

**SUBSTATION**

**TRANSMISSION**

**CONTROLS**

# POWER Engineering



**Lockwood Kessler & Bartlett inc**  
*Consulting Engineers, Founded 1889*

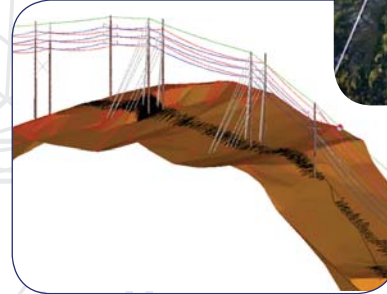
# TRANSMISSION

Integration of years of hands on experience and sophisticated overhead power line design software, such as PLS-CADD®, enables us to provide quick and cost effective transmission line designs, for new routes or rehabilitations of existing routes.

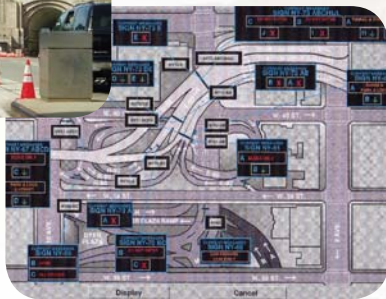
Using digital survey data provided by the client or by utilizing our survey department to digitize topographical maps, 3-D Digital terrain models of the clients' right of way are produced. Our survey department is well versed and willing to either conduct or supervise the clients' right of way survey.

With the model ready, a field team of electrical, civil, structural, and environmental engineers walks the right of way to physically assess the landscape, and discuss any terrain, routing, and environmental issues.

LKB's expertise in PLS-CADD® gives us the flexibility to efficiently compare several options in real time, and analyze our models according to a client's unique structure and wire loading criteria. In house civil and structural departments further enable us to effectively design, analyze, and compare unique structure and foundation designs, in addition to analyzing existing conditions, structures, and foundations.



“LKB recently completed the design for 26 miles of transmission line including structures and environmental permitting in upstate New York.”



“LKB, in a design/build partnership with general contractor, successfully designed, installed and tested a 20,000 point SCADA system for New York's Lincoln Tunnel complex.”

# CONTROLS

LKB's control engineers have solid and wide-ranging experience in the design and development of protective relaying and control schemes for various utilities, industrial, and municipal electrical power systems. We provide detailed design of system one-line and control schematic diagrams, relay and control panel wiring, and interconnections.

In the design process LKB's control engineers apply multi-function, microprocessor based relays for feeder, bus, and transformer protection. We utilize digital meters for instrumentation and metering of electrical power systems. LKB also designs remote, control and monitoring schemes of electrical power systems using PLC-based SCADA systems with fiber-optic or leased line communication links.

LKB has over 25 years experience in providing multi-discipline, all-inclusive engineering design and construction services from Low Voltage to Extra High Voltage. Matching invaluable experience with innovation, we have successfully and consistently presented creative and unique transmission and distribution solutions to major utilities, transit authorities, and municipal, state and federal agencies in the northeastern United States. LKB strictly adheres to all municipal, state and federal codes and also assists clients in acquiring permits for project assignments.

## SUBSTATION

LKB strives for comprehensive substation solutions that start with our electrical, environmental, and civil departments, working closely with each client in site feasibility studies, site plan development, and environmental studies. Studies include the impact of noise and EMF around the proposed substation, comparative EMF and noise level inquiries before and after project completion, and wetland management and restoration.

Substation equipment layout leads to the design of cable and conduit routes, protective relaying and intertripping schemes, short circuit analysis, detailed interface connection schematics, remote control and monitoring, control room design, wiring diagrams, and lightning protection plans. LKB's structural and civil departments provide in house designs for any required structures and foundations. Our construction department is experienced in managing substation construction sites, and has previously managed and commissioned utility turnkey substation projects.

LKB also provides technical support during the bid and post construction period. We prepare substation operation and maintenance manuals, which are used for scheduled and preventive maintenance, troubleshooting and training.



“Recently, LKB has teamed with contracting firms on substation design/build rehabilitation projects throughout New England.”



## Utility clients

- ◆ Con Edison Company of New York
- ◆ Public Service Electric and Gas Company
- ◆ Orange & Rockland Utilities, Inc.
- ◆ Northeast Utilities System
- ◆ Keyspan Energy
- ◆ Long Island Power Authority
- ◆ Central Hudson Gas & Electric
- ◆ National Grid
- ◆ Jersey Central Power & Light
- ◆ Potomac Electric Power Company

