

STRATEGIC ENERGY MANAGEMENT PLAN FOR BRUYÈRE CONTINUING CARE 2014



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INTRODUCTION

The overall purpose of Bruyère Continuing Care's energy management plan and policy is to promote good stewardship of our environment and community resources. In keeping with our core values of Efficiency and Financial Responsibility, Bruyère Continuing Care's energy management program will ultimately result in reduced operating costs.

Utility and energy related costs are a significant part of overall operating costs

- Utility costs in the 2013 calendar year were \$2,231,880.
- The facilities Energy Use Index (EUI) were 54.8 ekWh/ft²/yr for Saint-Vincent Hospital and 45.7 ekWh/ft²/yr for Elizabeth Bruyère Hospital
- Facility related O&M costs are \$1,100,000 annually
- Facility capital project costs are projected at \$3.5 million over 5 years

With energy management an integral part of business decisions, Bruyère Continuing Care can expect the following:

- 3 % reduction in energy use, with an overall reduction of 7 % in utility use and costs
- \$145,000 plus in avoided costs annually to the bottom line (1.5 million plus over 10 years).
- Energy investments will get a 10% internal rate of return (IRR)

Recent activities associated with managing these costs include the following:

- A complete detailed energy audit, sponsored by the OHA's Green Hospital Champion Fund (Executive Summary attached)
- Demand Response participant with Rodan Energy Solutions and the OPA
- OHA Hospital Scorecard Survey participation & benchmarking report.
- 'saveONenergy' applications for new lighting and variable frequency motor controls incentives.
- Move to LED lighting where appropriate
- Application for the Run it Right program from Enbridge Gas for Elizabeth Bruyère Hospital

To further strengthen and obtain full value from energy management activities, a strategic approach will be taken by the organization to fully integrate energy management into its business decision-making policies, and operating procedures.

Active management of energy related costs and risks in this manner will provide a significant economic return to the organization and will support other key organizational objectives.

Energy Management Vision

Bruyère Continuing Care's mission statement is 'We excel in the provision of evidence based health care and services for the vulnerable and medically complex, with a focus on persons who require sub-acute, geriatric or palliative care.'

Inspired by our founder, Mother Élisabeth Bruyère, we are a Catholic health care organization that optimizes the quality of life of people within the diverse community we serve in French and English.

We do this through our commitment to excellence, education, research and innovation, regional partnerships, and bringing care closer to home.

Therefore, we consider our facilities a primary source of giving care and an integral part of the healing environment. Key to this equation is the ability to use our facilities efficiently and effectively. This results in Bruyère Continuing Care being able to direct more resources toward patient care and the relief of illness and suffering. By reducing our environmental footprint, we are doing our part to create a healthier environment. Something that is essential to the people we serve and that which helps them to lead healthier lives.

Bruyère Continuing Care's energy management vision is to eliminate energy waste, wherever possible, through infrastructure improvement, through policy and process changes, and through the embracing of best practice and technology changes, thus enhancing lives and transforming care.

Guiding Principles for Strategic Energy Management

Bruyère Continuing Care's energy management plan will be guided by these principles:

Taking A Strategic Approach: While Bruyère Continuing Care actively manages energy and utility costs by implementing opportunities as they are identified, by acting strategically, the organization can significantly improve its energy-related performance. Internalizing energy and utility management into our every-day decision-making, policies, and operating procedures will help assure substantial and long-lasting reductions in energy use throughout our facilities.

Supporting Mission-Critical Goals: Strategic energy management will directly support Bruyère Continuing Care's mission-critical goals of caring for the environment and the community. It will also help Bruyère to enhance the healing and working environment; improve the organization's financial bottom line by reducing unnecessary energy and utility costs; and optimize the capacity of existing energy systems to meet current and expanding operational needs. The impacts of Bruyère Continuing Care's energy management efforts on these goals will be tracked and reported wherever possible.

Pursuing Long-Term Change to Core Business Practices: The core of a strategic approach is the consistent incorporation of energy and utility management into our organization's core practices and decision making, such as the strategic planning and budgeting processes. Change in energy-related business practice will cover all applications of energy management; new construction and major renovations, existing facility operations and upgrades, and economic analysis and procurement practices.

Fostering Organizational Commitment and Involvement: Executive and organizational commitment and involvement is critical to successful strategic energy management. Senior management at Bruyère Continuing Care will work with facility managers and other key staff to ensure that adequate organizational support and resources are provided to maximize the benefits of energy and utility management. Energy and utility management will be integrated into the strategic planning and capital budgeting processes.

Obtaining Solid Economic Returns: Energy management investments will yield solid economic returns that meet Bruyère Continuing Care's expectations on Internal Rate of Return and Return on Investment. Bruyère Continuing Care will apply consistent financial analysis methods that consider life-cycle costs that reduce total cost of facility ownership and operation.

Using Available Resources and Assistance: Bruyère Continuing Care will use national, regional, and local sources of strategic, technical, and financial assistance to help achieve our energy management goals. These include programs through local distribution companies, the Ontario Power Authority, ENERGYSTAR, saveONenergy, the Canadian Coalition for Green Health Care, The Canadian Healthcare Engineering Society, EnerCan and others as they become available.

The Business Case for Strategic Energy Management

Below are the central business arguments for Bruyère Continuing Care's pursuit of strategic energy management. Section VI then presents the business proposition – the results of analysis of the energy efficiency opportunities and their associated costs and internal rate of return.

Strengthened Community Leadership and Environmental Stewardship

Energy management is a visible, public commitment to the community and environment. Through aggressive energy management, Bruyère Continuing Care can provide leadership in promoting sustainable communities, efficient business practices, and environmental stewardship. This is an excellent opportunity to provide leadership and reduce costs at the same time.

Enhanced Healing and Working Environment

In existing facilities, efficient operating practices improve patient as well as employee comfort with more stable air temperature, better indoor air quality, and lighting. By way of an example, recent research has found that daylight eases surgical pain and contributes to substantial savings in pharmaceutical costs.

Improved Financial Health and Operating Cost Reduction

Strategic energy management presents a highly leveraged opportunity to reduce operating costs and positively impact Bruyère Continuing Care's bottom line. As per the US Environmental Protection Agency, "Every dollar a nonprofit healthcare organization saves on energy is equivalent to generating new revenues of \$20 for hospitals or \$10 for medical offices." Investments in energy projects typically have a lower risk of performance over time relative to other investments and savings from energy projects are easier to forecast reliably than savings or revenue increases expected from other variable types of investment.

Optimization of Capacity to Meet Current and Expanding Operational Needs

Energy efficiency optimizes overall equipment/system operation so that system capacity can be reclaimed for current and expanding operational needs. This "free capacity" can eliminate the need to add major new infrastructure is far less expensive.

Business Proposition

- If energy management considerations are integral to relevant business practices, policies, procedures, and decision-making processes, Bruyère Continuing Care's energy and utility related costs can be reduced by an *additional* 10% over an 5year period.
- Based on 2013 utility rates, this will result in \$274,000 thousand in annual value to the bottom line or a total \$1,370,000 thousand over a 5-year period. Integration of energy management into organizational decision making and business practices will continue to produce value annually for a much longer period of time.
- To support the achievement of these financial benefits, Bruyère Continuing Care will invest in energy-related capital and operating improvements, meeting an Internal Rate of Return (IRR) that is acceptable to its Board of Directors and Executive Officers.

Energy Management Goals

The following outlines some of the energy management goals that will be adopted by Bruyère Continuing Care. They include, but are not limited to, the following:

- SEMP Approval, Resources to Implement
- Implement Financial Practices and Decision Making Processes; Establish Funding Resources
- Implement Strategic Energy Management Practices
- Purchasing/Procurement Procedures and Specifications
- Enhanced Design & Construction Practices
- Enhanced Facility Operating Practices
- Cost-Effective Facility Upgrades
- Active Commodity Management
- Monitoring, Track, & Improve Performance

Goal: SEMP Approval, Resources to Implement

- Executive approval process adjustments and resource allocations to support initiatives.
- Support from key staff (financial management, purchasing/procurement, construction, building operations, etc.).
- Creation of mechanisms/processes to make resources available.
- Clarification and communication of staff roles and responsibilities, performance goals, and energy management reporting.

Goal: Implement Financial Practices and Decision Making Processes

- Money spent to achieve energy efficiency is viewed as an investment, not a cost.
 - Financial decision makers consistently use life cycle cost analysis (LCCA) on all new construction, major renovations, and equipment replacements over lowest cost. Energy Star rated equipment will be considered.
 - Internal rate of return (IRR) as “pre-approved” by the Hospital Board and Administration.
 - Train staff on Life Cycle Cost Analysis (LCCA) and financial requirements and decision making process.
 - Decisions about energy management investments will be part of Bruyère Continuing Care’s high-level, long range process of budgeting for capital and operations.

Goal: Establish Purchasing Specifications for Energy Efficient Equipment and Services

- Establish and consistently use purchasing specifications that minimize life-cycle costs for energy efficient equipment and services.
 - Establish efficiency specifications for standard equipment routinely replaced (e.g. lights, motors, and unitary HVAC equipment).
 - Establish efficiency guidelines that apply LCCA for custom equipment purchases (e.g. boilers, chillers).
 - Establish efficiency standards for design and construction, and for building operations and maintenance services.

Goal: Implement Enhanced Design & Construction (D&C) Practices

- Implement improved new construction practices in all capital projects that specify early team collaboration and “integrated design process” (IDP).
 - Integrated design process required for funding.
 - RFPs, contract terms & conditions, & fee structures will support IDP.
 - Apply LCCA and financial hurdle rates described above to design decisions.
 - Apply established purchasing procedures and specifications.
 - Include incentives and tax credits wherever available.
 - Educate all owner’s project managers or construction managers and contractors on integrated design process and their respective roles in master planning pre-design, design, bidding, construction, commissioning, operation and monitoring, and post-occupancy.
- Set and meet clear energy performance targets for new build projects; measure and improve over time.
 - Establish baseline for measuring performance goals (e.g. code, or national reference standards like ASHRAE 90.1).
 - Set targets.
 - Measure performance and improve over time.
- Specify commissioning as a standard procedure.
 - 100 percent of fundamental building systems and elements will be designed, installed, and calibrated to operate as designed.
 - Design team, commissioning team and building operators will work closely throughout the design process and occupancy to ensure good transition.

Goal: Improve Building Operating Performance

- Equipment tune-up and improved operations and maintenance (O&M) will achieve the following results while supporting patient care, and facility comfort and safety.
 - Achieve reductions in utility related operating costs for existing facilities by an average of 10% over 5 years and continue to improve by 1% per year for 5 years thereafter.
 - Reduce the average EUI from 50.25 ekWh/ft²/yr to 45.23 ekWh/ft²/yr by 2019.
 - Reduce energy consumption by 130,000 kWh per year.
 - Improve ENERGYSTAR rating.

Goal: Implement Cost-Effective Facility Upgrades

- Implement equipment and system upgrades where justified by life-cycle cost analysis.
- Expand use of qualified service providers as needed. Develop standard RFP documents, contract terms, and reporting standards.

Goal: Actively Manage Energy & Utility Commodities

- Minimize utility costs and exposure to market risks. Utility costs include natural gas, electricity, water, and sewer.
- Participate in the energy/utility regulatory process.

Goal: Monitor, Track, and Reward Progress

- Benchmark facilities using Energy Star's Portfolio Manager
- Track progress on Strategic Energy Master Plan
- Track energy reductions monthly and report annually.
- Reward staff for successes.

Baseline Energy Use

The baseline energy profile has been selected using the most recent full fiscal year with available utility data, which is 2012. This baseline was used to calibrate energy end-use estimates and as the reference case for calculating energy savings. Exhibit 1 presents the baseline energy use and costs; Exhibits 3, 4, and 5 present the data in graphic format.

Key Observations:

A review of the baseline energy cost profile reveals that:

The total annual utility costs for the sites in 2013 were \$2,231,880. Electricity represents the largest cost at 60% of total cost, natural gas costs were 28% of total cost, and water costs were 9% of total cost.

The annual electrical consumption is 12,089 MWh, and the annual gas consumption is 5941.5 eMWh, resulting in a total sites average energy intensity of 50.25 ekWh/ft²/yr. This places Bruyère Continuing Care in the better half of the average of 53.7 ekWh/ft²/yr based on similar facilities in Ontario reporting their consumption.

The water use intensity is 93.2 L/ft², which is below the average.

Exhibit 1 Baseline Energy Consumption

2013 SVH ENERGY AND UTILITIES INVENTORY

MONTHS	HEATING DEGRES-DAYS		HEATING FUEL		NATURAL GAS		ELECTRICITY		DOMESTIC WATER		DIESEL FUEL	
	ABOVE 18°C	BELOW 18°C	LITERS	\$	M3	\$	KWH	\$	M3	\$	LITERS	\$
JAN	828.8	0			173453	21,691	493311	46,326	5877	17,933		
FEB	709.8	0			169605	17,858	442672	50,240	4130	12,610		
MAR	605.9	0			125682	22,309	475592	46,923	4860	14,828		
APR	364.2	0			98239	-330	475941	53,664	3000	9,182		
MAY	111.1	15.9			68182	24,125	577259	59,704	10010	31,799		
JUN	46.9	48.2			53502	20,737	597616	68,602	5090	16,601		
JUL	5.2	122.6			53401	20,951	681727	89,037	6865	22,395		
AUG	5.7	68.9			53875	20,672	639086	57,242	5130	16,748		
SEP	115.2	12.8			57096	17,411	543125	74,446	3725	12,186		
OCT	238.8	2.6			101144	23,186	528062	56,683	3775	12,353		
NOV	529.2	0			146237	17,180	475411	49,791	4200	13,723		
DEC	838.3				180661	18,551	491843	64,819	3,125	10,224		
	4,399	271	0	0	1,281,077	224,341	6,421,645	717,476	59,787	190,582	0	0

--- 0 47,399,849 23,117,922 Mj
 EKHR 0 13,166,625 6,421,645 kwh
 TOTAL EKWH 19,588,270
 BUILDING AREA (SQFT) 357,125 pi2 33,190 m2
 TOTAL EKWH PER SQFT 55

2013 EB ENERGY AND UTILITIES INVENTORY

MONTHS	HEATING DEGRES-DAYS		HEATING FUEL		NATURAL GAS		ELECTRICITY		DOMESTIC WATER		DIESEL FUEL	
	ABOVE 18°C	BELOW 18°C	LITERS	\$	M3	\$	KWH	\$	M3	\$	LITERS	\$
JAN	828.8	0			202,188	55,422	475,868	43,715	543	1,717		
FEB	709.8	0			231,863	72,328	428,006	46,971	-178	-466		
MAR	605.9	0			160,083	52,295	439,121	41,644	384	768		
APR	364.2	0			131,790	43,397	423,367	46,218	316	1,048		
MAY	111.1	15.9			61,539	21,105	471,391	48,540	200	708		
JUN	46.9	48.2			38,627	13,807	497,229	56,732	300	1,045		
JUL	5.2	122.6			26,166	9,817	608,525	79,002	600	2,030		
AUG	5.7	68.9			27,261	10,184	551,075	49,060	400	1,373		
SEP	115.2	12.8			40,384	14,452	454,201	60,246	400	1,378		
OCT	238.8	2.6			59,259	19,891	440,660	46,082	400	1,382		
NOV	529.2	0	23,726	20,694	126,880	40,598	422,593	42,443	200	720	6,298	6,108
DEC	838.3	0	33,407	30,740	178,938	56,619	455,409	57,978	500	1,691		
	4,399	271	57,133	51,434	1,284,978	409,913	5,667,445	618,632	4,065	13,393	6,298	6,108

Revised for Maison mere portion 33% less 848,085 270,543
 --- 2,171,054 31,379,163 20,402,803 Mj
 EKHR 603,071 8,716,434 5,667,445 kwh
 TOTAL EKWH 14,986,950
 BUILDING AREA (SQFT) 327,786 pi2 30,463 m2
 TOTAL EKWH PER SQFT 46

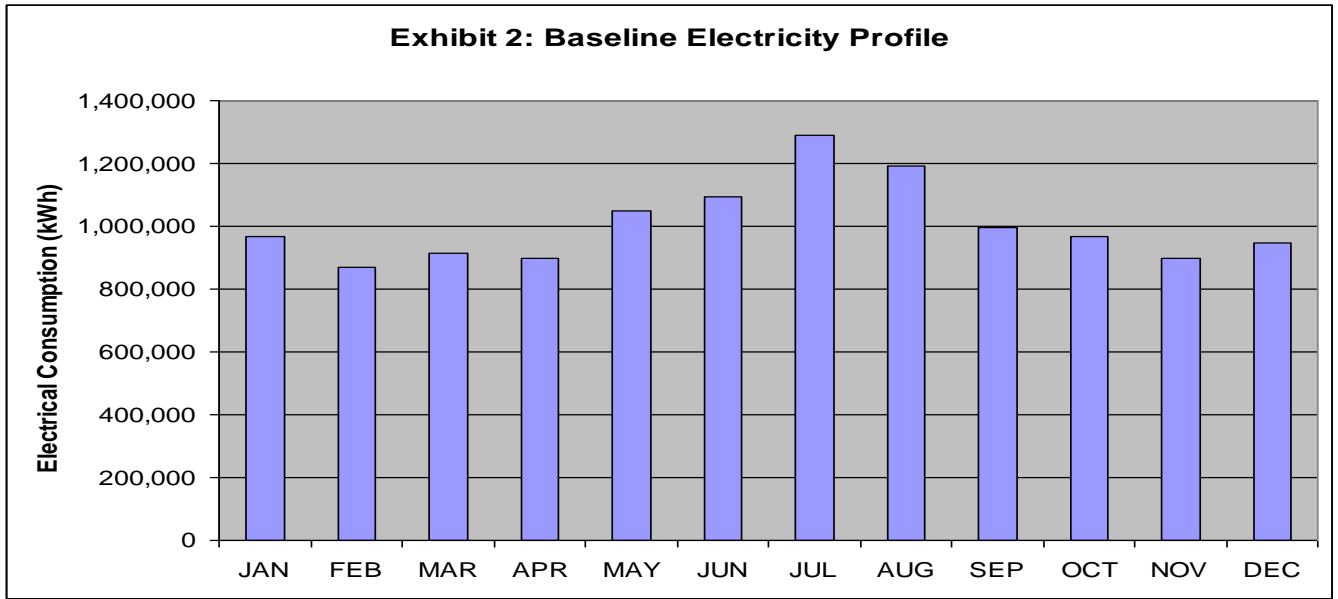


Exhibit 2 shows the monthly electricity use profile. The majority of the electricity consumption is base load, with a summer peak due to cooling, and a smaller winter extra that is the result of increased pumping energy associated with the heating system.

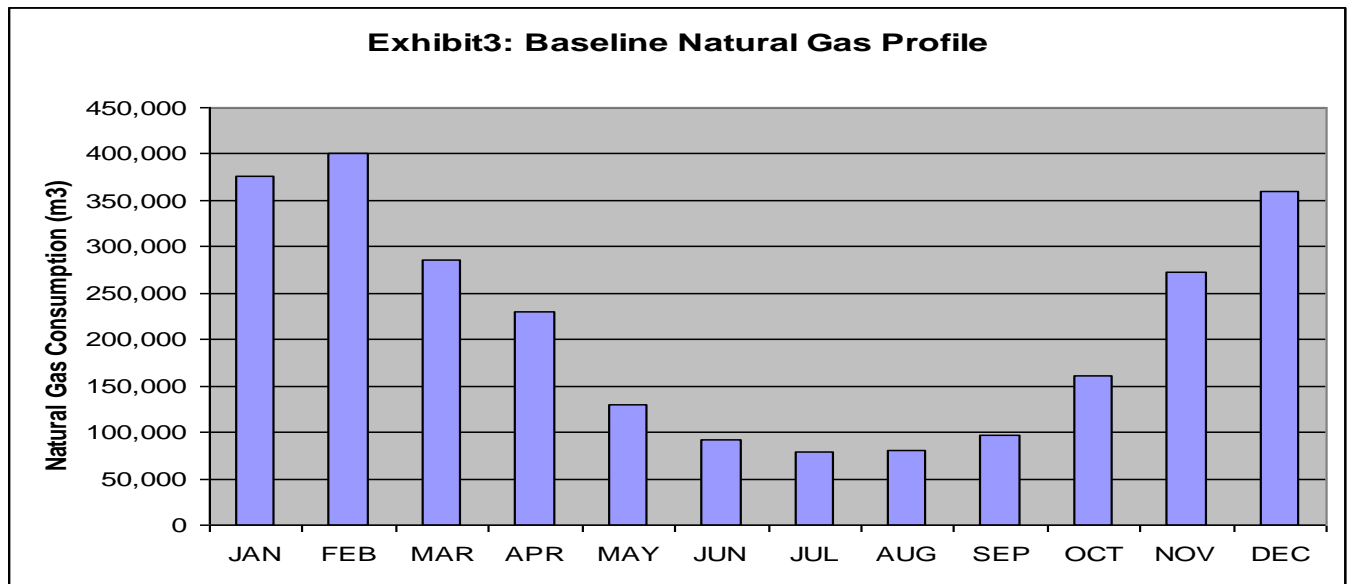


Exhibit 3 shows the monthly natural gas use profile. Approximately one third of the gas is being used for the base load, and there is a predictable winter increase that corresponds well with the heating demand.

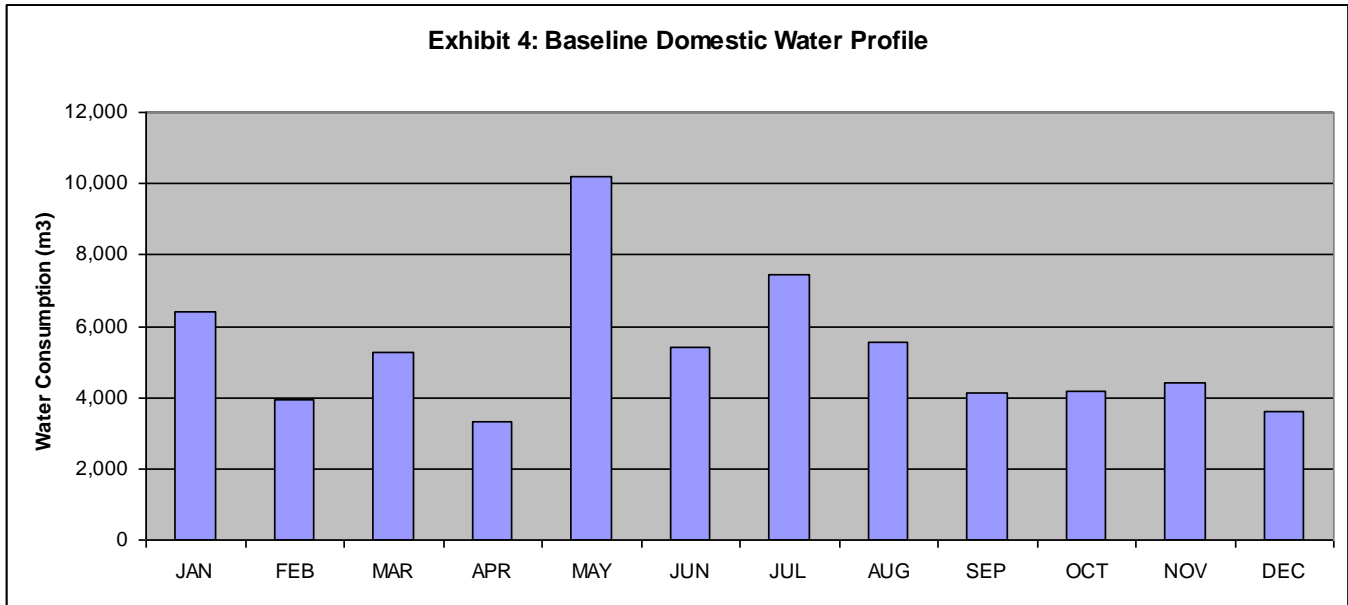


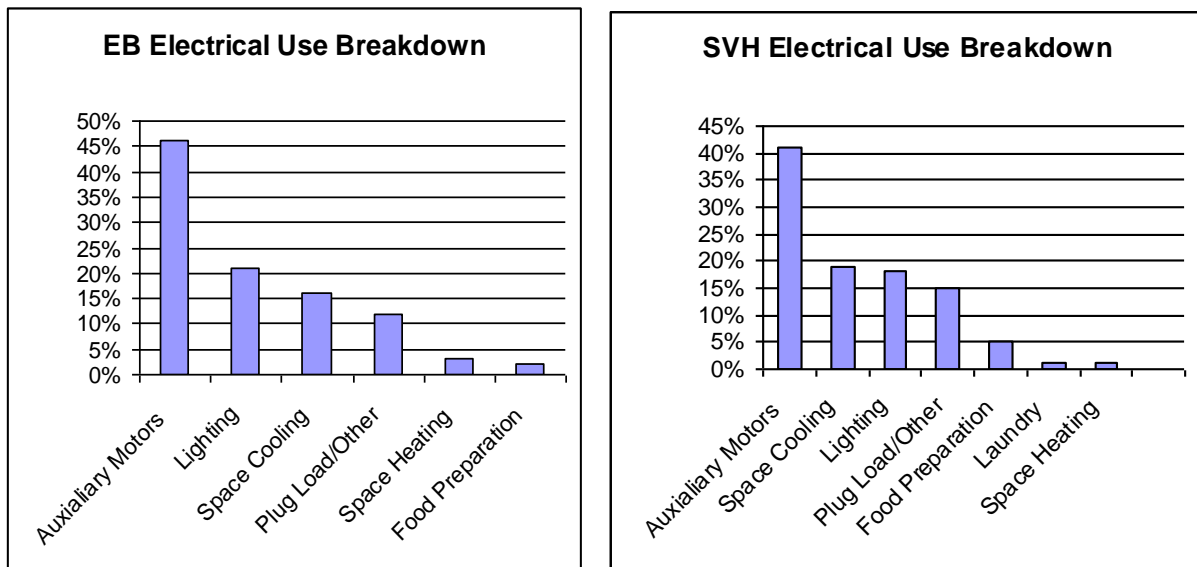
Exhibit 4 shows the monthly water use profile. The majority of the water consumption is base load, but there is an increase in the summer due to cooling loads.

Energy End Use Breakdown

Energy end-use estimates were calculated using spreadsheet-based tools in conjunction with a review of utility profiles. Specific energy uses that may overlap several categories are explained in their respective sections.

Electricity

Exhibit 5 illustrates the electrical energy end-use distribution. The following end uses shown below were identified to have an electrical impact.



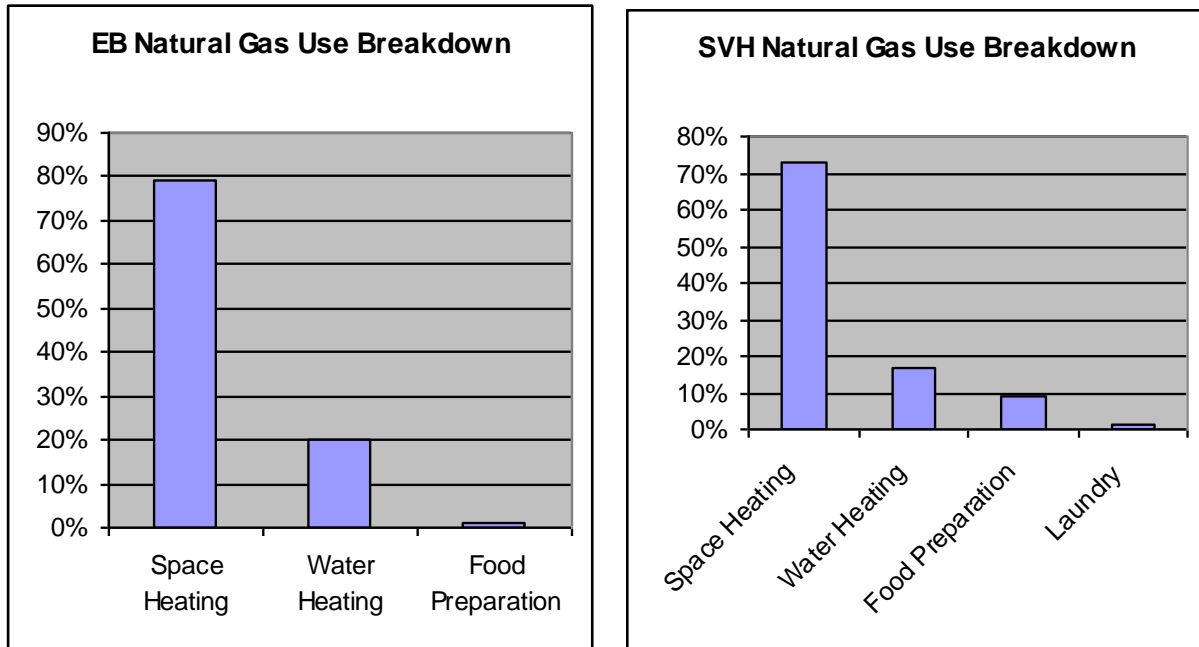
Observations on Electrical End-Use Breakdown:

Plug Loads include IT equipment.

Lighting energy consumption has been based on the lighting fixture count provided by an actual count of all fixtures in a 2011 energy audit.

Natural Gas

Exhibit 6 illustrates the natural gas energy end-use distribution. The following end uses shown below were identified to impact natural gas use.



Observations on Natural Gas End-Use Breakdown:

Process loads include steam consumption for humidification, sterilization, laundry and cooking.

The amount of energy used for the base load DHW and steam supply is within the expected range for these types of buildings.

Summary:

The overall purpose of Bruyère Continuing Care’s energy management plan and policy is to promote good stewardship of our environment and community resources. In keeping with our core values of Efficiency and Financial Responsibility, Bruyère Continuing Care’s energy management program will ultimately result in reduced operating costs and enable the Hospital to provide compassionate service to a greater number of people in the community.