Utility Savings & Worker Voice:

An Analysis of Environmental, Social, and Governance Metrics at Austin Convention Enterprises

TEXAS CLIMATE JOBS PROJECT

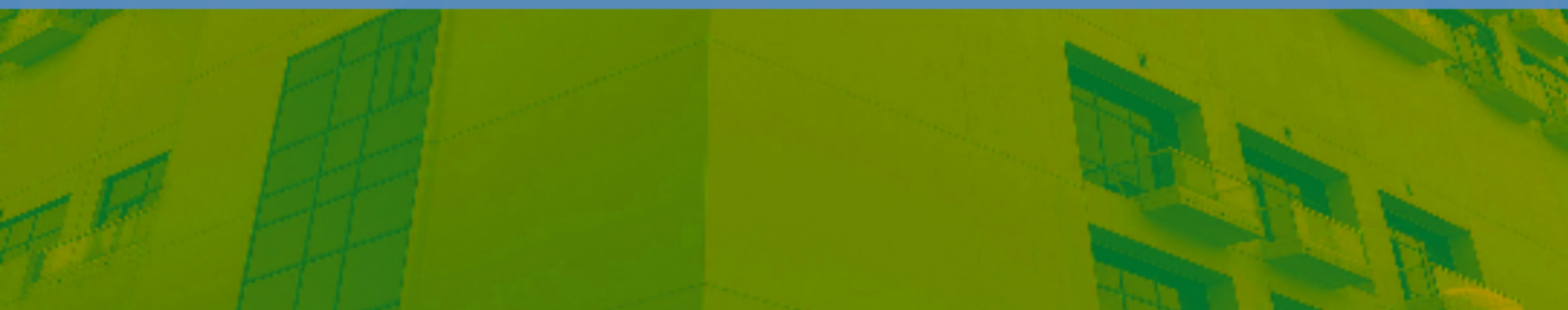

TABLE OF CONTENTS

Executive Summary

The City of Austin has established a goal to achieve net-zero community-wide greenhouse gas emissions by 2040, stating that “everyone has to do their part to cut carbon,” and worldwide, buildings account for 40% of carbon emissions. Austin Convention Enterprises (“ACE”) is the City of Austin’s public facilities corporation that owns and oversees the operation of the hotel building operated by Hilton at 400 E 4th Street, which opened in 2003. This report analyzes utility data projected by industry consultants as part of ACE’s 2017 bond refinancing and uses governmental and industry data to project estimated energy and water use and efficiency savings that result from building retrofitting measures. First, a review of primary documents reveals that hotel utility payments are projected to increase by more than 70% to more than $5 million annually by 2036. Second, this report details how industry consultants found ACE utility payments to be higher than comparable hotel operating statements by multiple industry-accepted measures. Third, a review of ENERGY STAR buildings reveals that twenty-four buildings have earned the designation in the downtown area, however, Austin Convention Enterprises is not one of them. Fourth, this analysis applies energy and water efficiency data from the Environmental Protection Agency, Rocky Mountain Institute, and Sustainable Hospitality Alliance to create multiple utility savings scenarios. Our analysis finds that, based on industry and governmental data, Austin Convention Enterprises could save between $13-27 million in utility payments and up to 23 million gallons of water as a result of deep retrofits through 2036. This report recommends the following: First, the hotel operator should immediately begin tracking and publishing utility data; Second, Austin Convention Enterprises and the City of Austin should mandate a comprehensive energy audit and require a long-term retrofitting plan that includes the building’s integration into City of Austin Green Building Policy; Third, as the building achieves net zero emissions, the hotel should implement a “just transition” plan for employees and contracted workers that includes robust labor standards for hotel retrofit work performed, preservation of hotel operations jobs such as daily housekeeping, and deep consultation and engagement with labor organizations for how to most effectively appropriate realized and projected utility savings resulting from retrofitting efforts for the benefit of workers.

Buildings, Energy Use, and Carbon Emissions

Buildings are major sources of carbon emissions. The Environmental Protection Agency estimates that commercial and multifamily buildings account for 19% of total carbon emissions in the U.S.[1] A previous study completed between the Texas Climate Jobs Project and Cornell University, "Combating Climate Change, Reversing Inequality: A Climate Jobs Program for Texas," indicated that worldwide buildings account for as much as 40% of total carbon emissions. "Simple fixes," the report indicated, "such as tuning existing heating and cooling systems or mechanical insulation, would generally improve building energy efficiency by at least 20%," and a deep building retrofit that adopts more substantial system changes, such as replacing heating and cooling systems, could reduce energy use by up to 50%.[2]

Austin Convention Enterprises Overview

The City of Austin formed ACE "to finance the construction, renovation, and improvement of the convention center headquarters hotel, garage and supporting facilities under Chapter 303 of the Local Government Code." In June 2001 ACE issued revenue bonds to finance the construction and initial operation of the hotel, and the hotel commenced operation on December 27, 2003. The hotel is a 31-story 801-room hotel located at 500 E 4th St, Austin, Texas, 78701, and is currently operated by Hilton through a Hotel Operating Agreement. The hotel includes a Starbucks, lobby bar, a health club and spa, a rooftop outdoor swimming pool, a business center, two executive levels, two restaurants, a multi-level parking garage, and in-house support facilities.

In Section 2.4.3 of the Hotel Operating Agreement, the hotel manager is responsible for the obligation to "negotiate, enter into, and administer, as agent on behalf of Corporation for the benefit of the Hotel, service contracts for Hotel operations including (without limitation) contracts for health and safety systems maintenance, electricity, gas, telephone, cleaning, elevator and boiler maintenance, air conditioning maintenance," and more.

ACE Utility Payments

In the official statement released in 2017 as part of the bond refinancing for Austin Convention Enterprises, HVS documented real and projected utility expenses for water service, gas, and electricity in its "Detailed Forecast of Income and Expenses" for the hotel. In the Fiscal Year ending in November 2016, HVS states that the hotel paid $2.90 million in utilities, and projected utility payments would remain between 3.6-3.8% of gross operating revenue:

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[1] US EPA, OA. "New EPA Initiatives Will Help State and Local Governments Cut Climate Pollution from Commercial Buildings." News Release, January 21, 2022. https://www.epa.gov/newsreleases/new-epa-initiatives-will-help-state-and-local-governments-cut-climate-pollution.

[2] Yale E360. "Building Retrofits: Tapping The Energy-Saving Potential." Accessed August 29, 2022. https://e360.yale.edu/features/green_architecture_building_retrofits_tap_energy_saving_potential.

FIGURE 7-10 TWENTY-YEAR FORECAST OF REVENUE AND EXPENSE – YEARS ONE THROUGH TEN

	2017		2018		2019		2020		2021		2022		2023		2024		2025		2026	
Number of Rooms:	**801**		**801**		**801**		**801**		**801**		**801**		**801**		**801**		**801**		**801**	
Occupied Rooms:	**236,816**		**230,968**		**228,045**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**	
Occupancy:	**81%**		**79%**		**78%**		**76%**		**76%**		**76%**		**76%**		**76%**		**76%**		**76%**	
Average Rate:	**$217.45**	**% of**	**$219.63**	**% of**	**$224.02**	**% of**	**$232.98**	**% of**	**$241.14**	**% of**	**$248.37**	**% of**	**$255.82**	**% of**	**$263.50**	**% of**	**$271.40**	**% of**	**$279.54**	**% of**
RevPAR:	**$176.14**	**Gross**	**$173.51**	**Gross**	**$174.74**	**Gross**	**$177.07**	**Gross**	**$183.26**	**Gross**	**$188.76**	**Gross**	**$194.42**	**Gross**	**$200.26**	**Gross**	**$206.26**	**Gross**	**$212.45**	**Gross**
OPERATING REVENUE																				
Rooms	$51,496	63.0 %	$50,727	62.0 %	$51,087	61.2 %	$51,768	61.3 %	$53,580	61.4 %	$55,187	61.4 %	$56,843	61.4 %	$58,548	61.4 %	$60,304	61.4 %	$62,114	61.4 %
Food & Beverage	26,374	32.3	27,179	33.2	28,268	33.9	28,561	33.8	29,418	33.7	30,300	33.7	31,209	33.7	32,146	33.7	33,110	33.7	34,103	33.7
Other Operated Departments	2,999	3.7	3,052	3.7	3,131	3.8	3,201	3.8	3,297	3.8	3,396	3.8	3,498	3.8	3,603	3.8	3,711	3.8	3,822	3.8
Miscellaneous Income	904	1.1	919	1.1	943	1.1	964	1.1	993	1.1	1,023	1.1	1,054	1.1	1,085	1.1	1,118	1.1	1,151	1.1
Total Operating Revenue	81,773	100.0	81,877	100.0	83,430	100.0	84,494	100.0	87,288	100.0	89,906	100.0	92,604	100.0	95,382	100.0	98,243	100.0	101,191	100.0
DEPARTMENTAL EXPENSES*																				
Rooms	9,629	18.7	9,772	19.3	10,015	19.6	10,211	19.7	10,518	19.6	10,833	19.6	11,158	19.6	11,493	19.6	11,838	19.6	12,193	19.6
Food & Beverage	13,178	50.0	13,721	50.5	14,346	50.8	14,652	51.3	15,091	51.3	15,544	51.3	16,010	51.3	16,491	51.3	16,985	51.3	17,495	51.3
Other Operated Departments	1,064	35.5	1,088	35.7	1,119	35.7	1,150	35.9	1,185	35.9	1,220	35.9	1,257	35.9	1,295	35.9	1,334	35.9	1,374	35.9
Other Expenses	70	7.8	72	7.8	74	7.8	76	7.9	78	7.9	80	7.9	83	7.9	85	7.9	88	7.9	91	7.9
Total	23,941	29.3	24,653	30.1	25,554	30.6	26,089	30.9	26,872	30.8	27,678	30.8	28,508	30.8	29,364	30.8	30,245	30.8	31,152	30.8
DEPARTMENTAL INCOME	57,832	70.7	57,224	69.9	57,876	69.4	58,405	69.1	60,416	69.2	62,228	69.2	64,095	69.2	66,018	69.2	67,998	69.2	70,039	69.2
UNDISTRIBUTED OPERATING EXPENSES																				
Administrative & General	5,048	6.2	5,135	6.3	5,268	6.3	5,404	6.4	5,570	6.4	5,737	6.4	5,909	6.4	6,087	6.4	6,269	6.4	6,457	6.4
Info. and Telecom. Systems	628	0.8	639	0.8	655	0.8	672	0.8	693	0.8	714	0.8	735	0.8	757	0.8	780	0.8	803	0.8
Marketing	6,225	7.6	6,332	7.7	6,495	7.8	6,663	7.9	6,868	7.9	7,074	7.9	7,286	7.9	7,505	7.9	7,730	7.9	7,962	7.9
Franchise Fee	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Prop. Operations & Maint.	2,803	3.4	2,851	3.5	2,925	3.5	3,001	3.6	3,093	3.5	3,186	3.5	3,281	3.5	3,380	3.5	3,481	3.5	3,586	3.5
Utilities	2,961	3.6	3,012	3.7	3,090	3.7	3,170	3.8	3,268	3.7	3,366	3.7	3,467	3.7	3,571	3.7	3,678	3.7	3,788	3.7
Total	17,665	21.6	17,970	22.0	18,434	22.1	18,911	22.5	19,492	22.3	20,077	22.3	20,679	22.3	21,300	22.3	21,939	22.3	22,597	22.3
GROSS HOUSE PROFIT	40,166	49.1	39,254	47.9	39,442	47.3	39,494	46.6	40,924	46.9	42,151	46.9	43,416	46.9	44,719	46.9	46,060	46.9	47,442	46.9
Management Fee	3,680	4.5	3,684	4.5	3,754	4.5	3,802	4.5	3,928	4.5	4,046	4.5	4,167	4.5	4,292	4.5	4,421	4.5	4,554	4.5
INCOME BEFORE NON-OPER. INC. & EXP.	36,487	44.6	35,570	43.4	35,687	42.8	35,692	42.1	36,996	42.4	38,106	42.4	39,249	42.4	40,426	42.4	41,639	42.4	42,889	42.4
NON-OPERATING INCOME AND EXPENSE																				
Property Taxes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Insurance	459	0.6	470	0.6	484	0.6	499	0.6	514	0.6	529	0.6	545	0.6	562	0.6	578	0.6	596	0.6
Reserve for Replacement	4,906	6.0	4,913	6.0	5,006	6.0	5,070	6.0	5,237	6.0	5,394	6.0	5,556	6.0	5,723	6.0	5,895	6.0	6,071	6.0
Total	5,365	6.6	5,383	6.6	5,490	6.6	5,569	6.6	5,751	6.6	5,924	6.6	6,101	6.6	6,285	6.6	6,473	6.6	6,667	6.6
EBITDA LESS RESERVE	$31,121	38.0 %	$30,187	36.8 %	$30,197	36.2 %	$30,123	35.5 %	$31,245	35.8 %	$32,182	35.8 %	$33,148	35.8 %	$34,142	35.8 %	$35,166	35.8 %	$36,221	35.8 %

FIGURE 7-11 TWENTY-YEAR FORECAST OF REVENUE AND EXPENSE – YEARS ELEVEN THROUGH TWENTY

	2027		2028		2029		2030		2031		2032		2033		2034		2035		2036	
Number of Rooms:	**801**		**801**		**801**		**801**		**801**		**801**		**801**		**801**		**801**		**801**	
Occupied Rooms:	**222,197**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**		**222,197**	
Occupancy:	**76%**		**76%**		**76%**		**76%**		**76%**		**76%**		**76%**		**76%**		**76%**		**76%**	
Average Rate:	**$287.93**	**% of**	**$296.57**	**% of**	**$305.46**	**% of**	**$314.63**	**% of**	**$324.07**	**% of**	**$333.79**	**% of**	**$343.80**	**% of**	**$354.12**	**% of**	**$364.74**	**% of**	**$375.68**	**% of**
RevPAR:	**$218.83**	**Gross**	**$225.39**	**Gross**	**$232.15**	**Gross**	**$239.12**	**Gross**	**$246.29**	**Gross**	**$253.68**	**Gross**	**$261.29**	**Gross**	**$269.13**	**Gross**	**$277.20**	**Gross**	**$285.52**	**Gross**
OPERATING REVENUE																				
Rooms	$63,977	61.4 %	$65,897	61.4 %	$67,874	61.4 %	$69,910	61.4 %	$72,007	61.4 %	$74,167	61.4 %	$76,392	61.4 %	$78,684	61.4 %	$81,045	61.4 %	$83,476	61.4 %
Food & Beverage	35,126	33.7	36,180	33.7	37,266	33.7	38,384	33.7	39,535	33.7	40,721	33.7	41,943	33.7	43,201	33.7	44,497	33.7	45,832	33.7
Other Operated Departments	3,937	3.8	4,055	3.8	4,177	3.8	4,302	3.8	4,431	3.8	4,564	3.8	4,701	3.8	4,842	3.8	4,987	3.8	5,137	3.8
Miscellaneous Income	1,186	1.1	1,221	1.1	1,258	1.1	1,296	1.1	1,335	1.1	1,375	1.1	1,416	1.1	1,459	1.1	1,502	1.1	1,547	1.1
Total Operating Revenue	104,227	100.0	107,353	100.0	110,574	100.0	113,891	100.0	117,308	100.0	120,827	100.0	124,452	100.0	128,186	100.0	132,031	100.0	135,992	100.0
DEPARTMENTAL EXPENSES*																				
Rooms	12,559	19.6	12,935	19.6	13,323	19.6	13,723	19.6	14,135	19.6	14,559	19.6	14,996	19.6	15,446	19.6	15,909	19.6	16,386	19.6
Food & Beverage	18,020	51.3	18,560	51.3	19,117	51.3	19,691	51.3	20,281	51.3	20,890	51.3	21,516	51.3	22,162	51.3	22,827	51.3	23,512	51.3
Other Operated Departments	1,415	35.9	1,457	35.9	1,501	35.9	1,546	35.9	1,592	35.9	1,640	35.9	1,689	35.9	1,740	35.9	1,792	35.9	1,846	35.9
Other Expenses	93	7.9	96	7.9	99	7.9	102	7.9	105	7.9	108	7.9	111	7.9	115	7.9	118	7.9	122	7.9
Total	32,086	30.8	33,049	30.8	34,041	30.8	35,062	30.8	36,114	30.8	37,197	30.8	38,313	30.8	39,462	30.8	40,646	30.8	41,866	30.8
DEPARTMENTAL INCOME	72,140	69.2	74,304	69.2	76,533	69.2	78,829	69.2	81,194	69.2	83,630	69.2	86,139	69.2	88,723	69.2	91,385	69.2	94,127	69.2
UNDISTRIBUTED OPERATING EXPENSES																				
Administrative & General	6,651	6.4	6,851	6.4	7,056	6.4	7,268	6.4	7,486	6.4	7,711	6.4	7,942	6.4	8,180	6.4	8,425	6.4	8,678	6.4
Info. and Telecom. Systems	828	0.8	852	0.8	878	0.8	904	0.8	931	0.8	959	0.8	988	0.8	1,018	0.8	1,048	0.8	1,080	0.8
Marketing	8,201	7.9	8,447	7.9	8,700	7.9	8,961	7.9	9,230	7.9	9,507	7.9	9,792	7.9	10,086	7.9	10,389	7.9	10,700	7.9
Franchise Fee	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Prop. Operations & Maint.	3,693	3.5	3,804	3.5	3,918	3.5	4,036	3.5	4,157	3.5	4,281	3.5	4,410	3.5	4,542	3.5	4,678	3.5	4,819	3.5
Utilities	3,902	3.7	4,019	3.7	4,139	3.7	4,264	3.7	4,391	3.7	4,523	3.7	4,659	3.7	4,799	3.7	4,943	3.7	5,091	3.7
Total	23,275	22.3	23,973	22.3	24,692	22.3	25,433	22.3	26,196	22.3	26,982	22.3	27,791	22.3	28,625	22.3	29,484	22.3	30,368	22.3
GROSS HOUSE PROFIT	48,866	46.9	50,331	46.9	51,841	46.9	53,397	46.9	54,999	46.9	56,649	46.9	58,348	46.9	60,098	46.9	61,901	46.9	63,758	46.9
Management Fee	4,690	4.5	4,831	4.5	4,976	4.5	5,125	4.5	5,279	4.5	5,437	4.5	5,600	4.5	5,768	4.5	5,941	4.5	6,120	4.5
INCOME BEFORE NON-OPER. INC. & EXP.	44,175	42.4	45,501	42.4	46,866	42.4	48,272	42.4	49,720	42.4	51,211	42.4	52,748	42.4	54,330	42.4	55,960	42.4	57,639	42.4
NON-OPERATING INCOME AND EXPENSE																				
Property Taxes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Insurance	614	0.6	632	0.6	651	0.6	671	0.6	691	0.6	711	0.6	733	0.6	755	0.6	777	0.6	801	0.6
Reserve for Replacement	6,254	6.0	6,441	6.0	6,634	6.0	6,833	6.0	7,038	6.0	7,250	6.0	7,467	6.0	7,691	6.0	7,922	6.0	8,160	6.0
Total	6,867	6.6	7,073	6.6	7,285	6.6	7,504	6.6	7,729	6.6	7,961	6.6	8,200	6.6	8,446	6.6	8,699	6.6	8,960	6.6
EBITDA LESS RESERVE	$37,308	35.8 %	$38,427	35.8 %	$39,580	35.8 %	$40,768	35.8 %	$41,991	35.8 %	$43,250	35.8 %	$44,548	35.8 %	$45,884	35.8 %	$47,261	35.8 %	$48,679	35.8 %

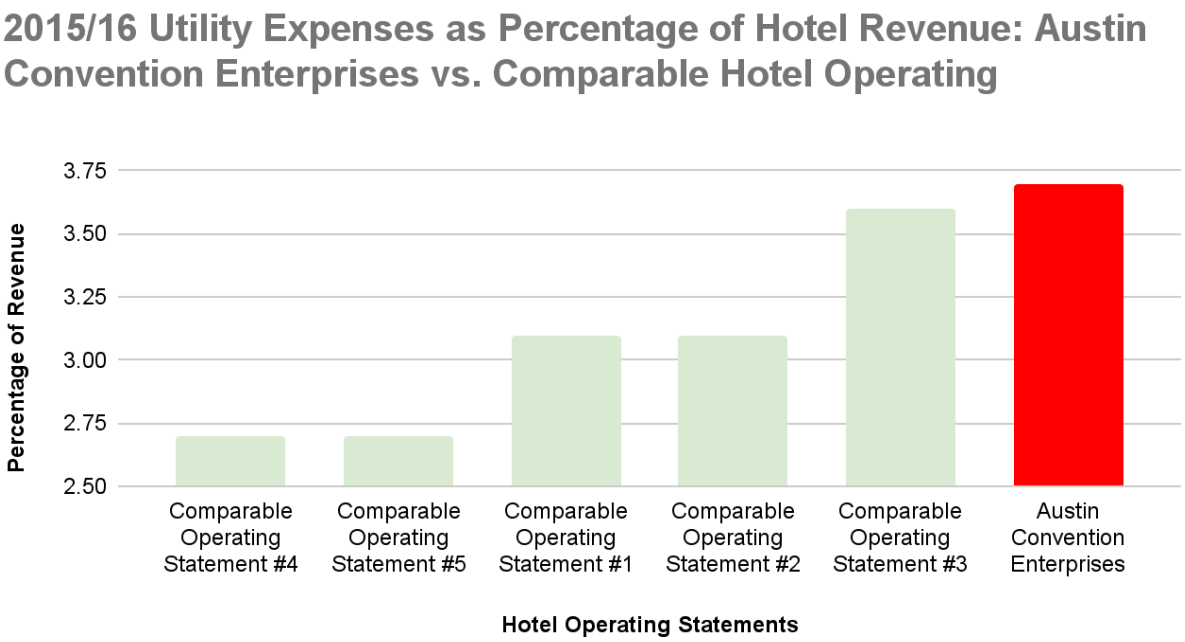
*Departmental expenses are expressed as a percentage of departmental revenues.

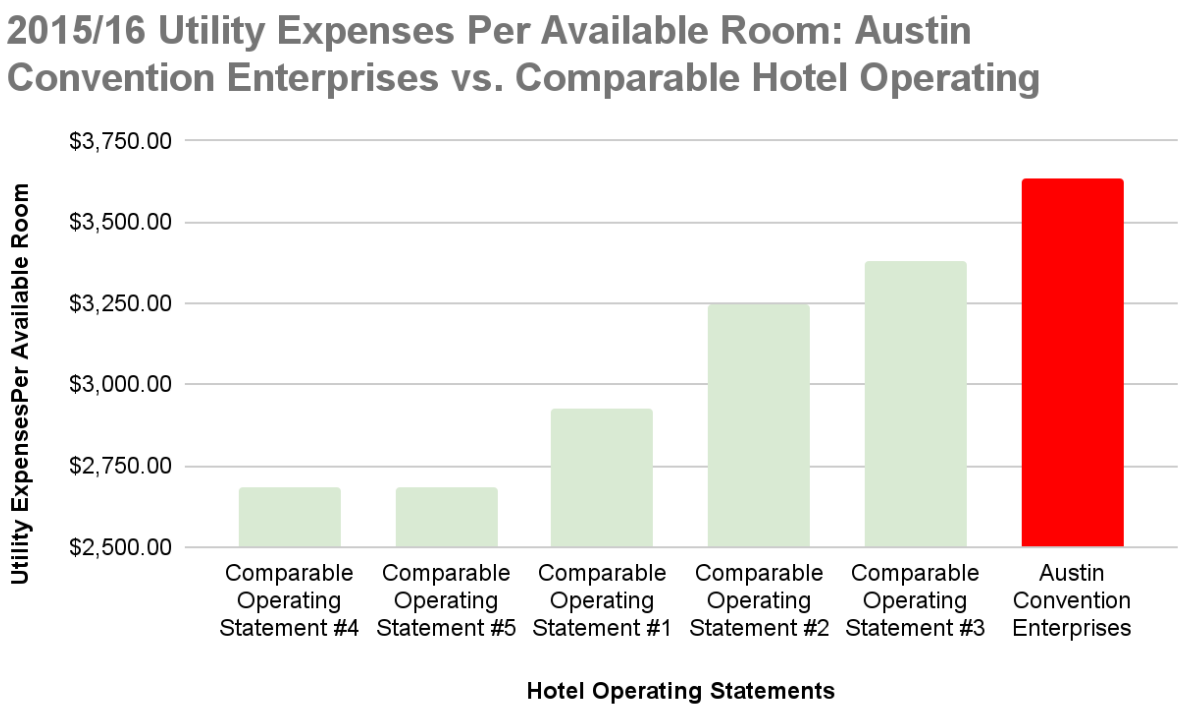
Projected utility payments in Austin Convention Enterprise Bond Documents, 2017 [3]

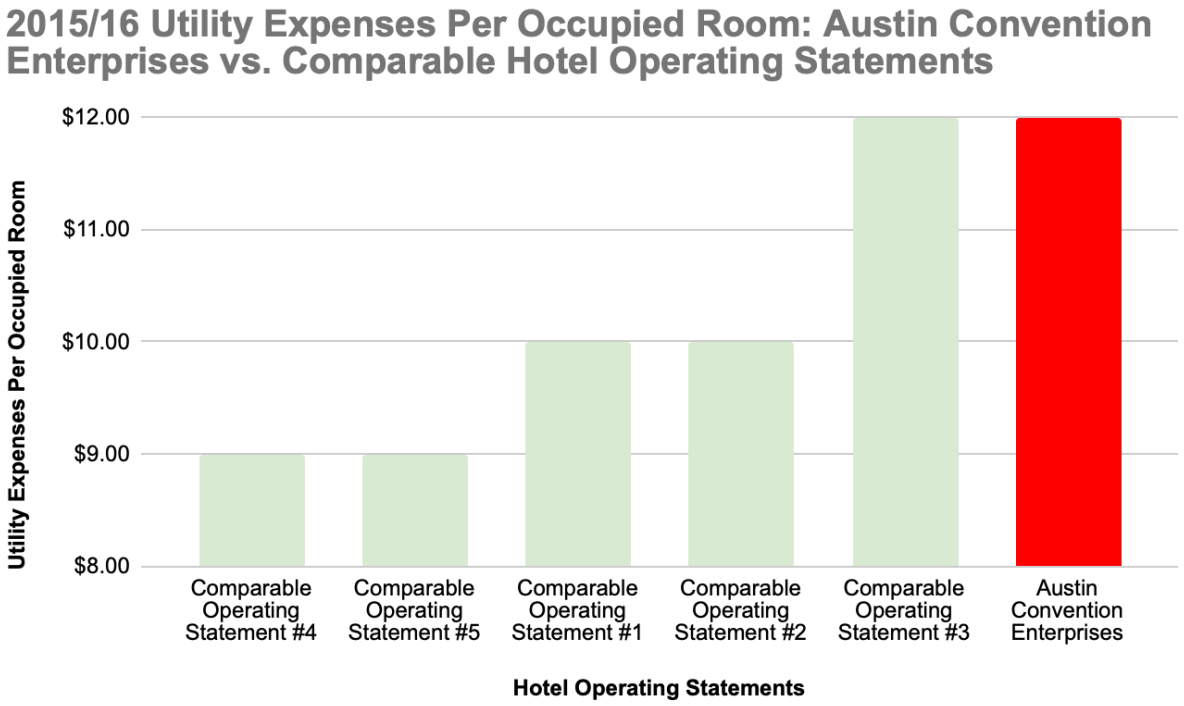
The HVS study also revealed that Austin Convention Enterprises had larger utility payments than comparable operating statements. This tracked across multiple, industry-accepted measures, including Percentage of Revenue, Amounts Per Available Room, and Amounts Per

[3] "Municipal Securities Rulemaking Board::EMMA." Accessed August 24, 2022. https://emma.msrb.org/.

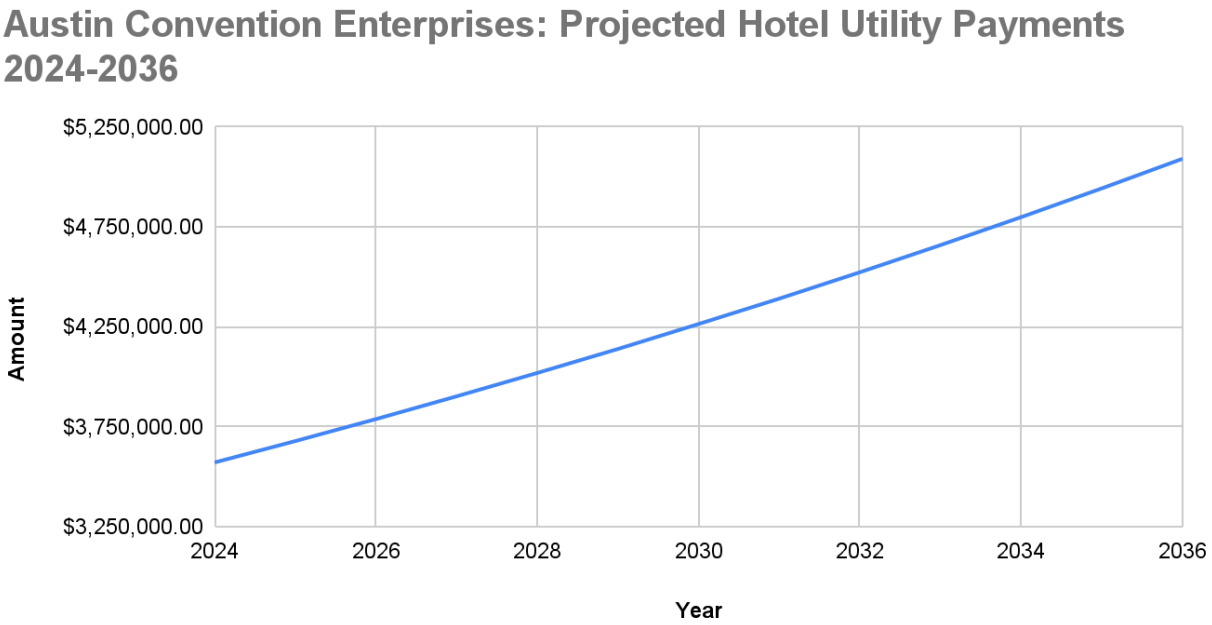
Occupied Room. In fact, the hotel building's utility payments as a percentage of revenue were as much as 36% higher than comparable hotel operating statements:







While utility payments are estimated to remain between 3.6-3.8% of gross revenue, it is important to note that, at the time of the industry consultant study during the bond refinancing, utility costs for Austin Convention Enterprises were projected to increase from $2.90 million in 2016 to over $5 million in 2036, a more than 70% increase:



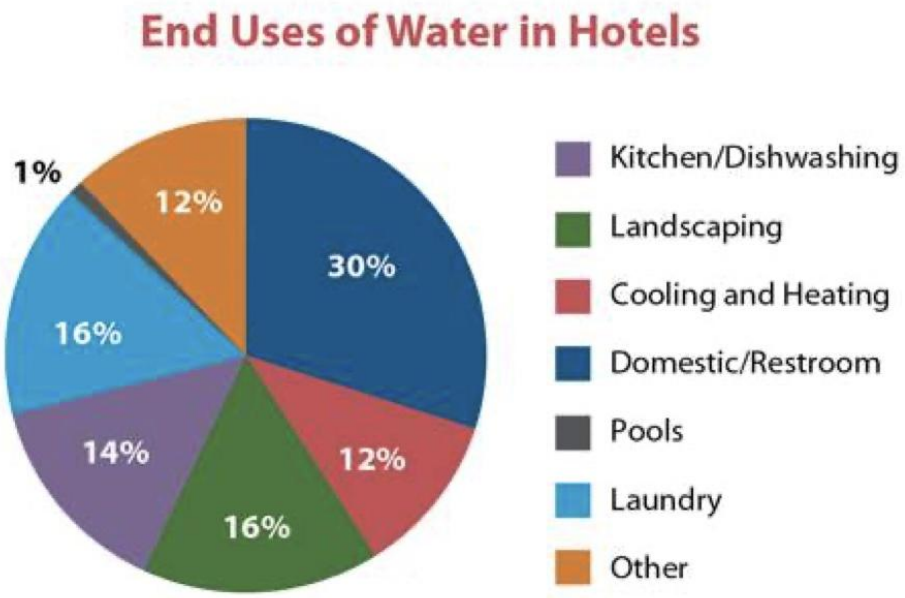
Hotel Energy & Water Consumption Data

The Environmental Protection Agency estimates that, on average, hotels in the U.S. spend $2,196 per available room on energy use, and states that even "a 10 percent reduction in energy consumption would have the same financial effect as increasing the average daily room rate (ADR) by $0.62 in limited-service hotels and by $1.35 in full-service hotels."[4] The Environmental Protection Agency estimates the end use of hotel electricity as follows:

EPA Estimate of Average Hotel Energy Consumption[5]	
Category	**Percent**
Cooling	27.00%
Lighting	23.00%
Cooking	1.00%
Water Heating	5.00%
Refrigeration	6.00%
Ventilation	7.00%
Office Equipment	7.00%
Space heating	11.00%
Other	13.00%
TOTAL	**100.00%**

In addition, the Environmental Protection Agency estimates average hotel water use as follows:

[4] "Energy Star." ENERGY STAR Commercial Buildings | ENERGY STAR makes it easy for consumers and businesses to save money and protect the environment. Accessed August 29, 2022. https://www.energystar.gov/buildings.
[5] "Energy Star Facility Types: Hotels & Motels." Accessed August 21, 2022. https://www.energystar.gov/sites/default/files/buildings/tools/EPA_BUM_CH12_HotelsMotels.pdf



EPA End Uses of Water in Hotels

Multiple industry and academic sources confirm that hotel water use ranges on average from 100 to 400 gallons per room[6] per day,[7] with EPA's Portfolio Manager finding the national median hotel usage to be 102 gallons per room per day.[8] EPA's WaterSense Program states that "approximately 15 percent of the total water use in commercial and institutional facilities in the U.S. takes place in hotels and other lodging businesses."[9] EPA estimates that WaterSense labeled water-using equipment uses at least 20 percent less water than standard models.[10]

Building Retrofitting: Strategies, Benefits, Models

Due to the carbon footprint of commercial buildings discussed earlier in this report and the intensive consumption of hotel energy and water use, the retrofitting of a building is an increasing priority for numerous industries due to the current consumer demands for more sustainable practices from businesses.

The retrofitting of a hotel consists of assessing and updating existing systems and operations to cut costs while implementing environmentally sustainable practices. Retrofitting a building

[6] "Water Stewardship - Addressing Hospitality's Impact on Water Scarcity." Sustainable Hospitality Alliance, June 9, 2022. https://sustainablehospitalityalliance.org/our-work/water-stewardship/.
[7] "Hotel Water Conservation - Seattle." Seattle Public Utilities . Accessed August 30, 2022. https://www.seattle.gov/Documents/Departments/SPU/Documents/HotelWaterConservation.pdf.
[8] "DataTrends Water Use Tracking - Energy Star." Accessed August 30, 2022. https://www.energystar.gov/sites/default/files/buildings/tools/DataTrends_Water_20121002.pdf.
[9] "Saving Water in Hotels - US EPA." Accessed August 30, 2022. https://www.epa.gov/sites/default/files/2017-01/documents/ws-commercial-factsheet-hotels.pdf.
[10] Ibid.

requires comprehensive planning, and even small investments can make a significant impact. Some examples of large and small building retrofits contemplated by the EPA include:[11]

EPA Examples of Retrofitting Actions	
Lighting	Replace fluorescent lights, signs, and lamps with ENERGY STAR LED bulbs and CFLs; Maximize daylighting; Implement task lighting and lighting maintenance; Install occupancy sensors and dimmers.
Heating and Cooling	Replace aging and inefficient heating and cooling systems; Calibrate the indoor and outdoor building sensors; Inspect damper and valve controls to make sure they are functioning properly; Review building operating schedules; Review the utility rate schedule; Chilled-water and condenser-water reset; Chiller tube cleaning and water treatment; Reciprocating compressor unloading; Maintain boiler steam traps; Adjust combustion airflow; Boiler tube cleaning and water treatment; Conduct a testing, adjusting, and balancing (TAB) analysis; Monthly maintenance of equipment and HVAC; Plug air leaks; Repair steam traps, leaks, and insulation; Clean vents and equipment; Use shades and blinds; Calibrate thermostats; Light colored roofing material; Installing reflective film.
Operation and Maintenance	Energy and nighttime audits; Repair faucets and fixtures; Inspect, repair, and replace aging piping and insulation
Equipment	Replace energy and water-intensive refrigeration, freezers, fryers, room electronics, office equipment, faucets, toilets, showerheads, and fixtures with more efficient ENERGY STAR and WaterSense models; Service equipment annually; Activate sleep settings on office electronics; reduce ratio of device to users

Building Retrofit Benefits: EPA's ENERGY STAR Building Program

The Environmental Protection Agency's energy efficiency program, ENERGY STAR, recognizes efforts to make a range of products more energy efficient, including buildings. The EPA states that since 1992 "ENERGY STAR and its partners have helped American families and businesses save 5 trillion kilowatt-hours of electricity, avoid more than $500 billion in energy costs, and achieve 4 billion metric tons of greenhouse gas reductions."[12] Nationally, EPA's Building Portfolio Manager, which is used to track building energy, water, and waste, is used by owners of 280,000 commercial properties, representing nearly 27 billion square feet of floor space.[13] The Portfolio Manager tracks energy usage and awards the ENERGY STAR label to buildings that achieve a certain score.

[11] "Checklists of Energy-Saving Measures." ENERGY STAR. Accessed August 30, 2022. https://www.energystar.gov/buildings/save_energy_commercial_buildings/ways_save/checklists.
[12] "What Is Energy Star." ENERGY STAR. Accessed August 30, 2022. https://www.energystar.gov/about?s=footer.
[13] Ibid.

Retrofit Benefits: Rocky Mountain Institute Retrofit Study

The Rocky Mountain Institute (RMI) draws from a 2009 McKinsey report stating that retrofitting buildings nationwide using existing technology and practices can reduce commercial and residential building energy consumption by 28 percent by 2020, saving $1.2 trillion at the cost of $500 billion. [14]

Retrofit Benefits: Bond Investors & ESG Investments

Frameworks for how to structure and organize a company's operations that take into account its impact on the environment and the wider community are often referred to as Environmental, Social, and Corporate Governance, or ESG policies. As the SEC states, many funds "focus on ESG practices because they believe investments with desired ESG profiles or attributes may achieve higher investment returns and/or encourage ESG-related outcomes."[15] The environmental component often focuses on an investment's pollution, energy use, and carbon footprint.[16] Investor ESG policies vary widely and may require commitments to reducing waste, ending human rights violations, ensuring pay equality, achieving net zero operations, and water conservation. As of 2020, U.S assets under sustainable funds totaled $357 billion.[17] Under pressure from the public and shareholders, more than 90 percent of S&P 500 now publish ESG reports.[18] While retrofits to any building or company produces short term increases in capital expenditures, this is usually a long-term investment that pays for itself with ultimate savings.[19]

Retrofit Benefits: Improved Indoor Air Quality

A key benefit of retrofitting is the increased indoor air quality that comes with improving certain aspects of a building such as the ventilation system, implementing radon testing and mitigation, and removal of mold, combustion gasses, and pests.[20] While retrofitting does not automatically guarantee improved indoor air quality, it could if specific attention is paid to aspects of the building being retrofitted.

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[14] "Retrofit Depot Guide to Building the Case for Deep Energy Retrofits - RMI." Accessed August 30, 2022. https://rmi.org/wp-content/uploads/2017/04/Pathways-to-Zero_Bldg-Case-for-Deep-Retrofits_Report_2012.pdf.

[15] "Environmental, Social and Governance (ESG) Funds – Investor Bulletin." Environmental, Social and Governance (ESG) Funds – Investor Bulletin | Investor.gov, February 26, 2021. https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-bulletins-1.

[16] Ibid.

[17] "Global Sustainable Fund Flows: Q4 2021 in Review Flows and Assets ..." pg 19. Accessed August 30, 2022. https://assets.contentstack.io/v3/assets/blt4eb669caa7dc65b2/blt608d2560e8c97e65/61f43439df9e4f26248691ea/Global_ESG_Q4_2021_Flow_Report_FINAL.pdf.

[18] Pérez, Lucy, Dame Vivian Hunt, Hamid Samandari, Robin Nuttall, and Krysta Biniek. "Does ESG Really Matter--and Why?" McKinsey & Company. McKinsey & Company, August 10, 2022. https://www.mckinsey.com/business-functions/sustainability/our-insights/does-esg-really-matter-and-why.

[19] "Reinventing Fire: Buildings." RMI, March 2, 2022. https://rmi.org/insight/reinventing-fire-buildings/.

[20] EPA. Environmental Protection Agency. Accessed August 30, 2022. https://www.epa.gov/indoor-air-quality-iaq/health-energy-efficiency-and-climate-change.

Retrofit Benefits: Job Creation

Retrofitting a building has the potential of creating jobs such as construction laborers and managers, operating engineers, painters, electricians, roofers, insulation workers, HVAC installers, welders, glaziers, and structural iron and steel workers. According to Cornell University's Worker Institute, Texas has the most energy efficiency potential of any state. It could reduce electricity usage by 20 percent in all buildings by 2035 utilizing existing technology. Building retrofits provide a perfect example of clean jobs creation. A perfect example of this is the effort to retrofit public schools in the state. Retrofitting public schools in Texas would cost $13.3 billion while creating 84,000 jobs and saving 171 million kWh of electricity annually.

Methodology

This study analyzes published utility data for the hotel's operations, as well as utility payment projections through 2036 estimated by industry consultant HVS during the Austin Convention Enterprises 2017 bond refinancing. First, we review the governmental database of ENERGY STAR-certified buildings in the downtown Austin area. Second, this analysis establishes a baseline of actual and anticipated utility payments during the bond refinancing, which includes electricity, water, gas, and waste service. Third, the study applies two models of building retrofit cost savings to determine reasonable expectations of savings for Austin Convention Enterprises: savings projected for buildings that are ENERGY STAR certified, and estimates established by the Rocky Mountain Institute.

Fourth, this analysis draws on multiple government and industry sources to estimate the range of water consumption at the hotel and projects water efficiency savings based on these sources. Fourth, this analysis uses NREL's open-source calculator tool, *PV Watts*, to evaluate the potential of the building's roof to generate electricity from solar power modules.[21]

Finally, a questionnaire was submitted to Austin Convention Enterprises to determine what improvements had already been made to the building and operations to improve energy and water efficiency. The questionnaire can be located in Appendix 1 of this report. It should be noted that this analysis uses publicly available data, and does not make any assumptions about what the steps either Austin Convention Enterprises or the hotel operator have taken to improve energy and water efficiency. This is a methodological limitation of our analysis, and one that must be recognized before our analysis is laid out in the next chapter. It is entirely possible that ACE, the hotel operator, or both, have made either minor or significant improvements to the building and its operations to improve energy and water efficiency since HVS conducted its utility analysis in 2016. While the questionnaire was a good faith effort to incorporate any improvements made during that time period, any improvements made by ACE or the hotel operator would need to be factored into the revised utility savings projections below.

[21] https://pvwatts.nrel.gov

Analysis

ENERGY STAR Buildings in Downtown Austin

A review of downtown buildings in Austin reveals that while 24 buildings in the downtown area in Austin have achieved an ENERGY STAR rating during the building's lifetime, the City of Austin's downtown hotel at 400 E 4th Street is not one of them:

ENERGY STAR Certified Buildings in Downtown Austin[22]					
Property/ Plant ID	**Address1**	**City**	**Gross Floor Area**	**Number of Years Certified**	**Year constructed**
1092893	401 Congress Avenue	Austin	569345	13	2004
1673934	515 Congress Avenue	Austin	290619	3	1975
1685677	301 Congress Avenue	Austin	479203	11	1986
18001	300 E. Eighth Street	Austin	429537	1	1962
1856752	400 West 15th Street	Austin	281196	3	1981
22406	100 Congress, Suite 840	Austin	452746	11	1986
2483693	720 Brazos St.	Austin	136585	4	1951
3515756	1215 Guadalupe Street	Austin	10878	2	1959
3515762	1117 Trinity Street	Austin	101250	9	1980
3589142	206 East 9th Street	Austin	178606	6	1984
4220953	303 Colorado Street	Austin	373334	6	2014
4744733	201 Lavaca St	Austin	323184	4	2005
4930747	600 Congress	Austin	589377	11	1982
4939568	1411 Brazos Street	Austin	78101	1	1975
4950821	300 West 6th Street	Austin	483917	8	2000
4973063	501 Congress	Austin	116435	3	2015
5274195	812 San Antonio	Austin	61898	1	1974
5338180	111 Congress Avenue	Austin	554979	13	1987
5694535	98 San Jacinto	Austin	407000	13	1987
5867912	816 Congress	Austin	470389	9	1982
5898233	506 Congress Avenue	Austin	25000	2	1935
5902343	800 W Cesar Chavez St.	Austin	125767	5	1950
6151618	615 W 7th St	Austin	233865	2	2015
9639272	607 W. 3rd Street	Austin	401481	2	2018

[22] https://www.energystar.gov/buildings/certified_buildings_and_plants

Energy Savings & Austin Convention Enterprises Building Retrofit

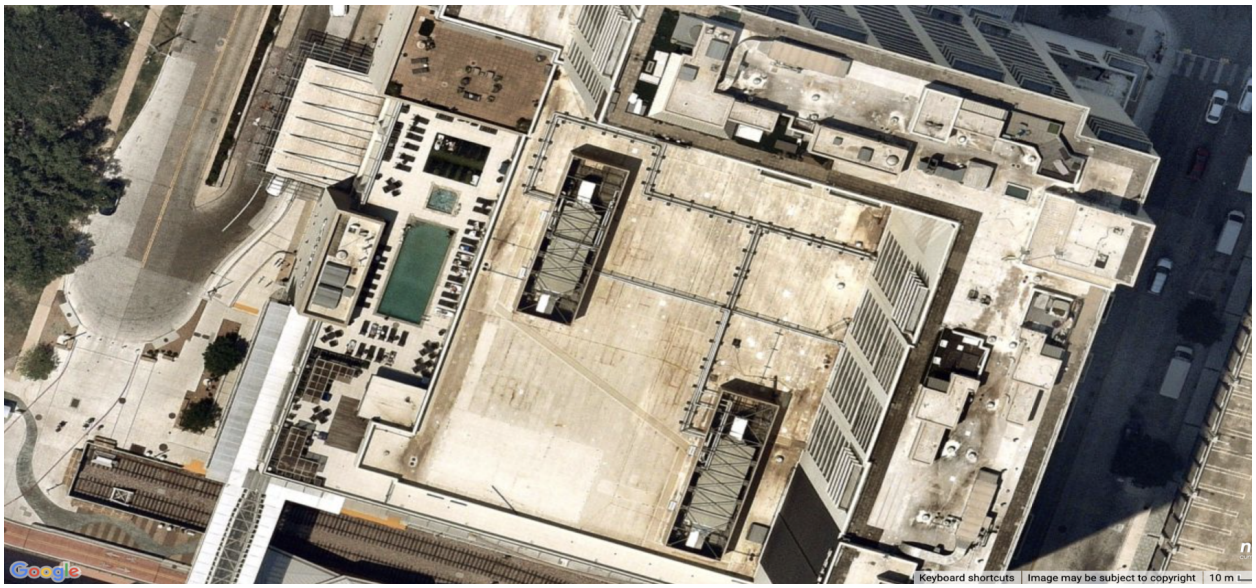
By using building management data from its Portfolio Manager, the Environmental Protection Agency estimates that ENERGY STAR certified buildings use, on average, 35% less energy than similar buildings.[23] Similarly, Rocky Mountain Institute estimates that, depending on the comprehensiveness of using standard industry building retrofit practices, energy usage can be decreased between 25-50%.[24] Combining these data points with HVS projected utility payments for Austin Convention Enterprises, this analysis finds that retrofitting the building to achieve ENERGY STAR status, the hotel could realize between $13.9 and $27.8 million in energy savings between 2024-2036:

Projected Utility Costs and Energy Efficiency Savings Scenarios, Austin Convention Enterprises				
Year	**ACE Building Utility Cost**	**RMI (25%)**	**ENERGY STAR Savings (35%)**	**RMI (50%)**
2024	$3,571,000.00	$892,750.00	$1,249,850.00	$1,785,500.00
2025	$3,678,000.00	$919,500.00	$1,287,300.00	$1,839,000.00
2026	$3,788,000.00	$947,000.00	$1,325,800.00	$1,894,000.00
2027	$3,902,000.00	$975,500.00	$1,365,700.00	$1,951,000.00
2028	$4,019,000.00	$1,004,750.00	$1,406,650.00	$2,009,500.00
2029	$4,139,000.00	$1,034,750.00	$1,448,650.00	$2,069,500.00
2030	$4,264,000.00	$1,066,000.00	$1,492,400.00	$2,132,000.00
2031	$4,391,000.00	$1,097,750.00	$1,536,850.00	$2,195,500.00
2032	$4,523,000.00	$1,130,750.00	$1,583,050.00	$2,261,500.00
2033	$4,659,000.00	$1,164,750.00	$1,630,650.00	$2,329,500.00
2034	$4,799,000.00	$1,199,750.00	$1,679,650.00	$2,399,500.00
2035	$4,943,000.00	$1,235,750.00	$1,730,050.00	$2,471,500.00
2036	$5,091,000.00	$1,272,750.00	$1,781,850.00	$2,545,500.00
PROJECTED TOTAL	**$55,767,000.00**	--	--	--
PROJECTED SAVINGS (2024-2036)	**--**	**$13,941,750.00**	**$19,518,450.00**	**$27,883,500.00**

[23] "Top 8 Reasons to Pursue Energy Star Certification." ENERGY STAR. Accessed August 30, 2022. https://www.energystar.gov/buildings/building_recognition/building_certification/reasons_get_certified.
[24] "Retrofit Depot Guide to Building the Case for Deep Energy Retrofits - RMI." Accessed August 30, 2022. https://rmi.org/wp-content/uploads/2017/04/Pathways-to-Zero_Bldg-Case-for-Deep-Retrofits_Report_2012.pdf.

Austin Convention Enterprises Building Retrofit: Potential Solar Power Output

Using data from the National Renewable Energy Laboratory open-source PV Watts calculator, as well as Aurora software, we estimate that the roof of the building owned by Austin Convention Enterprises could maintain 560 430-watt solar modules arranged to cover the roof area not attended by guests. We estimate this would be a 240.8kW DC system size, and would produce 353,846 kWh/year.



Austin Convention Enterprises Building Retrofit: Water Savings Models

The Sustainable Hospitality Alliance claims to “tackle the key global challenges affecting our planet and its people, bringing together our members and other partners, to achieve a more

sustainable and inclusive world for all."[25] The Sustainable Hospitality Alliance lists Hilton as a member on its website.[26]

While the Alliance estimates that hotels use an average of 1,500 liters (396.25 gallons) of water per room per day,[27] data from EPA's Portfolio Manager indicates that the national median hotel usage is 102 gallons per room per day.[28] This analysis uses both to generate an estimated range of water usage at the hotel in the table below:

Projected Austin Convention Enterprises Water Consumption Using EPA, Industry Data				
Water Usage Metric	**Rooms**	**Gallons Per Room Per Day**	**Total Gallons Per Room Per Day**	**Total Gallons Per Day Per Year**
EPA's Median Hotel Water Usage (Gallons Per Room Per Day)	801	104.00	83,304.00	30,405,960.00
Sustainable Hospitality Alliance Water Usage Estimates (Gallons Per Room Per Day)	801	396.26	317,402.74	115,851,999.41

Beyond water usage, the Environmental Protection Agency's WaterSense program estimates that WaterSense labeled water-using equipment uses at least 20 percent less water than standard models.[29] Using this estimate as a model, the table below projects ten percent and twenty percent savings in water usage, and contextualizes the number of gallons by estimating the equivalent number of olympic size swimming pools:

[25] "Advancing Responsibility." Sustainable Hospitality Alliance, June 9, 2022. https://sustainablehospitalityalliance.org/.
[26] "Members." Sustainable Hospitality Alliance, June 9, 2022. https://sustainablehospitalityalliance.org/about-us/members/.
[27] "Water Stewardship - Addressing Hospitality's Impact on Water Scarcity." Sustainable Hospitality Alliance, June 9, 2022. https://sustainablehospitalityalliance.org/our-work/water-stewardship/.
[28] "DataTrends Water Use Tracking - Energy Star." Accessed August 30, 2022. https://www.energystar.gov/sites/default/files/buildings/tools/DataTrends_Water_20121002.pdf.
[29] "Saving Water in Hotels - US EPA." Accessed August 30, 2022. https://www.epa.gov/sites/default/files/2017-01/documents/ws-commercial-factsheet-hotels.pdf.

Water Savings Scenario One: Austin Convention Enterprises Achieves 10% Water Efficiency Savings			
Water Usage Metric	**Total Gallons Per Room Per Year**	**Ten Percent Water Reduction (Gallons Per Year)**	**Olympic Size Swimming Pool Equivalent**
EPA's Median Hotel Water Usage	30,405,960.00	3,040,596.00	4.61
Sustainable Hospitality Alliance Water Usage Estimates	115,851,999.41	11,585,199.94	17.55

Water Savings Scenario Two: Austin Convention Enterprises Achieves 20% Water Efficiency Savings			
Water Usage Metric	**Total Gallons Per Day Per Year**	**Twenty Percent Reduction (Gallons Per Year)**	**Number of Olympic Size Swimming Pools**
EPA's Median Hotel Water Usage (Gallons Per Room Per Day)	30,405,960.00	6,081,192.00	9.21
Sustainable Hospitality Alliance Water Usage Estimates (Gallons Per Room Per Day)	115,851,999.41	23,170,399.88	35.10

In sum, using governmental and industry per-room-per-day gallon estimates for average hotel water use, this study finds that improving water efficiency by twenty percent would result in water savings of up to 23 million gallons of water annually. This can easily be achieved by retrofitting the hotel with WaterSense labeled fixtures (showerheads, sinks, and toilets) in each room, which EPA estimates accounts for 30% of hotel water use.[30]

Austin Convention Enterprises Building Retrofit Questionnaire

The TCJP Building Questionnaire was sent to Austin Convention Enterprises on August 15, 2022. On September 1, 2022, TCJP staff followed up regarding the status of the questionnaire with the ACE president on September 1, 2022. As of the publication date, September 6, 2022, ACE had not provided any responses to questions found in the survey located in Appendix 1.

[30] "Putting WaterSense® to Work, Texas Hotel Upgrades to Four-Star Water Efficiency-US EPA." Accessed August 30, 2022. https://www.epa.gov/sites/default/files/2017-01/documents/ws-commercial-casestudy-hilton-palacio.pdf.

Recommendations

Ensure Transparency by Tracking, Publishing ACE Energy & Water Use

Recommendation: Austin Convention Enterprises should compel current and future hotel operators to track energy and water usage, and to make consumption data publicly available

As a publicly-owned asset, taxpayers deserve to know the overall utility usage and carbon footprint of the hotel. The City of Austin and Austin Convention Enterprises should ensure tools similar to EPA's Portfolio Manager or Austin ISD's publicly viewable Utility Dashboard are integrated into the hotel's operations and made transparent for public review.

Complete and Publish Energy Audit Findings

Recommendation: Complete and Publish an Energy Audit of the Hotel

The Texas Office of the Comptroller State Energy Conservation Office offers preliminary energy assessments at no cost to a range of political subdivisions in the state. The City of Austin and Austin Convention Enterprises should determine public facilities corporation eligibility for this assessment. ACE can also utilize a broad range of energy auditing services that can help serve as the foundation of a hotel retrofit plan of action. With the right retrofitting strategy, these audits deliver a significant return on investment.

Incorporate ACE into the City of Austin Green Building Policy

Recommendation: The City of Austin should lead by example by covering the financial costs of integrating Austin Convention Enterprises into the City of Austin Green Building Policy

The City of Austin's Green Building Policy details scaled energy and water efficiency requirements for new and existing municipally-owned buildings, as well as buildings that are on city land or receive city assistance.[31] This scale depends on the level of agency the City of Austin has over the building: whether it owns the building, provides significant assistance, owns the land underneath, and other factors.

Austin Convention Enterprises is the city's public facilities corporation and does not conform to any single category contemplated by the policy. The corporation's bylaws, amended and adopted in 2020, make clear that the City of Austin is entitled to net proceeds from the hotel, and that the City of Austin may "at its sole discretion, alter or change the structure, organization, programs, or activities of the Corporation (including the power to terminate the Corporation), subject to any limitation on the impairment of contracts entered into by such Corporation."[32] The

[31] "City of Austin Green Building Policy Update - Austintexas.gov." Accessed August 30, 2022. https://www.austintexas.gov/edims/document.cfm?id=366258.
[32] "Ace-Bylaws-July2020.Pdf." Google Drive. Google. Accessed August 30, 2022. https://drive.google.com/file/d/1nagDXiGKbE_OriihdFny93CGlT-QLjvc/view.

City of Austin has significant agency in ACE's affairs and has an equal obligation to financially support ACE's efforts to achieve net zero building carbon emissions consistent with City of Austin goals.

Develop a Long-Term Plan to Retrofit the Hotel

Recommendation: Use Tracking & Audit Information to Develop a Long-Term Comprehensive Retrofitting Plan

As ACE seeks to achieve net zero emissions, it should consult with the City of Austin Public Works Department and other appropriate municipal departments, EPA's Technical Recommendations for Hotel Retrofitting, as well as the tools and resources developed by Rocky Mountain Institute for building retrofits to develop a long-term comprehensive retrofitting plan for the hotel.

Ensure the Building's Net-Zero Transition is Just for Workers

Recommendation: Establish Community Workforce Agreement Requirements for Deep Retrofits and Prioritize Utility Savings for Hotel Employees

Austin Convention Enterprises should incorporate minimum labor standards, including Community Workforce Agreements, into long-term hotel retrofit planning. This would help ensure that workers contracted to install solar panels and lighting, replace the HVAC system, or perform other works related to retrofits have good, safe construction jobs with access to apprenticeship training.

In addition, Austin Convention Enterprises and Austin City Council should ensure deep engagement with labor organizations on the most effective methods to apply realized and projected utility savings toward more equitable working conditions for hotel employees. This includes, for example, higher wages, more affordable health care, access to decent retirement benefits, child care, and protecting existing hotel work such as daily room cleaning.

Protect Daily Room Cleaning

Recommendation: Ensure Hotel Efforts to Conserve Energy, Water Don't Eliminate Jobs

Major hotel companies have moved to eliminate daily room cleaning as the standard in their hotels, instead often making the service available upon request.[33] Historically some hotel operators have justified these actions in part by the company's commitment to sustainability and conservation, such as Marriott's discontinued "Make a Green Choice" Program, which rewarded guests with a food and beverage voucher if they decided to forego full housekeeping services.[34]

[33] Hilton. "Hilton Travel Flexibility and Safety Standards." Accessed August 30, 2022. https://www.hilton.com/en/p/what-to-expect/.
[34] Sampson, Hannah. "Hotels Are Rewarding Travelers for Opting out of Housekeeping. but Where Does That Leave Workers?" The Washington Post. WP Company, January 28, 2020.

According to a report published by UNITE HERE, the end of daily room cleaning in U.S. hotels "would eliminate as many as 180,000 jobs held primarily by women of color and create more difficult workloads for housekeepers left to clean dirty rooms after days without disinfection," and would lead to $4.8 billion in lost wages each year.[35]

As this report has demonstrated, Austin Convention Enterprises can achieve significant water savings by simply retrofitting the hotel rooms with more water-efficient fixtures such as showerheads, sinks, and toilets. Austin Convention Enterprises and the City of Austin should carefully monitor and evaluate the impact of any hotel conservation efforts on hotel employees and contracted workers. This can be achieved through consultation and deep engagement with labor organizations at every step of the building retrofit process to ensure retrofits have a positive impact on employees and contracted workers and does not lead to job loss.

https://www.washingtonpost.com/travel/2020/01/28/hotels-are-rewarding-travelers-opting-out-housekeeping-where-does-that-leave-workers/.

[35] "Playing Dirty." Unite Here. Accessed August 30, 2022. https://www.google.com/url?q=https://unitehere.org/wp-content/uploads/Playing-Dirty-Report-FINAL.pdf&sa=D&source=docs&ust=1661810444162125&usg=AOvVaw2A2iZqIJstek1Cl-LiSK8m.

Appendix 1: Building Questionnaire

Texas Climate Jobs Project Building Questionnaire

Building Information

1. What is the gross floor area of the building?
2. What is the total number of rooms?
3. Please describe the building's total energy and water consumption by type for the past three years (water, gas, electricity).

Heating/Cooling

4. Please describe the type, make, and model of the building's HVAC system.
5. When was the HVAC system last replaced?
6. How much has been paid for HVAC repairs and maintenance over the last three years?

Structure & Efficiency

7. When was the last time an energy audit was conducted in the building?
8. Have the building's entrances and windows been weatherstripped?
9. Please describe the insulation values (R-value) of the building.
10. When, if ever, was the last time the insulation was replaced and/or upgraded?
11. Describe any efforts to make the building's roof "solar ready".
12. Has the hotel installed any building management system in the building? If so, what type of system?
13. Please describe any efforts in the past five years to optimize building energy systems.

Renewable Energy

14. Please describe any renewable energy systems (ie solar panels) that help offset the building's energy use.

Water & Appliances

15. Describe any upgrades to the building's lighting system that have resulted in improved energy efficiency in the past five years.
16. Please describe any stormwater management systems the building may have.
17. Please describe the equipment used to heat water in the building, and any recent upgrades made to this system.
18. Please fill out the table below:

Item	**Number**	**Percent ENERGY STAR?**	**Percent WaterSense Certified?**
Guest room refrigerators			
Commercial refrigerators			
Commercial freezers			
Guest room microwaves			
Guest room toilets			
Guest room shower heads			
Guest room faucet/sink fixtures			
Common area urinals			
Common area toilets			
Ice machines			
Commercial dishwashers			
Laundry machines			
Common area lighting fixtures			