



PV AMPS

PV AMPS SERVICES BROCHURE

*3RD PARTY ENGINEERING
INDEPENDENT PERFORMANCE TESTING
SOLAR + STORAGE ASSETS*



PVAMPS

LAUNCH > VERIFY > OPTIMIZE

PV AMPS SERVICES

1 | INTRODUCTION

- 1.1 | ENGINEERS IN BOOTS
- 1.2 | MULTISTATE LICENSURE

2 | LAUNCH

- 2.1 | ENGINEERING FOR FINANCIAL VIABILITY

3 | VERIFY

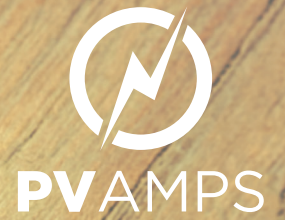
- 3.1 | PLANNING TO PASS

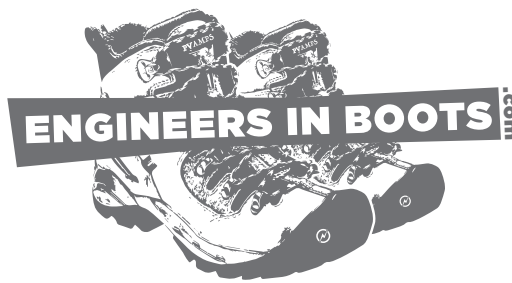
4 | OPTIMIZE

- 4.1 | ASSET INTELLIGENCE

5 | TRAINING

- 5.1 | TAILORED COURSEWORK FOR YOUR TEAM





PV AMPS assists Developers, EPCs, Owners, Investors, O&M teams, and Insurers to Launch, Verify, and Optimize Distributed and Utility Scale Solar + Storage Projects across North America. PV AMPS is a proactive, solutions driven, multistate licensed Independent Engineering consultancy that implements transparent, collaborative, and proven processes to anticipate, address, and navigate life-cycle challenges.

LAUNCH - Technical Development, Preconstruction Engineering & Due Diligence

VERIFY - In-Field Validation, Performance Testing & Certifications

OPTIMIZE - Asset Intelligence, System Forensics & Production Evaluations

EXPERIENCE IN EVERY PROJECT PHASE WITH EVERY STAKEHOLDER

With decades of engineering, hands on troubleshooting, and in-the-field experience, we create processes and tools that improve design, planning, and operations of new and existing assets.

- Experience Based Solutions to Anticipate, Address & Navigate Project Challenges
- Holistic View Minimizes Risks, Costs & Frustrations At Each Project Phase
- Curated Resource Network Can Be Leveraged to Drive Projects Forward

PROJECT LIFE-CYCLE SOLUTIONS

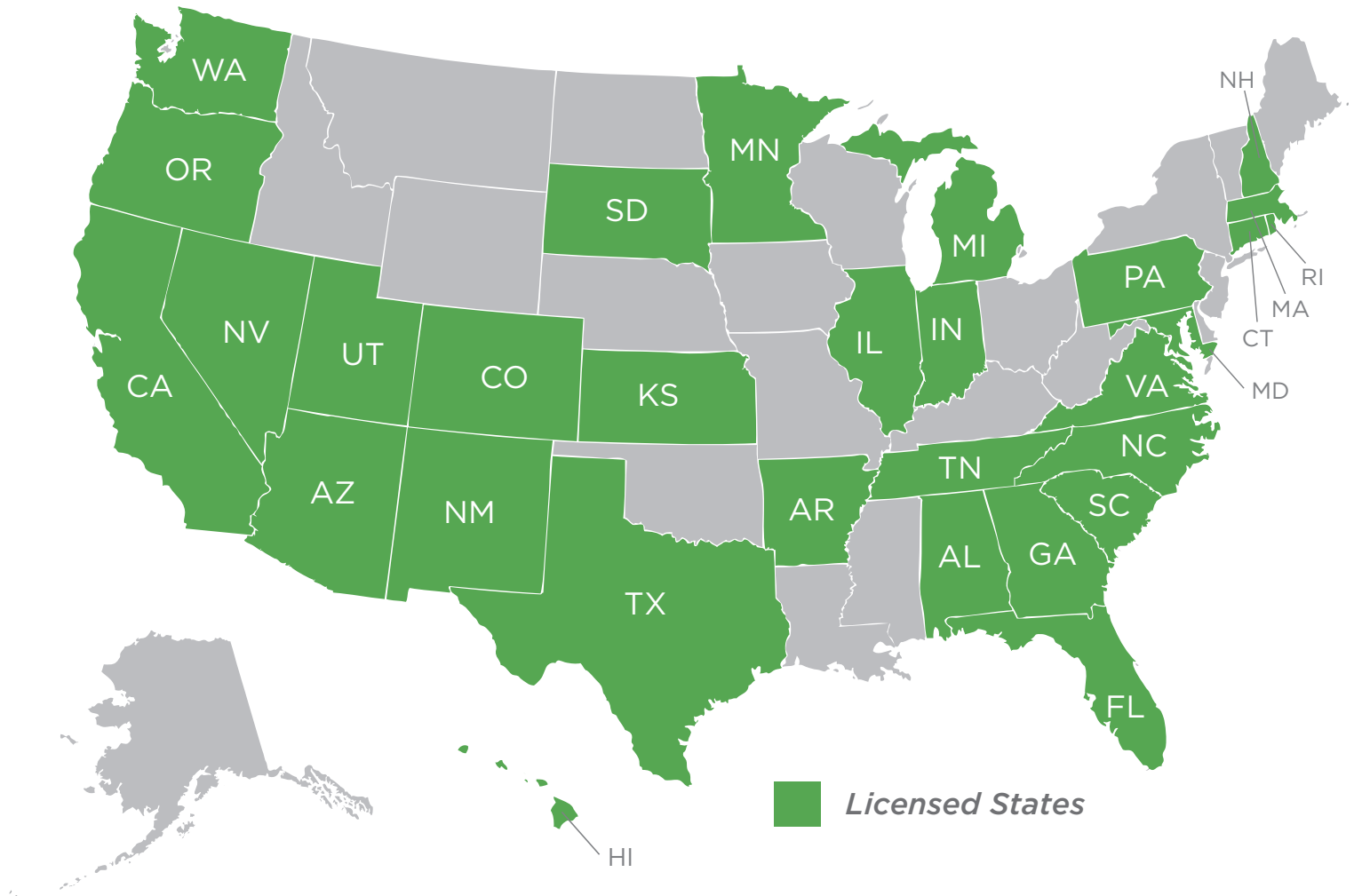
- Analytics Tools Accelerate the Identification & Resolution of Performance Issues
- Curated Resource Network Can Be Leveraged to Drive Projects Forward

PROVEN PROCESSES

- Processes Incorporate Lessons Learned from the Field, Minimizing Risks & Costs
- Eliminate Wasted Time Using Gated Workflows to do the Right Steps in the Correct Order

*PV AMPS IS YOUR
“ENGINEERS IN BOOTS”*





MULTISTATE ENGINEERING LICENSURE

Our founder and Principal Engineer, Anastasios Hionis, is a licensed Mechanical & Electrical Engineer in California. He also holds Professional Engineering (Electrical) licenses in the following states: AL, AR, AZ,, CO, CT, FL, GA, HI, IL, IN, KS, MA, MD, MI, MN, NC, NH, NM, NV, OR, PA, RI, SC, TN, TX, UT, VA, WA

LAUNCH

The key to any project is establishing financial viability for potential investors as quickly as possible. PV AMPS assists our clients with Technical Development, Preconstruction Engineering, and Due Diligence services to evaluate a sites potential, navigate challenges, and lay the foundation for project advancement. We Engineer Financial Viability.

TECHNICAL DEVELOPMENT

- Site Feasibility & Risk Assessment
- Equipment Layouts, Single Line Diagrams & Electrical Designs
- Energy Production Models & Weather Files
- Interconnection Applications
- Bid & Specifications Review & Development
- System Cost Analysis
- PPA & Contract Review
- Third Party Engineering Support
- Limiting Overproduction Designs
- Reduction of Unnecessary Costs

PRECONSTRUCTION ENGINEERING

- Plan Reviews - Electrical, Structural & Civil
- Permit Packages and EOR Services
- System Design Optimization
- Value Engineering & QA/QC

DUE DILIGENCE

- Contract Compliance & Gap Analysis
- Equipment Evaluation
- Planning Guidance for Performance Testing
- Code Requirements

ENGINEERING FOR
FINANCIAL VIABILITY

VERIFY

Our team assists in the preparation for Performance Testing and Commercial Operations through our transparent and collaborative planning process, validation of field sensor installation, and identification of construction defects. Our process, analysis tools, and field experience accelerate the identification and resolution of performance issues. With the site 100% operational, we lead performance testing and can review site documentation to certify readiness for commercial operation.

FIELD FORENSICS

- Unified Field Investigations Based on Data Analysis
- Document Wire Management & Field Issues
- Determine Root Causes of Plant Inefficiencies
- Troubleshooting Equipment & Design Defects
- Minimize Time to Identify & Correct Construction Defects

DAS & MET VALIDATION

- (Re)Commission Weather Sensors & Power Meters
- Meteorological Sensor Alignment & DAS Validation
- DAS & Equipment Point Mapping & Naming
- Managing Vendor Coordination

PERFORMANCE TESTING

- Contract Review & Evaluation
- Test Standard Selection (ASTM E-2848-13, PV USA, IEC)
- Develop Performance Test Energy Model
- Evaluation Tool Development
- Performance Test Calculation & Reports

CERTIFICATIONS

- Mechanical Completion
- Commercial Operation

PLANNING
TO PASS

OPTIMIZE

Is your portfolio optimized for maximum return? PV AMPS combines design engineering, field expertise, and specialized data analysis to maximize asset revenues and valuation.

SENSOR & DATA ANALYSIS

- Data Integrity, Quality & Validation Assessments
- System Level & Peer-to-Peer Comparisons
- Fault Impact & Energy Loss Studies

EVALUATIONS & FORENSICS

- Annual System Audits
- Yearly Operational Readiness Certification
- System Evaluation for Valuation at Time of Sale
- Performance Vitals & Analytics
- Troubleshooting Lost Production
- Ongoing Performance Analysis

OPTIMIZATION CONSULTING

- Plant Design & Documentation Review
- O&M Action Plans to Maximize Availability & Lower Costs
- True-Up Payment Analysis & Reports
- Plant Audits Inform Your Bids & Contracts
- System Rehabilitation with Design & Re-power Options

ASSET
INTELLIGENCE



TRAINING

Training keeps your team up to date with evolving best practices and reduces project risk by learning from real-life project challenges. We offer a one-day course for Pre-Construction and Performance Testing. Learn how to avoid common pitfalls using an open, transparent, and collaborative process. PV AMPS Training Teams will come to your office or project site, and train your team with custom designed workshop content.

WORKSHOP TOPICS

- Planning for Performance Testing
- Raw Data Inspection & Filtering
- Field Crew Coordination to Capture As-Built Conditions
- Performance Test Standards & Contracts
- Testing Standards (PR, ASTM E2848-13 & PV USA)
- Contract Negotiation and Risk Allocation
- Creating a Performance Testing Plan & Evaluation Tools
- Setting Up a Test Specific Production Model to Accurately Reflect the System
- Post Processing Model with As-Built Information
- Process Framework to Involve Stakeholders & Establish Milestones
- Validating Sensors & Meters, Lessons Learned

TAILORED
COURSEWORK
FOR YOUR TEAM



PVAMPS

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