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SIECA FOLLOW-UP QUESTIONS

SIECA Q2 SUPPLEMENTARY 3 - FOLLOW-UP:

In its response to SIECA's Question #2, Supplementary 3, SaskPower provided several charts showing the Total Energy, Max Demand, Winter Tri-Average Demand and Summer Tri-Average Demand for each customer class for the years 2010 – 2014. The customer class Total Energy amounts in these charts does not match that provided in response to SaskPower's response to SRRP Q 101 (comparison attached).

1. Please explain why the annual energy amounts for each customer class are different in SaskPower's response to SIECA Q2, Supplementary 3 and SRRP Q 101.

2. Please compare and explain the methodology SaskPower used to calculate the annual energy amounts in response to SRRP Q 101 and methodology used to calculate the annual energy amounts in response to SIECA Q 2, Supplementary 3.

3. If SaskPower used a different methodology to calculate its answers to SRRP Q 101 and SIECA Q 2, Supplementary 3, please explain why SaskPower deemed it appropriate to do so.

Response:

SaskPower originally submitted this information with the intent of providing a basic understanding of how it derives its coincident and non-coincident peak load factors for use in its Cost of Service models used for rate design purposes. To provide additional clarity, please see the expanded and revised tables below:

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Residential - Urban/Rural (EIS)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	2,178,000	1,963	12.67%	54.97%	452	64.72%	384	59.45%	418
2011	1,921,097	1,798	12.19%	60.02%	365	46.98%	467	52.70%	416
2012	2,088,264	2,000	11.89%	56.13%	424	61.80%	385	58.83%	404
2013	1,871,872	1,803	11.85%	52.27%	409	54.51%	392	53.37%	400
2014	1,495,271	1,439	11.86%	48.28%	354	58.58%	291	52.93%	322
Average	**1,910,901**	**1,801**	**12.11%**	**54.41%**	**401**	**56.80%**	**384**	**55.58%**	**392**

Farm (EIS)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	1,233,112,392	744,450	18.91%	60.53%	232,558	110.20%	127,737	78.15%	180,118
2011	1,236,803,497	738,270	19.12%	57.46%	245,722	83.93%	168,219	68.23%	206,941
2012	1,075,692,999	691,173	17.72%	56.05%	218,503	87.35%	140,202	68.28%	179,353
2013	1,219,512,658	756,434	18.40%	54.37%	256,029	79.66%	174,749	64.63%	215,389
2014	1,262,402,744	769,641	18.72%	53.15%	271,135	91.31%	157,829	67.19%	214,481
Average	**1,205,504,858**	**739,993**	**18.59%**	**56.19%**	**244,789**	**89.46%**	**153,747**	**69.03%**	**199,256**

Urban Commercial (EIS)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	2,304,732,227	714,985	36.80%	86.10%	305,574	75.44%	348,729	80.41%	327,176
2011	2,304,732,227	774,747	33.96%	81.17%	324,137	67.95%	387,172	73.98%	355,657
2012	1,849,350,935	607,319	34.67%	81.39%	258,667	83.49%	252,159	82.43%	255,411
2013	2,096,090,493	737,484	32.45%	79.83%	299,748	68.84%	347,573	73.93%	323,660
2014	1,886,721,608	604,248	35.64%	87.86%	245,130	71.05%	303,143	78.57%	274,137
Average	**2,088,325,498**	**687,757**	**34.64%**	**83.12%**	**286,651**	**72.70%**	**327,755**	**77.56%**	**307,208**

Rural Commercial (EIS)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	791,512,159	260,892	34.63%	84.93%	106,386	73.66%	122,672	78.89%	114,537
2011	791,512,159	283,869	31.83%	79.65%	113,440	65.82%	137,283	72.08%	125,362
2012	716,119,734	250,739	32.51%	79.89%	102,050	82.12%	99,275	80.99%	100,664
2013	773,005,016	271,864	32.46%	77.88%	113,309	66.28%	133,134	71.61%	123,222
2014	753,548,542	264,984	32.46%	86.27%	99,713	68.05%	126,412	76.08%	113,062
Average	**765,139,522**	**266,470**	**32.76%**	**81.60%**	**106,980**	**70.54%**	**123,755**	**75.67%**	**115,369**

Power - Contracts (MV90)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	1,596,413,033	315,668	57.73%	103.62%	175,878	117.30%	155,366	110.10%	165,527
2011	1,429,048,683	312,003	52.29%	84.38%	193,337	116.61%	139,896	97.91%	166,616
2012	1,495,504,092	306,111	55.62%	84.11%	202,425	86.90%	195,911	85.48%	199,168
2013	1,547,565,572	318,681	55.44%	75.57%	233,774	89.00%	198,490	81.74%	216,132
2014	1,775,623,708	332,138	61.03%	85.61%	236,768	103.76%	195,343	93.82%	216,056
Average	**1,568,831,018**	**316,920**	**56.48%**	**85.87%**	**208,437**	**101.12%**	**177,001**	**92.89%**	**192,700**

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Power - Published Rates & Large Oil (MV90)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	5,845,051,074	1,037,023	64.34%	86.50%	771,372	102.81%	649,022	94.02%	709,705
2011	6,370,387,596	1,114,084	65.27%	95.35%	762,687	97.94%	742,493	96.63%	752,590
2012	6,344,878,384	1,192,443	60.58%	93.70%	770,864	105.19%	686,699	99.11%	728,781
2013	6,718,636,507	1,164,314	65.87%	91.86%	834,927	97.11%	789,817	94.41%	812,372
2014	7,008,265,345	1,175,359	68.07%	94.18%	849,435	107.30%	745,570	100.32%	797,502
Average	**6,457,443,781**	**1,136,644**	**64.82%**	**92.34%**	**797,857**	**101.94%**	**722,720**	**96.92%**	**760,190**

Standard Oilfield (EIS)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	2,075,666,176	353,125	67.10%	92.59%	255,908	106.01%	223,518	98.85%	239,713
2011	2,075,666,176	366,300	64.69%	88.87%	266,635	107.46%	220,508	97.28%	243,571
2012	2,188,950,815	396,751	62.81%	91.08%	273,603	105.18%	236,921	97.62%	255,262
2013	2,349,256,898	448,349	59.82%	88.63%	302,596	109.16%	245,681	97.83%	274,139
2014	2,304,515,530	521,706	50.43%	85.38%	308,122	109.90%	239,379	96.10%	273,750
Average	**2,198,811,119**	**417,246**	**60.12%**	**89.16%**	**281,373**	**107.58%**	**233,201**	**97.51%**	**257,287**

Streetlights (ATCO profile)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	56,100,000	13,590	47.12%	47.58%	13,459	0.00%	-	95.16%	6,730
2011	57,000,000	13,809	47.12%	49.51%	13,142	0.00%	-	99.02%	6,571
2012	59,000,000	14,293	46.99%	47.28%	14,207	0.00%	-	94.56%	7,104
2013	56,600,000	13,630	47.41%	47.66%	13,557	0.00%	-	95.32%	6,779
2014	59,900,000	14,511	47.12%	48.13%	14,206	0.00%	-	96.27%	7,103
Average	**57,720,000**	**13,967**	**47.15%**	**48.02%**	**13,714**	**0.00%**	**-**	**96.04%**	**6,857**

Resellers (MV90)

				WINTER		SUMMER		2CP	
Year	Total Energy kWh	Max Demand kW	NCP Load Factor	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW	Load Factor	Tri-Avg CP Demand kW
2010	1,254,252,571	225,323	63.54%	73.64%	194,421	67.85%	211,025	70.63%	202,723
2011	1,252,953,477	242,059	59.09%	72.14%	198,258	60.41%	236,786	65.75%	217,522
2012	1,254,012,246	241,889	59.02%	71.49%	199,704	72.55%	196,772	72.01%	198,238
2013	1,268,116,775	242,650	59.66%	71.78%	201,666	61.47%	235,516	66.23%	218,591
2014	1,262,610,948	236,754	60.88%	75.46%	191,015	63.29%	227,751	68.84%	209,383
Average	**1,258,389,203**	**237,735**	**60.39%**	**72.87%**	**197,013**	**64.80%**	**221,570**	**68.60%**	**209,291**

Clarifying notes related to the tables above

1) The residential class' energy and maximum demand totals have been restated to reflect the actual results obtained from sample EIS interval meters (approximately 200). SaskPower applies the NCP and CP load factor results from the residential sample data directly to the class' energy to determine the NCP and 2CP demands. In its original submission, SaskPower scaled the energy and maximum demands to provide perspective as to the class' impact relative to other classes, while keeping the original load factor percentages unchanged. SaskPower apologizes for any confusion this may have caused.

2) NCP, winter, summer and 2CP load factors are now included for convenience.

3) The intent of the tables was to show, without violating customer confidentiality, how SaskPower determines its NCP and 2CP load factors for rate design purposes. The tables show the results of SaskPower's load research studies with no outlier years excluded.

4) The energy totals provided for each year will not match SaskPower's actual reported energy sales (see SRRP Q101). This is due to the methodology SaskPower incorporates when calculating its load factor determinants. This methodology is explained below.

SaskPower's load research methodology

Every year, SaskPower conducts an annual load research study of its customer classes. The results are incorporated into its annual base (actual) cost of service study. SaskPower then uses the average of five years of actual results to compute each customer class' NCP and 2CP load factors for its test (forecast) cost of service model for rate design purposes.

SaskPower receives customer load information from a variety of sources:

1. EIS interval meters – Residential, farm, commercial and oilfield
2. MV90 meters – Power class, resellers and large oil
3. ATCO profile – Streetlights

Once the information is obtained from these sources, a series of adjustments to the data is done to obtain what SaskPower feels are the best results for all of its customers. These adjustments include:

1. Customer – Removal of those customers with anomalous energy results (EIS).
2. Billing – Removal of those customers from the billing data without 12 months of consumption before applying EIS sample results.
3. Yearly – Removal of a customer or class' actual year end results from the five-year average

The results in the tables above include exclusions referenced in points 1 and 2, but do not contain any yearly exclusions referenced in point 3.

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Base (actual) years:

1) SaskPower utilizes a tri-average demand methodology, meaning it averages the top three winter and summer peaks from all customers within their respective classes to determine their 2CP demand. It does this to even out any anomalies that may have occurred during the year. Failing to do so would most likely skew the resultant five-year averages and potentially allocate a disproportionate amount of demand related costs within the test (forecast) years to those classes.

2) Although SaskPower utilizes a tri-average demand, and its EIS sample sizes are statistically valid, some of its annual individual customer load data does not provide practical results. SaskPower has established threshold limits that, if exceeded, result in any EIS outliers being removed from the dataset before being extrapolated to the larger billing determinants. Since MV90 customers are individually metered, their actual data results are incorporated into the base (actual) cost of service study and are not adjusted at this time.

3) Once the EIS sample information has been finalized, the results are extrapolated directly to the respective class' billing determinates contained in SaskPower's billing system. SaskPower applies the EIS results only to the respective class' billing information that contains 12 months of consumption. This is why the energy totals in the tables above do not match the actual reported sales contained in SRRP Q101; any customers without 12 months of data have been removed from the dataset and are therefore not included in the totals. The final annual load factor results are then applied to the actual energy sales in the base (actual) cost of service study and then included in a five-year average for test (forecast) purposes.

Test (forecast) years:

1) Once five years of actual load research data has been compiled, SaskPower averages the data for use in its test (forecast) cost of service model for rate design purposes. These results (without exclusions) are shown in the tables above.

2) It is extremely rare for mass market (residential, farm, commercial or oilfield) customers to have any years of data excluded at this point, although it can happen if there is a substantial shift in the amount of energy consumption within a class (or rate code) that was relatively stable in previous years. If such an event occurs, SaskPower removes the outlier years from the data set until a trend is established (minimum three years).

3) It is at this stage where MV90 customers whose annual results exceeded SaskPower's established thresholds are removed from the data set. SaskPower requires a minimum of three years (maximum five) to establish a customer usage trend and those customers who do not meet that requirement are assigned a standardized NCP and CP load factor, based on an average Power class customer (currently 75% and 92%, respectively). Unlike mass market customers, whose EIS results are extrapolated to their entire respective class, each Power class customer's load factors are individually calculated and applied directly within cost of service to their forecasted energy in test (forecast) years.

4) Attempting to reconcile the above results to Schedule 4.0 will be unsuccessful for the following reasons:

   a. The information contained in the tables above is based on actual (base) consumption. The values in Schedule 4.0 are based on forecasted (test) information.

   b. The results in the Power-Published table above do not include any customer exclusions. Even if it did, it still would not reconcile to Schedule 4.0 because those customers assigned standardized load factors, as a result of their actual data being excluded, will not register any demand values until those standardized factors are applied to their forecasted energy within the test (forecast) cost of service, upon which Schedule 4.0 is based. SaskPower cannot divulge which customers have incurred exclusions without violating customer confidentiality.

   c. Any change in a customer's forecasted energy consumption from their previous actuals will affect the weighting of that customer's energy to the total within the class and, by extension, their resultant 2CP and NCP demands and load factors. For example, the load factors for the Urban Commercial class contained in the table above do not match the results in Schedule 4.0. ((34.64% (NCP) and 77.56% (2CP) vs 34.00% (NCP) and 76.11% (2CP), respectively)). This is because the forecasted energies for the rate codes that comprise the Urban Commercial class are in a different proportion to their previous actuals. When the load factors are applied to the energy forecast, a variance results.

d. The oilfield class in Schedule 4.0 contains both standard (small) and Power-Oil (large) customers. These customers are subject to the same criteria for EIS and MV90 customers as expressed above. SaskPower cannot divulge which customers are included in this class nor divulge which customers have incurred exclusions without violating customer confidentiality.

e. Power–Contract customers' load factors can fluctuate annually based on the provisions stated in their Electrical Service Agreements (ESA). SaskPower cannot release any information relating to these provisions due to confidentiality agreements within the ESA.

<u>Summary</u>

A cursory comparison of the tables' results (highlighted in yellow) to Schedule 4.0 shows that many of the load factors, while not the same, are comparable. The differences are attributed to the explanations above. SaskPower has attempted to answer this interrogatory satisfactorily without violating customer confidentiality.