

Introduction to Class 4 Fault Managed Power Systems (FMPS)



Who is VoltServer?

Inventors of Fault
Managed Power

10 years experience
1,000+ installations
Global deployments

Approved and Deployed:

- All Tier-1 US mobile operators
- Top 6 US Neutral Host 3POs
- Across all North American OEM Wireless Platforms



1K+
installations

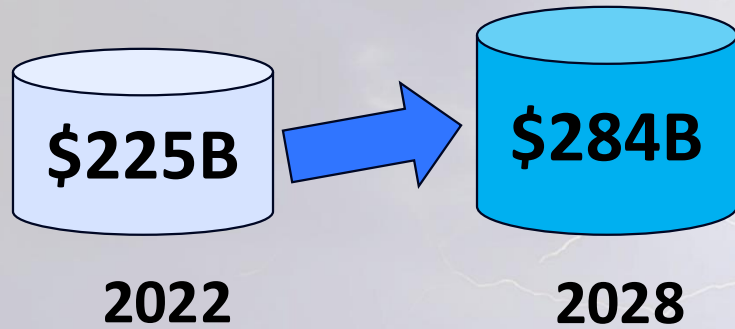
40K+
circuits

10+ Yrs
Digital Electricity
deployment
experience

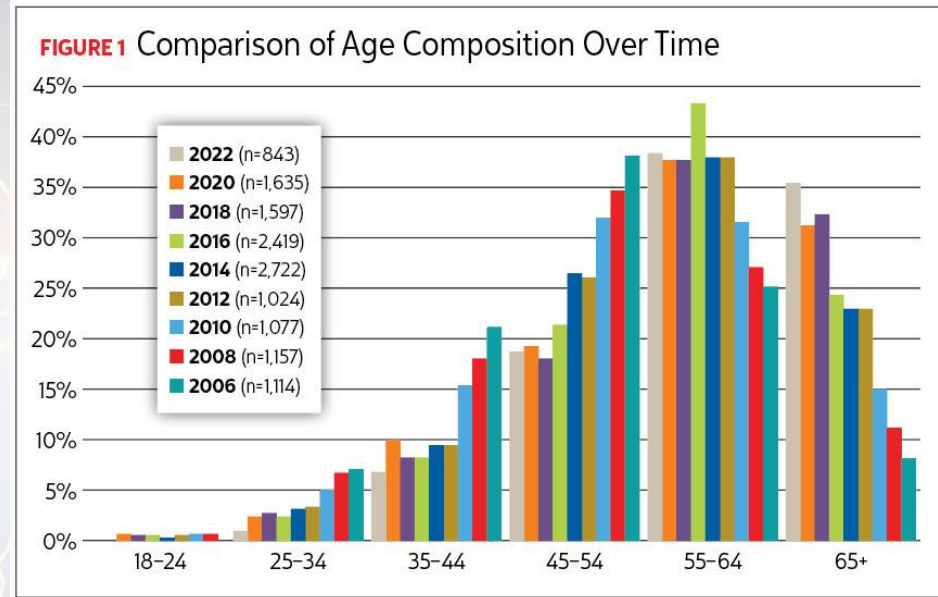
What's wrong with the "old way"?

Demand For Electricians

26% Increase
3.9% CAGR



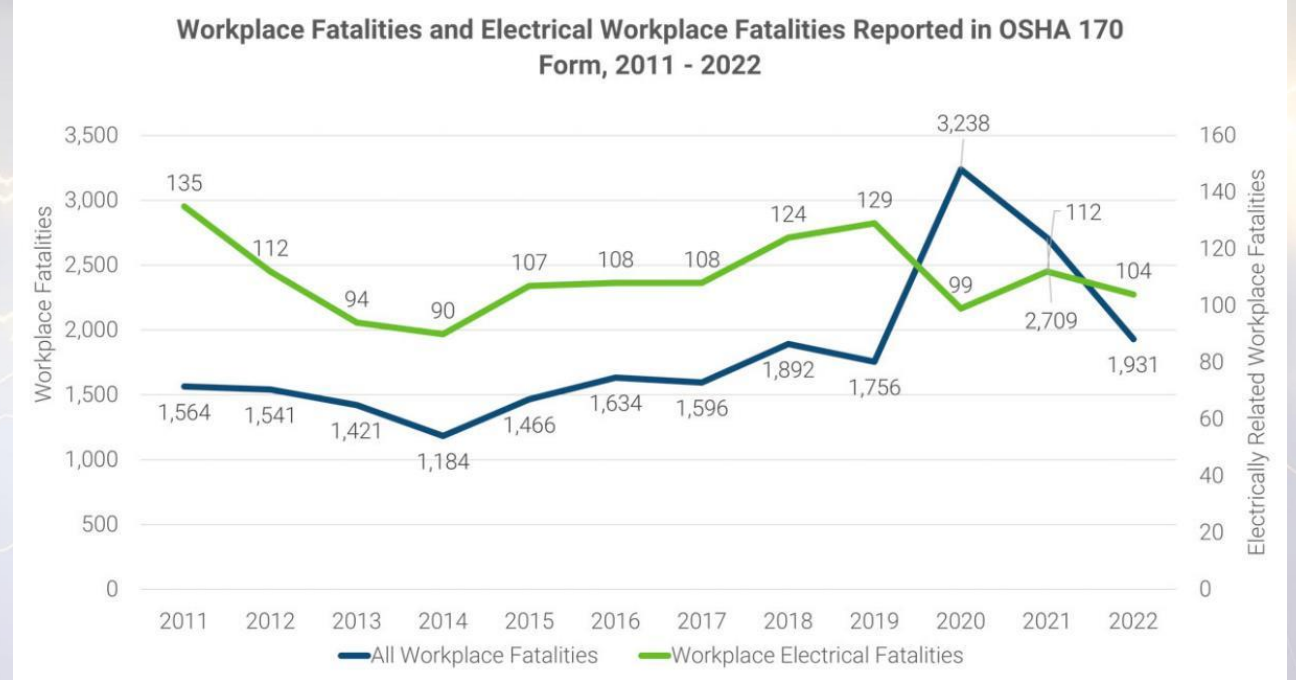
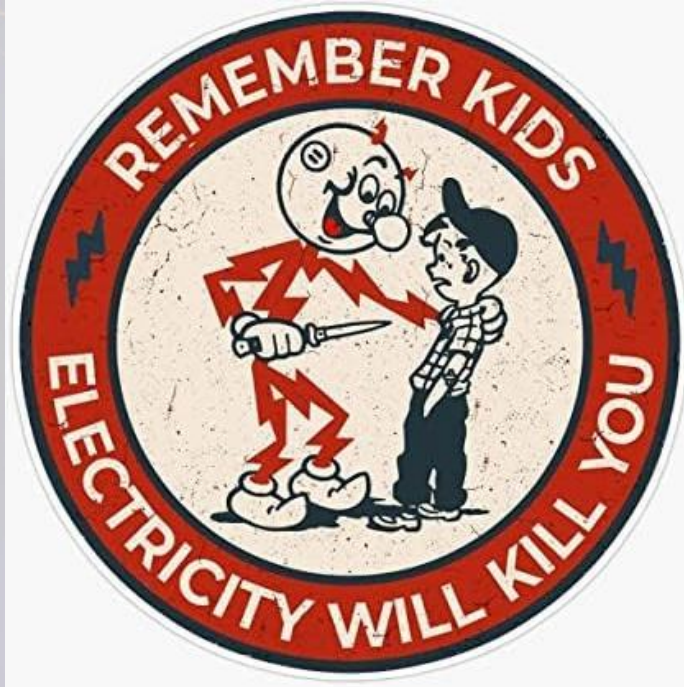
Shrinking EC Work Force



"The electrical workforce is predicted to shrink by 14% by 2030."

-Associated Builders and Contractors and NECA

The SHOCKING TRUTH



The Need for Sustainability



SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY 	2 NO HUNGER 	3 GOOD HEALTH 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION
7 CLEAN ENERGY 	8 GOOD JOBS AND ECONOMIC GROWTH 	9 INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION
13 PROTECT THE PLANET 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE AND JUSTICE 	17 PARTNERSHIPS FOR THE GOALS 	 THE GLOBAL GOALS

FMP Solves These Challenges

Increased Demand



Decreased Supply



+

Faster Installation Methods Needed



HAZARDOUS VOLTAGE



AC is Dangerous



80% less than 120VAC
65% less than 240VAC



- Installs up to 50% faster
- Use existing data pathways
- 1 contractor pulls 1 cable for Power & Data
- Permits/conduit typically not required



- FMPS stop hazardous currents within milliseconds
- Eliminating the fundamental dangers of AC and HVDC electricity.



- Less mined material
- Less energy for manufacturing & shipping
- Less wasted material

Our Partners

Technology



Integrated/Embedded



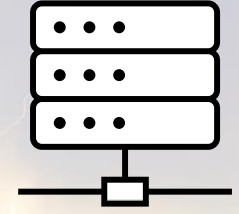
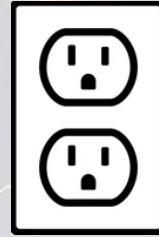
Strategic partners/investors



Distributors



Today's Power Options

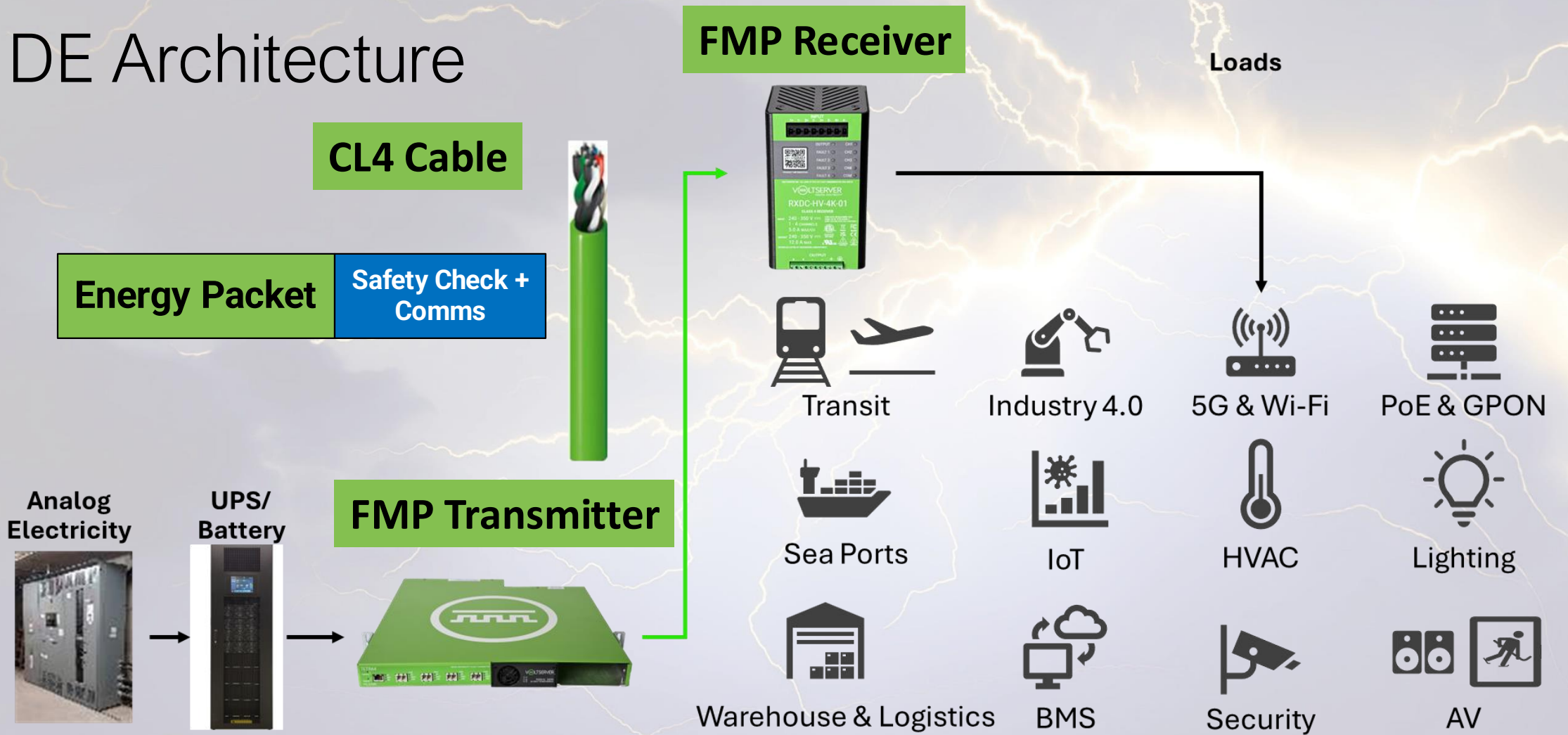


Attribute	AC Line Voltage	PoE & LVDC
High Power (kW)	✓	✗
Safe	✗	✓
Long Distance	✓	✗
Rapid Installation	✗	✓
Low Install Cost	✗	✓
Intelligent Control	✗	✓
Easy to Adapt	✗	✓

FMPS Combines the benefits of AC and LVDC

Attribute	AC & HVDC	PoE & LVDC	FMPS
High Power (kW)	✓	✗	✓
Safe	✗	✓	✓
Long Distance	✓	✗	✓
Rapid Installation	✗	✓	✓
Low Install Cost	✗	✓	✓
Intelligent Control	✗	✓	✓
Easy to Adapt	✗	✓	✓

DE Architecture



Traditional vs. FMP



Electrical Panel



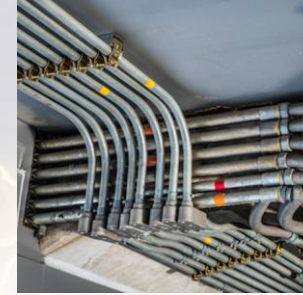
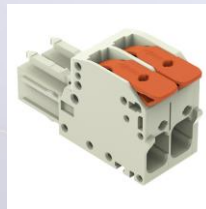
Transmitter



Breaker



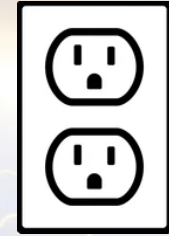
Transmitter
Channel



Pipe & Wire



Structured
Cable



Receptacle



Receiver



Wireless Case Study: Hard Rock Stadium, FL

“ VoltServer has become a key partner for us, and we have several instances of Digital Electricity™ in some of our marquee properties. – Tormod Larsen, VP and CTO, ExteNet ”



- ✓ 4G & 5G DAS
- ✓ Wi-Fi



- ✓ 700,000ft of Belden DE cable
- ✓ Remote locations up to 2,500 feet
- ✓ Centralized backup power plant

PoE IDF Case Study: Westfield Schools, NJ

“ Using traditional ups solutions, routine battery replacement costs alone would have exceeded the initial project cost within 5-7 years. – Joseph Marateo, Westfield Assistant Network Manager ”



- ✓ K-12 Public School District
- ✓ 10 buildings across the township
- ✓ Wi-Fi, security, VOIP, lighting, digital signage, PA system

- ✓ 60kW of loads
- ✓ >\$10k CapEX saved
- ✓ Enduring OpEx savings

PoE Zone Case Study: Mouser Warehouse, TX

“

This is revolutionary!

– Farukh Aslam, Real Estate Developer in Fort Worth and CEO of Sinclair Digital

”



- ✓ 400,000+ sq-ft
- ✓ 3,500+ LED light fixtures
- ✓ No IDF closets required

- ✓ ISO 14001:2015
- ✓ Reduced carbon footprint
- ✓ Reduced operational costs

Smart Pole Case Study: Manchester, UK

“*VoltServer's Digital Electricity™, is a transformative technology, significantly reducing the total cost of ownership of last mile communication networks and facilitating greater service enablement.*”
– Mark Kellett, CEO of KelTech IoT



- ✓ “Last mile” Power & Data
- ✓ Lighting, sensors, security, 5G, FWA, Wi-Fi, IoT, EV chargers...
- ✓ Turn-key solution via partners

Transit Case Study: London Underground, UK

“ VoltServer's Digital Electricity is well equipped to fill the gap between the two conventional extremes of high-powered, high-risk AC power circuits and low power, safe PoE. ”
-Paritosh Doshi, Senior Research Analyst, Frost & Sullivan



- ✓ 5G tunnel coverage
- ✓ 250mi (400km) of tunnels
- ✓ 270 stations
- ✓ Remotes > 1km from head-end

- ✓ Single cable for Power & Data
- ✓ Single Centralized UPS
- ✓ Faster deployment, better for limited maintenance schedules

Smart Building Case Study: Circa Resort, NV

“ *The VoltServer team provided top-notch support throughout the deployment cycle to our construction teams all the way up to the opening.* -Greg Stevens, Owner of Circa Resort and Casino ”



- ✓ PoE IDF & Zone Architecture
- ✓ 1.25 million square feet
- ✓ 777 rooms and suites
- ✓ DE powers guest rooms, lighting, DAS, Wi-Fi
- ✓ Centralized backup power

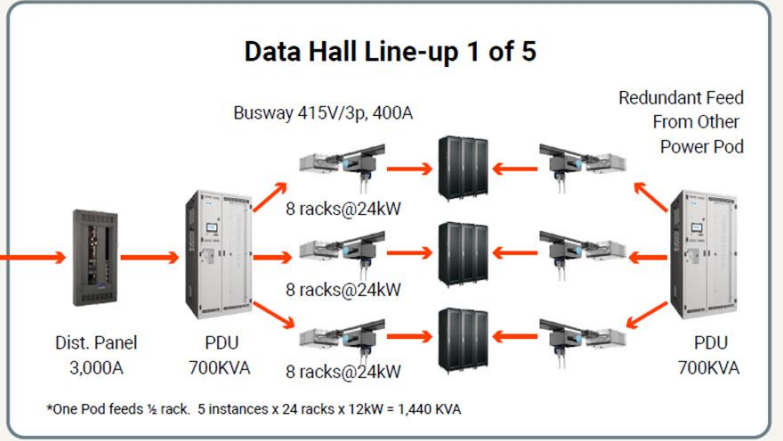
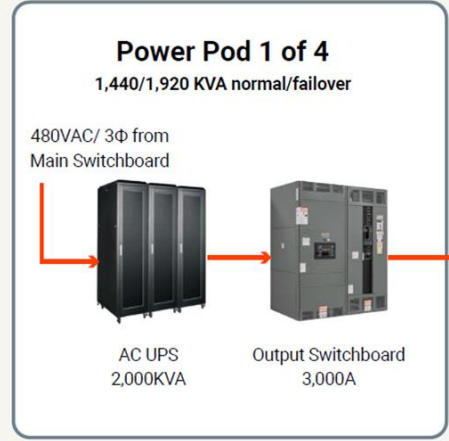
FMPS crystal ball...

Data Centers

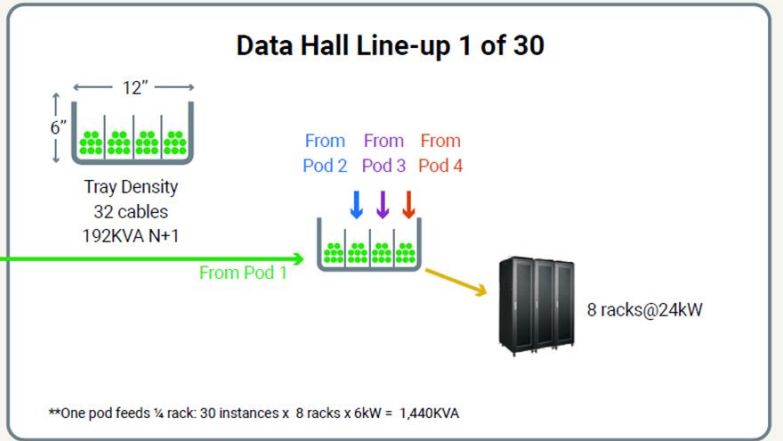
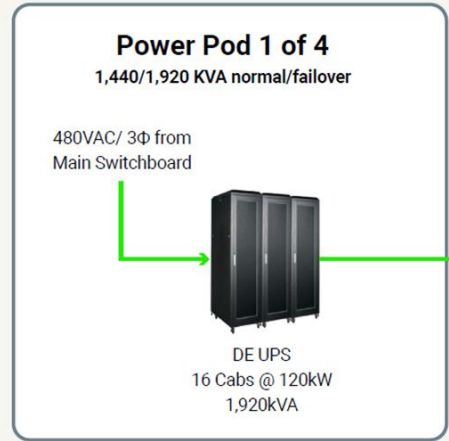


~6MVA Data Center Architecture Comparison

Traditional AC



Digital Electricity (DE)



FMP crystal ball...

Electric Forklift/AGV/AMR Chargers

Item	Grid	Solar
Solar Optimizer	-	99.1%
Inverter	100.0%	97.0%
480VAC Panel	99.5%	99.5%
480VAC wiring (50m)	97.7%	97.7%
Charger	93.0%	93.0%
SYSTEM EFFICIENCY	90.4%	86.9%

Item	Grid	Solar
Solar Optimizer	-	99.1%
480VAC Panel	99.5%	99.5%
DE Transmitter	95.0%	95.0%
DE Wiring (50m)	99.6%	99.6%
DE Receiver	99.0%	99.0%
TOTAL EFFICIENCY	93.2%	92.4%
EFFICIENCY INCREASE	2.8%	5.5%

THANK YOU!

Visit the PEG demo table

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