



EcoStruxure™ Power

Energy Cost Performance eGuide



Life Is On





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EcoStruxure Power digitizes electrical distribution

EcoStruxure Power helps facility operations achieve greater operational and cost efficiency

For many large buildings and critical facilities, energy can represent a significant portion of variable costs. Operations and maintenance teams are often unaware of the financial impact of the operational energy usage. Conversely, financial teams are not aware of how energy is consumed.

Save money by reducing energy spend

EcoStruxure Power leverages digitization to provide insights into how energy is used and helps identify opportunities for quick-win energy cost savings through Utility Bill Verification and Power Factor Correction.

[Read the white paper](#)



Digitizing Electrical
Distribution

Challenges and
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A photograph of a large industrial facility, likely a refinery or chemical plant, at dusk. The sky is a deep blue, and the facility is illuminated with warm yellow lights. In the foreground, there is a dark, grassy field. The title 'Challenges and Opportunities' is overlaid in white text on the left side of the image.

Challenges and Opportunities

Digitizing Electrical
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Challenges and
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Challenges facing many energy-intensive facilities

There is a disconnect between energy users and those that account for that energy.



“We run the facility and focus on operations. We never see how much our company pays for energy.”



“We pay the utility bills every month... it's just the cost of doing business.”

Electrical energy has special billing considerations

Unlike water or natural gas, electricity has special considerations:

- Power factor penalties
- Time of use energy usage charges
- Peak kW demand charges

D. Large General Service Time-of-Use Billing Periods

Winter On-Peak: October 1 -May 31	Weekdays between 12:00 noon and 10:00 p.m.
Summer On-Peak: June 1 -September 30	Weekdays between 12:00 noon and 2:00 p.m. and between 8:00 p.m. and 10:00 p.m.
Summer Super-Peak: June 1 - September 30	Weekdays between 2:00 p.m. and 8:00 p.m.
Off-Peak	All other hours

C. Power Factor Adjustment or Waiver
 1. **Adjustment (charge per month varies)**
 Accounts on a demand rate are subject to a power factor (PF) adjustment charge. When a customer's monthly power factor falls below 95 percent leading or lagging, the following billing adjustment will apply:

$$\text{Electricity Usage} \times [(95\% \div \text{Power Factor}) - 1] \times \text{Power Factor Adjustment Rate}$$

Electricity Usage: the total monthly kWh for the account

Power Factor: the lesser of the customer's monthly power factor or 93 percent

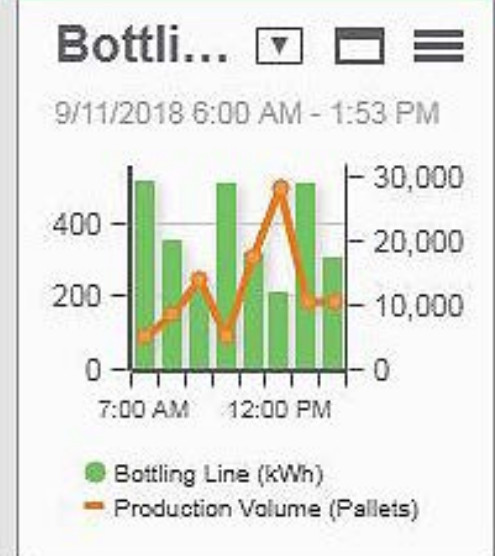
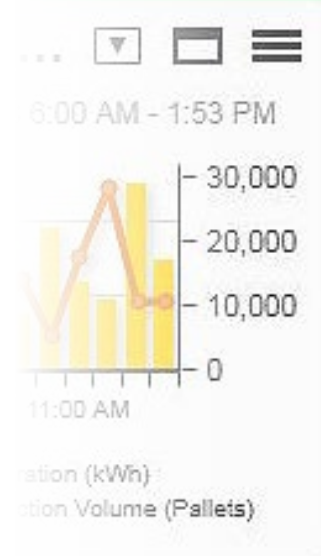
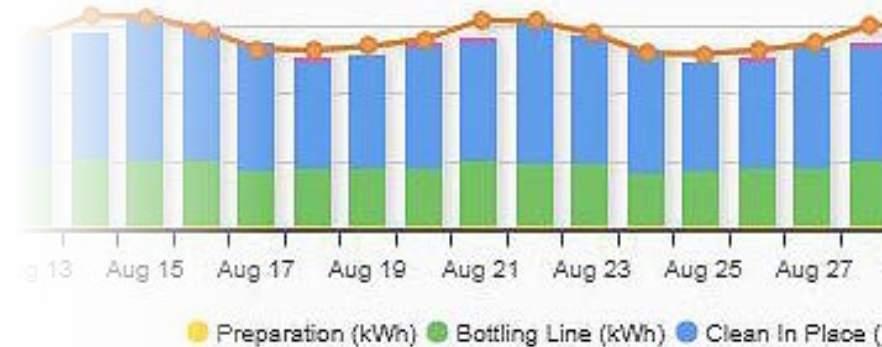
Power Factor Adjustment Rate\$0.0103

Firm Service Rates

Voltage Level Rate Category	Secondary	Primary	Subtransmission
	GUS_L	GUP_L	GUT_L
Winter Season - October 1 through May 31			
System Infrastructure Fixed Charge - per month per meter	\$101.60	\$101.60	\$269.05
Site Infrastructure Charge (\$ per 12 month max kW or contract capacity)	\$5.78	\$3.65	\$2.89
Electricity Usage Charge			
On-Peak \$/kWh	\$0.1015	\$0.0965	\$0.0890
Off-Peak \$/kWh	\$0.0804	\$0.0752	\$0.0736

Energy vs Production

- 9/11/2018



Utility billing discrepancies can happen

Mistakes happen. Ensure you check your bills.

Check for discrepancies and verify your bills are correct. Some common utility billing errors include:

- Invoice billing period overlaps with a previous bill
- Balance Brought Forward (BBF) applied to wrong account
- Error in invoice calculation
- Supplier contract period overlap
- Exception deviation compared to previous periods
- Invoice sent for closed account
- Wrong rates applied on a bill
- Account credits not adjusted on new invoice
- Incorrect meter reading
- Duplicate line-item charges

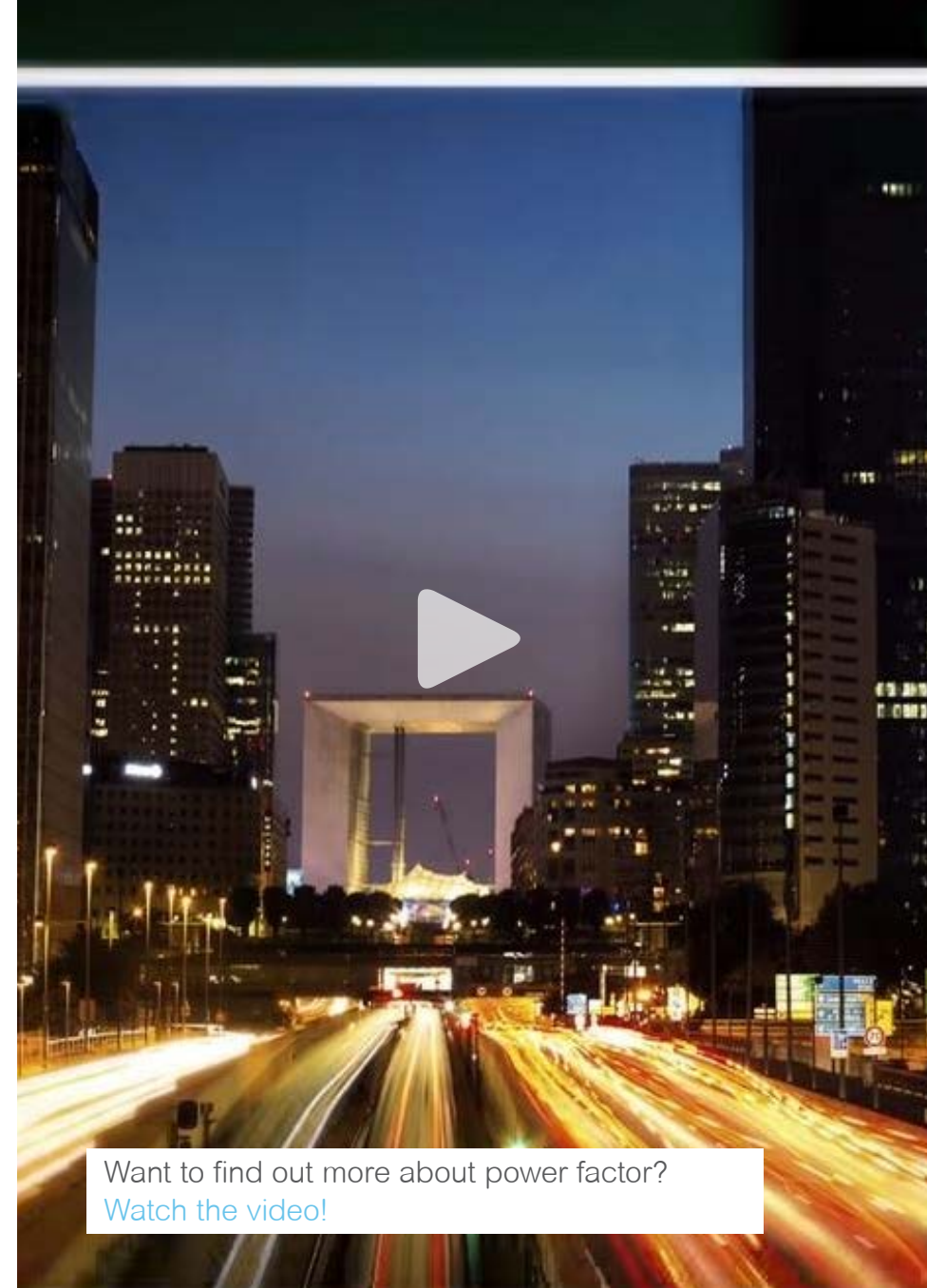


Other impacts on energy costs

Leading/Lagging Power Factor

Electrical loads common in large commercial and industrial applications can also cause leading and lagging power factor (e.g. induction motors).

Many utilities often charge significant penalties on the utility bill for reactive power. With the installation of power factor compensation equipment, you can turn these penalties into easy ROI.



Want to find out more about power factor?
[Watch the video!](#)



IoT enabled applications for energy cost performance

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Power Factor Correction

How can you reduce energy spend?

Utility Bill Verification

Power Factor correction

“I want to lower my utility bill by eliminating any power factor penalties.”

Avoid power factor penalties

- Many utilities penalize lagging power factor or reactive power consumption
- Leverage power metering on inductive loads and system monitoring software to measure leading and lagging power factor
- Correct power factor with capacitor banks or individual capacitors installed in gear to avoid paying penalties
- Conduct simple diagnostics and alarming to ensure proper capacitor operation and facilitate maintenance



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Architectures

Architecture 1

Architecture 2

Utility bill verification

Starting with a power meter on the main utility service entrance with accuracy that of or better than the utility meter, a 'shadow' utility bill can be automatically generated and shared with accounting to compare with the actual energy bill.



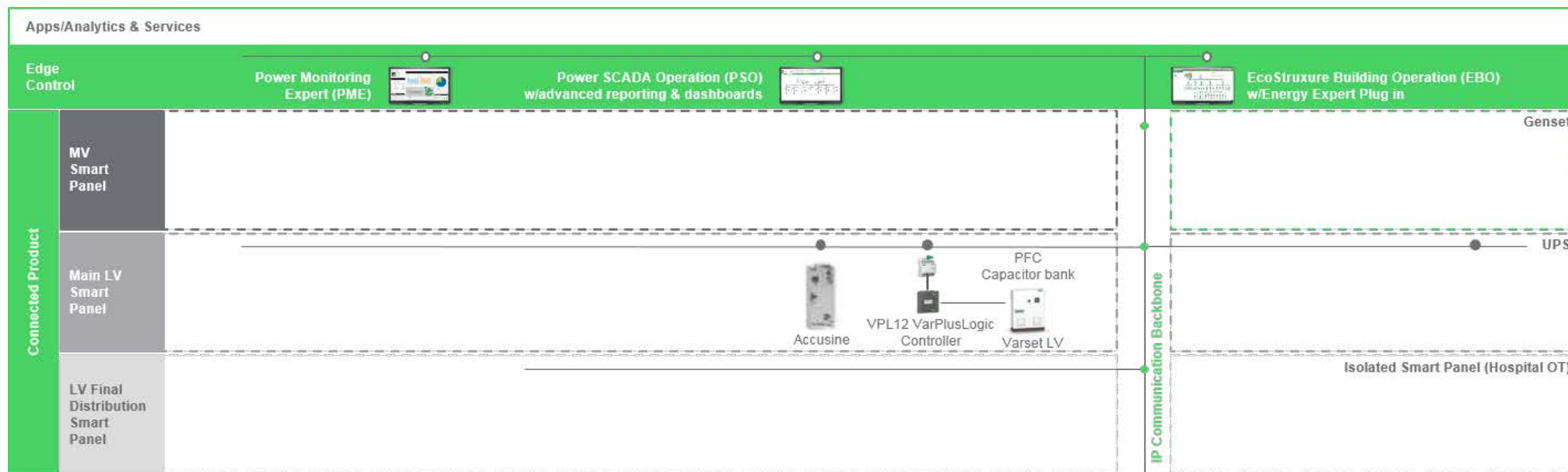
Architectures

Architecture 1

Architecture 2

Power factor correction

Power Factor Correction can be a fast way to save on energy cost through installation of capacitor banks, or via active harmonic correction, in order to eliminate any power factor penalties charged by many utilities.



Learn more



White paper: Power Management for a Changing World.



Blog: What Can You Learn About Power from a Pint of Beer?



White paper: Mitigating Risk Using Power Management Systems



Contact us to start your journey.

This document presents general, non-binding information regarding the potential value that digitized power distribution products and solutions can bring to the user. Due to varying user situations and goals, Schneider Electric does not warranty or guarantee that the same or similar results represented in this document can be achieved. Please refer to Schneider Electric product and solution catalogs for actual specifications and performance.

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