



# Sub-Metering on the Journey to Operational Excellence



11 July 2023



# Renteknik Group Inc.

Renteknik uses the best-in-class technologies and unique energy engineering solutions to empower our clients to maximize operational efficiency, achieve energy savings and improve productivity and performance.

All-inclusive team of Engineers, Engineers in Training, Technologists, Project Managers, Financial and Business Experts.

## OPERATIONAL EFFICIENCY/ENERGY MANAGEMENT SERVICES:

- Efficiency/Performance Monitoring
- Monitoring, Targeting & Reporting
- LEED, submetering and performance scoring
- Energy Management and Information Systems (EMIS)
- Global Adjustment and Demand Response Management
- Existing Building Cx/Rx (Full Building, Systems)
- BTU and Smart Water submetering

## TECHNOLOGY SUPPLY AND TECHNICAL SUPPORT:

- Panoramic Power Energy Management Solution
- Z3 Controls
- Kamstrup Smart Metering Solutions
- Circutor Energy Management Systems
- ClimaCheck HVAC Performance Analyzer
- RDM – HVAC/R control and energy management

# Understanding “Actionable Intelligence”



## WHAT IS THE ROI (Return On Investment) FOR SUB-METERING?

- Quite simply it's zero, nothing, nada!
- This is reinforced by all the metering that has historically been installed that is rarely, if ever, being used.
- At best these sub-meters can be used to periodically divide the main utility spend into some slightly small “buckets”, usually as cost or a percentage.

## WHY??

- A meter is a counter. It measures how much has been consumed.
- Often not connected to provide “real-time” visibility.
- Meter historically were expensive to buy and install so they are always too far “upstream” in the system i.e. at distribution level.

## WHAT'S THE SOLUTION?

- Cost-effective **device-level** metering. This allows a **bottom-up** not top-down approach.
- This approach gives real-time visibility into exactly how and where you are consuming. You now have

*“Actionable Intelligence”*

## REMEMBER THIS, IT'S IMPORTANT TO UNDERSTAND!

- There is a big difference between energy efficiency/management and power quality – treat them separately!

# About Panoramic Power



Watch this short video on YouTube from the link below:

<https://www.youtube.com/watch?v=BtPu-PJXcyA>

<https://www.youtube.com/watch?v=urb8ihXwOQY> (Testimonial by Magna International)

# Panoramic Power & PowerRadar Solution

- Quick and effective state-of-the-art technology for Device Level Submetering and Monitoring





# Panoramic Power Hardware



Pan10 - 0-63A



Pan12 - 0-225A



Pan14 + 0-any size A



Pan42 – Full RMS Meter

Examples:

0-200A

0-600A

0-1000A

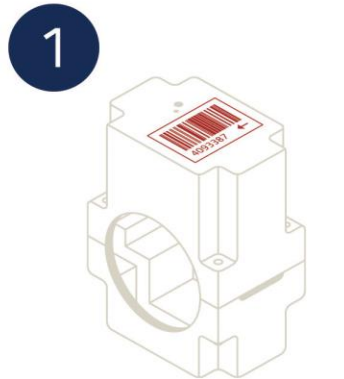
Various size windows options available

# Ease of Installation

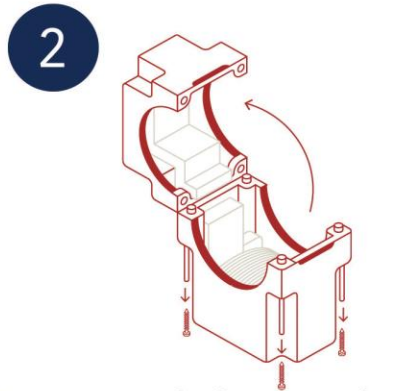
## Example Pan 12



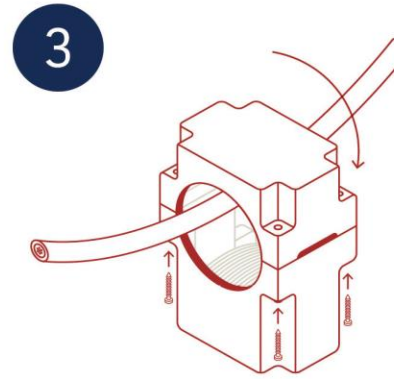
### → Hardware installation<sup>1</sup>



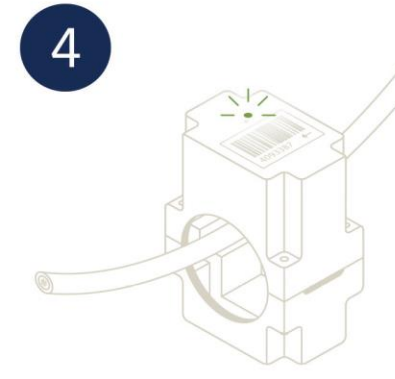
Note the sensor ID number below the barcode, which you will need later to map the sensors to the circuits.



Unscrew the four screws in the corners of the sensor until the screws slide down, opening the sensor.



Place the sensor around the wire inside the electrical panel board and screw in all four of the screws in the corners of the sensor.



Ensure the arrow found above the barcode is directing to the load. The sensor is powered on when the wire on which it is installed has at least 0.8A flowing through it - the LED below the barcode will blink **green** at 1.5A.<sup>2</sup>

### → Software configuration<sup>3</sup>

1  
Go to [www.powerradar.energy](http://www.powerradar.energy) and log in with your email and password.

2  
Go to the Site Dashboard and click on the 'Deployment Tool' link.

3  
Create/Navigate to the Zone > Panel > Device of which the sensor is installed.

4  
Click 'Install Sensor' to enter the sensor ID number and click 'Install Sensor' again after entering the Power Factor and Current Factor.

5  
Validate the sensor operation by hovering over the eye icon in the Reception column to view the sensor's signal strength to the bridge (RSSI) and the current running through the wire.



# Communication Bridge



- Option 1: Standard has WiFi/LAN Communication
- Option 2: Enhanced has WiFi/LAN/LTE Communication and can be used with a cellular SIM with Data Package
- Requires power (plug) for the supplied transformer or a POE adapter (sold separately)
- Raw data can be exported locally through ModBus TCP. API also available through the cloud
- Each communication Bridge has 2 Pulse Input Ports available

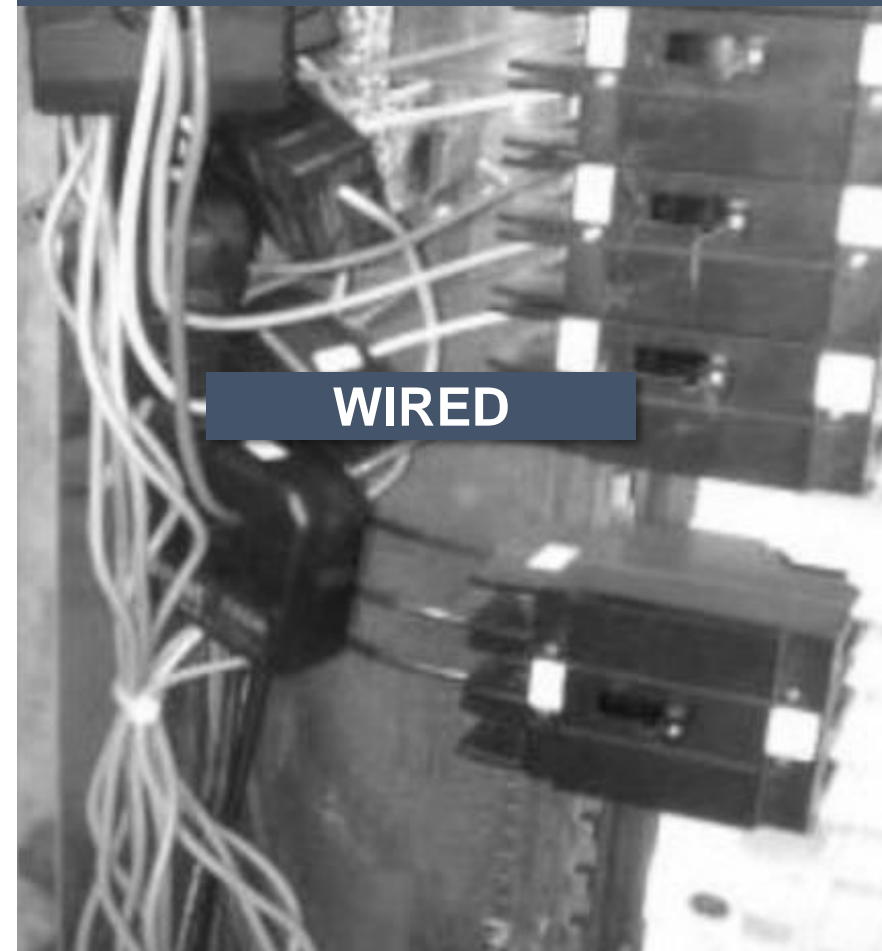


# Ease of Installation

## SENSORS



## SUBMETERS



# Pulse Inputs-Variety Meter Outputs



BTU meters



Compressed Air meters with Pulse Output



Other Electricity and Gas meters with Pulse Output



Water meters with Pulse Output



Gas submeters with Pulse Output

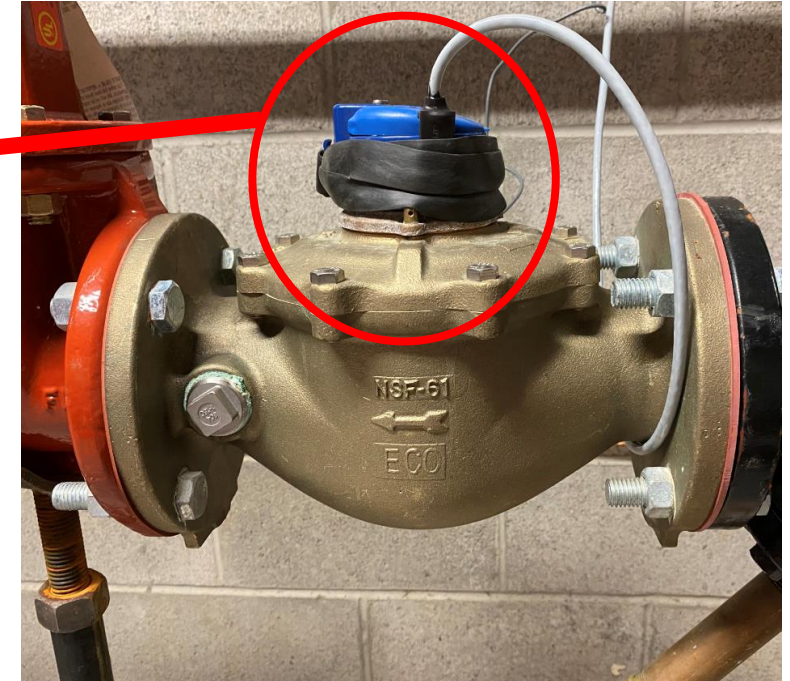
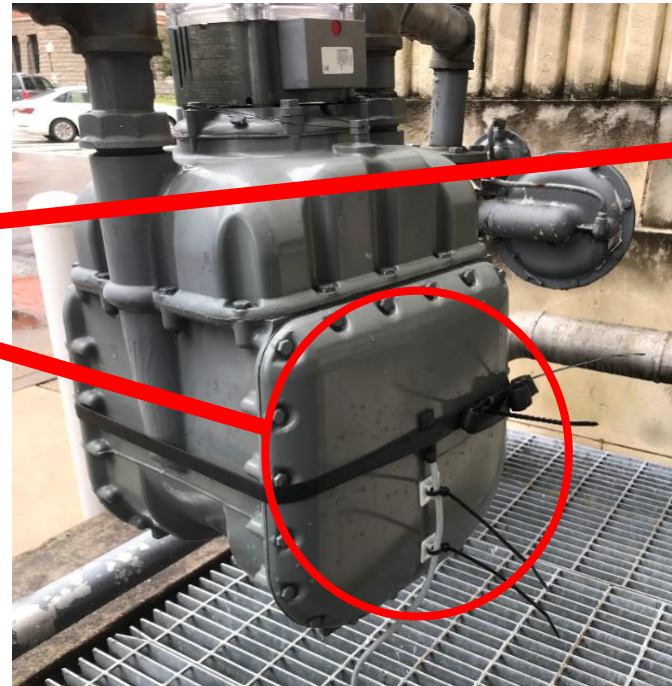
INCLUDES UTILITY METERS  
WITH DEMARCATION POINTS



# Pulse Sensors for Existing Gas & Water Meters

Gas Meter

Water Meter





# Compressed Air Output Meter



Compressed-Air Flow Meter



# CO<sub>2</sub> Sensor with Pulse Output



CO2 Sensor



Communication Wire



Communication Bridge – Pulse Input

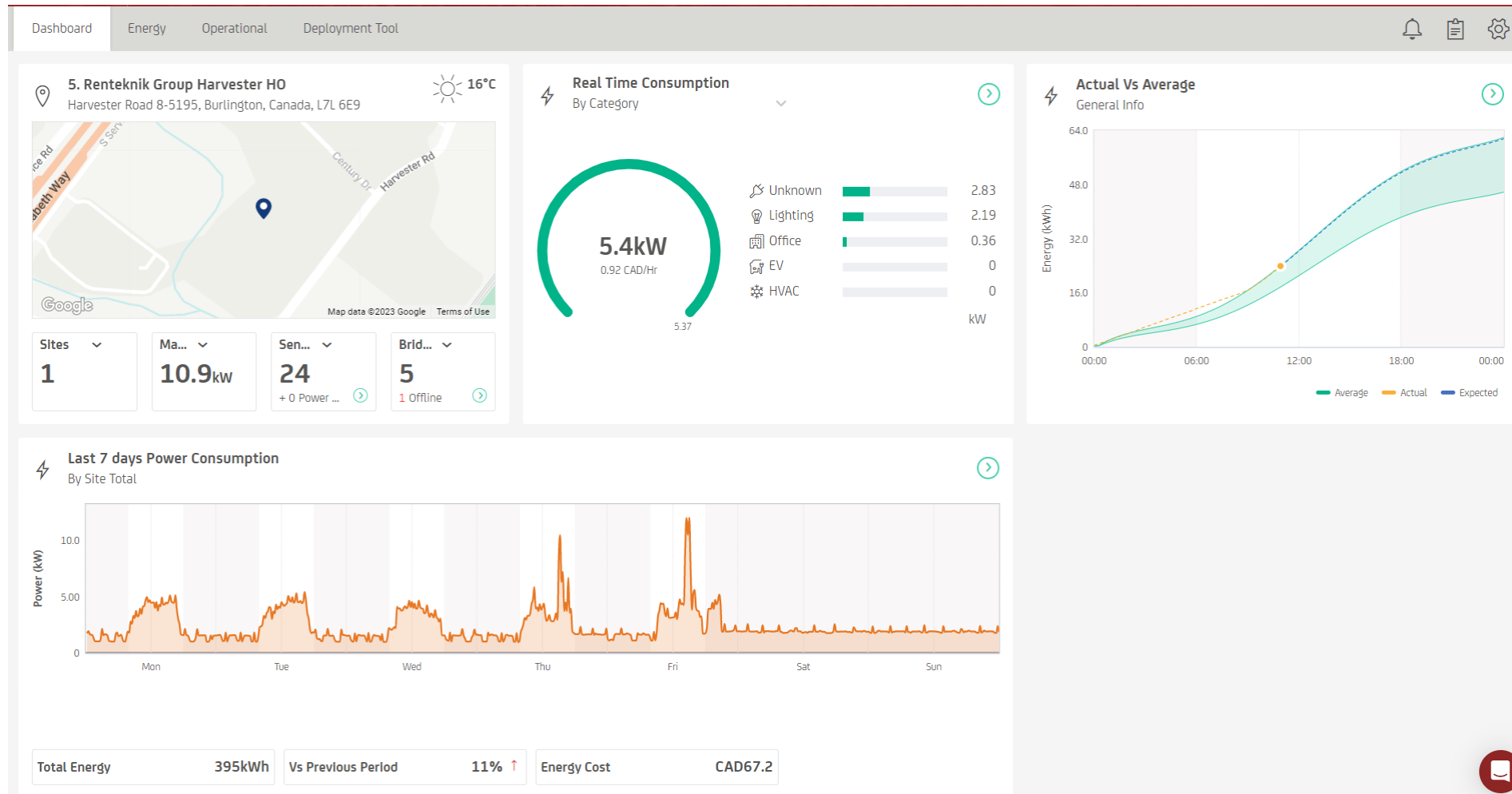
# Live PowerRadar Demo

UNDERSTANDING THE VALUE OF  
REAL-TIME DATA AND AN EASY-TO-USE  
ANALYSIS SOFTWARE TO GET  
***“ACTIONABLE INTELLIGENCE”***

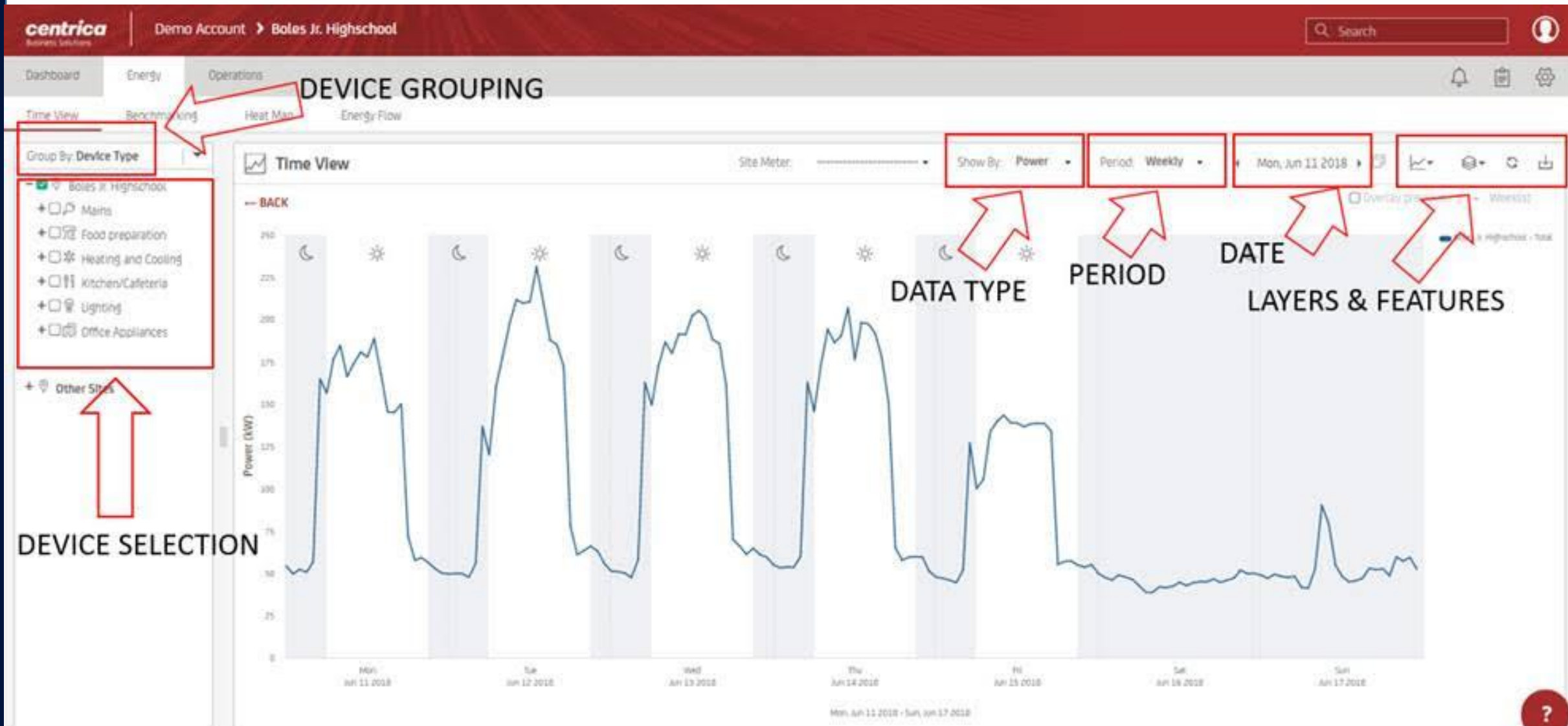


# PowerRadar Dashboard

Access to Cloud-based utility meter, sub-meter and sensor data with powerful built-in Analytics, Alerting and Reporting all in real-time with NO ongoing software fees for basic analytic features!

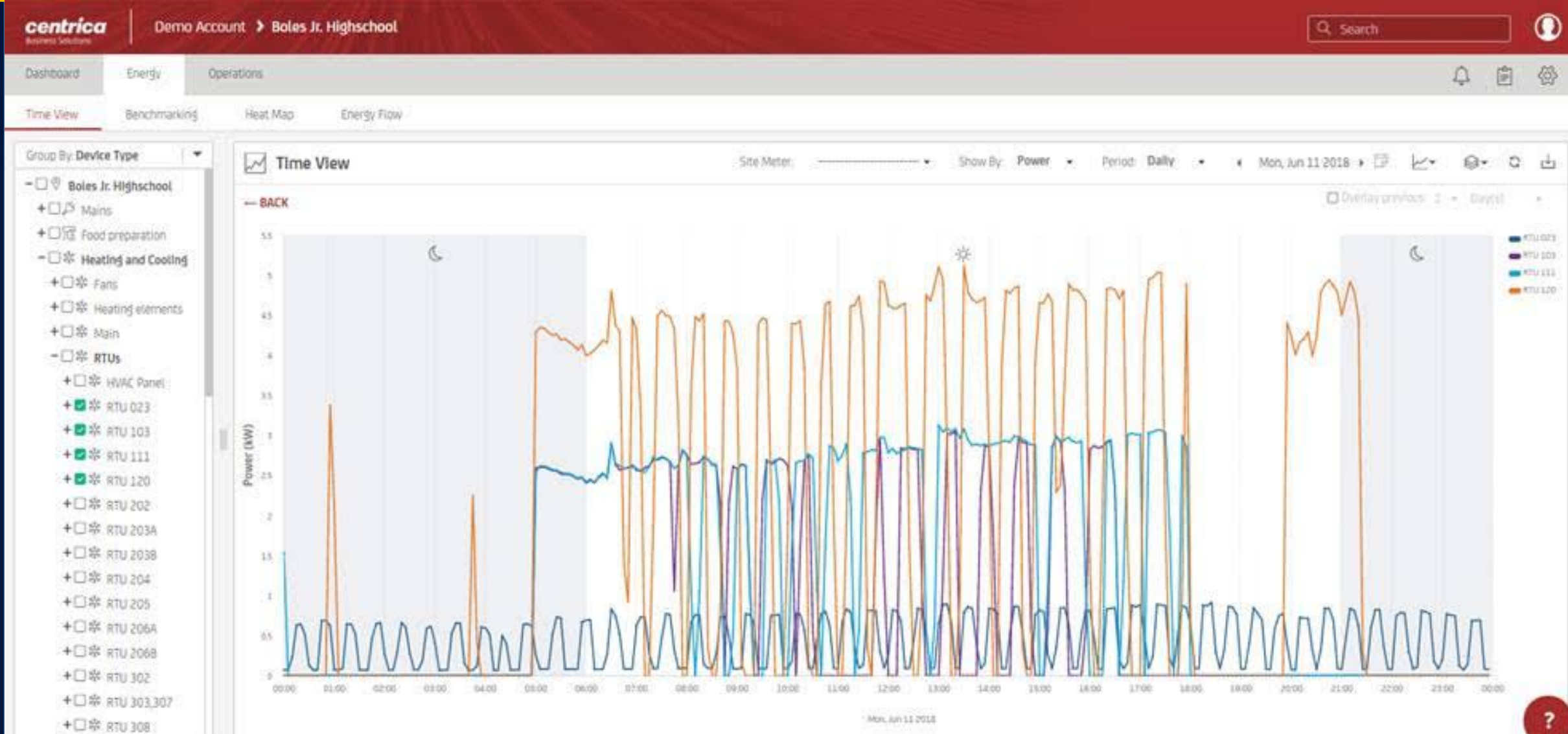


# PowerRadar Dashboard





# PowerRadar Dashboard



# PowerRadar Dashboard

Group By: Device Type

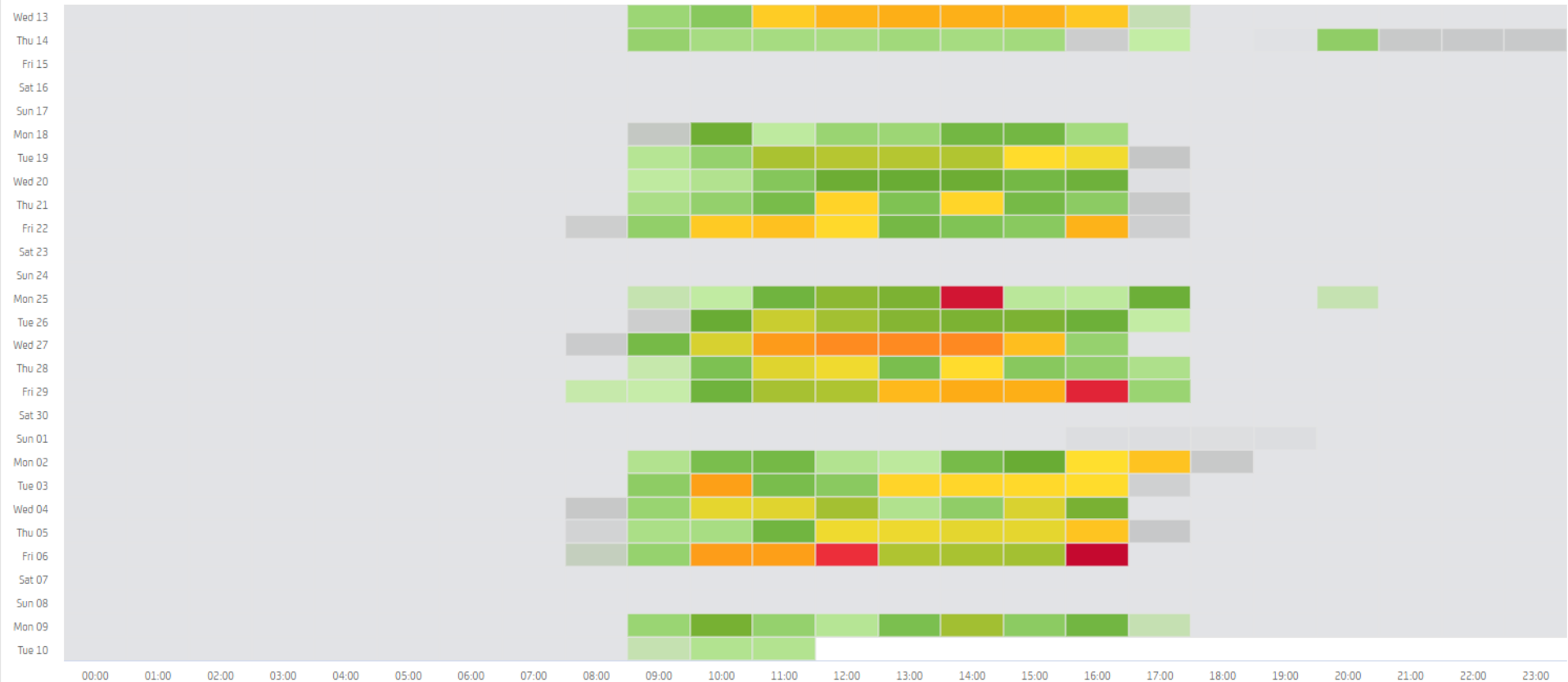
- 5. Renteknik Group Harvester HO
  - Mains
    - + Main
    - + Sub-mains
  - EV Charging
    - + EV Charging
  - Heating and Cooling
    - + Air blowers
    - + Heating elements
    - + RTUs
  - Lighting
    - + Lights
  - Office Appliances
    - + Power outlets

## Heat Map

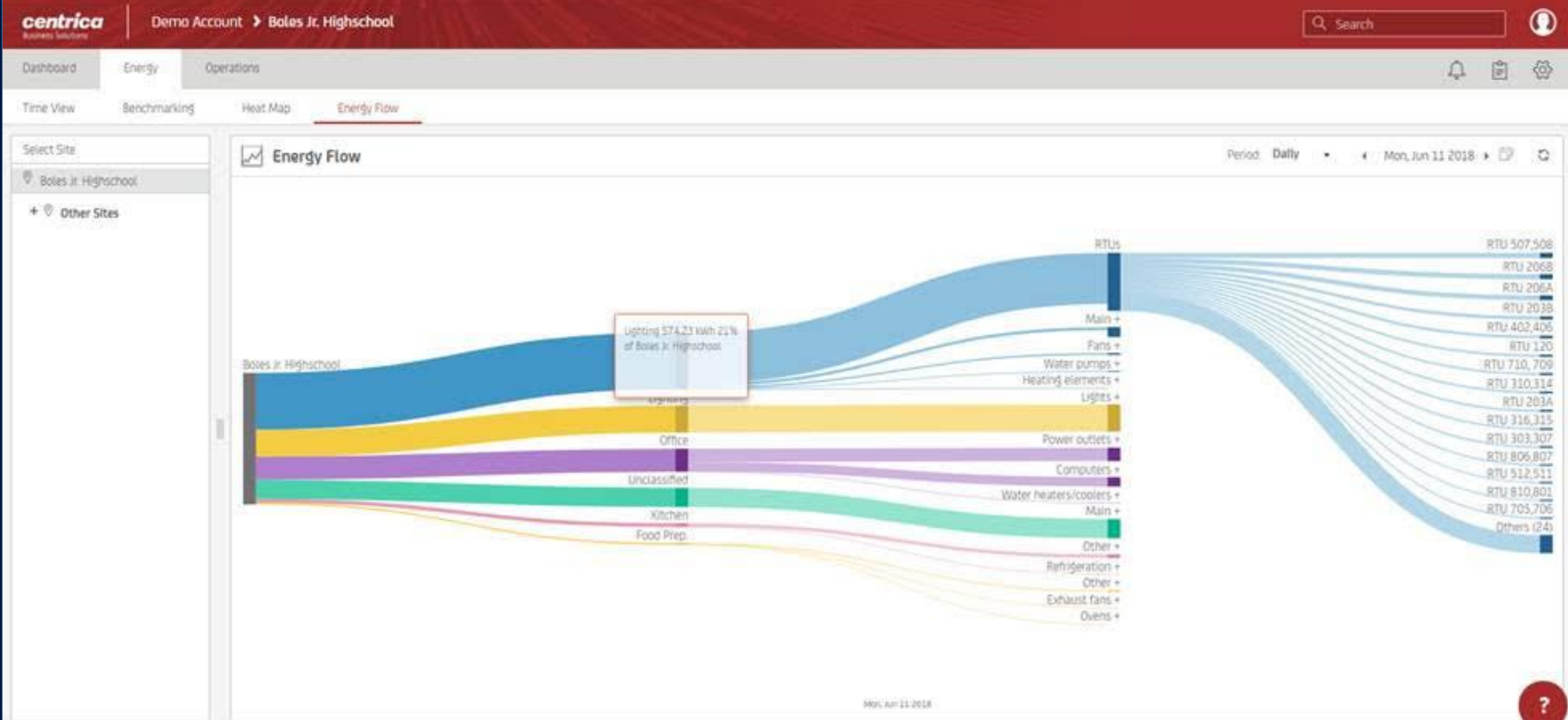
Show By:

Power

Tue, May 10 2022

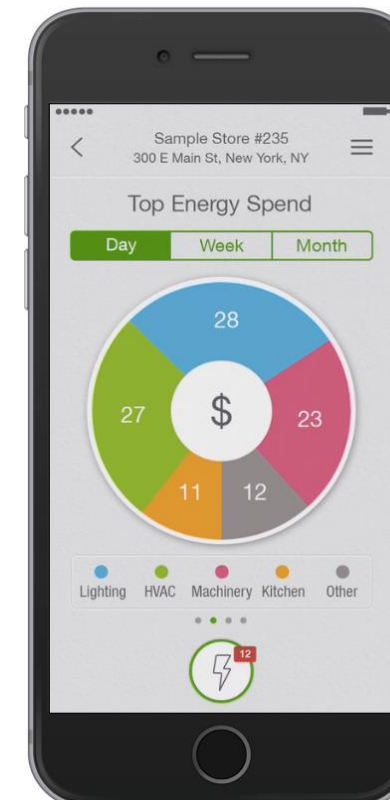


# PowerRadar Dashboard





# Real-Time Actionable Intelligence



Facility Managers can now make same-day decisions to improve operations and eliminate sources of waste before they incur costs

# Access the DEMO Account

To access the Demonstration Site please use the follow credentials:

<https://www.powerradar.energy>

User Name: [panpwrClientDemo@renteknikgroup.com](mailto:panpwrClientDemo@renteknikgroup.com)

Password: Renteknik2021

# Deployment Cost Example

The following is an example deployment with approximate costs :

- 100 Panoramic Power CTs (Pan10/Pan12)
- 4 Communication Bridges (WiFi/LAN)
- 2 Pulse Inputs of utility meters
- One-time Account Set-up and training

\$35,000\* CAD

€23,000\* EUR

\$25,000\* USD

\*Excludes installation, shipping and cost of demarcation from utility company. Volume discounts may apply  
Installation of 30 Pan10/Pan12 CTs would be approximately 2-4hours typically. 100 Pan10/Pan12 CTs might be 8-16hours with proper planning (based on 2 workers – no materials needed)

This is a one-time capital purchase with no ongoing Software (SaaS) fees for the basic software and data storage. The Premium Software with enhanced features and functions requires an annual SaaS payment.





**Darren A. Cooper, P.Eng., President**

[d.cooper@renteknikgroup.com](mailto:d.cooper@renteknikgroup.com), C: 289 208-2950