



Power IQ

Energy management via a single Web interface.

Platform Options

- ▶ VMware® Virtual Appliance
 - Our application software, database and hardened Linux® operating system is fully tested and ready to load on your VMware platform
 - Tested with ESX, ESXi and Player
- ▶ Raritan Hardware Appliance
 - Our application software, database and hardened Linux operating system are loaded onto our enterprise-class, rack-mountable 2U server with dual power supply and redundant fans



Data Center Energy Management A Solution That Helps You Be More Energy Efficient

Power IQ energy management software automates secure, time-based power control and enables powerful analytics reporting of energy cost, temperature, active power, line capacity and carbon footprint. It enables managers to improve data center availability, enhance power capacity planning and improve energy efficiency.

Trending reports and cumulative totals can be displayed at the data center, floor, room, rack, customer and IT device level. Customer energy billback cost reports can also be generated in your local currency with one click.

Through a single Web browser, the highly scalable Power IQ manages APC®, Avocent®, Cyber Switching®, Geist, HP, MRV, Raritan and Server Technology® rack PDUs, UPSs and more. Our system is open database compliant (ODBC) and provides a standards-based Web Service API for easy integration with your enterprise systems and custom programs. It simplifies PX™ configuration and firmware management. Plus security is ensured with standards-based authentication, Web session timeout and IP-based access control.

Efficiently Utilize Energy

Power IQ provides you with valuable information and automated control that can help you gain efficiencies in the data center right away, including:

- ▶ Baseline data center energy usage by IT device, rack, zone, customer, department and data center
- ▶ Measurement of energy improvements
- ▶ Understanding of which systems are candidates for consolidation
- ▶ At-the-rack temperature measurement to identify areas to adjust cooling
- ▶ Energy cost billback reports with one click
- ▶ Tracking changes in carbon footprint
- ▶ Remote power on/off and automated power control, saving energy and equipment

Make Informed Capacity Planning Decisions

Power IQ lets you accurately monitor and measure key power data, so you can manage current needs and plan for future growth. Capabilities include:

- ▶ Collecting actual current draw to compare to rated capacity
- ▶ Collecting and grouping actual power load to update design assumptions
- ▶ Monitoring trends to understand future needs
- ▶ Finding hot spots and eliminating them by making informed add/move decisions

Open Standards-Based System Architecture

- ▶ Web Service API – for easy integration with your systems and custom programs
- ▶ LDAP/AD support offers easier centralized authentication
- ▶ Open database compliant system allows for easy information sharing
- ▶ Up to 256-bit AES encryption protects your information

More informed capacity planning and energy efficiency in minutes

Multi-Vendor Management

Central console manages all your rack PDUs and in-line meters, including APC, Avocent, Cyber Switching, Geist, HP, MRV, Raritan, Server Technology and more.

The screenshot displays a central console interface for Multi-Vendor Management. It features a table of outlets with columns for Outlet ID, State, Device, Current (Amps), and Active Power (Watt). Below the table is a 'Power Control' section with a 'Refresh' button. To the right, a 'Device' details panel shows information such as IP Address (192.168.43.88), Manufacturer (APC), Model (AP7500), Firmware (v3.5.8), Rated Voltage (120V), Rated Current (15A), and Rated VA (1.48kVA). At the bottom, a 'PDU Customizable Chart' shows a line graph of Active Power (Watts) over time, with a green shaded area representing the power usage.

Power Control

Easily perform remote power control of outlets, IT devices and groups of IT devices with power sources spanning multiple rack PDUs.

The screenshot shows the Power Control interface. On the left, a tree view displays a hierarchy of locations: Chicago Lab, Room A, Rack7, and various devices including Cisco Router, Oracle DB Server, Catalyst 4900, and HP DL380. A context menu is open over the HP DL380 device, showing options like Rename, Refresh, Remove, and Power Control (On/Off). On the right, a detailed view for an 'MS Exchange Server' is shown, including fields for Name, Customer (Verizon), Device type (Server), Power rating (300 Watts/VA), and a table of outlets connected to it.

Power Control of Device Groups

Control power to a device group with configurable on/off sequence and delay of IT devices within the group.

The screenshot displays the 'Edit Device Group' interface. It shows a 'Name' field set to 'Load Shed Group 1' and two input fields for 'Default Power On Delay (ms): 200' and 'Default Power Off Delay (ms): 0'. Below this is a table of devices in the group:

Name	Power On Delay	Power Off Delay	Position
IBM BladeCenter	200	0	1
Cisco Router	500	0	2
Catalyst 4900	600	0	3

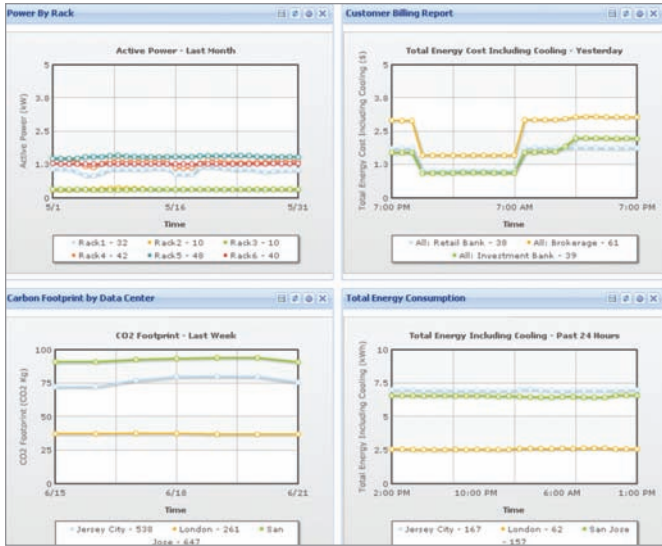
Scheduled Power Control Operations

Schedule one-time or recurring power control operations for energy efficiency or maintenance purposes.

The screenshot shows the 'Scheduled Power Control Operations' interface. It features a dropdown for 'Operation' (Power On/Off) and a search field for 'Device Group'. A list of device groups is shown, including 'Load Shed Group A - Displays', 'Load Shed Group B - Appliances', 'Load Shed Group C - Switches', and 'Servers Rack 47'. Below this is a 'Recurring' section with a calendar view for selecting days (Monday through Sunday) and a 'Page 1 of 1' indicator. At the bottom, there are input fields for 'Hour' and 'Minute' (set to Eastern Time (US & Canada)) and a checked 'Active' checkbox.

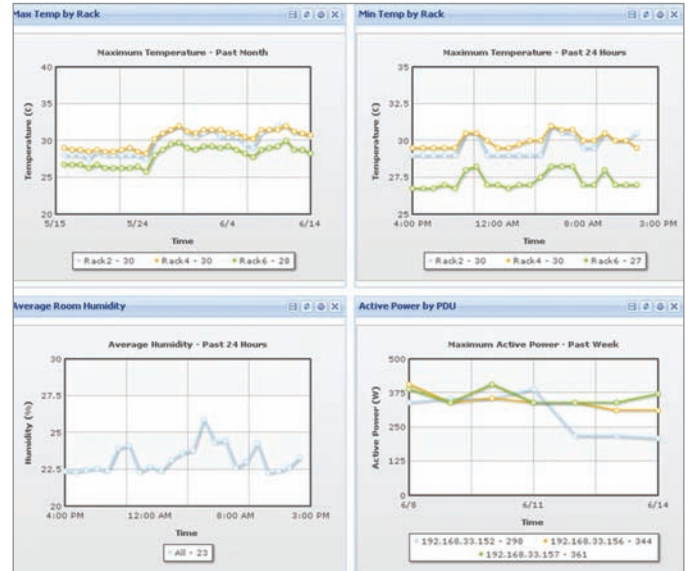
Power and Energy Analytics

Create an unlimited number of charts, such as active power by rack, carbon footprint by building, department billback and total energy consumption.



Environmental Analytics

Record and chart maximum, minimum and average temperature and humidity at the probe, PDU, rack, row and room levels.



Outlet-Level and Line Metering

Chart actual energy consumption at the IT device level to better support your energy conservation programs.*

Outlet-Level Metering

Readings

The last reading was done at 09/11/08 07:05:27 AM.

Unit level readings	Act. Power (Watts)	App. Power (Watts)
Unit	827.75	827.75

Line/circuit breaker readings	Current (Amper)	Available (Amper)
Line 1	3.98	31.02
Line 2	3.98	31.02
Line 3	0.00	35.00
Circuit breaker 1	3.98	16.02
Circuit breaker 2	0.00	20.00
Circuit breaker 3	0.00	20.00

There are 24 outlets on this device.

#	Outlet	Current (Amper)	Act. Power (Watts)
1	RACK1_File_Brokerage Div	0.00	0.00
2	RACK1_File_Brokerage Div	0.00	0.00
3	RACK1_File_Trading Div	0.00	0.00
4	RACK1_File_Trading Div	0.00	0.00
5	RACK1_Web_Brokerage Div	3.98	827.75
6	RACK1_Web_Brokerage Div	0.00	0.00
7	RACK1_Web_Trading Div	0.00	0.00
8	RACK1_Web_Trading Div	0.00	0.00
9	RACK1_Web_Banking Div	0.00	0.00
10	RACK1_Web_Banking Div	0.00	0.00
11	RACK1_Web_Banking Div	0.00	0.00
12	RACK1_Router_Banking Div	0.00	0.00
13	RACK1_Router_Brokerage Div	0.00	0.00
14	RACK1_Router_Trading Div	0.00	0.00
15	RACK1_Router_Brokerage Div	0.00	0.00
16	RACK1_Oracle_Corporate	0.00	0.00

Line Metering

Readings

The last reading was done at 09/11/08 06:56:17 AM.

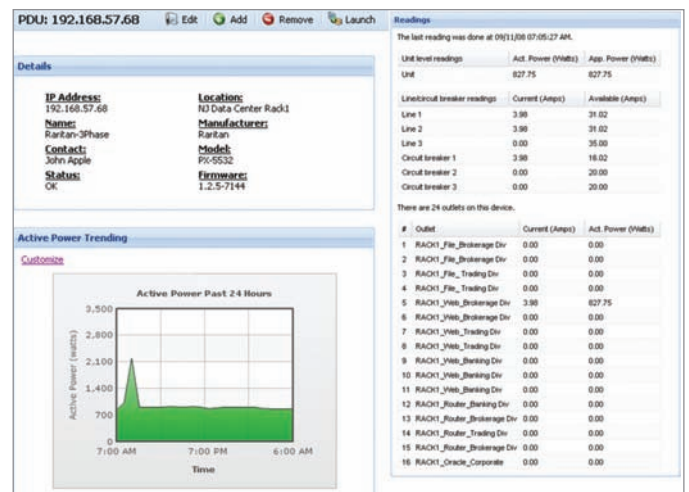
Unit level readings	Act. Power (Watts)	App. Power (Watts)
Unit	120.00	120.00

Line/circuit breaker readings	Current (Amper)	Available (Amper)
Line 1	0.00	20.00
Line 2	1.00	19.00
Line 3	0.00	20.00

No outlet information is available for this device.

PDU Page

View details about the PDU, such as manufacturer, model, serial number, firmware, voltage and current ratings, location and status.



*Depends on the intelligence of the rack PDUs.

Rack PDU Management

- ▶ A central management console consolidates names, polling status, location, model and firmware onto one screen, saving valuable management time
- ▶ Bulk configuration of, and firmware distribution for PX PDUs save time

Automated Power Control

- ▶ Remote power control of outlets, IT devices, device groups and racks
- ▶ Automated load shedding

Power and Environmental Data Aggregation

- ▶ User-configurable collection intervals ensure desired accuracy while minimizing network traffic
- ▶ Aggregate active power, current, temperature and humidity data

Reporting

- ▶ Energy, cost and carbon consumption reports keep customers and/or internal departments informed
- ▶ Carbon certificate report helps you certify usage change from one period to another to support carbon credit claims
- ▶ Exception reports help you find stranded power capacity
- ▶ Trending and status reports help you easily see future capacity needs

Open Data Model

- ▶ Open database connectivity capabilities let you use your existing data warehouse and reporting system to generate custom reports
- ▶ Import and export data via CSV file

Support for Ethernet-Enabled, Switched and Metered Rack PDUs and In-Line Meters

- ▶ APC
- ▶ Avocent
- ▶ BayTech®
- ▶ Cyber Switching
- ▶ Eaton/Aphel
- ▶ Geist
- ▶ HP
- ▶ MRV
- ▶ Raritan
- ▶ Server Technology

“Raritan’s solution allowed us to develop a go-to-market strategy that incorporates billing for actual power usage, instead of the typical co-location model of flat-rate energy billing. This has provided a significant cost advantage for customers in our co-location facility.”

– **Dustin Phillips**
ARCHER Technology Group

Create Custom Reports

Report via:

- Active power
- Energy
- Carbon
- Cost

Report via:

- Outlet
- IT device
- Customer
- Department
- Rack
- Zone
- Floor
- Data center

Export Graphed Data to CSV

Click to export any graphed data

Ready to learn more about Raritan’s Power IQ?

Visit www.raritan-AP.com/poweriq today