

# Power Delivery Engineering Energy



gai consultants

Transforming  
Ideas for the  
Energy We Use

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## Power Delivery Engineering

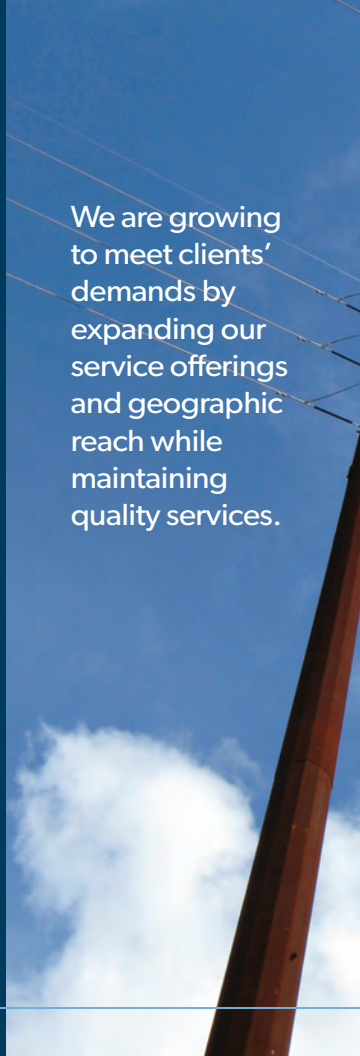
### Focused on Your Goals

By 2040, demand for electric power is expected to increase by as much as 39% in some parts of the United States. Meeting those demands requires strong partnerships with trusted consultants. GAL's broad experience and strategic growth can be an asset when those demands become projects.


Our strongest advantage is our profound understanding of the project lifecycle. With survey, environmental, and design engineering working together in one company, each discipline is informed by the others—resulting in realistic, constructible solutions. To complement this strong base, we have in-house specialists providing niche services—underground transmission line design and threatened and endangered species studies—often eliminating the need to engage other firms.

We understand each client's processes are different, and we tailor our approach accordingly. We do the work the way our clients do the work. Our clients have come to rely on this flexibility and our knowledge of the standards and schedules required on fast-paced projects.

Your goals are important. And if it's important to you, it's important to us.



We are growing to meet clients' demands by expanding our service offerings and geographic reach while maintaining quality services.



We believe our clients have important goals,  
and we make those goals our own.

### **What Distinguishes GAI**

- Survey, environmental, and design engineering services in one company, benefiting clients with more holistic and realistic solutions
- Overhead and underground design specialists that provide clients with more choices
- In-house threatened and endangered species and cultural resource specialists, which eliminates the need to engage other consultants
- Extensive siting, permitting, and expert witness testimony experience
- A company truly invested in improving clients' competitiveness

## Power Delivery Engineering Services

### Transmission and Distribution Line and Substation Design

- Alternative line and cable route evaluations
- Underground line and manhole design (69kV to 345kV)
- Overhead line, pole, tower, and foundation design (34.5kV to 765kV)
- Overhead and underground distribution and manhole design (up to 34.5kV)
- Distribution designs related to line extensions, conversions, step down conversions, AFS, pole replacements, and line elimination (up to 34.5kV)
- Reconductoring and uprating studies and line rebuild designs
- Sag studies, analysis, and design
- Substation siting, permitting, equipment layout, and civil design
- New Distribution Substation Design (up to 345/23kV)
- Substation power transformer, breaker, capacitor bank, and switch replacement design
- Substation increased capacity design- power transformer replacement and addition
- Substation bus, switch, and arrester support structure design
- Protection & Control design
- EPC scope of work development for transmission, distribution and substation projects
- Federal Aviation Administration permitting
- Highway and stream crossing permitting
- Topographic and property surveying
- Construction monitoring, administration, and cost estimating

### Foundation Analysis and Design

- Subsurface investigations and stabilization
- Geologic, subsidence, and landslide assessments
- Foundation testing, analysis, and detailed design
- Applied foundation research and analytical modeling
- Drilled shaft design
- Grillage design
- Pipe pile foundation design
- Foundation retrofit design
- Construction monitoring and in-situ foundation depth determination
- Quality control testing

## Structure Modeling and Analysis

- A-frame, lattice, and telecommunication towers
- PLS-TOWER, PLS-POLE, and RISA-3D modeling
- Tower retrofit and member replacement design
- Structure capacity investigations and stress analyses for new loading conditions
- Catastrophic damage inspections and analyses
- Corten steel evaluations and life span predictions

## Program Management

GAI can act as the overall Program Manager for your project. With survey, environmental, engineering, and other services in one company, we have the ability to see the many risks that could impact your project. We mitigate those risks. GAI oversees land activities, easement acquisition, deed research, and engineering and facility design.



**ONE  
COMPANY**

**SURVEY  
ENVIRONMENTAL  
ENGINEERING**

**60** YRS

of service to the power industry.



## Connect with Our Experts

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## About GAI Consultants, Inc.

Transforming ideas into reality<sup>®</sup> since 1958, GAI is an employee-owned engineering, planning, and environmental consulting firm providing local expertise to worldwide clients in the energy, transportation, development, government, and industrial markets.



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