

# CASE STUDY

## FINDING YOUR PATH TO SUSTAINABILITY:

# UTILITY DATA ANALYSIS

Start Date	End Date	Invoice Date	Total kWh	Usage Cost	Billed kW	Demand Cost	Total Invoice	Usage Cost/kWh	Demand Cost/kW
12/01/20	12/01/20	12/31/20	2,000,861	143,808.02	3,041.00	9,313.02	155,804.96	0.0719	3.0625
11/01/20	11/30/20	11/30/20	2,073,891	129,270.96	4,040.00	9,313.02	141,416.95	0.0623	2.3052
10/01/20	10/31/20	10/31/20	2,255,353	144,468.01	4,116.00	9,313.02	156,728.69	0.0641	2.2626
09/01/20	09/30/20	09/30/20	2,593,899	204,760.81	4,654.00	9,313.02	217,235.44	0.0789	2.0011
08/01/20	08/31/20	08/31/20	2,997,656	229,018.06	4,977.00	9,370.68	241,804.91	0.0764	1.8828
07/01/20	07/31/20	07/31/20	3,172,984	249,543.81	4,900.00	9,370.68	262,441.48	0.0786	1.9124
06/01/20	06/30/20	06/30/20	2,808,289	226,268.10	5,007.00	10,142.58	239,028.19	0.0806	2.0257
05/01/20	05/31/20	05/31/20	2,484,106	166,540.53	4,716.00	10,142.58	180,026.63	0.0668	2.1507
04/01/20	04/30/20	04/30/20	2,072,243	137,392.33	3,763.00	10,142.58	149,810.87	0.0663	2.6953
03/01/20	03/31/20	03/31/20	2,067,577	137,580.64	3,656.00	10,142.58	150,708.61	0.0665	2.7742
02/01/20	02/29/20	02/29/20	1,962,891	131,868.97	3,256.00	10,142.58	144,206.52	0.0672	3.1150
01/01/20	01/31/20	01/31/20	2,089,881	141,590.34	3,302.00	10,142.58	153,990.51	0.0678	3.0716
12/01/19	12/31/19	12/31/19	2,072,995	143,665.95	3,594.00	10,142.58	156,057.66	0.0693	2.8221
11/01/19	11/30/19	11/30/19	2,010,116	128,043.67	3,471.00	10,142.58	136,748.76	0.0637	2.9221
10/01/19	10/31/19	10/31/19	2,490,749	161,928.69	4,961.00	10,142.58	174,534.89	0.0650	2.0445
09/01/19	09/30/19	09/30/19	2,869,700	223,358.09	5,038.00	10,142.58	237,224.55	0.0778	2.0132
08/01/19	08/31/19	08/31/19	3,034,801	239,035.93	4,884.00	10,399.26	185,372.87	0.0790	3.1293
07/01/19	07/31/19	07/31/19	3,191,841	255,830.70	5,453.00	10,399.26	270,223.16	0.0802	1.9071
06/01/19	06/30/19	06/30/19	2,757,290	222,631.62	4,777.00	10,399.26	231,807.37	0.0807	2.1789
05/01/19	05/31/19	05/31/19	2,501,985	170,167.85	4,362.00	10,399.26	179,538.14	0.0680	2.3841
04/01/19	04/30/19	04/30/19	2,129,774	147,217.05	3,963.00	10,399.26	156,870.97	0.0691	2.6241
03/01/19	03/31/19	03/31/19	2,119,460	147,644.66	3,871.00	10,399.26	157,306.43	0.0697	2.6865
02/01/19	02/28/19	02/28/19	1,942,813	119,482.83	3,302.00	10,399.26	144,206.52	0.0603	3.0194
01/01/19	01/31/19	01/31/19	2,145,369	161,483.35	3,318.00	97,860.49	157,644.63	0.0287	29.4938
12/01/18	12/31/18	12/31/18	2,100,422	126,911.01	3,241.00	75,941.19	152,649.32	0.0366	23.4314
11/01/18	11/30/18	11/30/18	2,063,201	126,882.67	3,456.00	80,292.79	147,401.00	0.0324	23.2329
10/01/18	10/31/18	10/31/18	2,458,813	175,881.12	4,823.00	107,960.87	183,853.51	0.0309	22.3846
09/01/18	09/30/18	09/30/18	2,893,190	87,248.76	5,591.00	123,505.19	210,530.46	0.0302	22.0900
08/01/18	08/31/18	08/31/18	3,138,090	98,985.47	5,053.00	116,816.22	215,477.98	0.0315	23.1182
07/01/18	07/31/18	07/31/18	3,059,565	101,681.12	5,084.00	117,389.56	223,288.15	0.0332	23.0900
06/01/18	06/30/18	06/30/18	2,751,098	91,780.40	4,992.00	115,406.34	211,145.48	0.0324	23.1183
05/01/18	05/31/18	05/31/18	2,641,946	89,331.81	4,854.00	112,642.66	205,844.90	0.0338	23.2062
04/01/18	04/30/18	04/30/18	2,035,822	67,332.90	4,024.00	90,988.46	161,698.72	0.0331	22.6117
03/01/18	03/31/18	03/31/18	2,067,410	79,682.83	3,226.00	75,691.85	164,196.92	0.0385	23.4631
02/01/18	02/28/18	02/28/18	1,907,692	76,173.31	3,671.00	84,698.65	169,146.53	0.0399	23.0724
01/01/18	01/31/18	01/31/18	2,147,139	85,571.62	3,564.00	82,532.97	175,463.19	0.0399	23.1574
12/01/17	12/31/17	12/31/17	2,099,020	86,256.70	3,395.00	79,112.41	172,096.84	0.0411	23.3026
11/01/17	11/30/17	11/30/17	1,986,988	73,341.70	3,564.00	82,532.97	162,310.04	0.0369	23.1574
10/01/17	10/31/17	10/31/17	2,510,281	87,592.92	4,716.00	105,849.45	201,248.77	0.0349	22.4448
09/01/17	09/30/17	09/30/17	2,724,264	99,784.54	5,023.00	112,063.13	213,077.13	0.0366	22.3100
08/01/17	08/31/17	08/31/17	2,962,149	113,371.85	4,869.00	114,165.00	228,766.31	0.0383	23.4473
07/01/17	07/31/17	07/31/17	3,037,378	118,126.69	4,915.00	115,237.26	234,593.44	0.0389	23.4480
06/01/17	06/30/17	06/30/17	2,734,978	112,939.37	4,961.00	116,214.30	230,017.03	0.0413	23.4256
05/01/17	05/31/17	05/31/17	2,423,961	100,980.65	4,316.00	102,514.50	204,358.51	0.0417	23.7322
04/01/17	04/30/17	04/30/17	2,201,600	87,899.82	4,163.00	95,101.78	183,864.96	0.0399	22.8445
03/01/17	03/31/17	03/31/17	2,078,299	82,826.91	3,640.00	82,451.33	167,479.46	0.0399	22.6515
02/01/17	02/28/17	02/28/17	1,880,182	79,189.58	3,564.00	72,551.70	158,760.01	0.0421	20.3968
01/01/17	01/31/17	01/31/17	2,055,555	87,035.35	3,195.00	66,260.25	160,897.79	0.0423	20.7387
12/01/16	12/31/16	12/31/16	2,050,141	85,327.58	3,379.00	69,397.45	162,309.21	0.0416	20.5379
11/01/16	11/30/16	11/30/16	2,086,400	67,146.93	3,978.00	79,610.40	154,468.00	0.0322	20.0127
10/01/16	10/31/16	10/31/16	2,406,400	86,145.41	4,547.00	89,311.85	184,248.04	0.0358	19.6419
09/01/16	09/30/16	09/30/16	2,764,800	103,726.66	5,192.00	100,309.10	214,000.18	0.0375	19.3199
08/01/16	08/31/16	08/31/16	3,164,075	125,234.24	5,238.00	116,807.40	242,814.15	0.0396	22.3000
07/01/16	07/31/16	07/31/16	3,072,000	122,654.73	5,038.00	112,554.40	233,735.84	0.0399	22.3411
06/01/16	06/30/16	06/30/16	2,675,200	99,243.19	4,746.00	106,803.30	206,819.02	0.0371	22.5039
05/01/16	05/31/16	05/31/16	2,502,400	94,436.97	4,900.00	109,891.00	205,100.50	0.0377	22.4267
04/01/16	04/30/16	04/30/16	2,082,715	46,261.32	4,101.00	117,208.95	164,242.80	0.0221	26.5806



We count on utility service to deliver twenty four hours a day to keep our home warm and our hospitals working. Without the delivery of these services our world would grind to a halt. However, for every minute of consumption comes the cost of its use. Beyond just the expense is the environmental expense behind it, created by our industries selling these services. When an organization uses fuels and electricity it does not aim to harm or impact the environment but this occurs.

Industry has given us little opportunity to buy clean power and the gas we buy isn't clean no matter what we do. So how does an organization become "sustainable" and environmentally friendly? It starts with analysis of your energy usage patterns.

## MISSION OBJECTIVES

# A PATH TO SUSTAINABLE PRACTICES

- Utility Analysis
- Energy Studies
- Shifting of expectations
- Planning of projects
- Execution and verification

In 2020 Upgrade~Evolve Consulting partnered with a regional Level 1 Trauma Center Hospital to help them find a path to more efficient and sustainable operation. Utilizing ten years of hospital energy usage data, including utility level audit reports, past billing data and more, an analysis report was created to inform the administration of how they utilized energy and benchmarked good performance compared to wasteful.

In the graphs posted on this case study were found excess power waste due to outdated heating and cooling controls, overlooked free cooling opportunities, and unused technology upgrades that produce four year returns on invested capital. Also an outdated and outmoded central utility powerplant was apparent. With the advent of new electronic controls and HVAC improvements the Energy Star profile leaped from an 8 to a 36 in two years! Over \$700,000.00 in rebates were recovered in those first two years and negotiation and utility pricing strategy was employed with the help of U.E. staff to hedge against inflationary pricing released by the utility in year three of improvements.

The results have been the equivalent of planting over 8500 acres in trees for offset of carbon emissions alone. The savings accrued has created greater capital availability for improved operating room heating and cooling systems and more. A new breath of fresh air for the facility staff who have planned improvements in the past but have been made to wait; now are improving and operating the new hospital infrastructure.



A goal of nothing is easily accomplished every year. With the right partner you can accomplish what seems impossible. Upgrade~Evolve Consulting works to uncover the waste, improve the inefficient, and simplify the new, rather than complicate and conjugate meaningless products and services.

From Central Utility Plant commissioning and redesign to lighting upgrades, we perform where many organization do not have the will to uncover and create. But it all starts with a plan. A plan to succeed and grow into a new role of greener and more sustainable operation.

Streamlining every operation and tool on the infrastructure side of your organization may not be your cup of tea but is what we do and we do it well.

