









Power Delivery



ENGINEERING & TECHNICAL SERVICES






POWER DELIVERY OVERVIEW



Electricity generation and the transmission and distribution of electricity go hand-in-hand. Both are equally important in terms of accomplishing the goal of producing low-cost energy and delivering it efficiently and reliably to the end user.

To provide our clients with a one-stop shop for all their energy services, Segra Inc. helps clients with all their power system needs. Our Power Delivery department specializes in delivering technical solutions for electric transmission lines, distribution lines, and substations.

Segra Inc.'s Power Delivery staff has experience in a broad range of projects from 15-kV feeder additions up through 500-kV transformer replacements. We have designed new and provided construction services for substations, substation upgrades, new transmission lines, line relocations, new distribution feeders, and distribution under-build on transmission lines. Substation projects typically include new or retrofit relays, controls/SCADA, and communication equipment into our clients system. We can provide these services for any portion of a project up to and including a total turnkey package.



SUBSTATIONS

We have experience delivering substation designs for Generator Connection to the Transmission System, Transmission Interconnection, Utility Distribution, and End-user Facility.

Civil & Structural Services

- Physical Arrangement
- Civil Site Design (grading, cut, fill, landscaping, lighting)
- Foundation and Pier Design
- Major Equipment Procurement
- Buildings and Steel Structures
- Roads and Parking
- Permitting Support

Construction Services

- Construction and Erection Contract Management
- Equipment Factory Inspections
- Construction Inspection
- Start-up and Check-out Services
- Equipment Expediting
- Coordinate Training
- Documentation

Electrical Design & Engineering Services

- Electrical One-line Diagrams
- Raceway Layouts
- Energization Procedures
- Protective Relaying and Metering Design and Procurement
- Electrical AC and DC Schematics Design
- Integration of Intelligent Electronic Devices (IED)
- SCADA interface and implementation
- Grounding System Design
- Major Equipment Procurement (transformers, circuit breakers, switchgear, capacitors)
- Packaged Equipment Procurement (bus, insulators, switches, instrument transformers)



Progress Energy, Florida



Ottawa Southeast Substation, Ottawa, Kansas

KCP&L South Harper Substation
Peculiar, Missouri



TRANSMISSION & DISTRIBUTION LINES

Sega Inc. has experience working with: Overhead Transmission Lines, Overhead Distribution Lines, Underground Transmission Lines, and Underground Distribution.



ADM Beaver Channel Transmission Line, Clinton, Iowa



Chanute Transmission Line, Chanute, Kansas

T & D Services

- Transmission & Distribution System Modeling
- Transmission Line Route Selection
- Utilize PLS-CADD design tools
- Construction and Erection Contract Management
- Equipment Factory Inspections
- Equipment Expediting
- Documentation
- Line Design & Engineering - Wood pole lines; Steel pole lines, direct embedded or base plate; foundation design



Columbia Transmission Line
Columbia, Missouri

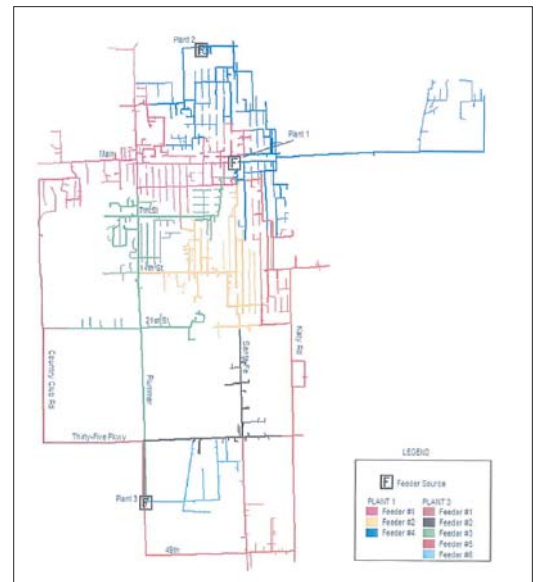
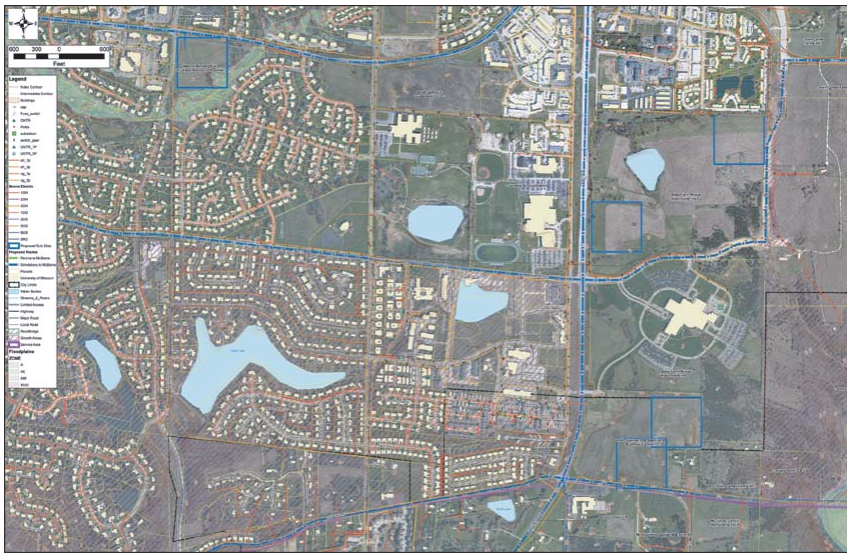
RELATED SERVICES



City Utilities of Springfield
Springfield, Missouri

Planning & Technical Services

- Planning Studies and Reports
- Distribution System Modeling
- Substation Grounding
- Substation Direct Stroke Shielding
- Transmission Line Routing
- Substation Siting
- Conceptual Designs and Budgetary Cost Estimates
- Utility Communications Systems
- GIS System Development



Specialized Technical & Management Services

- Equipment Expediting
- Equipment Factory Inspections
- Major Equipment Procurement
 - transformers, circuit breakers, switchgear, capacitors, control house, relay panels, and transmission poles
- Packaged Equipment Procurement
 - transmission materials, steel structures, bus, insulators, switches, instrument transformers
- Construction/Erection Contract(s) management or Engineering / Procurement / Construction
- Construction Monitoring
- Functional Testing Assistance and Oversight - Coordination
- Energization and commissioning coordination

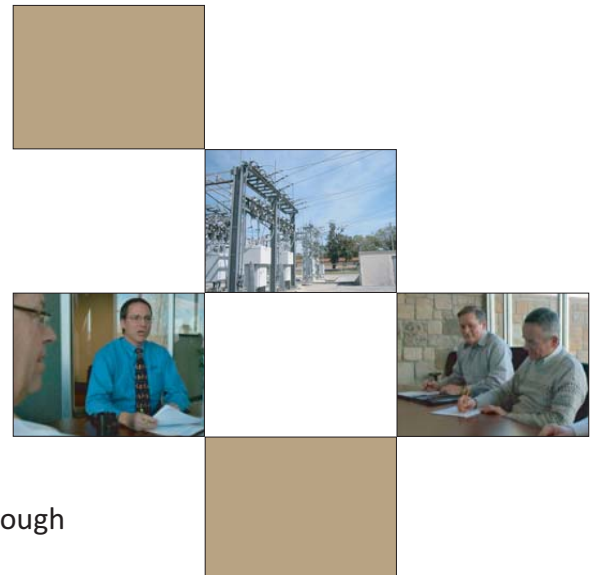
REPRESENTATIVE CLIENTS

City of Bentonville, Arkansas
City of Chanute, Kansas
City of Columbia, Missouri
City of Gardner, Kansas
City of Garnett, Kansas
City of Independence, Missouri
City of Ottawa, Kansas
City of University Park, Texas
City Utilities of Springfield, Missouri
Kansas City Power & Light
Progress Energy, Florida
Seminole Electric Cooperative, Inc.
Spirit AeroSystems
Trigen - St. Louis Energy
Westar Energy

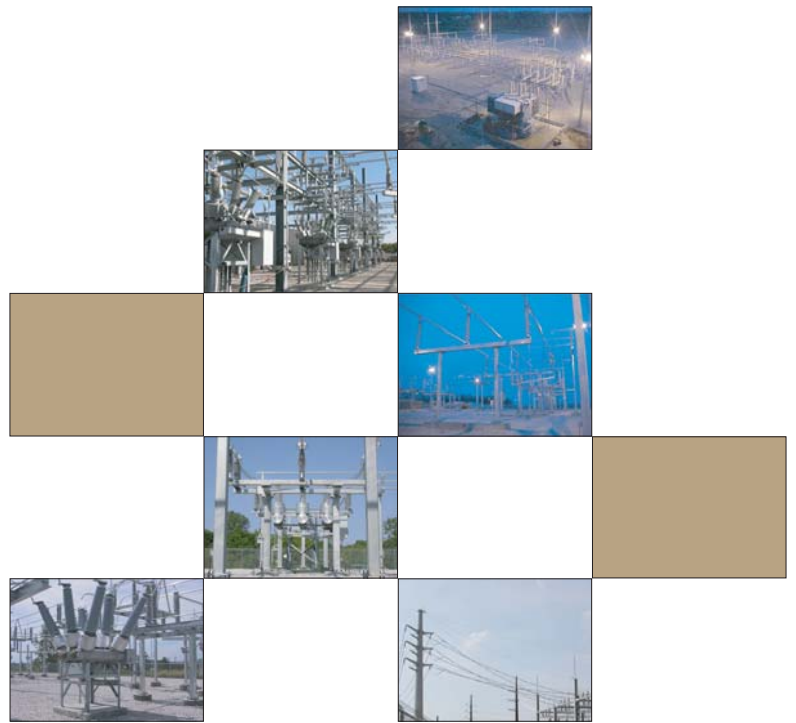
Our seasoned staff has a wide range of project experiences including:

*Medium Voltage to Extra High Voltage,
Distribution Lines, Transmission Lines,
Substations, Communication Systems,
& Scada Systems*

These include involvement from the planning and conceptual stage, through design, construction, and commissioning.



Power Generation
Power Delivery
Air Quality & Environmental
Control Systems



ENGINEERING & TECHNICAL SERVICES

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