GUE Cooling Services Solution – Multi-Site Deployment: McKinley Company – Central Florida

Founded in 1968 and headquartered in Ann Arbor, Michigan, the McKinley Company is a real estate investment company that is has a $2 billion dollar real estate portfolio with over 17,000 residential units and 6.2 million square feet of commercial space located in sixteen states employing 1,000 full time team members. Georgetown Utilities Enterprise (GUE) – founded in 2003 – is an MBE (Minority Business Enterprise) that has successfully tested an advanced metallurgical treatment in HVAC equipment called ProaTEQ, which significantly lowers operating cost.

Situation: In May 2011, the Managing Director at the McKinley Company and with his Orlando, Florida-based Regional Facilities Director, were actively looking for solutions to lower annually escalating operating costs with its Florida facilities. Georgetown Utilities met with the Managing Director in Ann Arbor, Michigan and presented the details of our energy efficiency program that included past performance and cost parameters. After several weeks of making additional presentations to McKinley staff and answering numerous questions regarding ProaTEQ, the McKinley Company elected to hire GUE to implement ProaTEQ at four (4) of its mix use and residential multi- dwelling facilities:

Monterey Lake Apartments
6701 Westwood Blvd, Orlando, FL 32821

Westwood Suites
6800 Villa De Costa Dr, Orlando, FL 32821

Sun Pointe Apartments
1250 Woodcrest Dr, Daytona Beach, FL 32114

Indigo Winter Park
220 South Semoran Blvd, Winter Park, FL 32792

Tasks: Every year, the McKinley Company was seeing a continual escalation of the cost of operating its fourteen (14) medium and large chillers that provide comfort cooling to tenants and staff in mix-use commercial, multi-dwelling residential facilities in central Florida. This, in spite of a chiller maintenance service program compliant with OEM recommendations, precipitated the Managing Director and Regional Facilities Director to engage and task Georgetown Utilities to deliver appreciably better outcomes.

Action: Georgetown Utilities submitted a proposal to treat all fourteen (14) of its chillers, which included multiple re-visits for re-testing. The project was executed in three Phases.

PHASE I – **Project Execution** – Pre-Testing of Capacity, ProaTEQ Treatment, and Post-Testing of Capacity

PHASE II – **Analysis, Modelling & Reporting**

PHASE III – **Financial Settlement** Based on Possible Offsets Due to Performance Guarantees.

The field testing, combined with the simulation, allowed GUE to quantify:

Capacity Loss (Tons) – "Test-In" procedures established the current operating capacity as the unit's baseline for capacity recovery. The main effect of oil fouling is degradation of heat-transfer capacity, which, according to ASHRAE, can reach 30% on older units.

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Capacity Recovery (Tons) – This is the principal benefit of the removal of oil fouling and permanent coating of metal with ProaTEQ. Heat transfer in the equipment is improved immediately, and capacity is partially recovered.

Demand Reduction (kW) – The second key benefit of ProaTEQ is improved lubricity in compressor oil, which is manifest in a small reduction in kW draw of the compressor. The unit also runs quieter.

Performance Increase (kW/Ton) – The combined effects of heat transfer improvement and lubricity improvement led to increases in the performance of the equipment as measured in kW/Ton – the main performance factor used in the industry.

Results: The overall results of the project are shown in the following table:

Chiller	Capacity (Tons)					Operating Cost Savings		SPBP	ROI
	Nom	Pre	Post	Recovered					
1	80	40.5	60.8	20.3	51%	$8,392	33%	0.7	150%
2	100	52.5	75.8	23.3	49%	$9,860	31%	0.7	141%
3	130	84.9	103.0	18.1	40%	$8,499	18%	1.1	93%
4	150	65.9	105.9	40.0	48%	$16,625	38%	0.6	158%
5	150	77.2	99.0	21.8	30%	$11,603	22%	0.9	111%
6	160	101.3	120.2	18.9	32%	$10,714	16%	1.0	96%
7	150	40.2	54.4	14.2	13%	$14,366	26%	0.7	137%
8	86	57.0	67.5	10.5	36%	$8,776	16%	0.7	146%
9	86	57.0	69.8	12.8	44%	$10,345	18%	0.6	172%
10	86	57.0	66.8	9.8	34%	$8,276	15%	0.7	137%
11	77	49.0	67.5	18.5	66%	$10,978	27%	0.5	204%
12	86	57.0	67.5	10.5	36%	$8,776	16%	0.7	146%
13	80	54.7	67.5	12.8	51%	$7,061	19%	0.8	126%
14	80	31.1	34.5	3.4	7%	$3,581	10%	1.6	64%
TTL	1,501	825	1,060	235	35%	$137,854	21%	0.8	131%

Multi-Part Guarantee: To mitigate the McKinley Company from mechanical risk and ensure that the project would yield favorable financial results, GUE extended its multi-part Performance Guarantee, which we consider to be a key differentiator:

1. No Equipment will be damaged (GUE carries over $5MM insurance)
2. Equipment Capacity will increase by at least 10%,
3. Equipment Performance will improve by at least 10%,
4. Energy consumption was reduced leading to project payback less than 3 years (in this case it was less than one (1) year).

It should be noted that ProaTEQ is typically not an RFP commodity, due to its technical uniqueness. And it is unlikely to be recommended by OEMs because it extends the equipment life and forestalls sales of replacement units and supplemental capacity.

Summary: The McKinley Company, because of the overall size, complexity, and criticality of this chiller project, engaged the service of an independent 3rd party engineering firm – Matrix Energy Services – to track the performance and fiscal results delivered by GUE's cooling services solution. These, as shown on the left, are those results calculated and tabulated by Matrix Energy Services – not Georgetown Utilities although they are very similar. Of significant note is the fact that GUE's cooling services solution, in addition to the 21% annual dollar savings, consumption reduction, and an overall SPBP of less than 10 months, recovered 235 tons of cooling capacity, which equated to 16% of the total nominal tons treated and was larger than any individual unit treated.

For More Information, Contact:

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