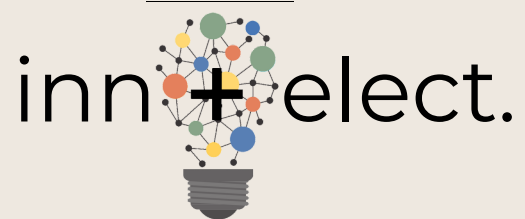


IT'S JUST A PENNY

**ENERGY CRISIS OR OPPORTUNITY?
IMPROVING HOTEL OPERATIONAL RESULTS & MARKET
VALUE IN TIMES OF ECONOMIC UNCERTAINTY.**

JANUARY 2023



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SMALL CHANGE, HUGE DIFFERENCE.



In 2022, hotel operating expenses grew at an unprecedented rate, as owners scrambled to cut costs. Cutting labor leads to service and cleanliness problems, negative online reviews and eventual loss of revenue. Passing along increases for goods and services undermines the hotel's competitive position.

Hoteliers were squeezed between retaining talent, satisfying guests and meeting investor expectations. Nowhere is this more true than for a large Real Estate Investment Trust (REIT), such as Host Hotels & Resorts (HST).

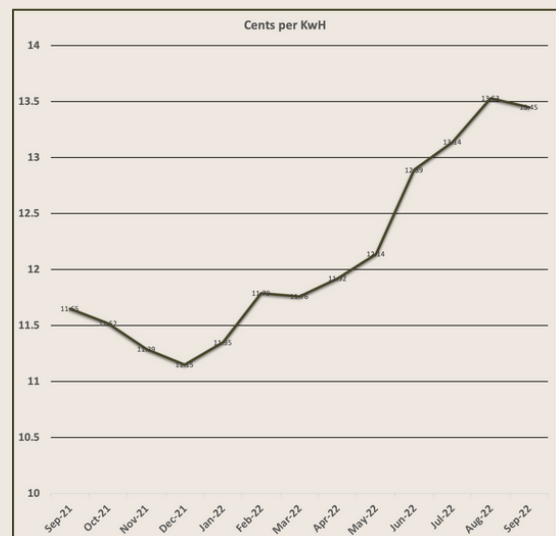
Reporting \$4.6 billion in revenue for year ending September 2022, from a portfolio of 80 luxury hotels, Host, and other hotel owners, are seeing how a small change to a small cost center impacts their financial statements.

Utility costs, historically between 3% to 4% of total hotel revenue, are often overlooked. Electricity is about 60% of those expenses (20% of which are often service charges). Actual wattage costs were only about 1.7% to 2.5% of revenue.*

Had wattage costs stayed constant at \$0.1101 per kWh, the average commercial rate reported by EIA (U.S. Energy Information Administration), between October 2020 and September 2021*, Host's estimated electricity costs (excl. service charges), at a conservative 1.7% of revenue, total \$77 million.

In September 2022, EIA noted that prices rose to \$0.135 per Kilowatt Hour (KwH) - a 15.5% increase from September 2021. This is highest annual increase in forty years.*

NATIONAL AVERAGE COST OF COMMERCIAL ELECTRICITY, SEPTEMBER 2021 - SEPTEMBER 2022



Source: U.S. Energy Information Administration

A waiter in a white shirt and bow tie is setting a table in a hotel room. The table is covered with a white tablecloth and has a glass of orange juice, a plate of strawberries, and a silver cloche. The room has large windows with white curtains and a view of a balcony and trees outside.

LOWER COSTS, NOT RATINGS.

The year between October 2021 and September 2022 saw the average commercial kWh price increasing to \$0.1216*. Assuming the same usage, Host's electricity costs would soar to \$86.2 million - an increase of \$8.2 million. And it's all because of just a penny.

Looking for cleaner, more sustainable energy sources, solar quickly comes to mind. In reality, implementation costs and energy output hinder solar from being a truly effective solution. A 500-room, full-service hotel requires roughly eight football fields of panels to run 100% on solar power.

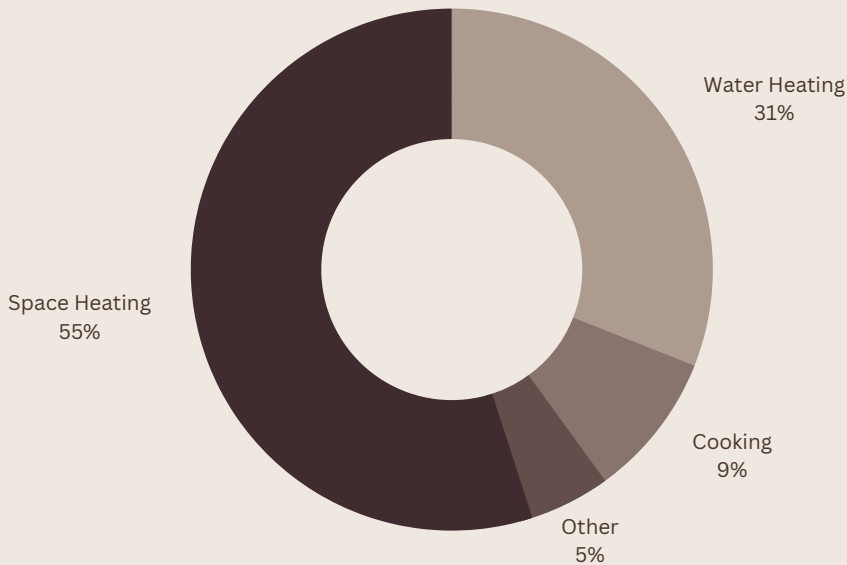
Fortunately there's a more effective, less expensive and more reliable solution - natural gas-powered micro turbines. These machines only need the space of a walk-in freezer to produce electricity for an entire hotel.

If a REIT the size of Host Hotels were to replace 75% of current electricity sourced from local utilities with on-site natural-gas powered micro turbines, they add over \$56.4 million in Net Operating Income (NOI).

And there's even more good news. Micro turbines offer hoteliers an opportunity to generate electricity AND produce heat with Combined Heating & Power (CHP). At 65% to 80% efficiency, according to the U.S. Environmental Protection Agency, micro turbines with CHP are like an on-site hydroelectric power plant.

Lodging facilities use 55% of their natural gas consumption on space heating, and 31% for water heating*. This means a hotel spends around 0.54% of total revenue on heating space and water under normal circumstances.

CHEAPER ELECTRICITY & FREE HEAT



U.S. LODGING FACILITY ANNUAL NATURAL GAS CONSUMPTION BY END USE*

However 2022 was not a year of normal circumstances. War in Ukraine and extreme weather pushed natural gas prices from an average of \$8.78 per one thousand cubic feet, or dekatherm (DTH), from October 2020 to September 2021, to \$11.91 per DTH over the following year*.

For a REIT like Host, originally spending 0.6% of revenue on natural gas, this increase translates to \$10.4 million in additional costs, and thus the same amount decrease in NOI.

At a modest 75% efficiency level for CHP, almost half of a hotel's natural gas requirements for space and water heating are recaptured in the cogeneration process.

The high efficiency of micro turbines with CHP and the comparatively lower cost of natural gas to utility-sourced electricity dramatically reduce the the overall energy costs.

EFFECT ON MARKET VALUE OF A HOTEL PORTFOLIO

The rate increases of commercial electricity and natural gas together equal an \$18.6 million loss to Net Operating Income.

But, if a REIT embraces micro turbine and CHP technology, it instead reaps a \$40.6 million increase in NOI.

That is a \$59 million difference in NOI.

But there's more. The change in energy costs not only effects the NOI, it effects the selling price of a hotel.

Using a Capitalization Rate of 8% to establish the market value of a hotel asset, the difference between crisis and opportunity becomes very clear.

Portfolio value increases \$740 million.

Seize the opportunity.

VALUE CREATION SCENARIOS

Scenarios	BASELINE		CRISIS		OPPORTUNITY	
	Energy Costs Before Increases		Increased Energy Costs w/o Micro Turbine + CHP		Increased Energy Costs w/Micro Turbine + CHP	
		% Revenue		% Revenue		% Revenue
Revenue	\$ 4,642,000,000	100%	\$ 4,642,000,000	100%	\$ 4,642,000,000	100%
Utilities Costs (excl. Electric Service Charges)	\$ 142,973,600	3.1%	\$ 161,599,731	3.5%	\$ 102,368,195	2.2%
Electricity KWh	\$ 77,985,600	1.7%	\$ 86,176,037	1.9%	\$ 21,544,009	0.5%
Natural Gas + Steam	\$ 29,244,600	0.6%	\$ 39,680,294	0.9%	\$ 45,080,786	1.0%
Water	\$ 35,743,400	0.8%	\$ 35,743,400	0.8%	\$ 35,743,400	0.8%
Electric KWh Breakdown						
Kilowatt Hours Consumed (KWh)	708,637,892		708,637,892		708,637,892	
Target % of KWh Offset with Natural Gas	-		-		75%	
Total KWh Offset with Natural Gas	-		-		531,478,419	
Total KWh Consumed	708,637,892		708,637,892		177,159,473	
Cost per KWh Consumed	\$ 0.1101		\$ 0.1216		0.1216	
Total Electricity Costs	\$ 77,985,600		\$ 86,176,037		\$ 21,544,009	
Value Created from Baseline (Electricity kWh)	-		\$ (8,190,437)		\$ 56,441,591	
Natural Gas Breakdown						
NG Used for Space & Water Heating (DTH)	2,832,165		2,832,165		2,832,165	
NG Used for other	499,794		499,794		499,794	
NG Required for Electricity Production (DTH)	-		-		1,813,920	
Target Efficiency of CHP (Recapture Rate)	-		-		75%	
Energy "Recaptured" with CHP (DTH)	-		-		(1,360,440)	
Total Natural Gas Consumed (DTH)	3,331,959		3,331,959		3,785,438	
Cost per 1000 Cubic Feet Natural Gas (DTH)	\$ 8.78		\$ 11.91		\$ 11.91	
Total Natural Gas Costs	\$ 29,244,600		\$ 39,680,294		\$ 45,080,786	
Value Created from Baseline (Natural Gas)	-		\$ (10,435,694)		\$ (15,836,186)	
Change in Net Operating Income (NOI)	-		\$ (18,626,131)		\$ 40,605,405	
Capitalization Rate for Hotel Real Estate	8.0%		8.0%		8.0%	
NOI Change Impact on Market Value of Assets	-		\$ (232,826,636)		\$ 507,567,560	

*Sources

- Utility Breakdown: CBRE (<https://www.cbre.com/insights/articles/controlling-us-hotel-utility-costs>);
- Energy Usage in Lodging: ESOURCE, data from U.S. Energy Information Administration and Natural Resources: (<https://pinnacle-advisory.com/press-room/delayed-gratification-in-energy-savings/>)
- US Power Prices Rise Most in 41 Years as Inflation Endures (<https://www.bloomberg.com/news/articles/2022-09-13/us-electricity-prices-rise-most-in-41-years-as-inflation-endures>)
- Natural Gas Commercial Prices: (https://www.eia.gov/dnav/ng/ng_pri_sum_a_EPGO_PCS_DMcf_m.htm)
- Electricity Commercial Prices: (https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a)

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