

# Case Study: First-Year Experience with *The IceBrick® System* at the Beverly Hilton

## Objective

The Beverly Hilton and Waldorf Astoria Beverly Hills hotels, both renowned for their commitment to environmental stewardship and luxurious hospitality, sought to implement a solution to reduce their carbon emissions and operating expenses.

## Challenge

To integrate the 198-IceBrick units system into the Beverly Hilton, a 69-year-old iconic building. This retrofit project was executed with minimal disruption to ongoing hotel activities or operations and unnoticed by guests.

## Solution

Nostromo installed *The IceBrick® system*, its novel thermal energy storage system, which cuts operating expenses and adds backup cooling and resilience. The 1,950 refrigeration ton-hour (~1.2 MWh equivalent) system serves both hotels.

## Key Results

*The IceBrick® system* was commissioned in September 2023. Below are the main operating results:

Year	Month	Peak-Time Performance						Total Cycles
		IceBrick Energy Discharge (RTH)	Chillers Cooling (RTH)	Total Cooling Demand (RTH)	IceBrick % from Total Cooling	Round-Trip-Efficiency (RTE)	Max kW reduction during peak time	
2023	9	40,767	59,519	100,286	41%	94.1%	213	29
2023	10	45,964	48,273	94,237	49%	93.8%	233	31
2023	11	39,685	29,772	69,457	57%	93.4%	238	30
2023	12	28,619	30,455	59,074	48%	98.0%	171	31
2024	1	18,640	32,659	51,299	36%	95.0%	157	28
2024	2	22,165	35,086	57,251	39%	95.6%	143	29
2024	3	30,110	45,857	75,967	40%	94.9%	155	31
2024	4	20,582	44,885	65,467	31%	96.8%	155	30
2024	5	33,366	51,260	84,626	39%	93.8%	277	31
2024	6	39,574	51,606	91,180	43%	98.0%	271	30
2024	7	28,614	37,197	65,811	43%	94.0%	221	20
2024	8	49,792	77,269	127,061	39%	96.0%	223	31
2024	9	47,290	72,628	119,918	39%	95.0%	233	30

## Performance Highlights

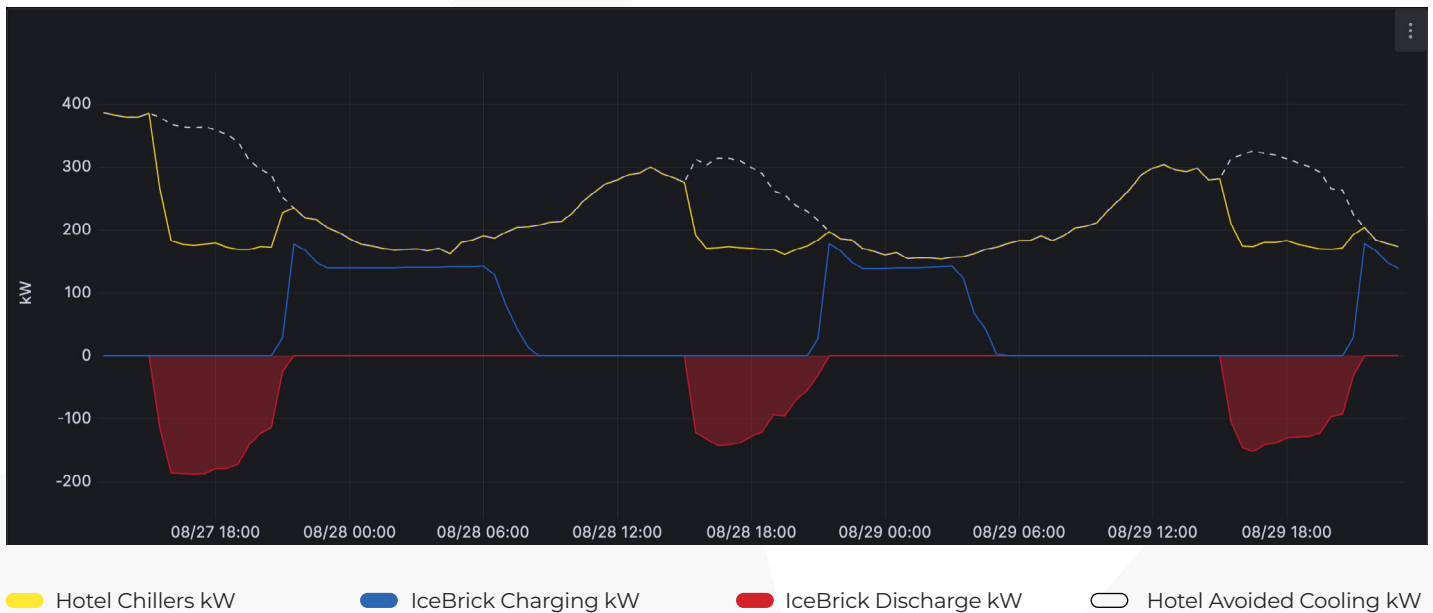
During the summer months (June-Sept), *The IceBrick® system* delivered approximately 40% of the total cooling demands of the two hotels during peak hours, and up to 57% in the winter (November).

✦ This resulted in reducing peak-time demands for electricity (and the potential for reduced demand charges by the utility) by up to 271 kW in the summer (June), 277 in the shoulder (May) and 238 kW in winter (November).

✦ *The IceBrick®* demonstrated a very high thermal round-trip efficiency of 93%-98%.

## Hotel's Reduced Cooling Consumption (kW) With IceBrick

Sample operation view (3 cycles)



## Reliability

During the first 13 months of operation, there was no downtime related to *The IceBrick®*. There was a

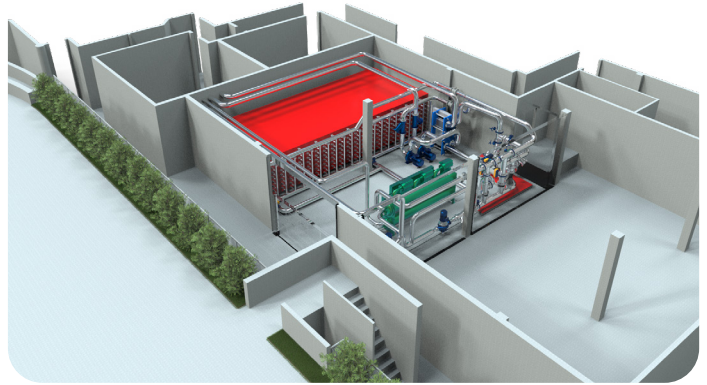
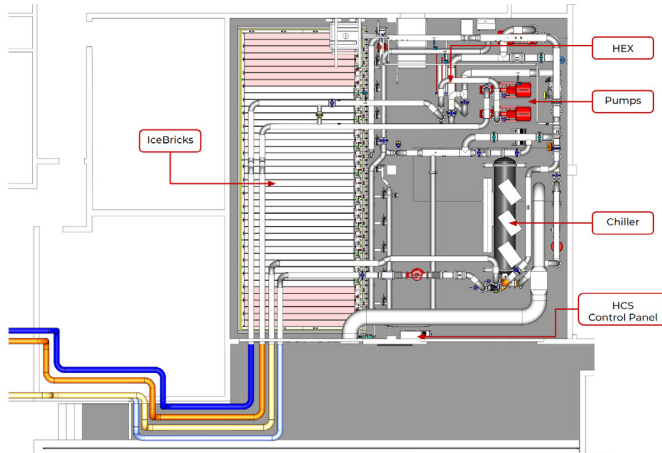
planned, 10-day, outage for charging chiller upgrades that had no impact on the facility's operation.

## Backup

In July, there was a 1-week outage of one of the facility chillers. Fortunately, *The IceBrick® system* immediately began operating as a backup (during the day) while continuing normal daily storage cycles (charging and discharging). That saved the customer approximately \$35,000 in cost and hassle to bring in and connect a

portable chiller to cover the critical cooling load and potential reputation damage. *The IceBrick® system* provided the backup cold energy immediately without the building experiencing any interruption in the supply of cooling.

## From Concept to implementation The IceBrick® System at the Beverly Hilton



### Impact

The IceBrick® can provide cooling energy to the buildings for less than 50% of current cooling costs (by charging at off-peak price hours and discharging during peak hours) and reduce carbon emissions by up to 200 metric tons annually, or 5,000 metric tons reduced over the system's lifetime (by charging when carbon intensity of grid-power is low and discharging when it's high).

