

CHASING QUARTERS WITH ENERGY SET-POINTS

SOLUTION OVERVIEW

HEI owns and manages hotels across the country, with a portfolio of brands including Hilton, Hyatt, Marriott, Starwood and Crowne Plaza. Although water and air temperature set-points for various space types in a hotel are often specified by individual brands or by health regulations, HEI realized that certifying key set-points more precisely within these ranges, based on the particular operation of the equipment in a specific property, could yield energy and cost savings.

The company developed an energy set-point program (ESP) standard operating procedure (SOP) which establishes a uniform process for establishing, maintaining and re-evaluating set-points for each property. These low cost adjustments may produce modest energy savings individually but become significant across a portfolio of properties.

ORGANIZATION TYPE

Hospitality

BARRIER

Lack of standard operating procedure for key energy set-points for HVAC systems, Domestic Hot Water and Food & Beverage areas at managed properties

SOLUTION

Partner with chief engineers and hotel department heads at each facility to develop and certify building-specific temperature set-points Implement portfolio-wide standard operating procedures for set-point maintenance

OUTCOME

Realize energy and cost savings without comprising guest comfort

POLICIES

HEI Hotels & Resorts developed a standard operating procedure detailing the process by which each HEI Chief Engineer, and select hotel department heads, would determine, monitor and maintain key energy set-points throughout the hotels.

Program success factors included:

- Educating the Chief Engineers about why the set-points needed to be adjusted
- Adding or enhancing the hotels' ability to read and adjust the targeted set-points
- Giving the Chief Engineers better understanding of their systems' ability to recover for these adjustments
- Making adjustments gradual and ensuring they did not lead to guest complaints

PROCESS

The HEI corporate office developed an Energy Set-point Form with space for specifying up to 32 water and temperature set-points including domestic hot and cold water (supply and return), chilled water supply and return, laundry, kitchen equipment and pool water temperature set-points, and occupied and unoccupied settings for guest rooms and banquet spaces. The number of ESP's at each location varied based on the hotel's size and physical plant.

Determining Set-points

The Chief Engineer at each HEI property completed the Energy Set-point Form, noting more detailed ranges and summer/winter settings where appropriate. To complete the form, engineers often installed thermometers on return loops to get a better handle on existing conditions. For example, installed thermometers might reveal that domestic hot water supply is going out at 130°F and coming back 122°F, when the desired return range is 116°F to 118°F. Engineers could then conclude that their temperature setting could be reduced by 4°F.

Set-points may be presented in a range format or contain one specific set temperature for the energy source. These finer adjustments, made to bring temperatures to their "optimum setting," are where energy savings are realized. For example, many Chiefs would maintain domestic hot water supply 3°F to 5°F degrees too high "just in case". The ESP requires the Chiefs to monitor key supply and return temps during peak periods to ensure they are delivering the optimum temperature, no higher or lower. The Vice President (VP) of Facilities reviews the proposed set-point forms for each property and provides feedback or approval. Approved forms are posted to HEI's internal "Hive" website and in the Physical Plant Notes developed and kept onsite for each property.

Maintaining Set-points

At the property level, the Chief Engineer is responsible for reviewing and implementing the designated set-points. All approved set-points are labeled directly on each temperature source for the property. Settings are adjusted for seasonal fluctuations in weather and the Chief Engineer determines this seasonal changeover schedule.

The Chief Engineer at each facility completes a monthly checklist as part of the preventive maintenance activities, confirming designated set-points remain in place. The Chief Engineers also review the energy set-points for their facilities every few months to consider whether adjustments should be made to improve efficiency or operational performance. Chief Engineers submit proposed

changes to the VP of Facilities. All changes are documented and posted to the internal website.

OUTREACH

Set-points for all properties are maintained on HEI's "Hive" intranet site. The monthly set-point checklist is housed on HEI's Energy Looking Glass Dashboard, HEI's tool to track and manage property energy consumption. In addition to the website, HEI developed a suite of educational materials to remind staff of the set-points and encourage their participation in identifying any necessary adjustments to an improperly set temperature source or to recommended set-point changes to improve guest comfort and system efficiency. Posters with guest room thermostat settings are posted in housekeeping closets. Other signage was created for kitchens, laundry rooms and mechanical rooms, and easily read labels appear on most temperature sources. Set-point information is also included on internal property websites and in new employee orientation materials to familiarize new and existing staff with the policy.

TOOLS AND RESOURCES

- [Set-point Standard Operating Procedure \(SOP\)](#)
- [ELG software set-point compliance checklist](#)
- [Sample property set-point list showing both temperature ranges and specifics](#)
- [Set-point approval form](#)
- [Sample physical plant notes](#)
- [Sample posters for ESP settings](#)
- [Hive website snap shot listing set-points](#)
- [Energy Set Point sample equipment signage](#)

OUTCOMES

Because the program is often implemented in tandem with other energy conservation measures at a property, it is difficult to isolate how much savings at each property can be attributed specifically to Energy Set Points.

However, HEI can confirm that set-points are checked monthly at each property through a review of completed property checklists in the [Energy Looking Glass Dashboard](#). Newly acquired properties where the ESP was implemented (along with other HEI energy programs) capture at least a 5% savings compared to the previous year. Additionally, extreme saving well above 5% does occur. For example, the recently acquired Le Meridien Dallas Stoneleigh realized over 15% in operational energy savings year over year, a large portion of which was attributed to the ESP program by those at the property.

MEASURING SUCCESS

The Chief Engineer is responsible for inspecting the set-points on a monthly basis and recording any deviations from the approved settings. In addition, the Chief Engineer is responsible for reviewing the set-points every twelve months and determining whether adjustments should be made to improve efficiency or shift seasons. The ELG determines the effectiveness of the ESP and other programs and is reviewed monthly by the VP of Facilities.

