices and principles; and
- The effect of the proposed rate change on the competiveness of the Crown Corporation related to other jurisdictions.

In conducting the a electricity rate change review, the Panel will consider the following factors:

A) The reasonableness of the proposed changes to the rates in the context of SaskPower's forecasted cost of service over the period 2016-17 inclusive comprised of:
   (i) anticipated costs for fuel;
   (ii) anticipated hydro facilities availability;
   (iii) load forecast;
   (iv) planned maintenance programs;
   (v) operating, administrative and maintenance expenses;
   (vi) depreciation and finance expenses; and,
   (vii) Corporate Capital Tax.

B) The revenue requirement resulting from the cost of service.

C) The reasonableness of the current rate structure and all components (basic charge, energy charge and demand charge) comprising the rate.

D) The future impact of the proposed rate change on different customer groups.

E) The Panel shall consider the following parameters as given:
   i. the budgeted capital allocation, the rate base, and established corporate policies over the period 2016 and 2017 inclusive;
   ii. the targeted long term Return on Equity target of 8.5%;
   iii. the existing service levels;
   iv. any existing supply contract; and
   v. the revenue to revenue requirement ratio target range of 0.95 to 1.05.

SaskPower will provide the Panel with its application package immediately. SaskPower will also provide the Panel with any supplementary information as the Panel may require in fulfilling its mandate and these terms of reference.

SaskPower will provide the Panel with a mid-application update, including any material updates to this application, by no later than September 16, 2016 if a business factor (or factors) vital to formulating this rate application has changed significantly from the original business factor (or factors) used in the application.

The Panel shall determine a public consultation process for this rate change application appropriate and cost effective under the circumstances and within the timeline for the review as established by the Minister of Crown Investments.

The Panel shall provide members of the public with the opportunity to review and comment on SaskPower's rate change submission outside any public meeting, to the extent reasonable and within the timeline for the review as established by the Minister of Crown Investments.

The Panel shall provide an opportunity to SaskPower to make a presentation to it and to the public as the Panel considers appropriate to discuss noteworthy rate application issues.

The Panel shall, in a timely and efficient manner, forward to SaskPower for response questions that the Panel receives from the public, individual Panel members and its technical consultant.

The Panel shall provide SaskPower with the opportunity and reasonable time to review the Panel's technical consultant's preliminary report prior to its finalization to ensure there is no error in data or in the interpretation of data. The preliminary report shall include the consultant's observations (e.g. outstanding issues and questions), but will not include the consultant's recommendations to the Panel.

The Panel must include in its final report an explanation of how, in its opinion, implementation of the Panel's rate recommendations will allow SaskPower to achieve the performance inherent in the parameters outlined in section (E), where the Panel's recommendations are different from SaskPower's proposed rate changes.

Consistent with the "Confidentiality Guidelines" for the Panel (March 11, 2010), the Panel will not publicly release or require SaskPower to publicly release Confidential Information supplied by the Crown Corporation to the Panel during the course of the rate change application review.

The Panel will release, as part of its report, the results of the review of SaskPower's rate request as conducted by an independent third party. By doing so the Panel shall ensure there has been no indirect release of any of SaskPower's Confidential Information.

Conduct of the Review

The Panel will present its primary report detailing its analysis and recommendations on SaskPower's proposed electricity rate change request to the Minister of Crown Investments no later than November 7, 2016. The reporting date may be modified by the Minister of Crown Investments in consultation with the Panel Chair.