

**FY2019/20 Utility Consumption Summary**  
with Itemized External Customer Totals

**18/19 Data**

Updated: August 8, 2018 cj  
Reformatted: July 17, 2007 mf

Utility	Supplier	Service	Annual Cost			Customer Portion	Annual Consumption			Customer Portion	Annual Production					
			Subtotal	per ft <sup>2</sup>	per Student		Subtotal	per ft <sup>2</sup>	per Student		Subtotal	per ft <sup>2</sup>	per DD	per Student		
<b>Fort Garry Campus</b>																
Natural Gas	Manitoba Hydro	LGS (formerly Interruptible) - Powerhouse	\$3,035,055				15,470,343.32 m <sup>3</sup>					442,133,000 lbm	85 lbm	76,007 lbm	17,634 lbm	
		External Customers - Steam	(\$649,334)			21.4%	(1,887,537.9) m <sup>3</sup>			12.2%		53,944,686 lbm	10 lbm	9,274 lbm	2,151 lbm	
		Interruptible - Net University	\$2,385,721	\$0.461	\$95.15	78.6%	13,582,805.4 m <sup>3</sup>	2.625 m <sup>3</sup>	542 m <sup>3</sup>	87.8%		388,188,314 lbm	75 lbm	66,733 lbm	15,482 lbm	
Natural Gas	Manitoba Hydro	LGS - Campus	\$135,987				583,666.8 m <sup>3</sup>					Boiler Efficiency: 80.96% ignoring POW oil				
		LGS - External Customers	(\$22,945)			16.9%	(91,677.8) m <sup>3</sup>			15.7%		94,602 MMBtu				
		LGS - Net University	\$113,042	\$0.022	\$4.51	83.1%	491,989.0 m <sup>3</sup>	0.095 m <sup>3</sup>	20 m <sup>3</sup>	84.3%						
Natural Gas	Manitoba Hydro	LGS - Max Bell	\$53,162	\$0.359			229,318.0 m <sup>3</sup>	1.550 m <sup>3</sup>								
Natural Gas	Manitoba Hydro	1 Research Road	\$3,414	\$0.023			13,444.8 m <sup>3</sup>	0.091 m <sup>3</sup>								
Natural Gas	Manitoba Hydro	LGS - Campus Day Care	\$3,352	\$0.664			13,470.6 m <sup>3</sup>	2.670 m <sup>3</sup>								
Natural Gas	Manitoba Hydro	Southwood Lands	\$0				0 m <sup>3</sup>									
Natural Gas	Manitoba Hydro	78 Innovation Drive	\$0				0 m <sup>3</sup>									
Natural Gas	Manitoba Hydro	37 King's Drive	\$1,857	#DIV/0!			6,844 m <sup>3</sup>	#DIV/0! m <sup>3</sup>								
<b>Natural Gas</b>	<b>Manitoba Hydro</b>	<b>Fort Garry Campus Net</b>	<b>\$2,560,548</b>	<b>\$0.481</b>	<b>\$102.12</b>		<b>14,337,872 m<sup>3</sup></b>	<b>2.692 m<sup>3</sup></b>	<b>572 m<sup>3</sup></b>							
<b>Diesel &amp; Fuel Oil</b>	<b>Shell / Co-Op</b>	<b>The Point, Standby Generators &amp; Delta Marsh</b>	<b>\$3,911</b>	<b>\$0.001</b>	<b>\$0.16</b>											
<b>Fuel Oil</b>	<b>Shell / Co-Op</b>	<b>Powerhouse Oil Burnt</b>	<b>\$0</b>	<b>\$0.000</b>	<b>\$0.00</b>		<b>0 klbm</b>	<b>0.000 klbm</b>	<b>0.0 klbm</b>							
Electricity	Manitoba Hydro	Fort Garry Campus - Combined	\$6,121,201				84,941,486.0 kWh									
Electricity	Manitoba Hydro	Richardson Centre	\$199,372				2,764,800.0 kWh									
Electricity	Manitoba Hydro	Crop Technology	\$51,779				613,620.0 kWh									
Electricity	Manitoba Hydro	Strawbale House	\$72,490				975,360.0 kWh									
		External Customers - Electricity	(\$141,336)			2.3%	(2,007,369.0) kWh			2.4%						
		External Customers - Chilled Water	(\$124,435)			2.0%	(823,691.2) kWh			1.0%						
<b>Electricity</b>	<b>Manitoba Hydro</b>	<b>Fort Garry Campus Net</b>	<b>\$6,179,070</b>	<b>\$1.160</b>	<b>\$246.44</b>	100.9%	<b>86,464,205.8 kWh</b>	<b>16.232 kWh</b>	<b>3448 kWh</b>	101.8%		976,516 tonh	2 tonh	3,826 tonh	221 tonh	
Water	City of Winnipeg	Fort Garry Campus - Combined	2,349,630.94				24,161,898 ft <sup>3</sup>									
		External Customers - Water	(\$503,029)			21.4%	(4,430,831) ft <sup>3</sup>			18.3%						
<b>Water</b>	<b>City of Winnipeg</b>	<b>Fort Garry Campus Net</b>	<b>\$1,846,602</b>	<b>\$0.347</b>	<b>\$73.65</b>	78.6%	<b>19,731,067 ft<sup>3</sup></b>	<b>3.704 ft<sup>3</sup></b>	<b>787 ft<sup>3</sup></b>	81.7%						
	Combined	Fort Garry Campus Net Utilities Cost	\$10,590,131	\$1.988	\$422.37											
		Powerhouse Costs	\$1,510,220	\$0.284	\$60.23											
		<b>Fort Garry Campus Totals</b>	<b>\$12,100,352</b>	<b>\$2.27</b>	<b>\$482.60</b>											

External customers consumed 12.4%

Bannatyne Campus										
Steam	HSC	Basic Medical Sciences	\$520,682	\$1.128		46.3%	50,329,094 lbm	109 lbm	11375 lbm	46.4%
		Apotex Centre	\$116,870				11,261,122 lbm			
		Brodie Centre - Combined	\$604,532				58,167,600 lbm			
		External Customers - Steam	(\$29,458)			2.6%	(2,132,723) lbm			2.0%
		Brodie Centre Net	\$575,074	\$1.638		51.1%	56,034,877 lbm	160 lbm	12664 lbm	51.6%
		Rate Stabilization	\$0							
<b>Steam</b>	<b>HSC</b>	<b>Bannatyne Campus</b>	<b>\$1,212,626</b>	<b>\$1.245</b>	<b>\$274.06</b>	<b>107.8%</b>	<b>117,625,093 lbm</b>	<b>120.8 lbm</b>	<b>26584 lbm</b>	<b>108.4%</b>
Chilled Water	HSC	Basic Medical Sciences	\$117,931	\$0.255		36.0%	822,189 tonh	1.780 tonh	186 tonh	36.0%
		Apotex Centre	\$45,900				320,000 tonh			
		Brodie Centre - Combined	\$186,958				1,303,406 tonh			
		External Customers - Chilled Water	\$(5,790)			1.8%	(48,589) tonh			2.1%
		Brodie Centre Net	\$181,168	\$0.516		55.4%	1,254,817 tonh	3.575 tonh	284 tonh	55.0%
		Chown	\$22,314	\$0.394		6.8%	155,565 tonh	0.443 tonh	35 tonh	6.8%
		Chilled Water Rate Stabilization	\$0							
<b>Chilled Water</b>	<b>HSC</b>	<b>Bannatyne Campus</b>	<b>\$367,313</b>	<b>\$0.377</b>	<b>\$83.01</b>	<b>112.3%</b>	<b>2,552,551 tonh</b>	<b>2.6 tonh</b>	<b>577 tonh</b>	<b>111.9%</b>
Compressed Air	HSC	Bannatyne Campus	(\$0)							
Fire Main	HSC	Bannatyne Campus	\$712							
Rent	HSC	Medical Rehabilitation	\$172,506	\$0.177	\$38.99					
Natural Gas	Manitoba Hydro	Bannatyne Campus (6 accounts)	\$6,268	\$0.006	\$1.42		18,864 m³	0.0 m³	4 m³	
		External Customers	(\$88)				(426.04) m³			
<b>Natural Gas</b>	<b>Manitoba Hydro</b>	<b>Bannatyne Campus Net</b>	<b>\$6,180</b>	<b>\$0.006</b>	<b>\$1.40</b>		<b>18,437 m³</b>	<b>0.019 m³</b>	<b>4 m³</b>	
Electricity	Manitoba Hydro	Bannatyne Campus	\$1,250,458				20,817,550 kWh			
		External Customers - Electricity	(\$86,412)			6.9%	(1,398,369) kWh			6.8%
<b>Electricity</b>	<b>Manitoba Hydro</b>	<b>Bannatyne Campus</b>	<b>\$1,164,048</b>	<b>\$1.196</b>	<b>\$263.08</b>	<b>93.1%</b>	<b>19,219,181 kWh</b>	<b>19.7 kWh</b>	<b>4344 kWh</b>	<b>93.2%</b>
Water	City of Winnipeg	Bannatyne Campus	\$165,442				1,379,707 ft³			
		External Customers - Water	(\$2,487)			1.3%	(19,247) ft³			1.4%
<b>Water</b>	<b>City of Winnipeg</b>	<b>Bannatyne Campus</b>	<b>\$182,955</b>	<b>\$0.188</b>	<b>\$41.35</b>	<b>98.7%</b>	<b>1,360,461 ft³</b>	<b>1.40 ft³</b>	<b>307 ft³</b>	<b>98.6%</b>
		<b>Bannatyne Campus Totals</b>	<b>\$3,112,519</b>	<b>\$3.20</b>	<b>\$703.44</b>					

Consumption is stable or falling but costs continue to rise.  
38,524 m3

Other Campuses										
Electricity	Manitoba Hydro	Glenlea	\$80,169	\$0.562			1,170,039 kWh	8		
		Carman	\$9,595	\$0.583			92,160 kWh	6		
		Norrie Centre	\$32,279	\$2.004			353,650 kWh	22		
<b>Electricity</b>	<b>Manitoba Hydro</b>	<b>Other Campuses</b>	<b>\$122,144</b>	<b>\$0.696</b>			<b>1,615,889 kWh</b>	<b>9.2 kWh</b>		
Natural Gas	Manitoba Hydro	Glenlea	\$26,956	\$0.187			100,258 m³	1		
		Carman	\$4,664	\$0.280			16,178 m³	1		
		Norrie Centre	\$8,005	\$0.497			30,636 m³	2		
<b>Natural Gas</b>	<b>Manitoba Hydro</b>	<b>Other Campuses</b>	<b>\$39,366</b>	<b>\$0.224</b>			<b>147,072 m³</b>	<b>0.8 kWh</b>		

Combined Fort Garry & Bannatyne Campuses										
Natural Gas	Manitoba Hydro	Combined	\$2,566,727	\$0.396	\$85.59		14,356,310 m³	2.217 m³	479 m³	
Electricity	Manitoba Hydro	Combined	\$7,465,262	\$1.153	\$248.95		107,299,276 kWh	16.570 kWh	3578 kWh	
Steam	HSC	Bannatyne Campus	\$1,212,626	\$0.187	\$40.44		117,625,093 lbm	18.164 lbm	3923 lbm	
Water	City of Winnipeg	Combined	\$2,029,558	\$0.313	\$67.68		21,091,527 ft³	3.257 ft³	703 ft³	
Chilled Water	HSC	Bannatyne Campus	\$367,313	\$0.057	\$12.25		2,552,551 tonh	2.6 tonh	85.1 tonh	
Rent	HSC	Medical Rehabilitation	\$172,506	\$0.027	\$5.75					
Fuel Oil	Shell Canada	Fort Garry Campus	\$3,911	\$0.001	\$0.13		0 litres	0.000 litres	0.0 litres	
Fire Main	HSC	Bannatyne Campus	\$712							
Compressed Air	HSC	Bannatyne Campus	(\$0)							
	Combined	Combined Gross Utilities Cost	\$13,818,614							
		Powerhouse Costs	\$1,510,220							
		<b>Combined Fort Garry &amp; Bannatyne Campus Totals</b>	<b>\$15,328,834</b>	<b>\$2.37</b>	<b>\$511.18</b>					

5,067,915 therms  
157,775,592 USgallons

**1. Gross Areas:**

	ft <sup>2</sup>		m <sup>2</sup>		
Max Bell	147,979	2.78%	13,748	13,748	2.78%
Day Care	5,045	0.09%	469	469	0.09%
37 King's Drive		0.00%	0		0.00%
Remainder of FTG Campus	5,173,665	97.13%	480,645	480,645	97.13%
<b>Fort Garry Campus Total Gross</b>	<b>5,326,689</b>	<b>100%</b>	494,861	<b>494,861</b>	<b>100%</b>
Brodie Centre	351,006	36.05%	Brodie / Buhler Finished Gross Area		
Chown	56,704	5.82%	Old Basic Demolished in FY16/17		
Apotex	104,117	10.69%			
Remainder of BAN Campus	461,779	47.43%			
<b>Bannatyne Campus Total Gross</b>	<b>973,606</b>	<b>100%</b>			
Glenlea	142,635	81.33%			
Delta Marsh	0	0.00%			
Carmen	16,637	9.49%			
Norrie Centre	16,111	9.19%			
<b>Other Campuses Total Gross</b>	<b>175,383</b>	<b>100%</b>			
<b>Combined Total Gross</b>	<b>6,475,678</b>				

**2. Degree Days:**

HDD (Base 18 DGC)	5,817.0	96%
CDD (Base 18 DGC)	255.2	4%
<b>Combined HDD + CDD</b>	<b>6,072.2</b>	<b>100%</b>

**3. Equivalent number of full-time students:**

Fort Garry Campus	25,073	85%	
Bannatyne Campus	4,425	15%	<i>Mikestimated Bannatyne student population</i>
<b>Combined Total</b>	<b>29,987</b>	<b>100%</b>	

**4. Fort Garry Powerhouse Costs:**

Staff Salaries (8.5+1.5 of 14 staff)	1,024,006	67.8%	<i>Why don't we include 100% Powerhouse labour? Added CCWP labour starting in FY2006/07</i>
Trades Labour & Materials	314,291	20.8%	<i>Added Trades materials for FY2006/07</i>
Supplies	171,923	11.4%	
<b>TOTAL</b>	<b>\$1,510,220</b>	<b>100.0%</b>	

invoice incomplete

?????

missing March 2020 info, still to be updated

Fort Gary Campus

Itemized External Customer Breakdown

Steam Customer		lbm	\$	Rate	
UTF220	Fisheries & Oceans Canada	17,479,090	\$189,473	\$0.01084	3.95%
UTF225	Manitoba Agricultural Services	15,583,684	\$168,927	\$0.01084	3.52%
	Aramark Estimation	8,587,434	\$170,351	\$0.01984	1.94%
UTF240	St.Andrew's College - General Office	4,550,779	\$49,330	\$0.01084	1.03%
UTF032	St. John's College Steam #2	3,134,645	\$33,980	\$0.01084	0.71%
	UC Tenants Estimation	2,810,846	\$17,781	\$0.00633	0.64%
UTF041	St. Paul's College (Non-Academic)	987,546	\$10,705	\$0.01084	0.22%
UTF034	St. John's College (Non-Academic)	722,076	\$7,827	\$0.01084	0.16%
UTF035	St John's College Steam #3 - Robert I	88,586	\$960		0.02%
UTF031	St. John's College Steam #1	-	\$0		
<b>Totals</b>		<b>53,944,686</b>	<b>\$649,334</b>	<b>\$0.01204</b>	<b>12.20%</b>

Power Customer		kWh	\$	Rate
UTF 070	Pembina Hall Aramark Campus Servic	857,747	\$ 61,646	\$0.07187
UTF 082	University Centre - #2 Second Floor (N	240,288	18,054	\$0.07513
UTF030	St.John's College - Non-Academic	282,996	20,257	\$0.07158
UTF 081	University Centre - #1 Second Floor (N	102,096	7,277	\$0.07128
UTF 080	University Centre - Aramark Kitchen	411,600	26,043	\$0.06327
UTF040	St.Paul's College - Non-Academic	84,360	\$ 6,036	\$0.07155
UTF215	City of Winnipeg Sewage Station	17,408	\$ 1,245	\$0.07152
UTF037	St John's Schultz Theatre	10,874	\$ 778	\$0.07155
<b>Totals</b>		<b>2,007,369</b>	<b>141,336</b>	<b>\$0.07041</b>

1 ton = 0.8435 kWh

Bannatyne Campus

Steam Customer	lbm	\$	Rate
HSC Corporate Offices	716,253	\$ 8,625	\$ 0.01204
PET Scanner Facility	778,390	\$ 9,374	\$ 0.01204
Manitoba TeleHealth	638,080	\$ 7,684	\$ 0.01204
Aramark	0	\$ 3,775	#DIV/0!
<b>Totals</b>	<b>2132723</b>	<b>\$ 29,458</b>	<b>\$ 0.01381</b>

Power Customer	kWh	\$	Rate
Cadham Lab	1,039,709	\$ 64,390	\$ 0.06193
HSC Corporate Offices	95,207	\$ 5,846	\$ 0.06140
PET Scanner Facility	103,466	\$ 6,353	\$ 0.06140
Manitoba TeleHealth	84,816	\$ 5,208	\$ 0.06140
Aramark	75,171	\$ 4,615	\$ 0.06140
<b>Totals</b>	<b>1,398,369</b>	<b>\$ 86,412</b>	<b>\$ 0.06179</b>

A/C Customer		1 ton =	0.8435	kWh	\$	Rate
	tonh					
HSC Corporate Offices	16,318	13,764	\$	1,945	\$	0.14128
PET Scanner Facility	17,734	14,959	\$	2,113	\$	0.14127
Manitoba TeleHealth	14,537	12,262	\$	1,732	\$	0.14128
Aramark	0	-	\$	-	#DIV/0!	
<b>Totals</b>	<b>48589</b>	<b>40,985</b>	<b>\$</b>	<b>5,790</b>	<b>\$</b>	<b>0.14128</b>

Gas Customer	m <sup>3</sup>	\$	Rate
Gas used to produce stean	426	\$ 88	\$ 0.20759
<b>Totals</b>	<b>426</b>	<b>\$ 88</b>	<b>\$ 0.20759</b>

<b>A/C Customer</b>		tonh	kWh	\$	Rate
	Aramark Estimation	507,102	427,741	\$ 41,535	\$0.0971
UTF226	Manitoba Dept. of Agriculture	297,578	251,007	\$ 49,755	\$0.1982
UTF221	Fresh Water Institute	170,554	143,862	\$ 28,517	\$0.1982
	UC Tenants Estimation	1,282	1,081	\$ 4,628	\$4.2798
<b>Totals</b>		976,516	823,691	\$124,435	\$0.1511

<b>Gas Customer</b>		ft³	m³	\$	Rate
	Gas used to produce steam	2,514,874	71,213	\$ 18,697	\$ 0.2076
UTF71	Pembina Hall - Food Service	433,600	12,278	\$ 2,548	\$ 0.2075
UTF83	University Centre - Food Service	289,100	8,186	\$ 1,700	\$ 0.2077
<b>Totals</b>		3,237,574	91,678	\$ 22,945	\$ 0.2503

<b>Water Customer</b>		m³	ft³	\$	Rate(\$/ft³)
UTF233	Cangene Corporation	70,190	2,478,739	\$ 308,921	\$0.1246
UTF260	Investors Group Stadium	10,566	373,135	\$ 48,806	\$0.1308
UTF 033	St. John's College (Non-Acdemic)	5,342	188,649	\$ 24,675	\$0.1308
	UC Tenants Estimation	3,575	126,259	\$ 3,957	\$0.0313
	Aramark Estimation	26,776	945,601	\$ 75,010	\$0.0793
UTF241	St.Andrew's College	3,011	106,319	\$ 13,907	\$0.1308
UTF 252	Monsanto	3,299	116,489	\$ 15,240	\$0.1308
UTF261	Winnipeg Soccer Complex	1,876	66,250	\$ 8,667	\$0.1308
UTF256	RTDS Technologies	-	0	\$ -	#DIV/0!
UTF 254	Industrial Technology Centre	245	8,666	\$ 1,134	\$0.1309
UTF42	St.Paul College	126	4,447	\$ 582	\$0.1309
UTF257	Multi-Tenant Facility	3,575	16,277	\$ 2,129	\$0.1308
<b>Totals</b>		128,581	4,430,831	503,029	\$0.1135

1 m³ = 35.3147 ft³

<b>Water Customer</b>	m³	ft³	\$	Rate(\$/ft³)
HSC Corporate Offices	183	6,463	\$ 835	\$ 0.12922
PET Scanner Facility	199	7,028	\$ 908	\$ 0.12914
Manitoba TeleHealth	163	5,756	\$ 744	\$ 0.12924
Aramark	0	-	\$ -	#DIV/0!
<b>Totals</b>		545	19,247	\$ 2,487

1 m³ = 35.3147 ft³

**FY2019/20 Absolute Energy Consumption Summary**

**Net Consumption Summary**

Utility	Totals	Units	mmBtu	MWh	GJ	%	tonnes of CO <sub>2</sub>	GHG Intensity
<b>Fort Garry Campus</b>	5,326,689	gsf						494,861.5 m <sup>2</sup>
Natural Gas	14,337,872	m <sup>3</sup>	506,141	148,335	534,029	49.1%	28,102	
Power	86,464,206	kWh	295,028	86,464	311,284	28.6%	38	
<b>Absolute Subtotals</b>			<b>801,169</b>	<b>234,799</b>	<b>845,313</b>	<b>77.8%</b>	<b>28,140</b>	28,140,000 kg
<i>Intensity (Use/gsf)</i>			0.1504	0.0441	0.1587			56.864 kg/m <sup>2</sup>
<b>Bannatyne Campus</b>	973,606	gsf						90,450.2 m <sup>2</sup>
Steam	117,625,093	lbm	126,303	37,016	133,263	12.3%	8,462	
Chilled Water	2,552,551	tonh	30,631	8,977	32,318	3.0%	1	
Natural Gas	18,437	m <sup>3</sup>	651	191	687	0.1%	36	
Power	19,219,181	kWh	65,579	19,219	69,192	6.4%	8	
<b>Absolute Subtotals</b>			<b>223,163</b>	<b>65,403</b>	<b>235,460</b>	<b>21.7%</b>	<b>8,508</b>	8,508,000 kg
<i>Intensity (Use/gsf)</i>			0.2292	0.0672	0.2418			94.063 kg/m <sup>2</sup>
<b>Other Campuses</b>	175,383	gsf						
Power	1,615,889	kWh	5,514	1,616	5,817	0.5%	1	
<i>Intensity (Use/gsf)</i>			0.0314	0.0092	0.0332			
<b>Combined Totals</b>	6,475,678	gsf						601,605.2 m <sup>2</sup>
Natural Gas	14,356,310	m <sup>3</sup>	506,792	148,526	534,716	49.2%	28,138	
Power	107,299,276	kWh	366,120	107,299	386,293	35.6%	47	
Steam	117,625,093	lbm	126,303	37,016	133,263	12.3%	8,462	
Chilled Water	2,552,551	tonh	30,631	8,977	32,318	3.0%	1	
<b>Absolute Totals</b>			<b>1,029,846</b>	<b>301,818</b>	<b>1,086,590</b>	<b>100.0%</b>	<b>36,649</b>	36,649,000 kg
								60,919 kg/m <sup>2</sup>
<b>EUI ADJUSTED</b>			<b>OLD EUI</b>	<b>BETTER EUI</b>				
<i>Intensity (Btu/m2)</i>			1,291,985	1,052,538				
<i>Intensity (Use/m2/HDD)</i>			123	101				
<i>STARS Threshold</i>			389	389				
<i>UM % of STARS</i>			31.7%	25.8%				
<i>Intensity (Btu/gsf)</i>			120,028	97,783				
<i>Intensity (Use/gsf/HDD)</i>			11.4634	9.33883				
<i>STARS Threshold</i>			65	65				
<i>UM % of STARS</i>			17.6%	14.4%				
			-82%	-86%				

**Conversion Factors**

1 mcf (natural gas) =	28.32784 m <sup>3</sup>	1 lbm (HSC steam) =	1,074 Btu
1 mcf (natural gas) =	1 mmBtu	1 klbm (HSC steam) =	0.071940 tonnes of CO <sub>2</sub>
1 m <sup>3</sup> (natural gas) =	0.00196 tonnes of CO <sub>2</sub>	1 kWh =	3412.14 Btu
1 tonh (HSC chilled water) =	12000 Btu	1 kWh =	0.00000044 tonnes of CO <sub>2</sub>
1 tonh (HSC chilled water) =	0.00000044 tonnes of CO <sub>2</sub>	1 mmBtu =	0.2930711 MWh
Gross Area: 1 m <sup>2</sup> =	10.764 ft <sup>2</sup>	1 mmBtu =	1.0551 GJ
		1,000,000 GJ =	1000 TJ
		Hiroshima nuclear bomb =	63 TJ
		UM annual energy use =	17.25 Hiroshima nuclear bombs /FY

**FY2019/20**

HDD <sub>Base 18 DegC</sub> =	5633
HDD <sub>Base 65 DegF</sub> =	10139.4
CDD <sub>Base 18 DegC</sub> =	184
CDD <sub>Base 65 DegF</sub> =	331.2

		1990/91	
	lbm	mmbtu	
Steam	78,955,220	84,780	
	tonh	mmbtu	
Chilled	818,500	9,822	
<b>Total</b>		<b>94,602 MMBtu</b>	
		FTG	BAN
Electricity	72671000	12621000	
		85292000	
MMBtu	Total	291028.2449	
		MMBtu/GSF	
2019		0.159	
Baseline		0.239	

Example	Btu/m2/DegC	Btu/gsf/DegF	%	Reduction	
STARS Threshold	389	65		100.0%	0.0%
UW! Example		35.75		55.0%	45.0%
					-45%

	GSF		GSF	
Labs + animal	1,048,898		1,928,835	Labs
Healthcare	3,273		99,290	Healthcare + animals + food NRG Intensive
<b>Total U of M</b>	<b>6,475,678</b>		<b>6,475,678</b>	
EUI GSF	8,580,020	ft^2	10,531,928	ft^2
	797,103.31	m^2	978,440	m^2



# WATER

Affected by Population and Area. Unaffected by Weather

FY	Domestic Cold Water Baseline							Days per FY Period	Normalized to 365 day Fiscal Year	% of Normalized Baseline % of 90/91
	North	South	West	External Customers	Combined		ccf/FY			
	ccf/FY	ccf/FY	ccf/FY	ccf/FY	%	m <sup>3</sup>				
90/91	51,824	59,853	249,254	16,949	100.0%	343,982	974,039	365	974,039	100.00%
91/92	49,492	59,243	234,389	18,414	108.6%	324,710	919,468	361	929,656	95.44%
92/93	42,859	55,033	227,506	20,033	118.2%	305,365	864,690	370	853,005	87.57%
93/94	40,771	50,951	248,749	16,244	95.8%	324,227	918,100	372	900,824	92.48%
94/95	43,327	52,494	221,075	14,754	87.0%	302,143	855,565	365	855,565	87.84%
95/96	40,170	53,878	215,867	16,221	95.7%	293,694	831,642	362	838,534	86.09%
96/97	43,846	66,155	217,774	16,631	98.1%	311,145	881,055	365	881,055	90.45%
97/98	38,089	102,841	215,704	15,798	93.2%	340,835	965,130	369	954,667	98.01%
98/99	28,784	43,178	235,046	16,244	95.8%	290,764	823,345	385	780,574	80.14%
99/00	1,278	14,406	275,606	19,561	115.4%	271,728	769,441	340	826,018	84.80%
00/01	1,205	3,816	253,241	23,125	136.4%	235,137	665,826	375	648,071	66.53%
01/02	1,636	3,526	233,915	25,014	147.6%	214,064	606,156	362	611,179	62.75%
02/03	1,619	3,809	251,707	24,451	144.3%	232,683	658,879	367	655,288	67.28%
03/04	1,507	4,398	253,154	26,241	154.8%	232,818	659,262	391	615,423	63.18%
04/05	1,403	4,494	212,619	33,467	197.5%	185,049	523,995	396	482,975	49.58%
05/06	1,245	4,369	248,226	25,329	149.4%	228,511	647,065	377	626,469	64.32%
06/07	1,984	3,303	261,700	38,876	229.4%	228,110	645,930	360	654,902	67.24%
07/08	1,817	-24,179	305,229	40,476	238.8%	242,391	686,369	393	637,467	65.45%
08/09	3,845	-65,598	300,930	36,983	218.2%	202,195	572,547	365	572,547	58.78%
09/10	11,058	26,236	194,370	38,888	229.4%	192,776	545,875	365	545,875	56.04%
10/11	5,894	40,663	177,227	41,101	242.5%	182,683	517,296	372	507,562	52.11%
11/12	511	24,237	209,334	38,457	226.9%	195,625	553,943	355	569,547	58.47%
12/13	2,049	36,288	205,433	32,464	191.5%	211,306	598,348	360	606,658	62.28%
13/14	3,797	40,988	221,785	37,789	223.0%	228,781	647,829	383	617,383	63.38%
14/15	10,634	31,792	222,991	43,183	254.8%	222,234	629,290	363	632,758	64.96%
15/16	9,634	13,743	178,861	45,777	270.1%	156,461	443,043	352	459,405	47.16%
16/17	2,872	16,548	186,590	42,775	252.4%	163,235	462,225	372	453,527	46.56%
17/18	15,172	12,891	174,650	45,129	266.3%	157,584	446,225	360	452,423	46.45%
18/19	18,071	13,048	162,051	45,428	268.0%	147,742	418,356	367	416,076	42.72%
19/20	26,108	14,707	159,032	45,428	268.0%	154,419	437,262	365	437,262	44.89%
<b>Avg</b>	16,750	25,570	225,134	30,041	177.2%	237,413	672,273	368	666,558	68.43%
<b>Min</b>	511	-65,598	159,032	14,754	87.0%	147,742	418,356	340	416,076	42.72%
<b>Max</b>	51,824	102,841	305,229	45,777	270.1%	343,982	974,039	396	974,039	100.00%

1 m<sup>3</sup> = 0.3531 ccf  
1 ccf = 2.831659 m<sup>3</sup>

FY	Area			Population			Normalized	
	Area	Raw	% of	Population	Raw	% of	Raw	% of
	ft <sup>2</sup>	m <sup>3</sup> /ft <sup>2</sup>	Baseline			Baseline	Baseline	Baseline
90/91	4,172,862	0.23342	100.0%	27,627	35.2574	100.0%	8.45E-06	100.0%
91/92	4,213,766	0.22062	94.5%	28,240	32.9197	93.4%	7.81E-06	92.5%
92/93	4,215,919	0.20233	86.7%	28,556	29.8711	84.7%	7.09E-06	83.9%
93/94	4,216,995	0.21362	91.5%	28,052	32.1131	91.1%	7.62E-06	90.1%
94/95	4,267,587	0.20048	85.9%	27,218	31.4341	89.2%	7.37E-06	87.2%
95/96	4,073,083	0.20587	88.2%	25,954	32.3088	91.6%	7.93E-06	93.9%
96/97	4,230,862	0.20824	89.2%	24,922	35.3530	100.3%	8.36E-06	98.9%
97/98	4,159,107	0.22954	98.3%	24,097	39.6173	112.4%	9.53E-06	112.7%
98/99	4,223,054	0.18484	79.2%	24,157	32.3125	91.6%	7.65E-06	90.6%
99/00	4,346,146	0.19006	81.4%	24,268	34.0377	96.5%	7.83E-06	92.7%
00/01	4,347,408	0.14907	63.9%	25,133	25.7859	73.1%	5.93E-06	70.2%
01/02	4,421,023	0.13824	59.2%	26,889	22.7297	64.5%	5.14E-06	60.8%
02/03	4,452,308	0.14718	63.1%	28,364	23.1026	65.5%	5.19E-06	61.4%
03/04	4,527,621	0.13593	58.2%	30,081	20.4587	58.0%	4.52E-06	53.5%
04/05	4,546,343	0.10623	45.5%	31,297	15.4319	43.8%	3.39E-06	40.2%
05/06	4,838,669	0.12947	55.5%	31,124	20.1282	57.1%	4.16E-06	49.2%
06/07	4,985,074	0.13137	56.3%	29,597	22.1273	62.8%	4.44E-06	52.5%
07/08	4,909,473	0.12984	55.6%	29,758	21.4215	60.8%	4.36E-06	51.6%
08/09	5,054,025	0.11329	48.5%	29,814	19.2040	54.5%	3.80E-06	45.0%
09/10	5,001,180	0.10915	46.8%	31,121	17.5404	49.7%	3.51E-06	41.5%
10/11	5,003,634	0.10144	43.5%	31,543	16.0913	45.6%	3.22E-06	38.1%
11/12	4,959,095	0.11485	49.2%	32,337	17.6129	50.0%	3.55E-06	42.0%
12/13	4,953,778	0.12246	52.5%	33,148	18.3015	51.9%	3.69E-06	43.7%
13/14	4,889,191	0.12628	54.1%	34,081	18.1152	51.4%	3.71E-06	43.9%
14/15	4,907,439	0.12894	55.2%	34,151	18.5282	52.6%	3.78E-06	44.7%
15/16	5,177,116	0.08874	38.0%	34,362	13.3696	37.9%	2.58E-06	30.6%
16/17	5,251,723	0.08636	37.0%	34,797	13.0335	37.0%	2.48E-06	29.4%
17/18	5,326,689	0.08494	36.4%	34,356	13.1687	37.4%	2.47E-06	29.3%
18/19	5,433,409	0.07658	32.8%	34,572	12.0352	34.1%	2.22E-06	26.2%
19/20	5,489,246	0.07966	34.1%	35,242	12.4075	35.2%	2.26E-06	26.8%
<b>Avg</b>	4,686,461	0.14630	62.7%	29,829	23.1939	65.8%	5.13E-06	60.8%
<b>Min</b>	4,073,083	0.07658	32.8%	24,097	12.0352	34.1%	2.22E-06	26.2%
<b>Max</b>	5,489,246	0.23342	100.0%	35,242	39.6173	112.4%	9.53E-06	112.7%



# NATURAL GAS

Affected by Weather, Population, and Area.

FY	Natural Gas Baseline						
	Int.	Firm	Fuel Oil	External Customer		Combined	
	MCF	MCF	eq.MCF	MCF		MCF	%
90/91	585,035	25,155	810	429	100.0%	610,571	100.00%
91/92	551,268	26,891	870	473	110.2%	578,557	94.76%
92/93	558,813	28,864	1,084	443	103.3%	588,317	96.36%
93/94	574,065	29,714	2,878	433	100.9%	606,224	99.29%
94/95	540,129	26,633	266	389	90.6%	566,640	92.80%
95/96	550,597	31,664	62,265	304	70.9%	644,222	105.51%
96/97	581,381	33,464	3,216	307	71.4%	617,754	101.18%
97/98	508,456	29,271	5,060	353	82.2%	542,434	88.84%
98/99	490,435	38,512	2,088	331	77.1%	530,704	86.92%
99/00	492,416	25,352	3,273	360	83.8%	520,682	85.28%
00/01	474,938	28,855	80,130	374	87.0%	583,549	95.57%
01/02	528,125	30,018	6,306	360	83.9%	564,089	92.39%
02/03	545,427	21,124	35,570	259	60.4%	601,861	98.57%
03/04	527,693	15,202	15,968	305	71.1%	558,558	91.48%
04/05	559,253	39,614	18,802	393	91.6%	617,276	101.10%
05/06	521,395	16,890	733	379	88.3%	538,638	88.22%
06/07	556,720	12,444	6,947	340	79.3%	575,771	94.30%
07/08	561,324	12,520	23,031	431	100.4%	596,444	97.69%
08/09	595,496	13,956	5,366	577	134.5%	614,241	100.60%
09/10	575,984	13,154	163	586	136.5%	588,715	96.42%
10/11	561,350	37,483	91	580	135.1%	598,343	98.00%
11/12	504,539	50,454	211	600	139.8%	554,604	90.83%
12/13	574,388	24,875	8,580	988	230.2%	606,854	99.39%
13/14	631,479	22,911	5,258	1,434	334.1%	658,214	107.80%
14/15	573,524	19,340	0	2,433	566.7%	590,431	96.70%
15/16	507,044	24,840	0	1,041	242.5%	530,843	86.94%
16/17	536,855	20,097	0	1,711	398.6%	555,241	90.94%
17/18	563,323	19,333	82	1,098	255.9%	581,640	95.26%
18/19	575,661	19,190	82	892	207.8%	594,041	97.29%
19/20	546,118	20,604	0	723	168.3%	565,999	92.70%
<b>Avg</b>	548,441	25,281	9,638	644	150.1%	582,715	95.44%
<b>Min</b>	474,938	12,444	0	259	60.4%	520,682	85.28%
<b>Max</b>	631,479	50,454	80,130	2,433	566.7%	658,214	107.80%

FY	Area			Population			Normalized	
	Area	Raw	% of	Population	Raw	% of	Raw	% of
	ft <sup>2</sup>	MCF/ft <sup>2</sup>	Baseline		MCF/person	Baseline		Baseline
90/91	4,172,862	0.1463	100.0%	27,627	22.1009	100.0%	5.30E-06	100.0%
91/92	4,213,766	0.1373	93.8%	28,240	20.4871	92.7%	4.86E-06	91.8%
92/93	4,215,919	0.1395	95.4%	28,556	20.6021	93.2%	4.89E-06	92.3%
93/94	4,216,995	0.1438	98.2%	28,052	21.6110	97.8%	5.12E-06	96.8%
94/95	4,267,587	0.1328	90.7%	27,218	20.8188	94.2%	4.88E-06	92.1%
95/96	4,073,083	0.1582	108.1%	25,954	24.8219	112.3%	6.09E-06	115.1%
96/97	4,230,862	0.1460	99.8%	24,922	24.7878	112.2%	5.86E-06	110.6%
97/98	4,159,107	0.1304	89.1%	24,097	22.5102	101.9%	5.41E-06	102.2%
98/99	4,223,054	0.1257	85.9%	24,157	21.9690	99.4%	5.20E-06	98.2%
99/00	4,346,146	0.1198	81.9%	24,268	21.4557	97.1%	4.94E-06	93.2%
00/01	4,347,408	0.1342	91.7%	25,133	23.2186	105.1%	5.34E-06	100.8%
01/02	4,421,023	0.1276	87.2%	26,889	20.9784	94.9%	4.75E-06	89.6%
02/03	4,452,308	0.1352	92.4%	28,364	21.2191	96.0%	4.77E-06	90.0%
03/04	4,527,621	0.1234	84.3%	30,081	18.5683	84.0%	4.10E-06	77.4%
04/05	4,546,343	0.1358	92.8%	31,297	19.7230	89.2%	4.34E-06	81.9%
05/06	4,838,669	0.1113	76.1%	31,124	17.3063	78.3%	3.58E-06	67.5%
06/07	4,985,074	0.1155	78.9%	29,597	19.4537	88.0%	3.90E-06	73.7%
07/08	4,909,473	0.1215	83.0%	29,758	20.0429	90.7%	4.08E-06	77.1%
08/09	5,054,025	0.1215	83.1%	29,814	20.6025	93.2%	4.08E-06	77.0%
09/10	5,001,180	0.1177	80.5%	31,121	18.9170	85.6%	3.78E-06	71.4%
10/11	5,003,634	0.1196	81.7%	31,543	18.9694	85.8%	3.79E-06	71.6%
11/12	4,959,095	0.1118	76.4%	32,337	17.1508	77.6%	3.46E-06	65.3%
12/13	4,953,778	0.1225	83.7%	33,148	18.3074	82.8%	3.70E-06	69.8%
13/14	4,889,191	0.1346	92.0%	34,081	19.3132	87.4%	3.95E-06	74.6%
14/15	4,907,439	0.1203	82.2%	34,151	17.2888	78.2%	3.52E-06	66.5%
15/16	5,177,116	0.1025	70.1%	34,362	15.4485	69.9%	2.98E-06	56.3%
16/17	5,251,723	0.1057	72.3%	34,797	15.9566	72.2%	3.04E-06	57.4%
17/18	5,326,689	0.1092	74.6%	34,356	16.9298	76.6%	3.18E-06	60.0%
18/19	5,433,409	0.1093	74.7%	34,572	17.1829	77.7%	3.16E-06	59.7%
19/20	5,489,246	0.1031	70.5%	35,242	16.0605	72.7%	2.93E-06	55.2%
<b>Avg</b>	4,686,461	0.1254	85.7%	29,829	19.7934	89.6%	4.30E-06	81.2%
<b>Min</b>	4,073,083	0.1025	70.1%	24,097	15.4485	69.9%	2.93E-06	55.2%
<b>Max</b>	5,489,246	0.1582	108.1%	35,242	24.8219	112.3%	6.09E-06	115.1%

# STEAM

Affected by Weather, Population, and Area.

FY	Steam Baseline				
	Total Production	Resold to External Customers		UM Net Use	
	<i>klbm</i>	<i>klbm</i>	%	<i>klbm</i>	%
90/91	438,274	74,189	100.0%	364,085	100.00%
91/92	435,322	75,588	101.9%	359,734	98.80%
92/93	465,524	85,545	115.3%	379,979	104.37%
93/94	445,690	90,519	122.0%	355,171	97.55%
94/95	418,362	84,677	114.1%	333,685	91.65%
95/96	461,514	92,935	125.3%	368,579	101.23%
96/97	453,487	85,654	115.5%	367,833	101.03%
97/98	393,395	60,983	82.2%	332,412	91.30%
98/99	385,502	57,080	76.9%	328,422	90.20%
99/00	383,569	68,924	92.9%	314,645	86.42%
00/01	422,574	72,300	97.5%	350,274	96.21%
01/02	406,665	52,129	70.3%	354,536	97.38%
02/03	447,892	72,955	98.3%	374,937	102.98%
03/04	409,585	69,494	93.7%	340,091	93.41%
04/05	440,148	66,327	89.4%	373,821	102.67%
05/06	397,916	59,825	80.6%	338,091	92.86%
06/07	446,709	67,853	91.5%	378,856	104.06%
07/08	460,071	69,940	94.3%	390,131	107.15%
08/09	473,506	74,896	101.0%	398,610	109.48%
09/10	422,895	68,625	92.5%	354,270	97.30%
10/11	430,943	72,732	98.0%	358,211	98.39%
11/12	384,844	65,173	87.8%	319,671	87.80%
12/13	439,385	73,442	99.0%	365,943	100.51%
13/14	478,727	84,420	113.8%	394,306	108.30%
14/15	435,218	75,633	101.9%	359,585	98.76%
15/16	394,437	49,781	67.1%	344,656	94.66%
16/17	416,942	50,786	68.5%	366,156	100.57%
17/18	452,286	55,205	74.4%	397,081	109.06%
18/19	462,369	55,849	75.3%	406,520	111.66%
19/20	442,133	53,945	72.7%	388,188	106.62%
<b>Avg</b>	431,529	69,580	93.8%	361,949	99.41%
<b>Min</b>	383,569	49,781	67.1%	314,645	86.42%
<b>Max</b>	478,727	92,935	125.3%	406,520	111.66%

FY	Area			Population			Total	
	Area	Raw	% of	Population	Raw	% of	Raw	% of
	<i>ft²</i>	<i>klbm/ft²</i>	Baseline			Baseline		Baseline
90/91	4,172,862	0.08725	100.0%	27,627	13.1788	100.0%	3.16E-06	100.0%
91/92	4,213,766	0.08537	97.8%	28,240	12.7384	96.7%	3.02E-06	95.7%
92/93	4,215,919	0.09013	103.3%	28,556	13.3064	101.0%	3.16E-06	99.9%
93/94	4,216,995	0.08422	96.5%	28,052	12.6613	96.1%	3.00E-06	95.1%
94/95	4,267,587	0.07819	89.6%	27,218	12.2598	93.0%	2.87E-06	91.0%
95/96	4,073,083	0.09049	103.7%	25,954	14.2014	107.8%	3.49E-06	110.4%
96/97	4,230,862	0.08694	99.6%	24,922	14.7596	112.0%	3.49E-06	110.5%
97/98	4,159,107	0.07992	91.6%	24,097	13.7946	104.7%	3.32E-06	105.0%
98/99	4,223,054	0.07777	89.1%	24,157	13.5953	103.2%	3.22E-06	101.9%
99/00	4,346,146	0.07240	83.0%	24,268	12.9656	98.4%	2.98E-06	94.5%
00/01	4,347,408	0.08057	92.3%	25,133	13.9369	105.8%	3.21E-06	101.5%
01/02	4,421,023	0.08019	91.9%	26,889	13.1852	100.0%	2.98E-06	94.4%
02/03	4,452,308	0.08421	96.5%	28,364	13.2187	100.3%	2.97E-06	94.0%
03/04	4,527,621	0.07511	86.1%	30,081	11.3057	85.8%	2.50E-06	79.1%
04/05	4,546,343	0.08222	94.2%	31,297	11.9442	90.6%	2.63E-06	83.2%
05/06	4,838,669	0.06987	80.1%	31,124	10.8628	82.4%	2.24E-06	71.1%
06/07	4,985,074	0.07600	87.1%	29,597	12.8005	97.1%	2.57E-06	81.3%
07/08	4,909,473	0.07946	91.1%	29,758	13.1100	99.5%	2.67E-06	84.6%
08/09	5,054,025	0.07887	90.4%	29,814	13.3699	101.5%	2.65E-06	83.8%
09/10	5,001,180	0.07084	81.2%	31,121	11.3836	86.4%	2.28E-06	72.1%
10/11	5,003,634	0.07159	82.1%	31,543	11.3564	86.2%	2.27E-06	71.9%
11/12	4,959,095	0.06446	73.9%	32,337	9.8856	75.0%	1.99E-06	63.1%
12/13	4,953,778	0.07387	84.7%	33,148	11.0397	83.8%	2.23E-06	70.6%
13/14	4,889,191	0.08065	92.4%	34,081	11.5697	87.8%	2.37E-06	74.9%
14/15	4,907,439	0.07327	84.0%	34,151	10.5293	79.9%	2.15E-06	67.9%
15/16	5,177,116	0.06657	76.3%	34,362	10.0301	76.1%	1.94E-06	61.3%
16/17	5,251,723	0.06972	79.9%	34,797	10.5226	79.8%	2.00E-06	63.4%
17/18	5,326,689	0.07455	85.4%	34,356	11.5579	87.7%	2.17E-06	68.7%
18/19	5,433,409	0.07482	85.8%	34,572	11.7588	89.2%	2.16E-06	68.5%
19/20	5,489,246	0.07072	81.1%	35,242	11.0150	83.6%	2.01E-06	63.5%
<b>Avg</b>	4,686,461	0.07768	89.0%	29,829	12.2615	93.0%	2.66E-06	84.1%
<b>Min</b>	4,073,083	0.06446	73.9%	24,097	9.8856	75.0%	1.94E-06	61.3%
<b>Max</b>	5,489,246	0.09049	103.7%	35,242	14.7596	112.0%	3.49E-06	110.5%

**ELECTRICAL DEMAND** *Affected by Population and Area. Unaffected by Weather*

FY	Demand Baseline				
	FTG	External Customers		Combine	
	kVA	kVA	%	kVA	%
90/91	161,954	3,721	100.0%	158,233	100.00%
91/92	165,701	4,230	113.7%	161,471	102.05%
92/93	159,586	3,452	92.8%	156,134	98.67%
93/94	160,842	3,230	86.8%	157,612	99.61%
94/95	160,193	3,661	98.4%	156,532	98.92%
95/96	167,457	3,661	98.4%	163,796	103.52%
96/97	165,973	3,460	93.0%	162,513	102.70%
97/98	162,518	3,645	98.0%	158,873	100.40%
98/99	144,641	3,414	91.7%	141,227	89.25%
99/00	133,822	3,089	83.0%	130,733	82.62%
00/01	131,706	3,007	80.8%	128,699	81.33%
01/02	139,302	3,561	95.7%	135,741	85.79%
02/03	141,870	3,125	84.0%	138,745	87.68%
03/04	144,654	3,345	89.9%	141,309	89.30%
04/05	139,638	3,283	88.2%	136,355	86.17%
05/06	143,016	3,451	92.7%	139,565	88.20%
06/07	148,906	3,070	82.5%	145,836	92.17%
07/08	159,100	4,450	119.6%	154,650	97.74%
08/09	149,040	4,091	109.9%	144,949	91.60%
09/10	143,788	3,572	96.0%	140,216	88.61%
10/11	152,357	3,949	106.1%	148,408	93.79%
11/12	160,255	4,259	114.5%	155,996	98.59%
12/13	162,542	4,153	111.6%	158,389	100.10%
13/14	165,496	3,038	81.6%	162,458	102.67%
14/15	166,096	4,033	108.4%	162,063	102.42%
15/16	169,515	3,657	98.3%	165,858	104.82%
16/17	175,187	3,779	101.6%	171,408	108.33%
17/18	167,925	3,581	96.2%	164,344	103.86%
18/19	163,370	3,995	107.4%	159,375	100.72%
19/20	162,667	3,978	106.9%	158,689	100.29%
<b>Avg</b>	155,110	3,606	96.9%	151,504	95.75%
<b>Min</b>	131,706	3,007	80.8%	128,699	81.33%
<b>Max</b>	175,187	4,450	119.6%	171,408	108.33%

FY	Weather				Area			Population			Total	
	HDD	CDD	Weighed	% of	Area	Raw	% of	Population	Raw	% of	Raw	% of
	Base 18C	Base 18C		Baseline	ft <sup>2</sup>	kVA/ft <sup>2</sup>	Baseline			Baseline		Baseline
90/91	5,706.8	200.7	388,606	100.0%	4,172,862	0.03792	100.0%	27,627	5.7276	100.0%	1.37E-06	100.0%
91/92	5,303.3	254.4	380,791	98.0%	4,213,766	0.03832	101.1%	28,240	5.7178	99.8%	1.36E-06	98.9%
92/93	6,606.5	76.7	404,796	104.2%	4,215,919	0.03703	97.7%	28,556	5.4676	95.5%	1.30E-06	94.5%
93/94	6,072.2	94.7	379,067	97.5%	4,216,995	0.03738	98.6%	28,052	5.6186	98.1%	1.33E-06	97.1%
94/95	5,380.6	105.6	342,173	88.1%	4,267,587	0.03668	96.7%	27,218	5.7511	100.4%	1.35E-06	98.2%
95/96	6,532.5	267.3	455,710	117.3%	4,073,083	0.04021	106.1%	25,954	6.3111	110.2%	1.55E-06	112.9%
96/97	6,470.2	183.6	427,862	110.1%	4,230,862	0.03841	101.3%	24,922	6.5209	113.9%	1.54E-06	112.3%
97/98	5,309.1	182.6	360,333	92.7%	4,159,107	0.03820	100.7%	24,097	6.5930	115.1%	1.59E-06	115.5%
98/99	5,137.7	186.8	351,623	90.5%	4,223,054	0.03344	88.2%	24,157	5.8462	102.1%	1.38E-06	100.9%
99/00	5,082.8	131.3	332,371	85.5%	4,346,146	0.03008	79.3%	24,268	5.3871	94.1%	1.24E-06	90.3%
00/01	6,015.7	137.1	388,075	99.9%	4,347,408	0.02960	78.1%	25,133	5.1207	89.4%	1.18E-06	85.8%
01/02	5,362.3	210.6	371,523	95.6%	4,421,023	0.03070	81.0%	26,889	5.0482	88.1%	1.14E-06	83.2%
02/03	6,039.9	207.1	409,749	105.4%	4,452,308	0.03116	82.2%	28,364	4.8915	85.4%	1.10E-06	80.0%
03/04	5,623.7	234.9	393,698	101.3%	4,527,621	0.03121	82.3%	30,081	4.6976	82.0%	1.04E-06	75.6%
04/05	5,963.3	71.8	366,129	94.2%	4,546,343	0.02999	79.1%	31,297	4.3568	76.1%	9.58E-07	69.8%
05/06	5,118.9	197.6	353,662	91.0%	4,838,669	0.02884	76.1%	31,124	4.4842	78.3%	9.27E-07	67.5%
06/07	5,451.1	253.4	389,060	100.1%	4,985,074	0.02925	77.1%	29,597	4.9274	86.0%	9.88E-07	72.0%
07/08	5,803.6	200.6	394,182	101.4%	4,909,473	0.03150	83.1%	29,758	5.1969	90.7%	1.06E-06	77.1%
08/09	6,101.6	118.0	387,518	99.7%	5,054,025	0.02868	75.6%	29,814	4.8618	84.9%	9.62E-07	70.1%
09/10	5,463.6	118.6	350,745	90.3%	5,001,180	0.02804	73.9%	31,121	4.5055	78.7%	9.01E-07	65.6%
10/11	5,614.7	173.3	375,337	96.6%	5,003,634	0.02966	78.2%	31,543	4.7050	82.1%	9.40E-07	68.5%
11/12	4,725.8	253.1	346,971	89.3%	4,959,095	0.03146	83.0%	32,337	4.8241	84.2%	9.73E-07	70.9%
12/13	5,825.5	254.7	411,118	105.8%	4,953,778	0.03197	84.3%	33,148	4.7782	83.4%	9.65E-07	70.3%
13/14	6,551.6	175.8	430,317	110.7%	4,889,191	0.03323	87.6%	34,081	4.7668	83.2%	9.75E-07	71.0%
14/15	5,718.4	175.5	381,979	98.3%	4,907,439	0.03302	87.1%	34,151	4.7455	82.9%	9.67E-07	70.5%
15/16	4,930.9	170.1	334,811	86.2%	5,177,116	0.03204	84.5%	34,362	4.8268	84.3%	9.32E-07	67.9%
16/17	5,056.5	161.1	339,478	87.4%	5,251,723	0.03264	86.1%	34,797	4.9259	86.0%	9.38E-07	68.3%
17/18	5,679.5	117.0	362,784	93.4%	5,326,689	0.03085	81.4%	34,356	4.7836	83.5%	8.98E-07	65.4%
18/19	6,083.0	255.2	426,175	109.7%	5,433,409	0.02933	77.4%	34,572	4.6100	80.5%	8.48E-07	61.8%
19/20	5,633.0	184.0	379,495	97.7%	5,489,246	0.02891	76.2%	35,242	4.5029	78.6%	8.20E-07	59.8%
<b>Avg</b>	5,677.8	177.7	380,260	97.9%	4,704,171	0.03248	85.6%	29,904	5.1301	89.6%	1.11E-06	80.7%
<b>Min</b>	4,725.8	71.8	332,371	85.5%	4,073,083	0.02804	73.9%	24,097	4.3568	76.1%	8.20E-07	59.8%
<b>Max</b>	6,606.5	267.3	455,710	117.3%	5,489,246	0.04021	106.1%	35,242	6.5930	115.1%	1.59E-06	115.5%

Metrix Multiplier Coefficients

HDD **57.91**  
CDD **289.61**

**ELECTRICAL CONSUMPTION**

Affected by Population and Area. Unaffected by Weather

FY	Consumption Baseline				
	FTG	External Customers		Combine	
	MWh	MWh	%	MWh	%
90/91	74,380	1,709	100.0%	72,671	100.00%
91/92	74,848	1,911	111.8%	72,937	100.37%
92/93	72,751	1,573	92.1%	71,177	97.94%
93/94	72,330	1,453	85.0%	70,877	97.53%
94/95	72,058	1,647	96.4%	70,411	96.89%
95/96	74,675	1,632	95.5%	73,042	100.51%
96/97	74,009	1,543	90.3%	72,466	99.72%
97/98	71,868	1,612	94.3%	70,256	96.68%
98/99	64,896	1,532	89.6%	63,364	87.19%
99/00	62,232	1,436	84.0%	60,796	83.66%
00/01	62,970	1,438	84.1%	61,532	84.67%
01/02	66,480	1,700	99.5%	64,780	89.14%
02/03	68,442	1,508	88.2%	66,934	92.11%
03/04	68,694	1,589	93.0%	67,105	92.34%
04/05	67,926	1,597	93.4%	66,329	91.27%
05/06	69,914	1,687	98.7%	68,226	93.88%
06/07	73,120	1,507	88.2%	71,612	98.54%
07/08	75,131	2,101	123.0%	73,030	100.49%
08/09	74,831	2,054	120.2%	72,777	100.15%
09/10	73,651	1,829	107.1%	71,821	98.83%
10/11	76,022	1,970	115.3%	74,052	101.90%
11/12	79,964	2,125	124.4%	77,838	107.11%
12/13	84,294	2,154	126.0%	82,140	113.03%
13/14	86,010	1,579	92.4%	84,431	116.18%
14/15	86,242	2,094	122.5%	84,148	115.79%
15/16	89,619	1,933	113.1%	87,686	120.66%
16/17	90,898	1,990	116.5%	88,908	122.34%
17/18	86,828	1,852	108.4%	84,976	116.93%
18/19	87,569	1,898	111.0%	85,671	117.89%
19/20	84,941	2,077	121.5%	82,864	114.03%
Avg	75,586	1,758	102.9%	73,829	101.59%
Min	62,232	1,436	84.0%	60,796	83.66%
Max	90,898	2,154	126.0%	88,908	122.34%

FY	Weather				Area			Population			Total	
	HDD	CDD	Raw	% of 90/91	Area	Raw	% of 90/91	Population	Raw	% of 90/91	Raw	% of 90/91
	Base 18C	Base 18C		%	ft <sup>2</sup>	MWh/ft <sup>2</sup>	%	MWh/pop	%	MWh/ft <sup>2</sup> /pop	%	
90/91	5,706.8	200.7	4,311,235	100.0%	4,172,862	0.01742	100.0%	27,627	2.6305	100.0%	6.30E-07	100.0%
91/92	5,303.3	254.4	4,390,904	101.8%	4,213,766	0.01731	99.4%	28,240	2.5828	98.2%	6.13E-07	97.2%
92/93	6,606.5	76.7	4,109,451	95.3%	4,215,919	0.01688	96.9%	28,556	2.4925	94.8%	5.91E-07	93.8%
93/94	6,072.2	94.7	3,914,173	90.8%	4,216,995	0.01681	96.5%	28,052	2.5267	96.1%	5.99E-07	95.0%
94/95	5,380.6	105.6	3,591,182	83.3%	4,267,587	0.01650	94.7%	27,218	2.5870	98.3%	6.06E-07	96.2%
95/96	6,532.5	267.3	5,147,742	119.4%	4,073,083	0.01793	103.0%	25,954	2.8143	107.0%	6.91E-07	109.6%
96/97	6,470.2	183.6	4,639,054	107.6%	4,230,862	0.01713	98.4%	24,922	2.9077	110.5%	6.87E-07	109.0%
97/98	5,309.1	182.6	3,987,494	92.5%	4,159,107	0.01689	97.0%	24,097	2.9155	110.8%	7.01E-07	111.2%
98/99	5,137.7	186.8	3,915,934	90.8%	4,223,054	0.01500	86.2%	24,157	2.6230	99.7%	6.21E-07	98.5%
99/00	5,082.8	131.3	3,571,072	82.8%	4,346,146	0.01399	80.3%	24,268	2.5052	95.2%	5.76E-07	91.4%
00/01	6,015.7	137.1	4,122,874	95.6%	4,347,408	0.01415	81.3%	25,133	2.4483	93.1%	5.63E-07	89.3%
01/02	5,362.3	210.6	4,175,665	96.9%	4,421,023	0.01465	84.1%	26,889	2.4092	91.6%	5.45E-07	86.4%
02/03	6,039.9	207.1	4,532,778	105.1%	4,452,308	0.01503	86.3%	28,364	2.3598	89.7%	5.30E-07	84.1%
03/04	5,623.7	234.9	4,458,699	103.4%	4,527,621	0.01482	85.1%	30,081	2.2308	84.8%	4.93E-07	78.2%
04/05	5,963.3	71.8	3,723,901	86.4%	4,546,343	0.01459	83.8%	31,297	2.1193	80.6%	4.66E-07	73.9%
05/06	5,118.9	197.6	3,966,641	92.0%	4,838,669	0.01410	81.0%	31,124	2.1921	83.3%	4.53E-07	71.9%
06/07	5,451.1	253.4	4,467,459	103.6%	4,985,074	0.01437	82.5%	29,597	2.4196	92.0%	4.85E-07	77.0%
07/08	5,803.6	200.6	4,364,517	101.2%	4,909,473	0.01488	85.4%	29,758	2.4541	93.3%	5.00E-07	79.3%
08/09	6,101.6	118.0	4,062,486	94.2%	5,054,025	0.01440	82.7%	29,814	2.4410	92.8%	4.83E-07	76.6%
09/10	5,463.6	118.6	3,710,978	86.1%	5,001,180	0.01436	82.5%	31,121	2.3078	87.7%	4.61E-07	73.2%
10/11	5,614.7	173.3	4,104,823	95.2%	5,003,634	0.01480	85.0%	31,543	2.3477	89.2%	4.69E-07	74.4%
11/12	4,725.8	253.1	4,062,290	94.2%	4,959,095	0.01570	90.1%	32,337	2.4071	91.5%	4.85E-07	77.0%
12/13	5,825.5	254.7	4,683,092	108.6%	4,953,778	0.01658	95.2%	33,148	2.4780	94.2%	5.00E-07	79.4%
13/14	6,551.6	175.8	4,640,160	107.6%	4,889,191	0.01727	99.2%	34,081	2.4774	94.2%	5.07E-07	80.4%
14/15	5,718.4	175.5	4,174,969	96.8%	4,907,439	0.01715	98.5%	34,151	2.4640	93.7%	5.02E-07	79.6%
15/16	4,930.9	170.1	3,706,316	86.0%	5,177,116	0.01694	97.3%	34,362	2.5518	97.0%	4.93E-07	78.2%
16/17	5,056.5	161.1	3,725,213	86.4%	5,251,723	0.01693	97.2%	34,797	2.5550	97.1%	4.87E-07	77.2%
17/18	5,679.5	117.0	3,822,017	88.7%	5,326,689	0.01595	91.6%	34,356	2.4734	94.0%	4.64E-07	73.7%
18/19	6,083.0	255.2	4,829,166	112.0%	5,433,409	0.01577	90.5%	34,572	2.4781	94.2%	4.56E-07	72.4%
19/20	5,633.0	184.0	4,175,602	96.9%	5,489,246	0.01510	86.7%	35,242	2.3513	89.4%	4.28E-07	68.0%
Avg												
Min	5,677.8	178.4	4,164,712	96.7%	4,686,461	0.01578	90.6%	29,829	2.4850	94.5%	5.36E-07	85.1%
Max	4,725.8	71.8	3,571,072	82.8%	4,073,083	0.01399	80.3%	24,097	2.1193	80.6%	4.28E-07	68.0%
	6,606.5	267.3	5,147,742	119.4%	5,489,246	0.01793	103.0%	35,242	2.9155	110.8%	7.01E-07	111.2%

Metrix Multiplier Coefficients

HDD **556.28**  
CDD **5663.46**

Cooling Efficiency =

0.84 kW/ton

**Absolute Energy Consumption**

**Fort Garry Campus**

**Absolute Energy Consumption**

**External Customers**

FY	Natural Gas			Power Consumption			Total			
	MCF	mmBtu	Adjusted	MWh	mmBtu	Adjusted	mmBtu	Adjusted	Baseline %	
									Unadjusted	Adjusted
90/91	610,571	610,571	5.30E-06	72,671	247,964	2.15E-06	858,535	7.45E-06	100.0%	100.0%
91/92	578,557	578,557	4.86E-06	72,937	248,872	2.09E-06	827,429	6.95E-06	96.4%	93.4%
92/93	588,317	588,317	4.89E-06	71,177	242,867	2.02E-06	831,185	6.90E-06	96.8%	92.7%
93/94	606,224	606,224	5.12E-06	70,877	241,842	2.04E-06	848,065	7.17E-06	98.8%	96.3%
94/95	566,640	566,640	4.88E-06	70,411	240,253	2.07E-06	806,892	6.95E-06	94.0%	93.3%
95/96	644,222	644,222	6.09E-06	73,042	249,231	2.36E-06	893,453	8.45E-06	104.1%	113.5%
96/97	617,754	617,754	5.86E-06	72,466	247,263	2.35E-06	865,017	8.20E-06	100.8%	110.2%
97/98	542,434	542,434	5.41E-06	70,256	239,723	2.39E-06	782,157	7.80E-06	91.1%	104.8%
98/99	530,704	530,704	5.20E-06	63,364	216,208	2.12E-06	746,912	7.32E-06	87.0%	98.3%
99/00	520,682	520,682	4.94E-06	60,796	207,443	1.97E-06	728,125	6.90E-06	84.8%	92.7%
00/01	583,549	583,549	5.34E-06	61,532	209,957	1.92E-06	793,506	7.26E-06	92.4%	97.5%
01/02	564,089	564,089	4.75E-06	64,780	221,040	1.86E-06	785,129	6.60E-06	91.4%	88.7%
02/03	601,861	601,861	4.77E-06	66,934	228,389	1.81E-06	830,250	6.57E-06	96.7%	88.3%
03/04	558,558	558,558	4.10E-06	67,105	228,973	1.68E-06	787,531	5.78E-06	91.7%	77.6%
04/05	617,276	617,276	4.34E-06	66,329	226,325	1.59E-06	843,600	5.93E-06	98.3%	79.6%
05/06	538,638	538,638	3.58E-06	68,226	232,798	1.55E-06	771,437	5.12E-06	89.9%	68.8%
06/07	575,771	575,771	3.90E-06	71,612	244,352	1.66E-06	820,122	5.56E-06	95.5%	74.6%
07/08	596,444	596,444	4.08E-06	73,030	249,188	1.71E-06	845,632	5.79E-06	98.5%	77.7%
08/09	614,241	614,241	4.08E-06	72,777	248,326	1.65E-06	862,567	5.72E-06	100.5%	76.9%
09/10	588,715	588,715	3.78E-06	71,821	245,065	1.57E-06	833,780	5.36E-06	97.1%	71.9%
10/11	598,343	598,343	3.79E-06	74,052	252,676	1.60E-06	851,020	5.39E-06	99.1%	72.4%
11/12	554,604	554,604	3.46E-06	77,838	265,595	1.66E-06	820,199	5.11E-06	95.5%	68.7%
12/13	606,854	606,854	3.70E-06	82,140	280,274	1.71E-06	887,129	5.40E-06	103.3%	72.5%
13/14	658,214	658,214	3.95E-06	84,431	288,091	1.73E-06	946,305	5.68E-06	110.2%	76.3%
14/15	590,431	590,431	3.52E-06	84,148	287,124	1.71E-06	877,555	5.24E-06	102.2%	70.3%
15/16	530,843	530,843	2.98E-06	87,686	299,196	1.68E-06	830,039	4.67E-06	96.7%	62.7%
16/17	555,241	555,241	3.04E-06	88,908	303,365	1.66E-06	858,606	4.70E-06	100.0%	63.1%
17/18	581,640	581,640	3.18E-06	84,976	289,951	1.58E-06	871,591	4.76E-06	101.5%	64.0%
18/19	594,041	594,041	3.16E-06	85,671	292,322	1.56E-06	886,363	4.72E-06	103.2%	63.4%
19/20	565,999	565,999	2.93E-06	82,864	282,745	1.46E-06	848,744	4.39E-06	98.9%	58.9%
<b>Avg</b>	582,715	582,715	4.30E-06	73,829	72,514	1.83E-06	834,629	6.13E-06	97.2%	82.3%
<b>Min</b>	520,682	520,682	2.93E-06	60,796	62,232	1.46E-06	728,125	4.39E-06	84.8%	58.9%
<b>Max</b>	658,214	658,214	6.09E-06	88,908	85,465	2.39E-06	946,305	8.45E-06	110.2%	113.5%

FY	Natural Gas		Consumption		Total		
	MCF	mmBtu	MWh	mmBtu	mmBtu	Baseline %	
						Unadjusted	Adjusted
90/91	429	429	1,709	5,831	6,260	100.0%	
91/92	473	473	1,911	6,519	6,992	111.7%	
92/93	443	443	1,573	5,369	5,812	92.8%	
93/94	433	433	1,453	4,957	5,390	86.1%	
94/95	389	389	1,647	5,619	6,008	96.0%	
95/96	304	304	1,632	5,570	5,874	93.8%	
96/97	307	307	1,543	5,265	5,572	89.0%	
97/98	353	353	1,612	5,500	5,853	93.5%	
98/99	331	331	1,532	5,226	5,557	88.8%	
99/00	360	360	1,436	4,901	5,261	84.0%	
00/01	374	374	1,438	4,906	5,279	84.3%	
01/02	360	360	1,700	5,799	6,159	98.4%	
02/03	259	259	1,508	5,145	5,404	86.3%	
03/04	305	305	1,589	5,420	5,726	91.5%	
04/05	393	393	1,597	5,448	5,842	93.3%	
05/06	379	379	1,687	5,757	6,136	98.0%	
06/07	340	340	1,507	5,144	5,484	87.6%	
07/08	431	431	2,101	7,170	7,601	121.4%	
08/09	577	577	2,054	7,009	7,587	121.2%	
09/10	586	586	1,829	6,242	6,828	109.1%	
10/11	580	580	1,970	6,723	7,303	116.7%	
11/12	600	600	2,125	7,251	7,851	125.4%	
12/13	988	988	2,154	7,348	8,337	133.2%	
13/14	1,434	1,434	1,579	5,387	6,821	108.9%	
14/15	2,433	2,433	2,094	7,145	9,578	153.0%	
15/16	1,041	1,041	1,933	6,596	7,637	122.0%	
16/17	1,711	1,711	1,990	6,792	8,503	135.8%	
17/18	1,098	1,098	1,852	6,318	7,417	118.5%	
18/19	892	892	1,898	6,475	7,367	117.7%	
19/20	723	723	2,077	7,087	7,810	124.8%	
<b>Avg</b>	644	644	1,758	72,514	6,642	106.1%	
<b>Min</b>	259	259	1,436	62,232	5,261	84.0%	
<b>Max</b>	2,433	2,433	2,154	85,465	9,578	153.0%	

Unadjusted	Adjusted
100.0%	1
96.4%	0.9485539
104.2%	1.0019273
111.2%	1.0532351
103.1%	0.9710901
97.5%	0.8653173
100.9%	0.8713524
102.4%	0.8832782
104.2%	0.8751086
99.7%	0.8136747

1 mcf (natural gas) = 28.32784 m<sup>3</sup>      1 lbm (HSC steam) = 1,074 Btu  
 1 mcf (natural gas) = 1 mmBtu      1 klbm (HSC steam) = 0.071940 tonnes of CO<sub>2</sub>  
 1 m<sup>3</sup> (natural gas) = 0.001880 tonnes of CO<sub>2</sub>      1 kWh = 3,412 Btu

Absolute Energy Consumption

Bannatyne Campus

FY	Chilled Water				Steam				Electrical Consumption				Total			
	Tonh	mmBtu	Raw	Adjusted	klbm	mmBtu	Raw	Adjusted	MWh	mmBtu	Raw	Adjusted	mmBtu	Unadjusted	Raw	Adjusted
	Btu/person/ft²				Btu/person/ft²				Btu/person/ft²				Btu/person/ft²			
90/91	818,500	9,822	0.6496	100.0%	78,955	75,007	4.9612	100.0%	12,621	43,063	2.8483	100.0%	127,893	100.0%	8.4591	100.0%
91/92	888,502	10,662	0.6899	106.2%	78,184	74,274	4.8059	96.9%	12,793	43,652	2.8245	99.2%	128,588	100.5%	8.3203	98.4%
92/93	643,134	7,718	0.4938	76.0%	87,690	83,306	5.3306	107.4%	13,059	44,559	2.8513	100.1%	135,582	106.0%	8.6757	102.6%
93/94	706,505	8,478	0.5523	85.0%	84,018	79,817	5.1993	104.8%	12,789	43,638	2.8425	99.8%	131,933	103.2%	8.5941	101.6%
94/95	747,665	8,972	0.6023	92.7%	67,963	64,565	4.3346	87.4%	13,176	44,959	3.0184	106.0%	118,496	92.7%	7.9553	94.0%
95/96	615,253	7,383	0.5010	77.1%	85,544	81,266	5.5146	111.2%	12,769	43,569	2.9565	103.8%	132,218	103.4%	8.9722	106.1%
96/97	978,484	11,742	0.8008	123.3%	82,989	78,840	5.3770	108.4%	14,512	49,517	3.3772	118.6%	140,099	109.5%	9.5551	113.0%
97/98	1,039,132	12,470	0.8499	130.8%	77,438	73,566	5.0140	101.1%	14,619	49,883	3.3998	119.4%	135,918	106.3%	9.2637	109.5%
98/99	1,166,410	13,997	0.9206	141.7%	77,118	73,262	4.8184	97.1%	14,643	49,963	3.2861	115.4%	137,221	107.3%	9.0251	106.7%
99/00	1,701,393	20,417	1.2944	199.3%	81,600	77,520	4.9149	99.1%	14,015	47,823	3.0320	106.5%	145,759	114.0%	9.2413	109.2%
00/01	1,473,427	17,681	1.0493	161.5%	100,221	95,210	5.6501	113.9%	14,752	50,335	2.9871	104.9%	163,225	127.6%	9.6865	114.5%
01/02	1,454,616	17,455	0.9394	144.6%	92,821	88,180	4.7458	95.7%	14,979	51,110	2.7507	96.6%	156,746	122.6%	8.4360	99.7%
02/03	1,673,511	20,082	0.9950	153.2%	99,496	94,521	4.6833	94.4%	14,489	49,440	2.4497	86.0%	164,043	128.3%	8.1280	96.1%
03/04	1,882,948	22,595	1.0260	157.9%	93,750	89,063	4.0443	81.5%	14,704	50,172	2.2783	80.0%	161,831	126.5%	7.3486	86.9%
04/05	1,652,109	19,825	0.8613	132.6%	89,447	84,974	3.6916	74.4%	14,634	49,932	2.1693	76.2%	154,732	121.0%	6.7222	79.5%
05/06	1,862,536	22,350	0.9928	152.8%	96,327	91,511	4.0648	81.9%	15,096	51,509	2.2880	80.3%	165,370	129.3%	7.3455	86.8%
06/07	1,878,206	22,538	1.0374	159.7%	95,254	90,491	4.1651	84.0%	15,443	52,695	2.4254	85.2%	165,724	129.6%	7.6280	90.2%
07/08	1,707,668	20,492	0.9426	145.1%	96,829	91,988	4.2311	85.3%	16,200	55,275	2.5425	89.3%	167,755	131.2%	7.7161	91.2%
08/09	2,424,678	29,096	1.3497	207.8%	103,105	97,950	4.5435	91.6%	16,768	57,213	2.6539	93.2%	184,259	144.1%	8.5471	101.0%
09/10	2,707,555	32,491	1.2616	194.2%	103,043	97,891	3.8011	76.6%	19,981	68,178	2.6474	92.9%	198,560	155.3%	7.7102	91.1%
10/11	2,807,671	33,692	1.2908	198.7%	103,626	98,445	3.7716	76.0%	21,662	73,912	2.8317	99.4%	206,049	161.1%	7.8940	93.3%
11/12	3,312,331	39,748	1.4267	219.6%	96,076	91,273	3.2762	66.0%	21,042	71,799	2.5772	90.5%	202,820	158.6%	7.2800	86.1%
12/13	3,016,723	36,201	1.2676	195.1%	110,352	104,834	3.6708	74.0%	21,173	72,246	2.5298	88.8%	213,281	166.8%	7.4682	88.3%
13/14	2,826,359	33,916	1.1771	181.2%	124,081	117,877	4.0910	82.5%	21,666	73,928	2.5658	90.1%	225,722	176.5%	7.8339	92.6%
14/15	2,489,794	29,878	1.0309	158.7%	112,952	107,305	3.7026	74.6%	20,897	71,302	2.4604	86.4%	208,485	163.0%	7.1939	85.0%
15/16	3,113,753	37,365	1.2814	197.2%	114,798	109,058	3.7400	75.4%	20,881	71,251	2.4435	85.8%	217,674	170.2%	7.4649	88.2%
16/17	2,772,144	33,266	1.1581	178.3%	117,254	111,391	3.8778	78.2%	20,876	71,230	2.4797	87.1%	215,887	168.8%	7.5156	88.8%
<b>Avg</b>	1,791,148	21,494	0.9793	150.8%	94,479	89,755	4.4452	89.6%	16,305	55,635	2.7228	95.6%	166,884	130.5%	8.1474	96.3%
<b>Min</b>	615,253	7,383	0.4938	76.0%	67,963	64,565	3.2762	66.0%	12,621	43,063	2.1693	76.2%	118,496	92.7%	6.7222	79.5%
<b>Max</b>	3,312,331	39,748	1.4267	219.6%	124,081	117,877	5.6501	113.9%	21,666	73,928	3.3998	119.4%	225,722	176.5%	9.6865	114.5%

WATER

(Normalized on Population and Area)

FY	Domestic Cold Water Baseline				Days per FY Period	Normalized to 365 day Fiscal Year	Total Cost		% of Normalized Baseline		
	ccf/FY	m <sup>3</sup>	External	Net			days	m <sup>3</sup> /FY	Total	Net	% of 90/91
											% of 90/91
90/91	67,177	23,720		23,720	365	23,720	\$ 140,932	\$ 140,932	100.00%		
91/92	66,554	23,500		23,500	361	23,761	\$ 156,643	\$ 156,643	100.17%		
92/93	56,061	19,795		19,795	370	19,528	\$ 148,693	\$ 148,693	82.32%		
93/94	53,273	18,811		18,811	372	18,457	\$ 158,322	\$ 158,322	77.81%		
94/95	48,799	17,231		17,231	365	17,231	\$ 145,105	\$ 145,105	72.64%		
95/96	47,392	16,734		16,734	362	16,873	\$ 168,724	\$ 168,724	71.13%		
96/97	46,985	16,590		16,590	365	16,590	\$ 191,602	\$ 191,602	69.94%		
97/98	56,297	19,878		19,878	369	19,663	\$ 247,258	\$ 247,258	82.90%		
98/99	61,898	21,856		21,856	385	20,721	\$ 276,659	\$ 276,659	87.36%		
99/00	42,585	15,037		15,037	340	16,142	\$ 202,826	\$ 202,826	68.05%		
00/01	46,273	16,339		16,339	375	15,903	\$ 222,885	\$ 222,885	67.05%		
01/02	41,540	14,668		14,668	362	14,789	\$ 199,197	\$ 199,197	62.35%		
02/03	35,059	12,379		12,379	367	12,312	\$ 171,113	\$ 171,113	51.90%		
03/04	41,395	14,617	411	14,206	391	13,261	\$ 205,780	\$ 199,995	55.91%		
04/05	40,556	14,320	2,857	11,463	396	10,566	\$ 218,621	\$ 175,004	44.54%		
05/06	38,124	13,462	2,023	11,439	377	11,075	\$ 214,724	\$ 182,457	46.69%		
06/07	32,992	11,649	1,729	9,921	360	10,059	\$ 200,371	\$ 170,639	42.41%		
07/08	23,270	8,217	1,960	6,256	393	5,811	\$ 170,048	\$ 129,477	24.50%		
08/09	20,971	7,405	1,694	5,711	365	5,711	\$ 171,371	\$ 132,159	24.07%		
09/10	22,201	7,839	1,170	6,669	365	6,669	\$ 187,269	\$ 159,323	28.12%		
10/11	19,780	6,984	1,002	5,982	372	5,870	\$ 172,069	\$ 147,377	24.75%		
11/12	22,020	7,775	1,149	6,626	355	6,813	\$ 196,815	\$ 167,728	28.72%		
12/13	23,555	8,317	985	7,332	360	7,434	\$ 228,052	\$ 201,040	31.34%		
13/14	18,213	6,431	975	5,456	383	5,200	\$ 174,664	\$ 148,184	21.92%		
14/15	15,829	5,589	1,075	4,514	363	4,539	\$ 147,046	\$ 118,764	19.14%		
15/16	17,011	6,007	949	5,058	352	5,244	\$ 273,753	\$ 230,501	22.11%		
16/17	15,529	5,483	960	4,523	363	4,548	\$ 183,361	\$ 151,258	19.17%		
17/18	14,340	5,063	954	4,109	363	4,132	\$ 183,361	\$ 148,814	17.42%		
18/19	14,508	5,123	857	4,266	371	4,197	\$ 194,649	\$ 162,086	17.69%		
19/20	13,803	4,874	689	4,185	357	4,279	\$ 185,442	\$ 159,227	18.04%		
<b>Avg</b>	35,466	12,523	1,261	11,809	368	11,703	\$ 191,245	\$ 173,800	49.34%		
<b>Min</b>	13,803	4,874	411	4,109	340	4,132	\$ 140,932	\$ 118,764	17.42%		
<b>Max</b>	67,177	23,720	2,857	23,720	396	23,761	\$ 276,659	\$ 276,659	100.17%		

FY	Area			Population			Normalized	
	Area	Raw	% of	Population	Raw	% of	Raw	% of
			Baseline			Baseline		Baseline
90/91	547,263	0.04334	100.0%	27,627	0.8586	100.0%	1.57E-06	100.0%
91/92	547,263	0.04342	100.2%	28,240	0.8414	98.0%	1.54E-06	98.0%
92/93	547,263	0.03568	82.3%	28,556	0.6838	79.6%	1.25E-06	79.6%
93/94	547,263	0.03373	77.8%	28,052	0.6580	76.6%	1.20E-06	76.6%
94/95	547,263	0.03149	72.6%	27,218	0.6331	73.7%	1.16E-06	73.7%
95/96	567,798	0.02972	68.6%	25,954	0.6501	75.7%	1.14E-06	73.0%
96/97	588,333	0.02820	65.1%	24,922	0.6657	77.5%	1.13E-06	72.1%
97/98	608,868	0.03229	74.5%	24,097	0.8160	95.0%	1.34E-06	85.4%
98/99	629,403	0.03292	76.0%	24,157	0.8578	99.9%	1.36E-06	86.9%
99/00	649,939	0.02484	57.3%	24,268	0.6652	77.5%	1.02E-06	65.2%
00/01	670,474	0.02372	54.7%	25,133	0.6328	73.7%	9.44E-07	60.2%
01/02	691,009	0.02140	49.4%	26,889	0.5500	64.1%	7.96E-07	50.7%
02/03	711,544	0.01730	39.9%	28,364	0.4341	50.6%	6.10E-07	38.9%
03/04	732,079	0.01811	41.8%	30,081	0.4408	51.3%	6.02E-07	38.4%
04/05	735,466	0.01437	33.1%	31,297	0.3376	39.3%	4.59E-07	29.3%
05/06	723,337	0.01531	35.3%	31,124	0.3558	41.4%	4.92E-07	31.4%
06/07	734,058	0.01370	31.6%	29,597	0.3399	39.6%	4.63E-07	29.5%
07/08	730,578	0.00795	18.3%	29,758	0.1953	22.7%	2.67E-07	17.0%
08/09	723,087	0.00790	18.2%	29,814	0.1915	22.3%	2.65E-07	16.9%
09/10	827,513	0.00806	18.6%	31,121	0.2143	25.0%	2.59E-07	16.5%
10/11	827,513	0.00709	16.4%	31,543	0.1861	21.7%	2.25E-07	14.3%
11/12	861,546	0.00791	18.2%	32,337	0.2107	24.5%	2.45E-07	15.6%
12/13	861,546	0.00863	19.9%	33,148	0.2243	26.1%	2.60E-07	16.6%
13/14	845,440	0.00615	14.2%	34,081	0.1526	17.8%	1.80E-07	11.5%
14/15	848,602	0.00535	12.3%	34,151	0.1329	15.5%	1.57E-07	10.0%
15/16	848,602	0.00618	14.3%	34,362	0.1526	17.8%	1.80E-07	11.5%
17/18	848,602	0.00536	12.4%	34,308	0.1326	15.4%	1.56E-07	10.0%
17/18	814,685	0.00507	11.7%	34,356	0.1203	14.0%	1.48E-07	9.4%
18/19	815,081	0.00515	11.9%	34,572	0.1214	14.1%	1.49E-07	9.5%
19/20	815,081	0.00525	12.1%	35,242	0.1214	14.1%	1.49E-07	9.5%
<b>Avg</b>	714,883	0.01819	42.0%	29,812	0.4192	48.8%	6.57E-07	41.9%
<b>Min</b>	547,263	0.00507	11.7%	24,097	0.1203	14.0%	1.48E-07	9.4%
<b>Max</b>	861,546	0.04342	100.2%	35,242	0.8586	100.0%	1.57E-06	100.0%