EVERGREEN POWER SOLUTIONS PTY LTD

"EDD-RT"

EXTERNAL DIGITAL DEMAND RESPONSE TECHNOLOGIES

FOR

FACILITY CHILLER ENHANCEMENT

AND

ENERGY MANAGEMENT

COMBINES AI WITH IIOT INTO A SINGLE SOLUTION

EVERGREEN POWER SOLUTIONS PTY LTD

- EPS was established in 2008 providing energy reduction equipment & energy reduction methodologies for the Data Centre industry.

- In 2010 a project for DOD was presented to the Australian Facility Management awards & was chosen as a finalist.

- Between then & now the business has changed & grown, EPS has projects & equipment throughout APAC, India & Australia. All of these projects have produced an ROI of 36 months or better.

EXTERNAL DIGITAL DEMAND RESPONSE TECHNOLOGIES" (EDD-RT)

The combined solution is vendor neutral,100% designed & manufactured in Australia and is focused on retrofittable solutions to capture legacy and new Chiller equipment.

The IIoT meter captures energy in real time (KW) & long term kWh to prove the reduction in consumption.

EDD-RT is a low risk, high return system

EVERGREEN POWER SOLUTIONS PTY LTD
INTRODUCTION & CAPABILITY STATEMENT
EXTERNAL DIGITAL DEMAND RESPONSE TECHNOLOGIES" (EDD-RT)

- Within a facility, EPS combines materials & methodology to reduce kWh consumption related to the mechanical equipment while maintaining the pre-set (Temp. & Humidity) conditions.

- EPS collects data through our proprietary secure cloud based applications providing meaningful & accessible energy data to support your engineering outcomes, GHG emissions (Carbon Trading), financial reporting & ESG quality data.

- EDD-RT communicates to each chiller using the following
    - 0 to 10VDC
    - 0 to 5VDC
    - 4 to 20 mA

EDD-RT-PH.pdf

EDD-RT WHITE PAPER

EVERGREEN POWER SOLUTIONS PTY LTD

EDD-RT OVERVIEW

- Compressor enhancement
- Floating and fixed set point management
- Integrated Chiller power metering & verification (M&V)
- Cooling degree day analysis
- System regression analysis
- Chiller Maximum Demand Management
- Temperature monitoring
- Chilled water, leaving, entering & delta T
- Condenser water, leaving, entering & delta T
- Condenser and cooling tower system effectiveness
- Base chiller analysis
- Temperature limit alarms
- Energy consumption in real time & historical consumption trends.
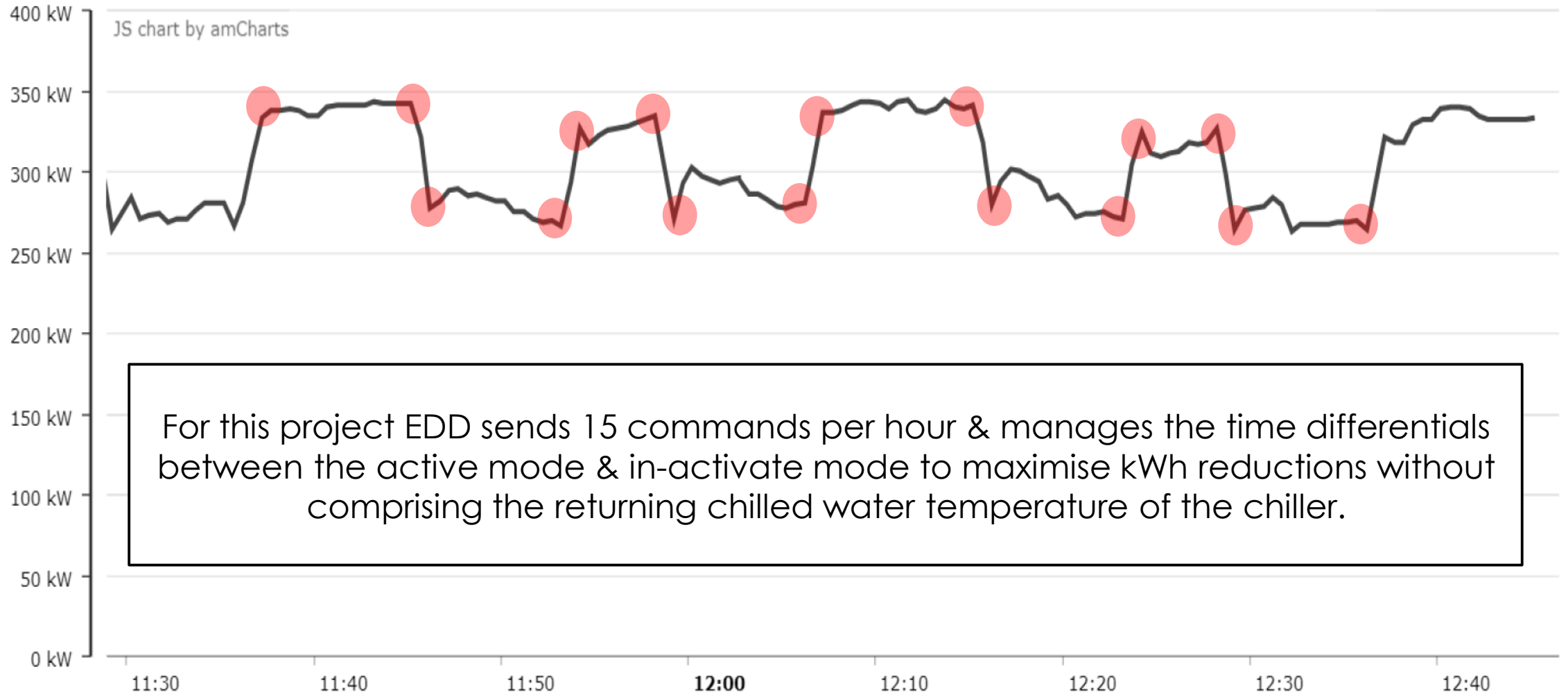
EDD-RT
PROVIDES THE FOLLOWING
A lockable IP65 rated enclosure with equipment installed, pre-wired & inter-connected.
Plus the following for onsite installation & connection.
1) 2 x temperature probes
2) 3 x split core CT's
3) 20 meters of 4 core shielded cables
4) Installation manual & single line drawing
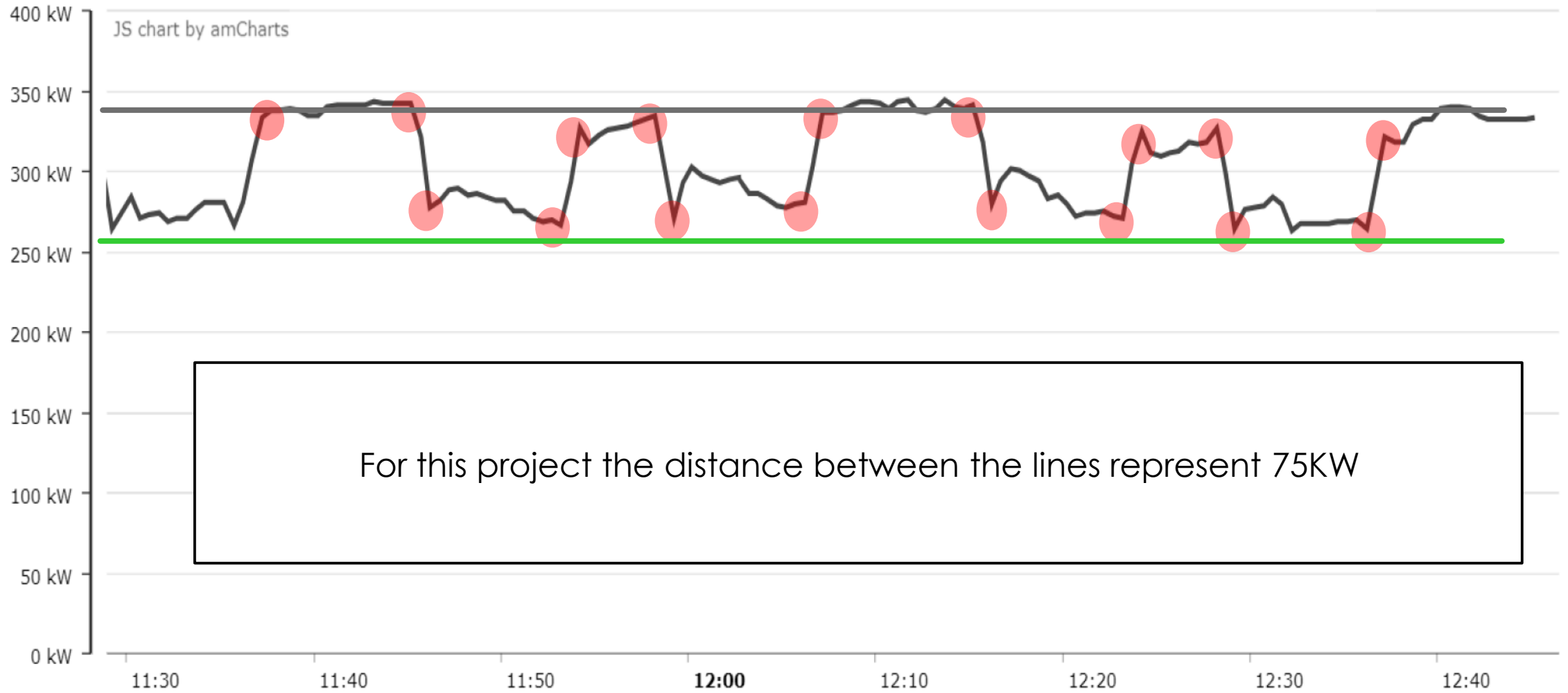5) All commissioning is conducted over the internet.

EDD-RT

EDD-RT at 30second intervals

For this project EDD sends 15 commands per hour & manages the time differentials between the active mode & in-activate mode to maximise kWh reductions without comprising the returning chilled water temperature of the chiller.

EDD-RT at 30 second intervals

For this project the distance between the lines represent 75KW

Resulting in a 9.5% energy (kWh's) reduction

Device selector

Chiller 2 [X]   [X]   **CHART SELECTED**   **SITE ENERGY**

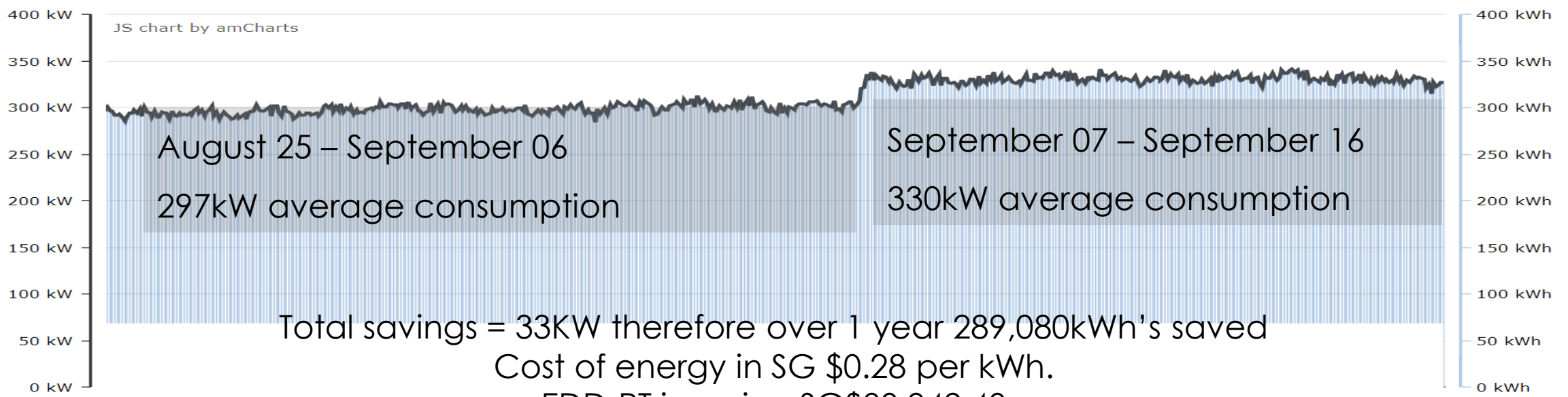1 WEEK | 3 DAYS | 1 DAY | 12 HOURS | ALL | ◄ | ►   SAVE AS   REPORTS ▼

PUE 1   **Chiller 2**
         IT ENERGY   COOLING ENERGY   TOTAL ENERGY   TOTAL KWH   TOTAL SGD   From: To:
         Avg: **0.00 kW**   Avg: **311.67 kW** Avg: **311.67 kW** **167677.31 kWh** **$ 20,121.28**   Aug 25 2019, 0:00   Sep 16 2019, 9:59

—— Power   ● PF   ● vRMSMin   ● vRMSMax   ● iRMSMin   ● iRMSMax   kWh

August 25 – September 06

297kW average consumption
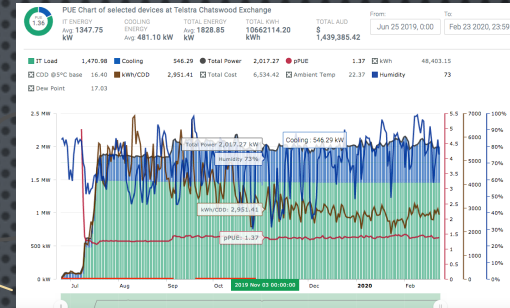
September 07 – September 16

330kW average consumption

Total savings = 33KW therefore over 1 year 289,080kWh's saved
Cost of energy in SG $0.28 per kWh.
EDD-RT is saving SG$80,942.40
ROI under 6 months.

EDD-RT Chiller Management And Monitoring

Bespoke Dashboard

WW Power Monitoring And Reporting

Enhancement

EDD-RT

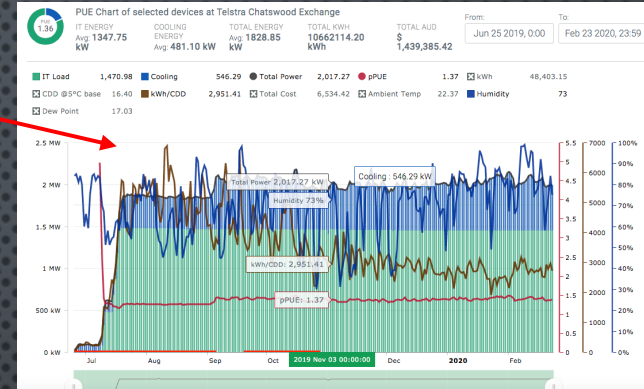Chilled Water

Condenser Water

EDD-RT Management And Monitoring

Whole Complex
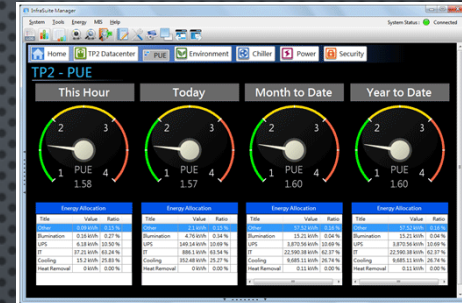Chilled Water System

Bespoke Dashboards

Individual CRAC Units

Features

- **Select Building, Select Chiller, Select CRAC**
- **Provides a dashboard for every building and associated system.**
- **Monitor and measure temperature and alarms for over and under temperature.**

EDD-RT Management And Monitoring

Multi locations-Multi Chillers in Multi Buildings Monitoring

Multi Chiller Dashboard

Individual chiller Dashboard

EDD-RT - Chiller Energy Management And Monitoring
EDD-RT is Vendor neutral and is compatible with ALL of these.