



## Tailored Solutions and Services for Critical Facilities

### The HP&D Advantage

Our experienced and talented team of employee-owners delivers quality-assured professional services, bankable expertise, and results-oriented solutions. We specialize in complex electrical and mechanical systems with a special focus on data centers and critical facilities.

Our staff comprises electrical and mechanical licensed Professional Engineers (PEs), Engineers In Training (EITs), graduate engineers, electricians, technicians, systems integrators, project managers, and support professionals.



### Testing & Commissioning Services

#### Electrical Testing

We thoroughly examine each component and consider its place within the whole system to verify it will perform as intended:

- Acceptance Testing
- Maintenance Testing
- Infrared Thermography

#### Electrical and Mechanical Commissioning

Our commissioning services are offered either independently or as part of a comprehensive commissioning solution tailored to your unique environment, needs, and budget:

- Design, drawing and specification review
- Equipment submittal review, commissioning script development, factory witness testing
- On-site assessment of equipment installation
- Functional testing (energized) of individual electrical and mechanical components and systems
- Integrated systems functional coordination, outage behavior, capacity verification, and performance analysis
- Live-site commissioning, re-commissioning, and retro-commissioning

#### QA/QC

Our mechanical and electrical equipment and systems experts tailor a QA/QC approach specific to your unique requirements:

- Manufacturer and factory QA/QC processes and best practices
- Documentation of procedures and time lines
- Sequencing of equipment installation, testing, and start-up
- Contractor oversight
- Start-up assistance
- MEP coordination
- Installation review

## Energy Efficiency Consulting

Our energy specialists help reduce costs, improve uptime and efficiency, cultivate consistency, reduce operational risk, and promote sustainable energy conservation practices:

- Rate, utility bill, and usage trend analysis
- Operations and utility rate structure alignment
- Capacity allocation assessments
- System performance analysis and optimization
- Predictive and single-point-of-failure analyses
- Equipment maintenance impact evaluation
- Optimized facility efficiency verification

## Power Systems Studies

Our studies group offers comprehensive power system analysis and reporting with practical and useful results and recommendations:

- A wide range of studies
  - Arc flash hazard, cable ampacity, short circuit and coordination, load flow, motor start, harmonic analysis, power factor correction, voltage drop, transient analysis, amperage calculation, etc.
- Arc Flash program management
- Standards compliance assessments
  - OSHA, NFPA, IEEE, etc.
- Arc Flash Awareness Training
  - Conducted by an OSHA Authorized General Industry Trainer

## SmartGround® Services

Our comprehensive grounding system design and testing services include:

- Building and substation grounding system design
- Modeling and evaluation of grounding system design
- Testing energized sites
- Site recommendations

HP&D is the exclusive distributor of the SmartGround® Multimeter (SGM), a multi-function instrument that measures a wide range of grounding system parameters.

## Procedures and Safety Training

Classroom, web-based, and site-specific training programs include:

- Site-specific equipment operating procedures
- Employee safety training
- OSHA-required training
- Arc flash hazard awareness
- Procedure gap analysis

## Smart Grid Consulting Services

- Microgrid and interconnection design, analysis, and implementation services
- Industrial automation and communications design and integration
- SCADA/EPMS assessment and implementation
- Operational technology planning and security

## Additional Consulting Services

- Alternative energy and interconnect consulting
- Peer review
- Systems integration
- Protective relaying and control design
- Protective device coordination and settings
- Troubleshooting and issues resolution
- Site assessments
- Power quality assessments
- Forensic evaluations

## About HP&D

HP&D is a customer-driven, employee-owned collaborative team of engineers, technicians, and service professionals. Together, we deliver a unique blend of talent and experience with custom solutions to the challenges you face, the technical expertise you need, the reliable service you deserve, and the quality your customers demand.

HP&D is a subsidiary of Patterson & Dewar Engineers, Inc. (pdengineers.com), which has provided electrical and civil engineering services to electric utility clients since 1947.

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