



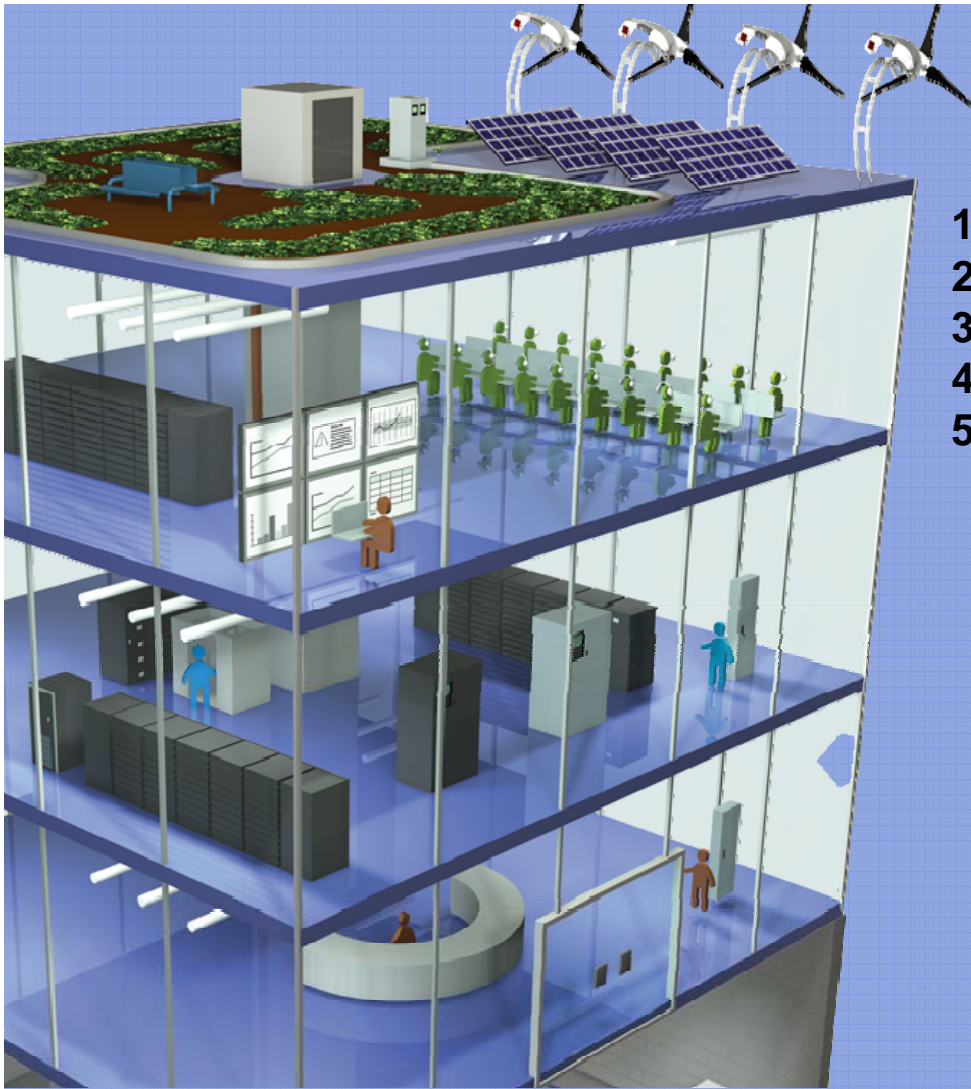
Energy Solutions for Orlando International Airport

"Delivering Cost Savings & Sustainable Solutions" – thru Energy Management



**ORLANDO
INTERNATIONAL
AIRPORT**





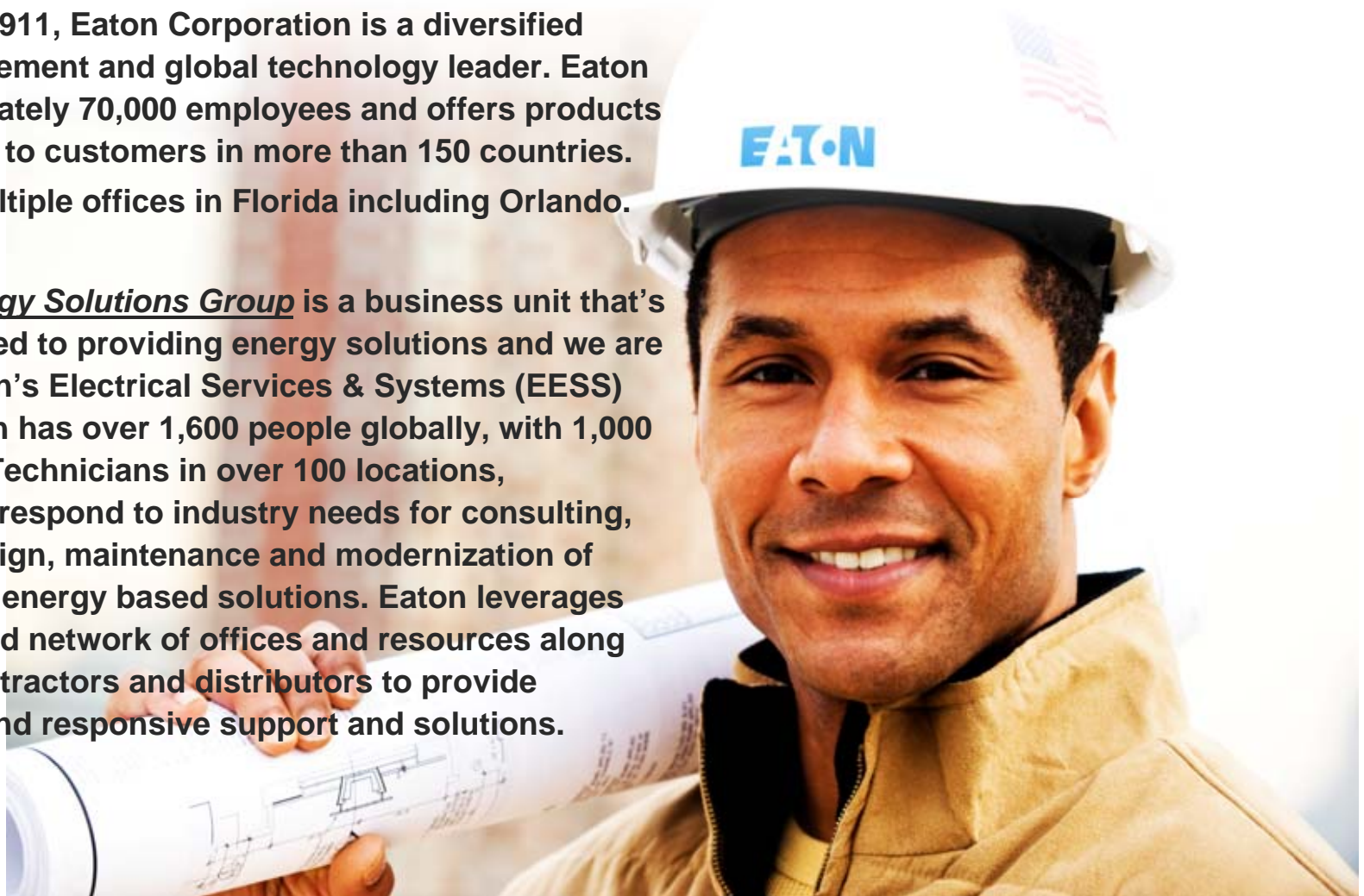
Agenda

1. Introductions
2. About Eaton
3. Learned Facility Facts
4. Energy Solutions by Eaton
5. Questions & Open Discussion

About Eaton Corporation

- **Founded in 1911, Eaton Corporation is a diversified power management and global technology leader. Eaton has approximately 70,000 employees and offers products and solutions to customers in more than 150 countries. Eaton has multiple offices in Florida including Orlando.**

- **Eaton's Energy Solutions Group is a business unit that's 100% dedicated to providing energy solutions and we are a part of Eaton's Electrical Services & Systems (EESS) division which has over 1,600 people globally, with 1,000 Engineers & Technicians in over 100 locations, positioned to respond to industry needs for consulting, proficient design, maintenance and modernization of electrical and energy based solutions. Eaton leverages this distributed network of offices and resources along with local contractors and distributors to provide competitive and responsive support and solutions.**

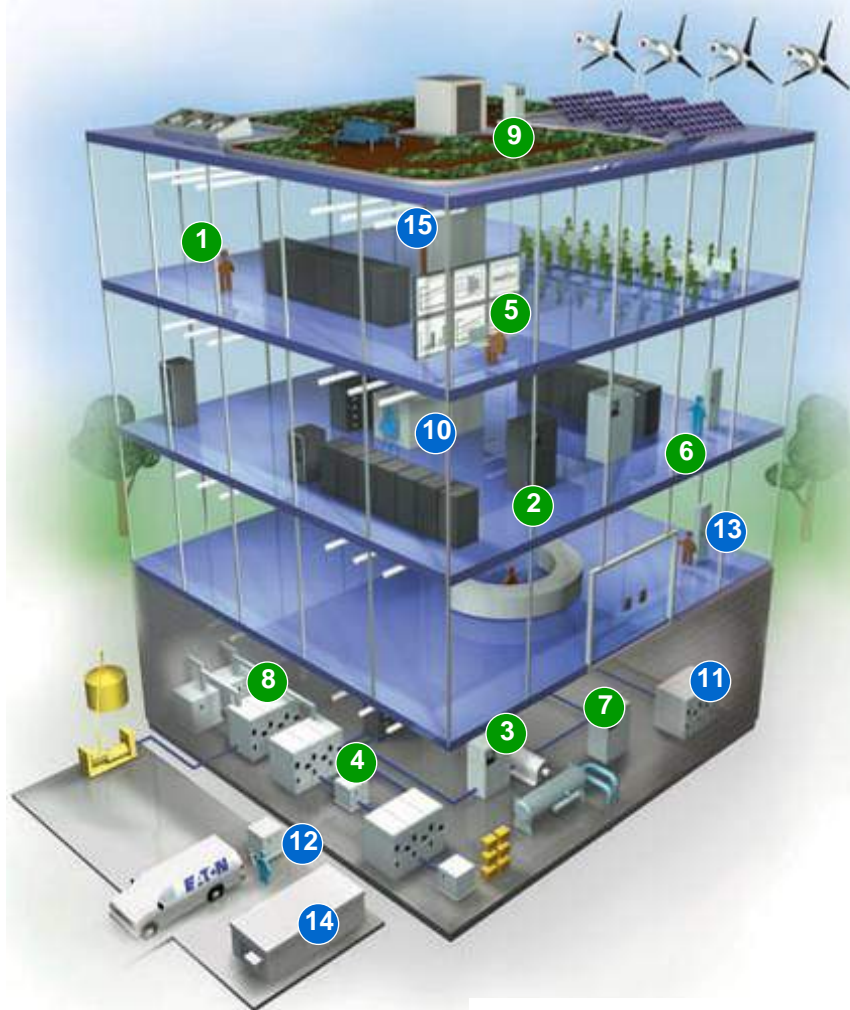


Save
Energy

Protect the
Environment

Going Green

Going green—using natural resources and energy wisely while reducing the impact of human activity on the environment—means more than just being environmentally responsible. It's good business, too.



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* Up to 3 LEED points for EVSE

Learned OIA Facility Facts:

Annual Energy Spend:

- Electricity: \$17,000,000.00
- Water: \$3,000,000.00
- Fuel: \$550,000.00

- No Energy Audit Has Ever Been Performed
- OIA Has an Ongoing Defined Energy Plan
- HVAC Controls are in Place
- An Eaton power monitoring system is in place for 80% of the facilities that measures energy and power quality.



Eaton Energy Solutions: Our Philosophy

*“To help our customers **reduce energy consumption, operating costs, and succeed in their sustainability initiatives through energy engineering and technology solutions for the long term**”*

- **Understand Energy Goals & Objectives**
- **Understand the People, Culture & Operations**
- **Perform Facility Audit**
- **Analyze the Audit Report and ECO's with Customer**
- **Develop Energy Project Strategy**
- **Support Past and Current Energy Initiatives**
- **Turn-Key Project Solutions**
- **Measurement & Verification**
- **Financial Options that include Performance Contracting**



Energy Solutions Business Current Capabilities



Eaton's Energy Solutions Business promotes and supports a **holistic** approach to Energy that starts with senior leadership and cascades down throughout all levels of an organization – grounded by a **strategic energy management vision and plan**. We will address People/Culture (Behavioral), Operations/Maintenance, and Technology ideas – that when combined as an **integrated strategy** – will not only optimize energy usage and reduce operating cost – but, will create an energy culture – that will deliver **sustained results** and an organizational and operational transformation that is economically and environmentally engaged and accountable.

Typical Audit Focus Areas...

- Existence of energy management plans and policies
- Lighting, HVAC, Gas, Water, Compressed Air, Steam
- Boiler efficiencies and leaks
- Chiller and refrigeration coils inspection
- Temperature control systems analysis
- Lighting fixture and lamp count and wattage consumption
- Plumbing fixture leaks
- Insulation leaks/air leaks around windows etc.
- After-hours and weekend light, heat and chilling
- Roof weaknesses causing loss of heat and cold air
- Power supply analysis of power quality, switchgear, capacitors, emergency power, etc.
- Analysis of water treatment procedures
- Analysis of your energy consumption patterns
- Analysis of energy bill accuracy, rate schedules, tariffs, penalties



Light



HVAC



Production



Special Equipment



Refrigeration



Data processing

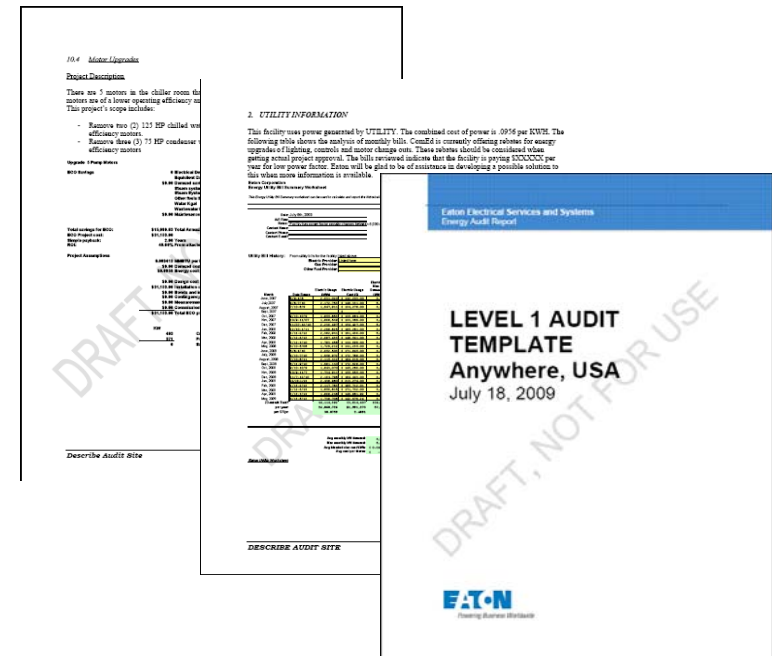
What steps are performed in a comprehensive Audit?

1. Understand customer goals and objectives
2. Understand the people, culture & operations
3. Collect and analyze historical energy use, supply agreements and rates
4. Study the building and its operational characteristics.
5. Review of the installed technology including application and efficiency
6. Review of major system interrelationships and interactions
7. Review of system control technologies and operation strategies.
8. Identify potential modifications and/or operational strategies that will reduce the energy use and/or cost.
9. Review of measurement and verification opportunities and strategies.
10. Perform an engineering and economic analysis of potential modifications and operational improvements.
11. Prepare a rank-ordered list of appropriate modifications and/or operational improvements..
12. Prepare a report to document the analysis process and results.



How are Energy Audits Used?

- Identify Energy Conservation Opportunities (ECO's) that when implemented reduce energy consumption and/or energy cost.
- A financial assessment to help facilitate prioritization and implementation decisions.
- Information and/or knowledge that can be used to achieve actionable, measurable and sustainable results.
- Rank order the ECO's from immediate no\low cost improvement to technically and financially viable projects that deliver longer term sustained value and cost reductions.
- They provide knowledge that is used to allocate resources, make funding decisions, drive energy management strategies and planning.
- They validate that energy management program initiatives and improvements are effective **and** being sustained.



Financial Example

ECO Name	Energy Savings / Yr								Project Information				
	kwh	KW	ELEC \$	Demand \$	NG Therms	NG \$	Others \$	Total \$	Cost \$	ROI %	Maint Costs	SPP - Yrs	\$ Saved / Yr.
Install HVAC Controls	1,051,316	388	\$82,213	\$4,370	1,938	1877.44367		\$88,461	\$131,100	69.24%		1.48	\$88,461
Lighting	241,831	56	\$18,911	\$7,605	1,052	\$ 1,020	\$ 4,280	\$31,816	\$132,687	22.15%		4.17	\$31,816
Paint Ovens Gas Burners Upgrade					32,777	\$ 31,753		\$31,753	\$58,743	55.44%		1.85	\$31,753
Wash Tunnel Motors VFDs	240,712		\$18,824					\$18,824	\$89,184	18.50%		4.74	\$18,824
Compressor Heat Recovery					14,955	\$ 14,487		\$14,487	\$47,150	30.20%		3.25	\$14,487
Compressed air Leak Program	62,968		\$4,924					\$4,924	\$2,100	236.67%	\$1,000	0.43	\$4,924
Plug Power - Monitors	26,313		\$2,058					\$2,058	\$2,100	100.08%		1.02	\$2,058
Exhaust Fans	23,920		\$1,871					\$1,871	\$1,500	126.89%		0.80	\$1,871
Compressor Flow Controller	16,535		\$1,293					\$1,293	\$7,500	13.28%		5.8	\$1,293
Cooling Fans	15,466		\$1,209					\$1,209	\$0			0	\$1,209
Total	1,679,061	445	\$131,303	\$11,976	50,722	\$49,137	\$4,280	\$196,695	\$472,064	42.34%	\$1,000	2.40	\$196,695

Real World Comparisons

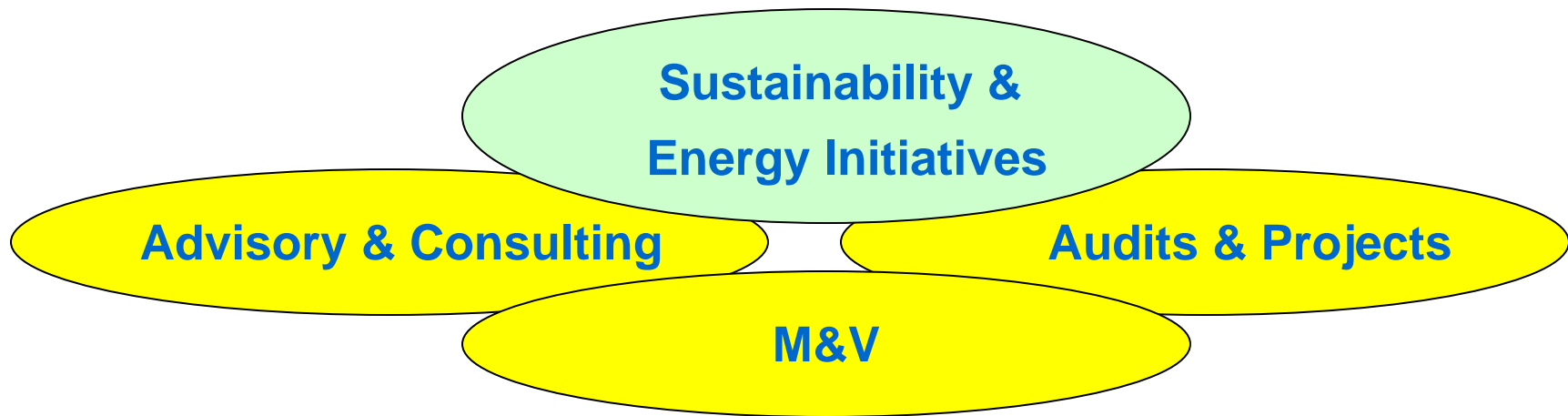
Equivalent to:	removing	378	cars from the road each year
	conserving	194,760	gallons of gasoline each year
	conserving	3,990	barrels of oil each year
	conserving	227	households worth of electricity each year
		43,490	tree seedlings allowed to grow for 10 years each year
		14	acres of forest preseverd from deforestation
	conserving	9	railcars of coal
	recycling	586	tons of waste rather than landfilling

Not All Audits Are Equal....

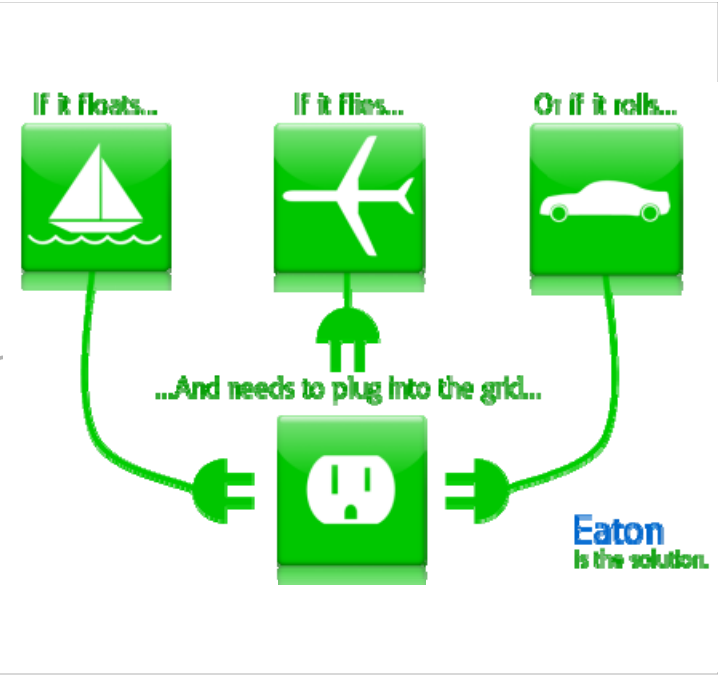
- A lot of companies state they perform “Energy Audits.” This can range from billing review of a single energy source only, lighting audits only, etc.
- These individual audits can very quickly dilute the overall project opportunity for a customer.
- This “cherry picking” – or “short term gain” approach – does not take advantage of a bundled solution that still meets the project funding criteria – while fully optimizing the energy cost savings and reductions.



Remember...



- Without a plan you cannot optimize your savings
- An audit by itself will not achieve anything
- Savings are only achieved after implementation
- You must measure and verify



Eaton Electric Vehicle Charging Stations

Eaton EVSE Offering

- Eaton's Pow-R-Station™ supplies the AC and DC power connection between the grid and the electric vehicle
- Styles to meet any **location need**:
 - Wall-mount for a garage or parking deck
 - Pedestal for a public street side or parking lot
 - Cordset for convenience charging anywhere a standard outlet is available
- Styles to meet any **weather condition**:
 - NEMA-4X rated for level 2, NEMA-3R rated if there is a level 1 exposed outlet
- Styles to meet any **power need**:
 - Level 1: 120V / 15-20A
 - Level 2: 240V / 20-80A
 - Level 3: (DC Quick Charge) 480V/200A
- Meets all applicable **standards**:
 - SAE J1772™ Connector
 - National Electric Code Article 625
- Installation services to meet any **application**:
 - Residential through Eaton Certified Contractor Network
 - Commercial and Design/Build through Eaton Electrical Services & Systems



The graphic is a vertical banner with a black top section containing the Eaton logo and tagline. Below is a green section with the title 'Electric Vehicle Supply Equipment (EVSE)'. The main body is divided into three horizontal sections, each with a background image and text. The top section shows a house and lists 'Level 1' charging with an 8-12 hour charge time and two product options. The middle section shows a parking garage and lists 'Level 2' charging with a 3-6 hour charge time and two product options. The bottom section shows a gas station and lists 'Level 3' charging with a 15-minute charge time and one product option.

EATON
Powering Business Worldwide

Electric Vehicle Supply Equipment (EVSE)

Product Offerings

Level 1 Charge Time: 8-12 Hours

- Pow-R-Station™ Cordset EVSE
- Pow-R-Station Pedestal





























Level 2 Charge Time: 3-6 Hours

- Pow-R-Station Wall-Mount EVSE
- Pow-R-Station Pedestal EVSE[®]

Level 3 Charge Time: 15 Minutes

- Pow-R-Station Rapid Charge EVSE[®]

Why Eaton for Electric Vehicles ?

Experience	Auto Company	Powertrain Company	Battery Company	Charger Company	Eaton
HEV/EV Powertrain					
Vehicle Controls					
Motor/Generator controls					
Battery Cells					
BMS					
Power Electronics and Harness					
Clutch and Drivetrain					
Renewable (Wind/Solar etc)					
Grid power mgmt.					
Electrical infrastructure					
Commercial power mgmt.				?	
Smart Metering				?	
Charging Station					

Thank you!

