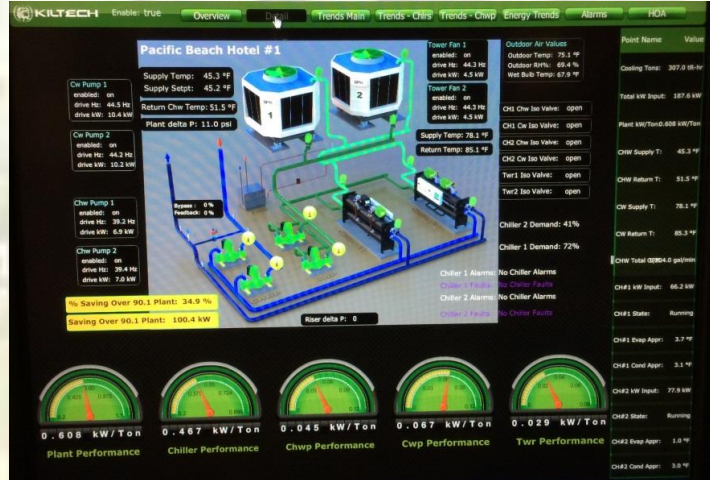


## Case Study: Pacific Beach Hotel, Waikiki

EMCC Hawaii was engaged by the hotel to assist in reducing their operational costs by implementing energy efficient solutions. EMCC teamed with VSI Solutions and Randall Murayama & Associates to provide a design-build solution to implement the latest technologies and an optimization system to maximize plant efficiency. The chillers, condenser water pumps and chilled water pumps were all original equipment from when the hotel was built over 30 years ago. Smartd chillers were selected due to their extreme efficiency under lower loads. Their variable speed, frictionless, oil-less, Turbocor magnetic bearing compressors maintain their high efficiencies over their entire lifespan. At the heart of the system is the CPECS controller which operates the chillers, CHW pumps, CW pumps, and cooling tower fans, optimizing the entire chilled water plant at any point during the hotel's varying load conditions. The plant was commissioned in June 2013.



### Original Equipment:

- (2) 30 year old (280 ton and 320 ton) Trane constant speed chillers
- (2) constant speed chilled water and (2) constant speed condenser water pumps
- (2) Marley cooling towers with variable speed fans.

### Retrofitted Equipment:

- (2) Water cooled 300 ton Smartd chillers 0.324 kW/ton IPLV (37.1 EER)
- (2) Chilled water pumps with integrated VFD's from Armstrong
- (2) Condenser water pumps with integrated VFD's from Armstrong
- (1) CPECS central plant optimization control



- Original plant: Consumed 1,828,131 kWh per year.
- Revised plant: Measured at 1,183,113 kWh per year
- Actual Measured Savings: 645,018 kWh per year which at \$0.30/kWh= \$193,505/year.
- Hawaii Energy provided the hotel with a rebate check in the amount of \$206,000!!!
- Savings over Ashrae 90.1 2007 code compliant plant of 35%
- The project ROI is estimated to be 4-5 years considering rising energy costs and lower lifecycle maintenance costs.

### Other Benefits:

The CPECS controller is web based and can be monitored from any computer with internet connection.

The CPECS controller monitors the kW/ton of all of the equipment in the chilled water plant. If anything goes wrong with the performance of this equipment it will be immediately recognizable on the touch screen graphical interface.

### Other Work Performed:

The two domestic water booster systems were upgraded to variable speed systems that will consume less than half of the energy of the original systems. A partial lighting retrofit was done as well.

## See how much energy we can save in your building!

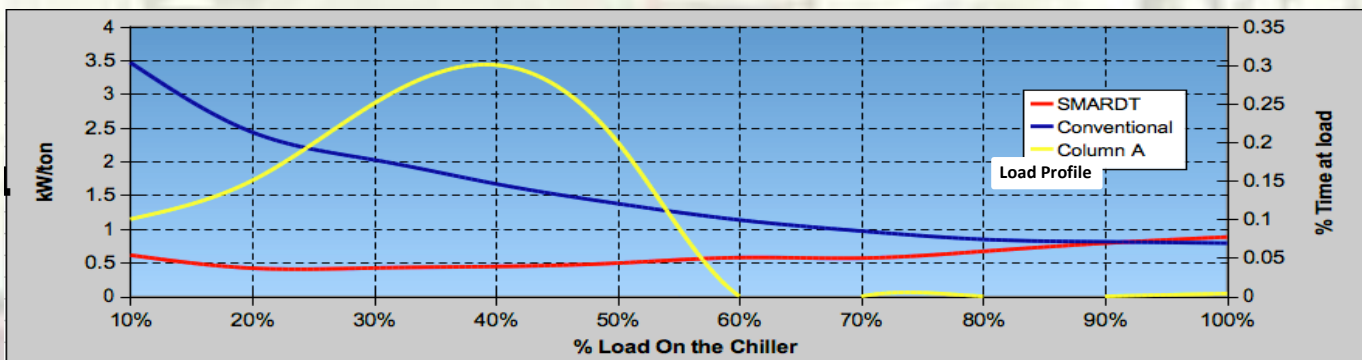
Utilizing the latest technologies, we can reduce your chiller plant efficiency by as much as 40% or more with typical returns in the 3-4 year timeframe.

We specialize in:

- Commercial Air Conditioning
- Domestic Booster Pumping Systems
- Hot water heat pump systems
- Variable Speed Drives
- Lighting
- Air Handlers



### Typical Performance Chart from Energy Analysis



To schedule your free energy analysis\*, please contact Kimberly De Souza at (808) 542-8279 or [kim@vsihi.com](mailto:kim@vsihi.com)