

eC4 for Energy Consumption Tracking and Optimization of Chillers

Background: A major international chiller OEM has opted for eC4 as the standard for quantitatively and qualitatively tracking the performance of their water cooled 132 T Screw Chillers. The eC4 system is connected to various BTU meters, energy meters and temperature sensors via the chiller control panel. The following KPIs are monitored on a real time basis for active intervention and optimization.

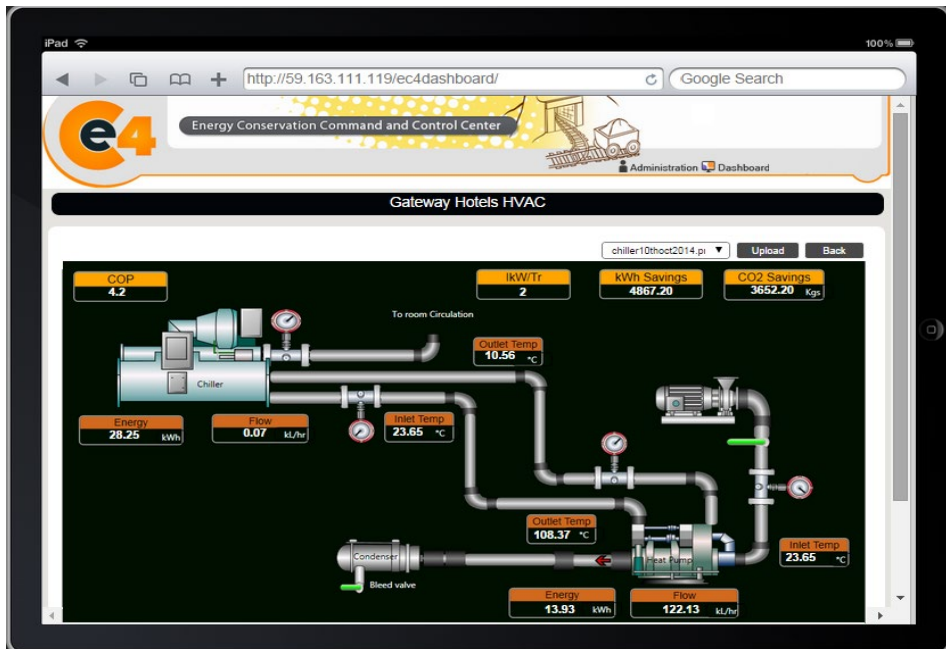
Power Consumption Optimization: A baseline profile of the ratio of power consumption to chiller capacity (ton refrigeration) is established to track in real-time the efficiencies under various seasonal and operating conditions. Any deviations from the expected range of efficiencies are monitored for taking timely actions.

Evaporator Monitoring: The difference

between the chilled water leaving temperature and the saturated suction temperature is monitored by eC4 to not exceed 6 degrees C.

Coefficient of Performance of the Heat Pump (COP): eC4 monitors the COP, which is, the amount of cooling produced for the electric energy consumed. The COP is maintained around a value of 4 or above and alarms are generated if the COP degrades.

Energy Savings and CO2 Emissions Control: eC4 calculates the energy savings on a real time basis and provides visualization of such savings. The savings are computed from the difference between the baseline energy consumption per ton of refrigeration prior to eC4 installation and the energy consumption per ton after eC4 installation and monitoring. The same type of calculation is provided for CO2 emissions.



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