

NAVIGATING YOUR

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**PROJECT TO SUCCESS!**

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## OUR CLIENTS

We serve utility clients and specialty clients throughout the US including:

- Investor-owned Utilities
- Municipal and Cooperative Utilities
- Commercial and Industrial Facilities
- Cities
- Counties
- Special Utility Districts
- Commercial and Industrial Facilities
- Sanitation Districts
- Federal Government
- Various State Departments
- Private Industry Clients
- Large EPC Contractors



 POWER GENERATION  
ENGINEERING


 SUBSTATION  
ENGINEERING

 CIVIL AND STRUCTURAL  
ENGINEERING

 TRANSMISSION AND  
DISTRIBUTION ENGINEERING

 ELECTRICAL POWER  
SYSTEMS ENGINEERING

 NERC  
COMPLIANCE

 **EQUAGEN<sup>®</sup>**  
ENGINEERS  
ENGINEERING BY INGENUITY

## EXECUTIVE SUMMARY

EQUAGEN is a full-service multi-disciplinary engineering and design firm with a dedicated team of experienced personnel providing a full range of cost effective engineering and design services in substation engineering. It is committed to providing the highest quality engineering to our client.

We also partner with large A&E firms to help them meet diversity spend initiatives. We offer this through professional services, engineering design tasks and studies, thereby reducing your contractual complexity. Our experience, focus on quality, and commitment to on-time delivery ensures your project's success.

### YOUR TEAM OF CIVIL STRUCTURAL AND CONTROL & PROTECTION EXPERTS

TECHNICAL RESOURCE	PERSONNEL
Professional Engineers	7
Engineer in Training / Designer / Drafter	12
Substation Advanced 3D Expert	3
Architect	1

## OUR AFFILIATES

All of our engineering work is performed in accordance with these standard setting bodies where applicable.





## THE EQUAGEN ADVANTAGE

At Equagen, we offer engineering and construction support services in a unique way.

- Talented and knowledge **team**
- **Flexibility** to provide our services the way you want them and be responsive to changing requirements
- **Proven ability** to handle all sizes of projects
- **Consistent quality** on all projects and deliverables



## ENGINEERING DESIGN SAFETY

Safety is factors in the success of our work. Equagen strives to provide safe designs through numerous assessments such as HAZID and 3D model design reviews.



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# Our services in Power Delivery Engineering



## Power Generation Engineering

### Our Power Generation services include:

#### Electrical Engineering Design:

- Switchyard Modification
- Voltage Regulation
- Switchgears

#### 3rd Party Reviews

#### NERC PRC and CIP Compliance

#### Civil/Structural Design:

- Power Blocks Design and Analysis
- Foundation Design and Analysis
- Masonry Structures Design
- Pre-engineered Metal Building
- Piping and Pipe Support Systems
- Seismic Qualifications
- Equipment Anchorage Design



Nuclear



Natural Gas



Renewables



Fossil Fuel



## Electrical Power Systems Engineering

### Our Electrical Power Systems Engineering expertise include:

- Protective Relay Settings Design and Calculations for Transmission and Generation Protection Systems
- Relay Testing and Commissioning Support
- Ensure Compliance with the NERC Reliability Standards Applicable to Protection and Control of Bulk Electric System
- Generator Real and Reactive Power Capability Co-ordination Studies and Testing
- ARC Flash Studies



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# Our services in Power Delivery Engineering



## Civil and Structural Engineering

### Our civil and structural engineering services include:

- Project Specifications
- Site Plans
- Grading & Improvement Plans
- Construction Specifications and Standards
- Construction Estimating and Support
- Structural Design of Power blocks
- Structural Design and Analysis of Transmission Line Towers
- Foundation Design & Analysis
- Structural Steel Design and Analysis of FACTS (SVC, MSCDN, FSC, SynCON, STATCOM), AIS, GIS & HVDC Substations
- Structural Observation
- Seismic Analysis (Static and Dynamic)
- IEEE 693 and 344 Seismic Qualification



## Substation Engineering

### Our Electrical Power Systems Engineering expertise include:

- Concept Design
- Proposal/Bid Preparations
- Bid Evaluation
- Construction Specifications
- Equipment Specifications
- Substation Physical Design
- Grounding Design
- Bus Design
- Lightning Protection
- Civil/Structural Design
- Gas Insulated Substation Design
- Protection & Control Design
- Wiring Design
- SCADA Design



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# Our services in Power Delivery Engineering



## Transmission and Distribution Engineering

### Our civil and structural engineering services include:

- Planning
- Route Selection
- Transmission Line Ratings
- Transmission Line Reconductoring
- PLS-CADD Transmission Line Design Software
- Structural & Foundation Design
- Material & Construction Specification
- Material Procurement
- Complete Design Packages for Transmission & Distribution Projects
- Environmental & Planning Studies
- Line Condition Assessment
- Aerial Line Survey Services
- Cost Estimating
- Optimization
- Permit Assistance



## NERC Compliance


### NERC Reliability Compliance expertise to provide support with the following

- Develop Compliance and Technical Procedures
- Develop and Support To Implement Tools For Self-assessment Process and Corrective Actions Plan
- Support with Nerc Alerts
- Self-certification Process
- Data Submittals
- Mock Audits and Audit Preparation
- Develop RSAWs



**MBE Certified | Minority Owned Business**

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 (919) 480-2747

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# SUBSTATIONS REHABILITATION PROGRAM

## EQUAGEN ENGINEERS

PREPARED FOR:  
PUERTO RICO ELECTRIC POWER AUTHORITY

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