

CALCULATED PART LOAD VALUE ESSENTIAL TO OPTIMIZING CHILLER PERFORMANCE

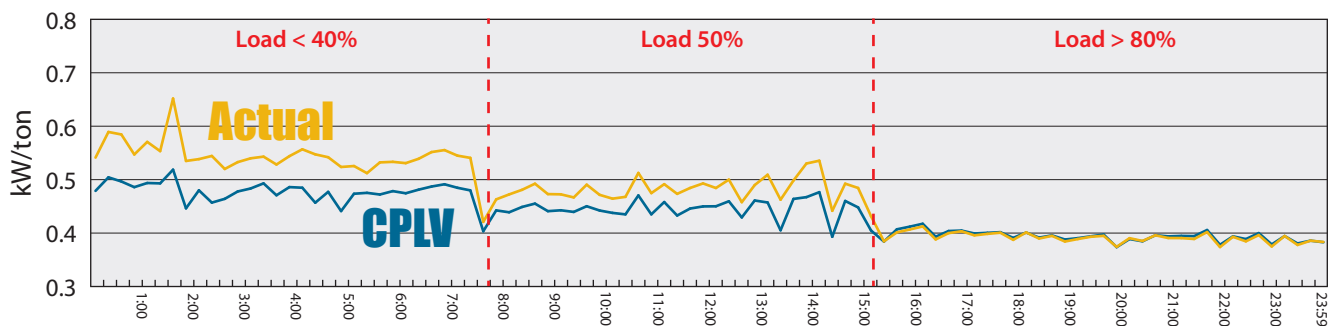


Ninety-five percent of the time your chillers are running under part-load conditions. So unless you have access to the part-load data from your chiller manufacturer, you really won't know if you are operating your chillers efficiently 95% of the time. That presents a big savings opportunity!

Calculated Part Load Value (CPLV) is used to illustrate the efficiency curve of a chiller across varying loads. It is the maximum efficiency achievable by a chiller under any operating condition, not just full load. CPLV combined with SMARTenergy OPS® diagnostics quantifies the opportunity for optimizing chiller system performance.

Chart 1 illustrates the performance of a screw chiller. The closer the actual kW/ton value (yellow line) gets to the CPLV (blue line), the more efficient the chiller is operating under those conditions. This information is invaluable when deciding which chiller to run in a multi-chiller system.

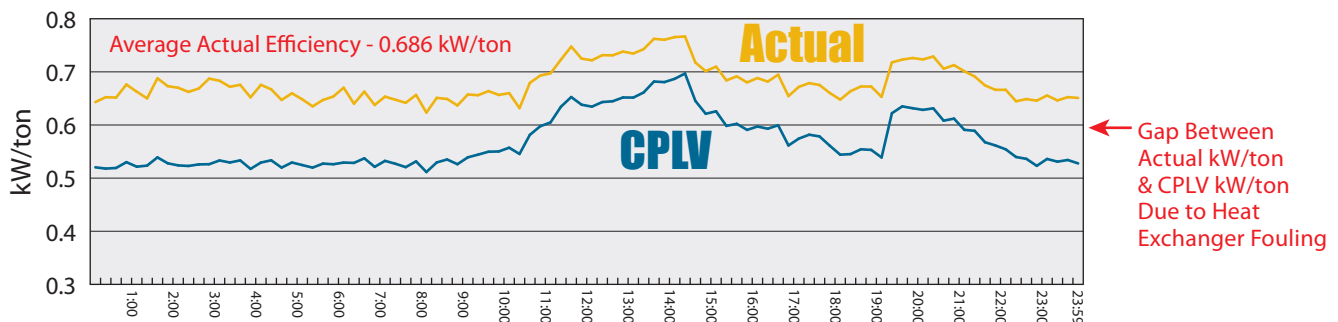
Chart 1: Comparison of Actual Versus CPLV Performance



But the value delivered by CPLV in chiller systems operations doesn't stop there. CPLV, combined with SMARTenergy OPS® diagnostics, also helps to identify mechanical, heat transfer, or chemistry issues with the chiller system. By resolving these issues early, customers report improved reliability. This can extend the life of equipment.

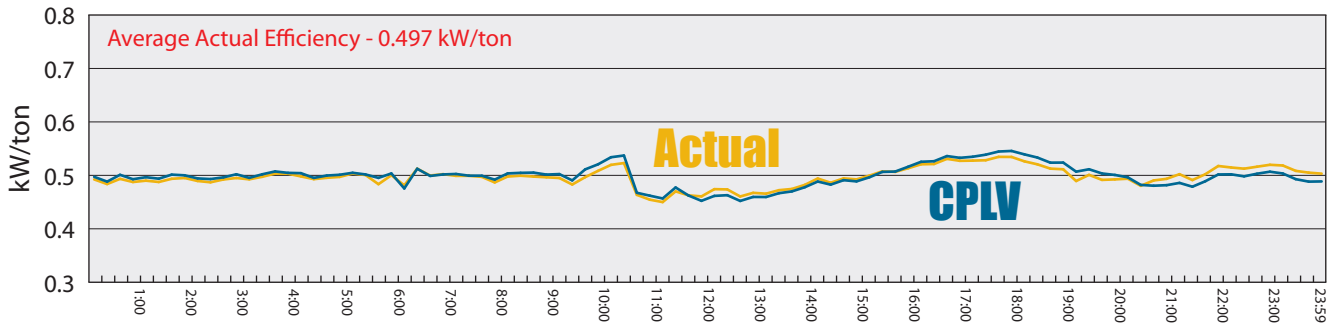
Let's look at a simple case study. An 800 ton water-cooled chiller was operating at an average efficiency of 0.686 kW/ton as shown in Chart 2 below.

Chart 2: Quantifying the Impacts of Heat Exchanger Fouling on Chiller Operations



Using the CPLV curve and SMARTenergy OPS® diagnostics, plant personnel were able to remedy a heat transfer issue. The chiller is now operating at an average efficiency of 0.497 kW/ton as shown in Chart 3. This translates into cost and energy savings of almost 27% for this chiller.

Chart 3: Chiller Performance After Heat Exchanger Cleaning



So CPLV tells you two important pieces of information:

- Does your chiller have a mechanical, heat transfer and/or chemistry issue that makes its operation inefficient at any load?
- If you have a system with more than one chiller, which chiller(s) should you be running at the current operating conditions and load?

Most monitoring systems only trend performance. Performance data won't tell you whether the chiller is running close to the CPLV for that chiller at that part-load level. Because CPLV provides insight into operating efficiently 100% of the time, you have the opportunity to cut chiller operating costs significantly—up to 35%.

The CPLV is calculated specifically for your chiller using the proprietary algorithms built into SMARTenergy OPS®. It is calculated using a combination of your chiller's full-load design specifications and actual operating conditions of the equipment. Now we are talking real money!

CPLV, in conjunction with a robust chiller system monitoring and diagnostics program such as SMARTenergy OPS®, can help save your company money in three ways:

- First, you reduce chiller system operating costs, hour by hour and day by day, under all operating conditions.
- Second, the CPLV identifies heat transfer, chemistry and/or mechanical issues as they arise. By fixing these issues early, you improve the reliability of your chiller system, decreasing unexpected, costly downtime.
- Third, because you are maintaining the equipment as recommended for efficient operation, you will help extend the life of the equipment.

If you are interested in finding out more about how SMARTenergy OPS® and CPLV can reduce your operating costs, call us at **845-359-4717 ext 0** or email us at SMARTenergyOPS@hudsontech.com



www.hudsontech.com/SMARTenergyOPS