Typical Annual Utility Usage for Clinacs and Acuity

12-Jul-06

The following numbers represent an estimate of the primary utility usage. These numbers are based on theoretical calculations for an eight hour work day and do not represent field measured values. They are supplied here for general planning purposes only. The annual cost of these utilities must be evaluated locally.

Electrical (includes only primary Varian equipment electrical loads)

Clinac 2100C(/D), 2300C/D, 21EX, 23EX, iX, Trilogy and Silhouette Clinac

Work day usage

Beam-on	1.6	hour @	45 kVA	=	72 kVA	
Ready	0.8	hour @	20 kVA	=	16 kVA	
Mode release	5.6	hours @	20 kVA	=	112 kVA	
Stand-by	16.0	hours @	3 kVA	=	48 kVA	
					248 kVA	with 90% power factor this equals: **223 kW** per day

Non-work day usage

Stand-by	24.0	hours @	3 kVA	=	72 kVA	with 90% power factor this equals: **65 kW** per day

Total

Assuming 52 five-day work weeks the total load would be approximately: **64,771 kW** per year

On-Board Imager (OBI)

Work day usage

Beam-on	1	hour @	60 kVA	=	60 kVA	
Ready	7	hours @	1 kVA	=	7 kVA	
					67 kVA	with 90% power factor this equals: **60 kW** per day

Total

Assuming 52 five-day work weeks the total load would be approximately: **15,678 kW** per year

Clinac 600C or 6EX

Work day usage

Beam-on	1.6	hour @	15 kVA	=	24 kVA	
Ready	0.8	hour @	5 kVA	=	4 kVA	
Mode release	5.6	hours @	5 kVA	=	28 kVA	
Stand-by	16.0	hours @	3 kVA	=	48 kVA	
					104 kVA	with 90% power factor this equals: **94 kW** per day

Non-work day usage

Stand-by	24.0	hours @	3 kVA	=	72 kVA	with 90% power factor this equals: **65 kW** per day

Total

Assuming 52 five-day work weeks the total load would be approximately: **31,075 kW** per year

Acuity

Work day usage

Beam-on	1 hour @	100 kVA	=	100 kVA	
Ready	7 hours @	1 kVA	=	7 kVA	
				107 kVA	with 90% power factor this equals: **96 kW** per day

Total

Assuming 52 five-day work weeks the total load would be approximately: **25,038 kW** per year

Coolant Usage

Clinac 2100C(/D), 2300C/D, 21EX, 23EX, iX, Trilogy and Silhouette Clinac

The typical coolant usage would vary between approximately 200,000 gallons per year at 50°F and 600,000 gallons per year at 75°F. This assumes a one pass cooling system. Most facilities use a closed loop system. Consult with the cooling system manufacturer to determine utility usage information.

Clinac 600C or 6EX

The typical coolant usage would vary between approximately 90,000 gallons per year at 50°F and 220,000 gallons per year at 75°F. This assumes a one pass cooling system. Most facilities use a closed loop system. Consult with the cooling system manufacturer to determine utility usage information.

Air Heat Load (includes only primary Varian equipment air heat loads)

Clinac 2100C(/D), 2300C/D, 21EX, 23EX, iX, Trilogy and Silhouette Clinac

Work day usage

Beam-on	1.6 hour @	8.0 kW	=	12.8 kW	
Ready	0.8 hour @	5.5 kW	=	4.4 kW	
Mode release	5.6 hours @	2.0 kW	=	11.2 kW	
Stand-by	16.0 hours @	1.5 kW	=	24.0 kW	
				52.4 kW	**52.4 kW** per day

Non-work day usage

Stand-by	24.0 hours @	1.5 kW	=	36.0 kW	**36.0 kW** per day

Total

Assuming 52 five-day work weeks the total load would be approximately: **17,368 kW** per year

Clinac 600C or 6EX

Work day usage

Beam-on	1.6 hour @	6.0 kW	=	9.6 kW	
Ready	0.8 hour @	1.0 kW	=	0.8 kW	
Mode release	5.6 hours @	1.0 kW	=	5.6 kW	
Stand-by	16.0 hours @	1.0 kW	=	16.0 kW	
				32.0 kW	**32.0 kW** per day

Non-work day usage

Stand-by	24.0 hours @	1.0 kW	=	24.0 kW	**24.0 kW** per day

Total

Assuming 52 five-day work weeks the total load would be approximately: **10,816 kW** per year

Acuity

Work day usage

Beam-on	1 hour @	2.8 kW	=	2.8 kW	
Ready	7 hours @	2.8 kW	=	19.6 kW	
				22.4 kW	**22.4 kW** per day

Total

Assuming 52 five-day work weeks the total load would be approximately: **5,824 kW** per year