



Exhibit A: Critical Loads

The following critical load data is the estimated consumption and load profile of the equipment to be powered in each school with the installed microgrid. These critical loads should be able to operate under normal electrical grid conditions and during grid outages.

The following tables outline all equipment considered to be critical loads and should be included on the critical loads circuit to be powered by the microgrid. The load profile should give an indication of the performance requirements of the system and should be considered when designing the system.

For areas with multiple printers, we have only specified one printer in the load tables with the assumption that one printer will be running at any time. Regardless, please provide critical load outlets for each printer that you observe.

Morovis

	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Kitchen							88,641
Refrigerator large	551	2	0	24	24	1,103	26,467
Refrigerator small	331		0	24	24	-	-
Freezer large	663	1	0	24	24	663	15,900
Freezer small	398		0	24	24	-	-
Cooler large	288	1	0	24	24	288	6,900
Cooler small	173		0	24	24	-	-
Lighting LED	12	30	6	16	10	360	3,600
Lighting fluorescent	40		6	16	10	-	-
Oven fan	5	1	6	16	10	5	50
Outlet	100	2	7	16	9	200	1,800
Fans	75	1	7	16	9	75	675
<i>Additional Classroom - Lights</i>	12	12	7	16	9	144	1,296
<i>Additional Classroom - TV</i>	150	1	7	16	9	150	1,350
<i>Additional Classroom - TV</i>	100	1	7	16	9	100	900
<i>Additional Classroom - Fan</i>	75	1	7	16	9	75	675



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	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Classrooms							
Desktop computers	100		7	16	9	-	-
Laptop computers	50		7	16	9	-	-
Lighting LED	12	41	7	16	9	492	4,428
Lighting fluorescent	40		7	16	9	-	-
Projectors	300		10	16	6	-	-
AC	3300		7	16	9	-	-
Small printers	50		7	16	1	-	-
Large printers - idling	20		0	24	24	-	-
Large printers - printing	1200		7	16	1	-	-
Wifi router	35		0	24	24	-	-
Fans	75	5	7	16	9	375	3,375
Minifridges	150	2	0	24	24	300	7,200
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Admin office							
Desktop computers	100	3	7	16	9	300	2,700
Laptop computers	50	2	7	16	9	100	900
Wifi router	35	1	0	24	24	35	840
Lighting LED	12	10	7	16	9	120	1,080
Lighting fluorescent	40		7	16	9	-	-
AC	150				#	-	-
Fan	75	3	7	16	9	225	2,025
Wifi Box	300	1	11	14	3	300	900
Plug Loads	100	4	7	16	9	400	3,600
Office Printers - in use	1500	1	7	16	1	167	1,500
Office Printers - idle	20	1	0	24	24	20	480



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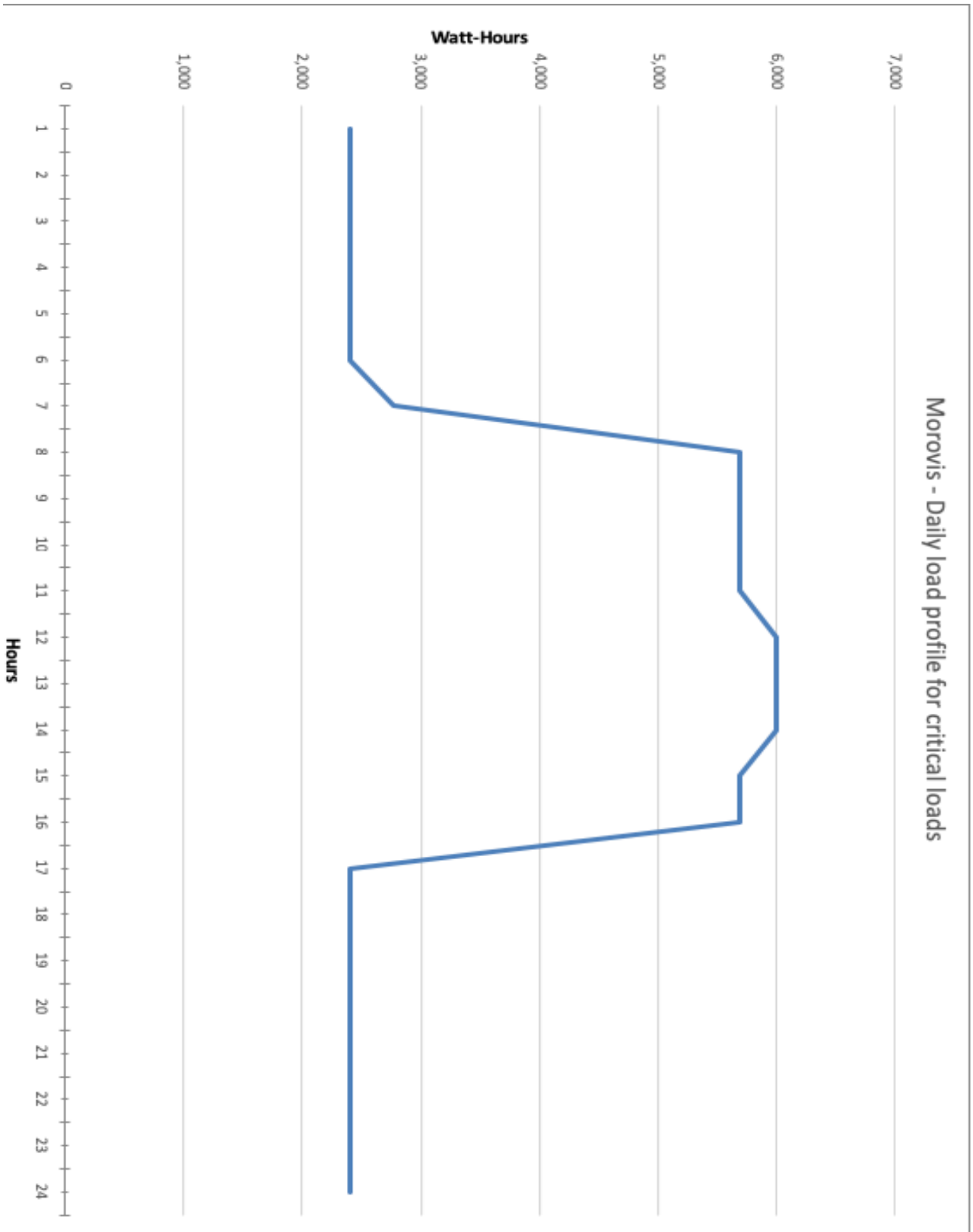




Exhibit A: Critical Loads

Naranjito

	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Admin office							
Desktop computers	100	2	7	16	9	200	1,800
Laptop computers	50		7	16	9	-	-
Wifi router	35	1	0	24	24	35	840
Lighting LED	12	8	7	16	9	96	864
Lighting fluorescent	40				-	-	-
AC	150				-	-	-
Generic charging outlet	100	4	7	16	9	400	3,600
Large printers - idling	20	1	0	24	24	20	480
Large printers - printing	1200	1	7	16	1.5	200	1,800
Fans	75	1	6	16	10	75	750
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Other							
Water pump	3000	1	11	14	3	3,000	9,000
Exterior lighting					-	-	-
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Kitchen							65,076
Refrigerator large	551	1	0	24	24	551	13,233
Refrigerator small	331		0	24	24	-	-
Freezer large	663	1	0	24	24	663	15,900
Freezer small	398		0	24	24	-	-
Cooler large	288	1	0	24	24	288	6,900
Cooler small	173		0	24	24	-	-
Lighting LED	12	30	6	16	10	360	3,600
Lighting fluorescent	40		6	16	10	-	-
Oven fan	5	1	6	16	10	5	50
Plug Loads	100	1	6	16	10	100	1,000
Fans	75	1	6	16	10	75	750
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Library / Computer room							
Desktop computers	100	4	7	16	9	400	3,600
Laptop computers	50		7	16	9	-	-
Lighting LED	12	18	7	16	9	216	1,944
Lighting fluorescent	40		7	16	9	-	-
Projectors	300		7	16	9	-	-
Fans	75	1	6	16	10	75	750
Small printers	50	1	7	16	1.5	8	75
Large printers - idling	20		0	24	24	-	-
Large printers - printing	1200		7	16	1.5	-	-
Wifi router	35	1	0	24	24	35	840
Wifi Box	300	1	11	14	3	300	900



Exhibit A: Critical Loads

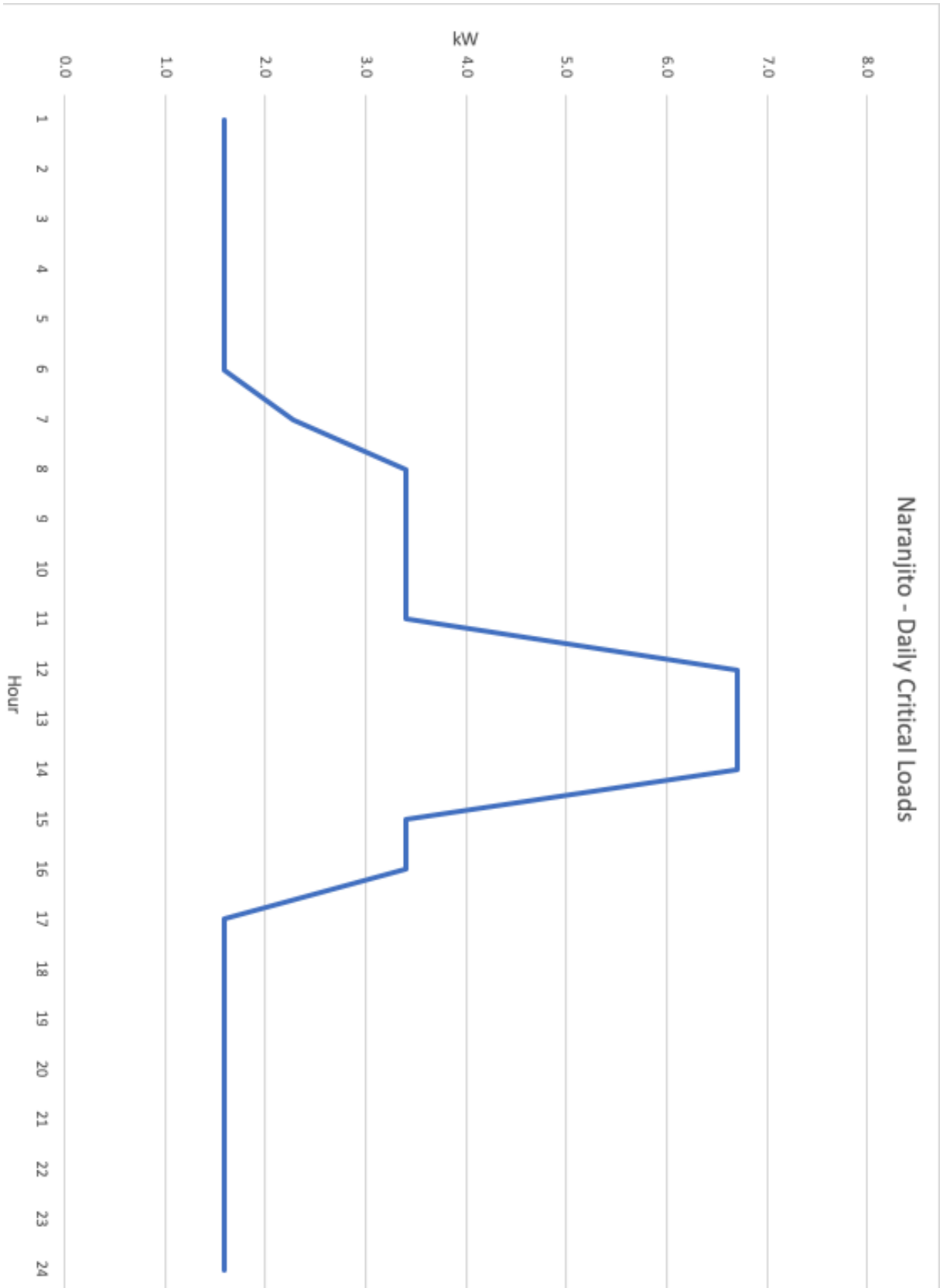




Exhibit A: Critical Loads

Barranquitas

	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Kitchen							65,735
Refrigerator large	551	1	0	24	24	551	13,233
Refrigerator small	331	1	0	24	24	331	7,940
Freezer large	663	1	0	24	24	663	15,900
Freezer small	398		0	24	24	-	-
Cooler large	288	1	0	24	24	288	6,900
Cooler small	173		0	24	24	-	-
Lighting LED	12	20	6	16	10	240	2,400
Lighting fluorescent	40		6	16	10	-	-
Oven fan	5	1	6	16	10	5	50
Plug Loads	100	1	6	16	10	100	1,000
Fans	75	1	6	16	10	75	750
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Library / Computer room							
Desktop computers	100	0	7	16	9	-	-
Laptop computers	50	6	7	16	9	300	2,700
Lighting LED	12	14	7	16	9	168	1,512
Lighting fluorescent	40					-	-
Projectors	300					-	-
Fans	75	1	6	16	10	75	750
Small printers	50	1	7	16	1.5	8	75
Large printers - idling	20	1	0	24	24	20	480
Large printers - printing	1200	1	7	16	1.5	200	1,800
Wifi router	35	1	0	24	24	35	840
Plug loads	100	2	7	16	9	200	1,800
Wifi Box	300	1	11	14	3	300	900
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Admin office							
Desktop computers	100	1	7	16	9	100	900
Laptop computers	50	4	7	16	9	200	1,800
Wifi router	35	1	0	24	24	35	840
Lighting LED	12	5	7	16	9	60	540
Lighting fluorescent	40		7	16	9	-	-
Fans	75	1	6	16	10	75	750
Generic charging outlet	100	2	7	16	9	200	1,800
Small printers	50	1	7	16	1.5	8	75



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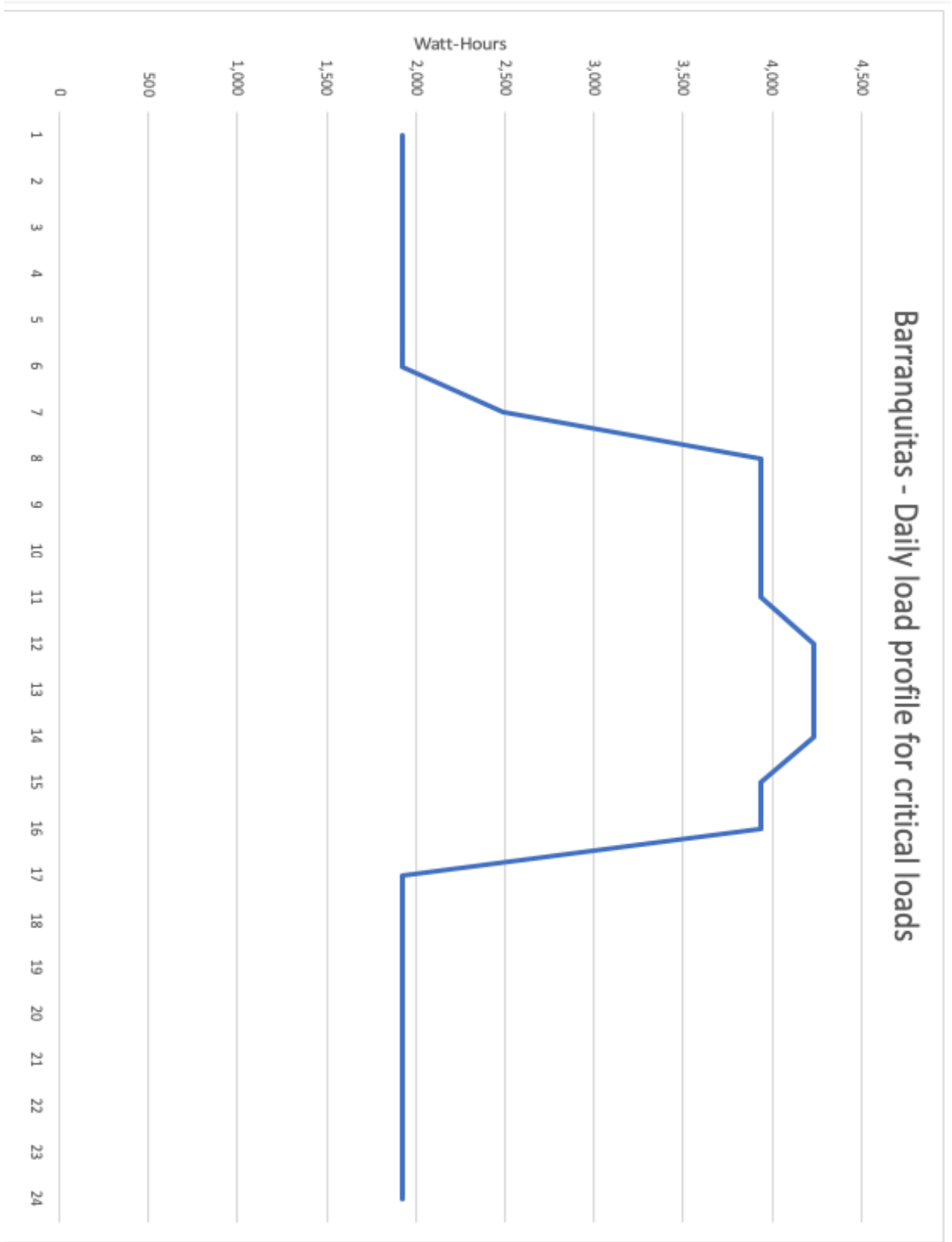




Exhibit A: Critical Loads

Humacao

	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Kitchen							48,553
Refrigerator large	551	1	0	24	24	551	13,233
Refrigerator small	331		0	24	24	-	-
Freezer large	663		0	24	24	-	-
Freezer small	398	1	0	24	24	398	9,540
Cooler large	288	1	0	24	24	288	6,900
Cooler small	173		0	24	24	-	-
Lighting LED	12	7	6	16	10	84	840
Lighting fluorescent	40		6	16	10	-	-
Oven fan	5	1	6	16	10	5	50
Fan	75	2	6	16	10	150	1,500
Plug Loads	100	2	6	16	10	200	2,000
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Library / Computer room							
Desktop computers	100	1	7	16	9	100	900
Laptop computers	50		7	16	9	-	-
Lighting LED	12	12	7	16	9	144	1,296
Lighting fluorescent	40		7	16	9	-	-
Projectors	300		10	16	6	-	-
AC	150					-	-
Small printers	50	1	7	14	1	7	50
Large printers - idling	20			24	24	-	-
Large printers - printing	1200		7	14	1	-	-
Wifi Box	300	1	11	14	3	300	900
Fan	75	2	7	16	9	150	1,350
Wifi router	35	1	0	24	24	35	840
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Admin office							
Desktop computers	100	1	7	16	9	100	900
Laptop computers	50		7	16	9	-	-
Wifi router	35	1	0	24	24	35	840
Lighting LED	12	8	7	16	9	96	864
Lighting fluorescent	40		7	16	9	-	-
Fans	75	1	6	16	10	75	750
Generic charging outlet	100	2	7	16	9	200	1,800
Office Printers - in use	820	1	7	14	1	117	820
Office Printers - idle	20	1	0	24	24	20	480
Wifi Box	300	1	7	16	9	300	2,700



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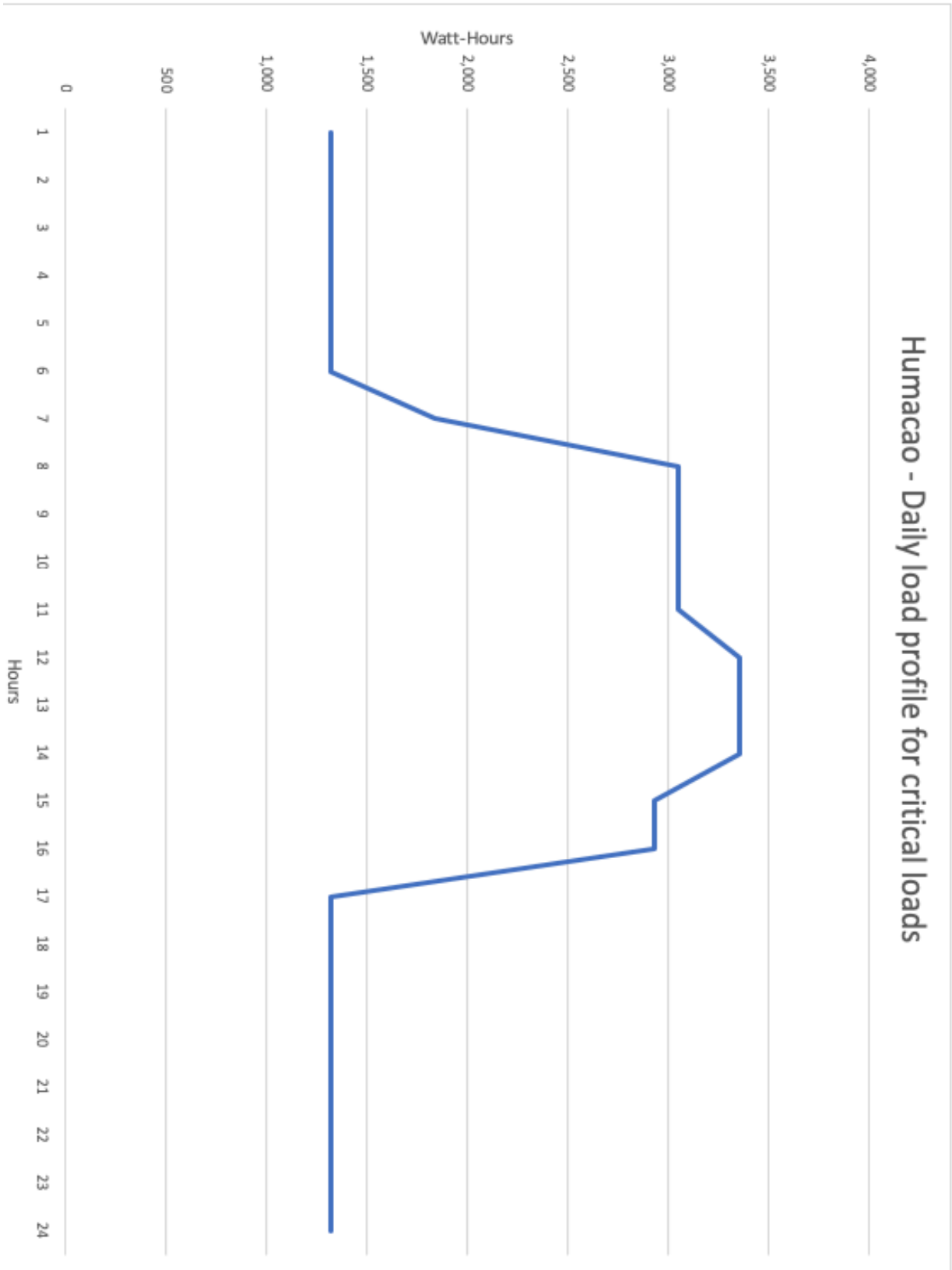




Exhibit A: Critical Loads

Canovanas

	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Kitchen							63,602
Refrigerator large	551		0	24	24	-	-
Refrigerator small	331	2	0	24	24	662	15,880
Freezer large	663	1	0	24	24	663	15,900
Freezer small	398		0	24	24	-	-
Cooler large	288	1	0	24	24	288	6,900
Cooler small	173		0	24	24	-	-
Lighting LED	12	39	6	16	10	468	4,680
Lighting fluorescent	40		6	16	10	-	-
Oven fan	5	1	6	16	10	5	50
Plug Loads	100	2	6	16	10	200	2,000
Fans	75	1	6	16	10	75	750
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Library / Computer room							
Desktop computers	100	8	7	16	9	800	7,200
Laptop computers	50		7	16	9	-	-
Lighting LED	12	15	7	16	9	180	1,620
Lighting fluorescent	40		7	16	9	-	-
Projectors	300		10	16	6	-	-
Fan	100	1	7	16	9	100	900
Small printers	50	1	7	16	9	50	450
Large printers - idling	20		0	24	24	-	-
Large printers - printing	1200		7	16	9	-	-
Wifi router	35	1	0	24	24	35	840
Wifi Box	300	1	11	14	3	300	900
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Teachers Lounge							
Desktop computers	100	1	7	16	9	100	900
Laptop computers	50		7	16	9	-	-
Wifi router	35	1	0	24	24	35	840
Lighting LED	12	24	7	16	9	288	2,592
Lighting fluorescent	40		7	16	9	-	-
Fans	75	1	6	16	10	75	750
Generic charging outlet	100		7	16	9	-	-
Small Printer	50	1	7	16	9	50	450



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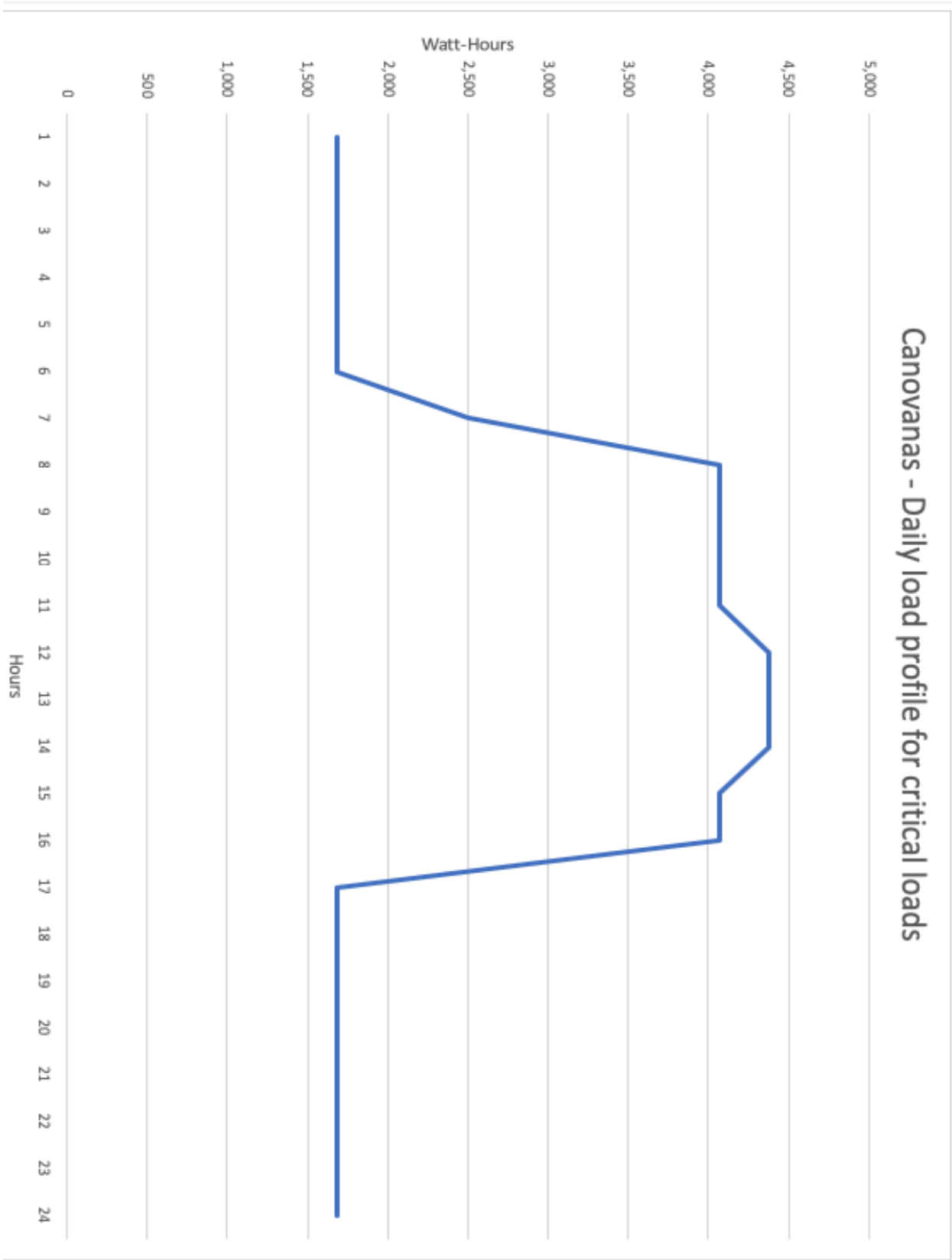




Exhibit A: Critical Loads

Jayuya

	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Kitchen							114,936
Refrigerator large	551	2	0	24	24	1,103	26,467
Refrigerator small	331		0	24	24	-	-
Freezer large	663	1	0	24	24	663	15,900
Freezer small	398		0	24	24	-	-
Cooler large	288	1	0	24	24	288	6,900
Cooler small	173		0	24	24	-	-
Lighting LED	12	40	6	16	10	480	4,800
Lighting fluorescent	40		6	16	10	-	-
Oven fan	5	2	6	16	10	10	100
Fans	75	10	6	16	10	750	7,500
Plug Loads	100	1	6	16	10	100	1,000
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Computer Lab							
Desktop computers	100	26	7	16	9	2,600	23,400
Laptop computers	50	0	7	16	9	-	-
Lighting LED	12	18	7	16	9	216	1,944
Lighting fluorescent	40					-	-
Projectors	300					-	-
Fans	75	1	6	16	10	75	750
Small printers	50	1	7	16	1.5	8	75
Large printers - idling	20		0	24	24	-	-
Large printers - printing	1200		7	16	1.5	-	-
Wifi router	35	1	0	24	24	35	840
Plug Loads	100	2	7	16	9	200	1,800
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Admin office							
Desktop computers	100	1	7	16	9	100	900
Laptop computers	50	4	7	16	9	200	1,800
Wifi router	35	1	0	24	24	35	840
Lighting LED	12	20	7	16	9	240	2,160
Lighting fluorescent	40		7	16	9	-	-
Fans	75	1	6	16	10	75	750
Large printers - idling	20	1	0	24	24	20	480
Large printers - printing	1500	1	7	16	1.5	250	2,250
Generic charging outlet	100	2	7	16	9	200	1,800
Wifi Box	300	1	11	14	3	300	900
Comms and Security	80	1	0	24	24	80	1,920
	Power [W]	#	Start use	End use	Hrs	Total W	Wh
Other							
Water pump	3220	1	11	14	3	3,220	9,660



Exhibit A: Critical Loads

