



# POWER GENERATION PROFILE

EMPOWERING ENERGY SOLUTIONS  
FOR THE FUTURE...TODAY

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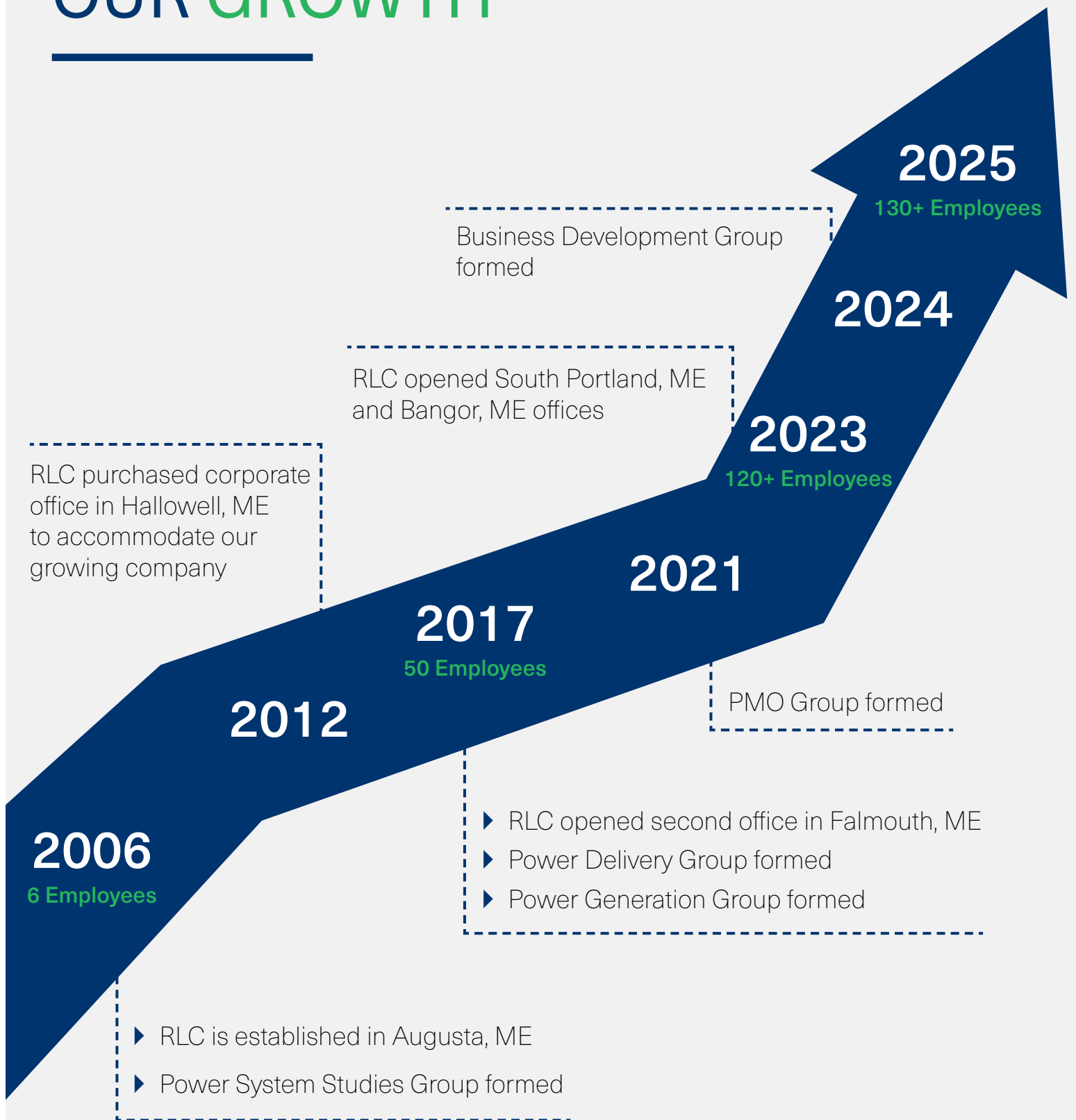
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# OUR GROWTH



# WELCOME TO COMPANY PROFILE

## OVERVIEW & BACKGROUND

RLC Engineering, PLLC (RLC) is an engineering consulting firm located in Maine, offering a full range of services in the electric utility and renewable generation engineering fields, from conceptual planning to final commissioning. RLC opened its corporate office in 2006 in Augusta, Maine and has experienced steady growth and success since. Its customers range from electric utilities, regional grid operators, renewable energy developers, and contractors of electric grid infrastructure projects.

## OUR MISSION

To provide professional engineering consulting services and innovative solutions for our clients, while providing an enriching work environment that encourages personal development and job satisfaction for our employees.

## CORE VALUES

RLC's core values are the foundation of our culture. They are genuine, thoughtful values that guide our employees to work towards the same goals and support the company's vision and shape our culture.

## WHO WE ARE

RLC's team of more than 120 technical professionals provide innovative engineering solutions, tailored to fit our client's specific needs. Our engineers bring extensive experience in the study, planning, and design of complex power systems, understanding the need for efficiency, flexibility, resiliency, attention to detail, and value of time and money invested.

# OUR CORE SERVICES

RLC provides fully engineered solutions including planning, feasibility studies (site selection, utility interconnections, cost estimating), detailed design, interconnection applications, permitting, and power generation facilities, and industrial plants.

With our comprehensive range of services, RLC will provide expert consulting and engineering services to meet your technical, schedule, and budgetary requirements.

## POWER SYSTEM STUDIES

- Transmission System Studies
- Distribution System Studies
- Interconnection Studies

## POWER DELIVERY

- Substation Design
- Transmission Line Design
- Protection & Control
- Civil & Structural Design

## POWER GENERATION

- Solar Generation
- Wind Generation
- Energy Storage
- Renewable Generation Studies
- Operations & Maintenance

## POWER ENGINEERING

- Mechanical Design Services
- Energy Management
- Microgrid Design Support
- Power Distribution Design



# POWER GENERATION



- ✓ Detail Design
- ✓ Site Layout and One Lines
- ✓ Interconnection Applications
- ✓ Generation and Emergency Generation Analysis
- ✓ Performance Guarantee Testing Analysis
- ✓ Grounding Analysis
- ✓ Harmonics Analysis
- ✓ Reactive Compensation Analysis
- ✓ Testing and Commissioning Support, Including, Relay Testing, and IV Curve Tracing
- ✓ Area and Site Feasibility Studies with Focus on Infrastructure
- ✓ Short Circuit, Load Flow, and Arc-Flash Hazard Analysis
- ✓ Generation and Emergency Generation Analysis
- ✓ Steady State, Stability, and Transient (EMT) studies
- ✓ Training Owner Personnel
- ✓ System Performance Monitoring
- ✓ Operations and Maintenance Support (O&M)
- ✓ Generation Modeling
- ✓ Circuit Breaker Rating Analysis
- ✓ Detailed Loss Analysis
- ✓ Project Modeling Analysis
- ✓ Motor Start Analysis
- ✓ Prospecting/Siting Analysis

RLC has extensive experience in the power generation industry and have played a key role in the development of over 4 GWs of solar, wind, and energy storage throughout the Northeast and Mid-Atlantic United States. We provide engineering solutions for complex power systems that serve a variety of energy related technologies in the development of renewable energy.

Our engineers provide in-depth knowledge of electrical systems and can pinpoint problems and provide cost-effective solutions to power system operators including specialties such as photovoltaic, wind, battery storage, standby, and emergency generation. Our engineering services cover the full life of a system from concept and feasibility to design and commissioning, as well as maintenance support. Detailed engineering services include construction drawings and construction support to ensure the installation complies with the approved drawings. Our power generation engineers can provide independent engineering functions as a third party and can investigate why your operating system is not performing to specifications.

# SOLAR GENERATION SERVICES

Our solar experience on ground-mounted, landfill-mounted, rooftop and canopies over parking lots is extensive and ranges from small- to large-scale projects. We can assist on behind-the-meter projects where all the energy is consumed within the host system or on those projects exporting power to the grid and into the energy markets. We have provided developers with prospecting and development assistance for over 2 GWs of systems throughout the Northeastern United States and Mid-Atlantic. Our solar engineering services cover the full life of a system from concept and feasibility to design and commissioning as well as maintenance support. Our engineering staff is well versed in the latest design, modeling and testing software.

## ENGINEERING SERVICES

- Site Feasibility Studies with Focus on Infrastructure
- Preliminary Design including Site Layout/One Lines
- Interconnection Applications
- Detail Design
- Performance Guarantee Testing
- Training Owner Personnel
- O&M System Performance Monitoring
- Third Party Reviews
- Construction Support

## TESTING AND COMMISSIONING SUPPORT

- Energization Plans
- Commissioning Plans
- Testing & Commissioning Support
- Site Support
- Relay Testing
- IV Curve Tracing
- Arc Flash Hazard Analysis

## EXPERIENCE

- Behind the Meter - Non Exporting
- Campus Distribution 480V to 34.5 kV on Site Systems
- Service Entrance (Net Metering)
- Utility Distribution System Interconnection 12.47 kV to 34.5 kV
- Utility/ISONE Transmission System Interconnection 69 kV to 345 kV

## SYSTEM TYPES

- Ground Mounted
- Landfill Mounted
- Rooftop Single and Multiple Client
- Garage and Parking Lot Canopy





# WIND GENERATION SERVICES

Our engineers have significant experience providing design, management and testing support on both onshore and offshore wind projects in the Northeast. While most of this experience has been acquired in New England and Eastern Canada over the past 10 years, our engineers have also performed wind generation site and interconnection assessments for potential projects in the State of New York. We have performed detail design on over a dozen wind projects ranging from 5 MW to 40 MW, and conceptual design studies for projects ranging between 5 MW and 450 MW in size. Our engineers have evaluated more than a dozen proposed distributed generation projects in Massachusetts, Connecticut and Vermont under state tariff regulations and requirements.



## ENGINEERING SERVICES

- Conceptual Design Studies
- Detail Design
- Interconnection Applications
- Testing & Commissioning
- Conceptual Design of On-Site Communications
- Underground Collector System Design

## EXPERIENCE

- Construction Oversight of Interconnection Facilities; Including Collector Systems, Transmission Lines and Substation Interconnection
- Protective Relaying and Communication Needs
- IEEE 1547 Standard for Interconnecting Distributed Resources
- Transmission & Distribution Interconnected

## SYSTEM TYPES

- Offshore
- Onshore



# ENERGY STORAGE SERVICES

RLC Engineering offers a complete program approach for battery storage projects – from site evaluation to O&M support after the project is in production. RLC provides a fully engineered solution for the integration of battery storage – eliminating the need for multiple contracts and hand-offs.

## SITE FEASIBILITY ANALYSIS

- Analyze site interconnection feasibility
- Review project footprint and ability to site battery system
- Identify purpose and goals for the battery system (Generator, DARD, Load, PV generation leveling)

## PRELIMINARY ENGINEERING

- Develop site layout and associated one-lines
- Identify battery system configuration as AC or DC
- Finalize major equipment and specifications
- Develop interconnection applications and associated documentation

## INTERCONNECTION REQUEST PREPARATION

- Prepare interconnection request and supporting documentation
- Serve as technical liaison for project with the interconnecting utility

## DETAILED DESIGN

- Detail design and equipment specification
- Issue for construction documents and construction specifications
- Facilitate design and creation of SCADA system
- Develop relay settings for interconnection protection as necessary

## TESTING & COMMISSIONING SUPPORT

- Perform relay testing
- Facilitate relay witness testing
- Develop site installation inspection plan
- Develop testing and commissioning specifications
- Perform transformer inspection and testing
- Assist vendor with inverter start-up
- Commission SCADA system
- Test and commission inverter



# RENEWABLE GENERATION STUDIES

The growth of solar, wind and battery renewable energy sources have been brisk the last few years and are likely to continue their high penetration of both small- and large-scale projects. We analyze the integration of these resources onto both transmission and distribution systems through interconnection studies or fatal flaw assessments. We have analyzed interconnections of small and large resources, performed siting and interconnection studies and most recently performed studies for emerging technologies. In addition, we perform congestion analyses to study moving large quantities of renewable energy over long distances. We have performed hundreds of distribution system studies for utilities throughout the United States, with a wide breadth of industry software knowledge.



## TYPICAL STUDIES PERFORMED

- Prospecting & Congestion Studies
- PSCAD, PSSE, and PSLF Modeling and Benchmarking Services
- NERC MOD Testing Studies
- Short Circuit Analysis
- Load Flow and Reactive Power Analysis
- Selective Coordination of Relays and Protective Devices
- Arc Flash Analysis using SKM Power Tools for Windows, EasyPower, ETAP, and ArcPro
- Cable Ampacity Analysis using CYMECAP and AmpCalc
- Step and Touch Potential and Ground Grid Analysis
- Relay Settings and File Development
- Harmonic Analysis
- TOV Analysis
- Insulation Coordination Studies
- Effective Grounding Analysis
- Ground Bank Sizing

# DESIGN SUPPORT STUDIES SERVICES

RLC Engineering offers comprehensive support for engineers and designers in assessing photovoltaic (PV), wind turbine, and battery energy storage system (BESS) generation systems. Our expertise lies in modeling system parameters and equipment ratings using the latest modeling software like ASPEN, CYME, EasyPower, and more. We adhere to industry standards like IEC, IEEE, and NFPA while accommodating specific client needs such as utility and NERC standards. Our services cover all design power studies, including evaluating conductor sizes for ampacity and voltage drop, verifying real/reactive power losses, determining protective device sizes and settings, validating equipment ratings for short circuits, and conducting arc flash analyses for equipment safety labels.

With today's rising interest rates and congested connection queues, value engineering is crucial for cost efficiency and faster construction timelines. Our extensive experience in addressing real-world challenges across numerous projects, allows us to evaluate multiple options to support our clients.

## DESIGN SUPPORT SERVICES INCLUDE

- Arc Flash Hazard Analysis (AC and DC incident energy calculations)
- Cable Thermal Ampacity Calculations (underground and overhead AC & DC circuits)
- Relay Settings Files creation for common recloser relays like SEL-651, SEL-751, and others
- Effective Grounding Calculations and Support
- Ground Potential Rise (Step/Touch) Calculations
- Harmonic Studies and Data Evaluation
- Insulation Coordination
- Lightning Risk Assessments
- Power (Load) Flow Studies
- Protective Device Coordination
- PV Capacity Test Analysis per ASTM E2848, E2939 using Python pvcaptest package
- Short Circuit and Equipment Duty Studies





# PROSPECTING & INJECTION ANALYSIS

RLC Engineering provides power system developers with insights and strategies for seamless grid integration. With a deep understanding of the interplay between proposed projects and the grid, we assist developers in navigating the complexities of grid expansion and development. Our team brings years of expertise leveraging advanced analytics and comprehensive assessments to anticipate potential challenges that arise when integrating new projects into the power grid. From identifying optimal project locations to providing in-depth analyses that reflects applicable interconnection impact study criteria, our team is dedicated to helping developers harness the full potential of their projects.



## PROSPECTING SERVICES

- Identify potential transmission constraints, congestion, or economic hurdles
- Pinpoint interconnection locations with available transmission capacity

## FLOWGATE & INJECTION/WITHDRAWAL ANALYSES

- Assess project integration at specific Points of Interconnection (POIs) for efficiency
- Utilize contingency lists to identify potential grid limitations under N-0 and N-1 contingency conditions



# POWER ECONOMICS SERVICES

RLC Engineering provides in-depth economic analyses that assist our Power Generation clients to make well-informed decisions optimizing project revenues, and maximizing the economic benefits of their energy projects. The production cost modeling tool TARA PROBE powers our economic analyses.

## POWER ECONOMICS STUDIES

- **Congestion Analysis**

Annual, or longer-term analysis of what may prevent project generation from being injected into the grid

- **Production Cost Analysis**

Perform an estimate of Locational Marginal Prices (LMPs) and expected project revenues

- **Sensitivity Studies**

Determine how changes in fuel price, project size, or location can affect a project's profitability

- **Asset Valuation & Optimization**

Determine the Net Present Value (NPV) of a project and what size and location would be most valuable

- **Carbon Reduction Studies**

Estimation of the amount of carbon a generator can remove from the grid

- **End-of-Life Considerations**

Understanding the cost for end of project life decommissioning

- **Regulation & Policy**

Analysis of applicable local and regional regulations and the impact of new generation on the grid



# NERC MOD STANDARDS SERVICES

RLC Engineering excels in providing modeling services to ensure strict compliance with the NERC MOD standards, including MOD-025-2, MOD-026-1, MOD-027-1, and MOD-032-1. Their expertise lies in meticulous verification and validation of generator and control system models, guaranteeing accuracy and adherence to regulatory requirements. By offering comprehensive modeling services, RLC plays a vital role in supporting entities to meet NERC standards and maintain reliability in the Bulk Electric System.



## NERC MOD-025-2 - VERIFICATION AND DATA REPORTING OF GENERATOR REAL AND REACTIVE POWER CAPABILITY AND SYNCHRONOUS CONDENSER REACTIVE POWER CAPABILITY

### ● Key Requirements:

- Validation of generator real and reactive power capabilities and synchronous condenser reactive power capability.
- Data reporting for planning model assessment.
- Compliance with data quality and reporting standards.

## NERC MOD-026-1 - VERIFICATION OF MODELS AND DATA FOR GENERATOR EXCITATION CONTROL SYSTEM OR PLANT VOLT/VAR CONTROL FUNCTIONS

### ● Key Requirements:

- Regular validation of generator excitation or plant volt/var control models.
- Periodic audits and data verification.
- Compliance with simulation model standards.

## NERC MOD-027-1 - VERIFICATION OF MODELS AND DATA FOR TURBINE/GOVERNOR AND LOAD CONTROL OR ACTIVE POWER/FREQUENCY CONTROL FUNCTIONS

### ● Key Requirements:

- Validation of turbine/governor and active power frequency models.
- Regular testing and data validation.
- Compliance with simulation model accuracy standards.

## NERC MOD-032-1 - DATA FOR POWER SYSTEM MODELING AND ANALYSIS

### ● Key Requirements:

- Implementation of standardized modeling data requirements.
- Timely and accurate reporting for system reliability analysis.
- Compliance with power system modeling standards.

# GENERATION MODELING SERVICES

Increased inverter-based interconnections, IEEE 1547-2018 requirements, ride-through requirements, and increased system stability demands have led to more utilities and system operators requiring the generation owner to provide highly detailed project generation modeling for both the distribution and transmission systems.

## TIME DOMAIN (PSCAD) MODEL FUNCTIONAL VERIFICATION

- Initialization
- Risk of Islanding functionality
- Transient overvoltage mitigation functionality

## CLUSTER STUDY DYNAMIC MODEL DEVELOPMENT

- Siemens PSSE dynamic models
- Project aggregation
- Inverter-based generation models (solar PV, BESS, Type 4 Wind Machine)
- Wind machine models (Types 1-5)
- Synchronous generator models (hydro, gas, Type 5 Wind Machine)

## SYSTEM TYPES

- Benchmarking all generation types per system operator requirements
- Initializing and unit testing
- System response tests including:
  - Ringdown Test
  - Over/Under Frequency Response Test
  - High/Low Voltage Ride Through Test
  - Normal Contingency Testing
  - AVR/Voltage Reference Step Test
  - Specialized Testing





# MODELING & BENCHMARKING SERVICES

RLC Engineering specializes in ensuring power system developers are able to seamlessly integrate their projects into the complex energy grid. Our suite of modeling and benchmarking services caters directly to developers seeking assistance with interconnection applications to Independent System Operators (ISOs), Regional Transmission Owners (RTOs) and electric transmission and distribution utilities. These models provide the essential backbone for feasibility and system impact studies. RLC engineers are proficient in PSSE, PSCAD, ASPEN and PSLF models. With the stricter technical demands of FERC Order 2023, we leverage our extensive experience and stellar reputation to equip developers with accurate technical data, ensuring smooth participation in cluster studies.



## MODELING & STUDIES SERVICES INCLUDE

### ● PSSE-PSCAD Benchmarking

Imperative for interconnection applications; provides well-tuned models for ISO system impact studies.

### ● Limited Stability Analysis

For identifying potential adverse impacts due to the interconnecting project and if any upgrades may be needed for the interconnection.

### ● Model Review Evaluation

For pinpointing model performance issues and provide effective solutions.

### ● Model Migration

Converting user-defined Siemens PTI PSSE models to NERC MOD-032 compliant standard library models, and benchmarking the models to ensure optimal performance across diverse system conditions.

# ARC FLASH HAZARD ANALYSIS SERVICES

An Arc-Flash Hazard Analysis is a critical life-safety issue and an essential part of your electrical safety program. The Arc-Flash Analysis will improve safety and ensure that your facility is in compliance with federal and local standards. OSHA and NFPA 70E require a new analysis at least every five years or after any significant change to your electrical system. RLC's staff of licensed electrical engineers are experts in Arc-Flash Hazard Analysis (AFHA) and will identify the hazards and potential for injury, and then provide a comprehensive report. This will include determining what protective measures are required, providing proper required labeling, and recommending any improvements required to reduce potential risks to personnel safety and equipment damage.

## AN ARC FLASH CAN BE CAUSED BY

- Accidental contact with energized components within equipment
- Improperly designed or utilized equipment
- Equipment failure
- Workers interacting with energized equipment
- Removal/Installation of circuit breakers or fused switches
- Loose connections
- Energization and switching operations

## HAZARDS FACTS

- 5-10 Arc Flash accidents occur every day in the U.S
- \$1.5M - Average cost of medical treatment
- Arc blasts can produce a pressure wave greater than 2,000 lbs./ft<sup>2</sup>
- \$10-15M - Average litigation cost
- Arc Flash temperatures of 35,000°F (4 times the sun's surface)
- +2,000 people are treated annually in burn centers
- NFPA 70E 130.5(G) requires an updated analysis for system changes or at least every 5 years

## SHOCK HAZARD ASSESSMENT SERVICES

- Field investigations to gather as-built data
- Develop system model of site
- Perform short circuit analysis
- Perform selective coordination study
- Perform Arc Flash calculations
- Engineering analysis and report of results
- Recommend improvements to reduce hazard risks
- Generate labels on equipment to warn of hazards
- Integrate with Electrical Safety Programs





# OPERATIONS & MAINTENANCE SERVICES

RLC Engineering provides engineering solutions to complex power systems focusing on a variety of energy related markets. RLC has experienced personnel who provide in-depth knowledge of electrical systems and can pinpoint problems and provide cost effective solutions to power systems including specialties such as Photovoltaic, Wind, Battery Storage, Standby and Emergency Generation. Our engineering services cover the full life of a system from concept and feasibility to design and commissioning and maintenance support. Proper operations and Maintenance (O&M) is an integral part of maximizing a site's energy production and Return on Investment (ROI).



## ENGINEERING SERVICES

- Receive alarm event notifications
- Identify and coordinate warranty-related efforts, review and assign corrective actions
- Review site abnormalities and make recommendations for remediation
- Implement Systems Performance Analysis – Actual Performance Measured vs. Production Benchmark

## SITE WALK

- Review current alarm logs for items that may be affecting performance
- Site Inspections:
  - Tree shading
  - Erosion issues
  - Vegetation growth
  - Broken or damaged panels
  - Damage to exposed wiring
  - Main gate and fence inspection
- Report findings and recommended corrective action

## ANNUAL SYSTEM HEALTH CHECK-UP

- Visual inspection of the site, along with selective testing:
  - Thermal Imaging
  - Check Rack Torque Values
  - I-V Curve Trace Testing
  - Power Quality Monitoring



# STRUCTURAL ENGINEERING SERVICES

RLC is a full-service, multi-discipline engineering and design consultant servicing both the utility and renewable generation markets. Our unique understanding of these markets enables us to develop safe, cost effective, and reliable design solutions for our clients' solar, wind, and battery storage projects. We also offer subcontracting and management of site development/stormwater design and permitting firms. Our integrated approach ensures seamless coordination among all disciplines and eliminates the need for our clients to manage multiple contracts.

## ENGINEERING SERVICES

- Steel support design for string inverters and other equipment
- Foundation design for:
  - Transformers, central inverters, switchgear, and other equipment
  - Battery enclosures
  - O&M and control buildings—pre-engineered steel and modular
- Structural evaluations and retrofits of existing buildings
- Collector substation design
- Subcontracting and management of geotechnical investigations
- Secondary oil containment design for environmental compliance
- Coordination reviews of civil/environmental and electrical designs

## CONSTRUCTION PHASE SERVICES

- Specifications, bid documents, and contracts
- Submittal review and RFI resolution
- Construction inspections
- Record drawings



# POWER ENGINEERING



- ✓ Probability Cost Studies
- ✓ Construction Support Services
- ✓ Owner Engineer Services
- ✓ 3rd Party Reviews
- ✓ Fully Designed System Installation
- ✓ Piping Stress Analysis
- ✓ Hydraulic and Pump Designs
- ✓ CHP Studies and Designs
- ✓ Energy Management Solutions
- ✓ Distributed Generation (DG) Installations
- ✓ Equipment Specification
- ✓ CHP/Cogeneration/Utility Plant Retrofit

RLC's Power Engineering team, addresses the rapidly evolving power management opportunities with commercial and industrial consumers of electricity. RLC combines its unique understanding of this environment with institutional and industrial clients' needs for efficient energy use and improved energy security. We have evaluated, engineered, and created medium voltage campus distribution systems and emergency generation for a variety of facilities such as colleges and universities, hospitals, research facilities, state governmental entities and level 4 data centers.

Our designers and engineers have supported piping design for steam, hot water, and glycol distribution systems, as well as electrical, instrumentation, and control support projects.

For the energy consumer, this includes Combined Heat and Power (CHP) studies and designs, Distributed Generation (DG) installations, and energy management solutions.

# ENERGY MANAGEMENT SERVICES

Starting with the decision process, we develop the documentation and organization strategies including conceptual design, probable cost studies and proposal solicitations. For project managers, we provide construction support services, owner engineer services and third-party reviews. We support, measure, and verify project performance and financials, even after construction has been completed.

## SCOPE OF SERVICES

- Conceptual Design
- Probably Cost Studies
- Construction Support Services
- Owner Engineer Services
- 3rd Party Reviews
- Post Construction Project Performance Review



# MECHANICAL DESIGN SERVICES

We provide a full range of support for your energy management needs. We help determine the solutions that will best serve your requirements and budget. Whether you need new boilers, a Combined Heat and Power (CHP) installation or a microgrid, we design the entire installation. When energy savings are the foremost solution, we determine the best approach to efficiently use the resources that you already have through cooperation with utility providers or through in-house conservation.

Our engineers have the skills and expertise to integrate with the utility if the goal is to distribute power or thermal energy to a distributed grid load in campuses, transport to business parks, or other potential customers. Our design teams create electrical and mechanical equipment specifications, piping stress analysis, hydraulic and pump designs.

## SCOPE OF SERVICES

- Fully Designed System Installation
- Electrical and Mechanical Equipment Specifications
- Piping Stress Analysis
- Hydraulic and Pump Designs
- CHP/Cogeneration/Utility Plant Retrofit





# MICROGRID DESIGN SUPPORT SERVICES

Today's microgrids offer the ultimate resiliency and versatility whether connected to the utility grid or intentionally islanded. The total integration of renewable power systems, battery storage, rotating machines, and operation control systems pose complex challenges for today's load center's demands. RLC Engineering can help your facility meet your microgrid goals. Our experienced team can guide you through the microgrid design project.



## SCOPE OF SERVICES

- Microgrid Planning for Load Demand While
- Grid Connected and Grid Forming Operational Configurations
- Renewable Generation Sizing (PV, Wind, Fuel Cell, etc.), Design, and Interconnection
- Battery Storage Sizing, Design, and Interconnection
- Backup Synchronous Generator Sizing, Design, and Interconnection
- Transformer Inrush, Cold Load Pickup, and Transient Assessments While Grid Forming
- Protection and Control Design and Coordination for All Microgrid Operational Conditions

# POWER DISTRIBUTION DESIGN SERVICES

From planning new medium voltage infrastructure to modernizing older systems, RLC Engineering has the experience to meet all your power distribution needs. RLC offers power system planning for load growth and system resiliency from 480 volt industrial power systems through 35 kV medium voltage power applications. System protection services ensure safety, reliability, and ease of maintenance for your complex power system infrastructure needs.

## SCOPE OF SERVICES

- Planning studies for thermal capacity and voltage profiles for sustained load growth
- Short circuit analysis for breaker interrupting and equipment withstand assessments
- Detailed engineering design of industrial power and medium voltage campus power
- Interconnection of generation systems including feasibility studies
- Specification development of transformers, medium voltage breakers, reclosers, switchgear, and switches
- Protection and control engineering for coordinating fuses, breakers, relays, and switching schemes
- Arc Flash studies to assess incident energy and shock hazards for selection of PPE for workers
- Power Quality assessments for voltage flicker, harmonics, and adverse voltage impacts



# PROGRAM APPROACH

Reduce the site selection process using RLC's grid modeling capabilities. The area assessment can analyze an entire area (such as utility territory) to locate optimal areas of injection, focusing real estate selection to a pinpoint. RLC calls this top-down process a 'Program Approach'.

## PROGRAM APPROACH HIGHLIGHTS

### Site Selection

- RLC's abilities are engaged to find optimal substations for injection by identifying areas of available capability, condensing the real estate search to only the best sites

### Parallel Projects

- RLC's Program Approach eliminates multiple contract negotiations
- Enhance schedule milestones to get your program sites to market quicker
- Streamlined work ensures vendor resource availability

### Site Standardization

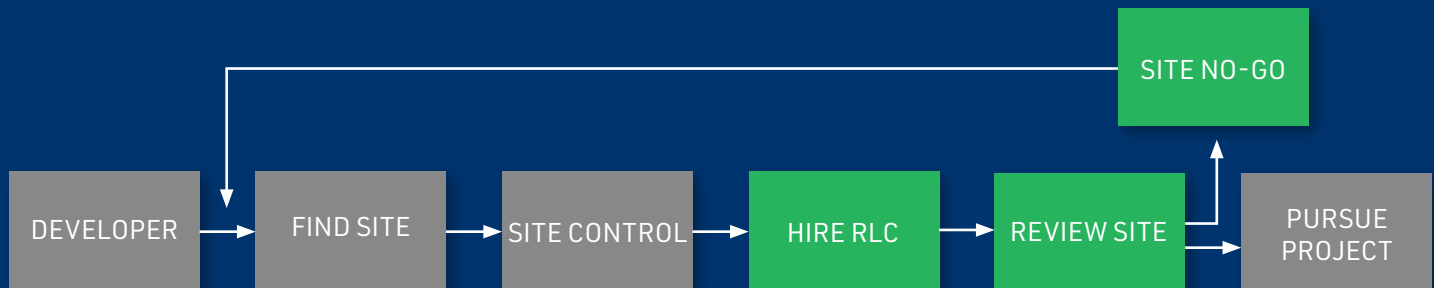
- Standardized preliminary design for interconnection applications
- Standardized design may allow bulk material purchasing for further cost savings

### Program Wide Integrator

- Technical liaison with the interconnecting utility
- Construction Bidding
- Construction Engineering Support
- Testing and Commissioning Support
- Resource Staffing Plans



# TRADITIONAL APPROACH



# PROGRAM APPROACH



*BNRG has worked closely with the team at RLC in the last few years. They are a good size and coordinated practice with a sensible multi-disciplinary approach which is both efficient and effective. Their in-depth knowledge of the grid networks in New England has been invaluable to BNRG's strategic approach to development. Most importantly, we enjoy working with the RLC Team.*

*-David Maguire Director/BNRG*

# POWER GENERATION EXPERIENCE



## ENERGY STORAGE

System Capacity: 1 MWhr to 10 MWhr

RLC provided design and engineering support for New England's first operational stand-alone utility interconnected energy storage facility. We've provided detailed design and construction support for several Battery Energy Storage Systems (BESS) throughout the Northeast. Support services consist of site layout and equipment arrangement, cable and transformer sizing, identifying interconnection options, ground grid design, cable and conduit sizing, interconnection relay settings, switchgear specifications, and alignment, as well as controls and communication wiring. RLC's engineers provide our clients with a fully designed integrated solution for their energy storage needs from interconnection applications to testing and commissioning.



## SOLAR GENERATION

System Capacity: 500kW to 150MW

Our engineers have over 40 years of combined experience in the electrical design, interconnection application process and project management of photovoltaic facilities working with Developers and local Utilities. RLC's Program approach accelerates an entire portfolio of photovoltaic systems, is more efficient and cost effective at getting projects to market quicker with lower costs and higher success rates. RLC has acted as the Owner's Engineer, providing consulting, design services, on a variety of utility scale photovoltaic facilities, most are multi-site and required different interconnection locations. RLC served as Owner's Engineer and Interconnection Process technical lead for an entire portfolio (19 Sites) of solar facilities totaling 62 MWdc.



## WIND GENERATION

Generator Size: 5 MW to 40 MW

Our wind interconnection experience on both onshore and offshore projects in the Northeast is extensive. We have performed conceptual design studies and detail design on over a dozen wind projects. Our engineering staff is well versed in the interconnection application process and have served as project electrical engineer to design underground collector systems, conceptual designs for site communications consisting of multi strand fiber optic cabling, construction review and oversight of Interconnection facilities, protective relaying, and managed the commissioning of projects.

# POWER ENGINEERING EXPERIENCE

## ENERGY MANAGEMENT

RLC's Certified Energy Manager provides support for energy audits as well as Measurement and Verification of Renewable Energy Tax credits. We've performed ASHRAE energy audit for municipal buildings providing energy conservation measures to improve energy efficiencies and reduce operating cost. RLC provided third party renewable thermal energy credit verification for a college boiler burning biofuel fuel, which provided savings in operating cost by reducing taxes on facility fuel costs.



## MECHANICAL DESIGN

RLC provides pipe stress analysis for turbine steam pipe cleaning projects. We provided 3rd party static thermal analysis to evaluate temporary steam blowdown piping for B31.1 Code stress for a large turbine piping installation with new pipe steam blowdowns. We supported the design of a new DA and Condensate receiver by providing a control system review, 480 V wiring for a new system skid, control wiring for flow meters and boiler emergency shutdown interconnection for a major food manufacturer. We provided design services for a new steam process water heating system, which required sealed documents for pressure relief valve selection, and material specifications. RLC provides 3rd party review and analysis of existing hydraulic relief for piping and pump configurations.



## POWER DISTRIBUTION DESIGN

RLC has developed a number of preliminary cost analyses for Combined Heat & Power including designs for 14 MW RICE and 30 MW gas turbine with heating and/or chiller subsystems CHP. Analysis included evaluating electrical utility reliability to determine the risk to the facility was sufficient to warrant back up power and a subsequent CHP selection. RLC's review helped integrate the projects overall energy management plan utilizing a variety of energy sources, including solar, natural gas and diesel into facilities management plans. Many projects include evaluation of clients' system resiliency to determine the best mix of energy sources while maximizing plant output per energy expenditure.





# POWER GENERATION EXPERIENCE

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## DEVELOPER & UTILITY SUPPORTED SOLAR GENERATION

**SYSTEM SIZE: 500kW – 150MW**

**OVER 2 GWs** of systems throughout the Northeast.

Provided engineering services on **OVER 150** ground mount systems.

Supported **OVER 350** Interconnection Applications.

We have supported **OVER 40%** of the Maine Solar market.

## WIND GENERATION

**GENERATOR SIZE: 5 MW – 40 MW**

Supported **OVER 2 GWs** of systems throughout the Northeast and Mid-Atlantic States.

Conceptual design studies and detail design on **OVER 12 WIND PROJECTS** including construction support.

## ENERGY STORAGE

**SYSTEM SIZE: 1MWhr – 10 MWhr**

Design and engineering support for **NEW ENGLAND'S 1ST** operational stand-alone utility interconnected energy storage facility.

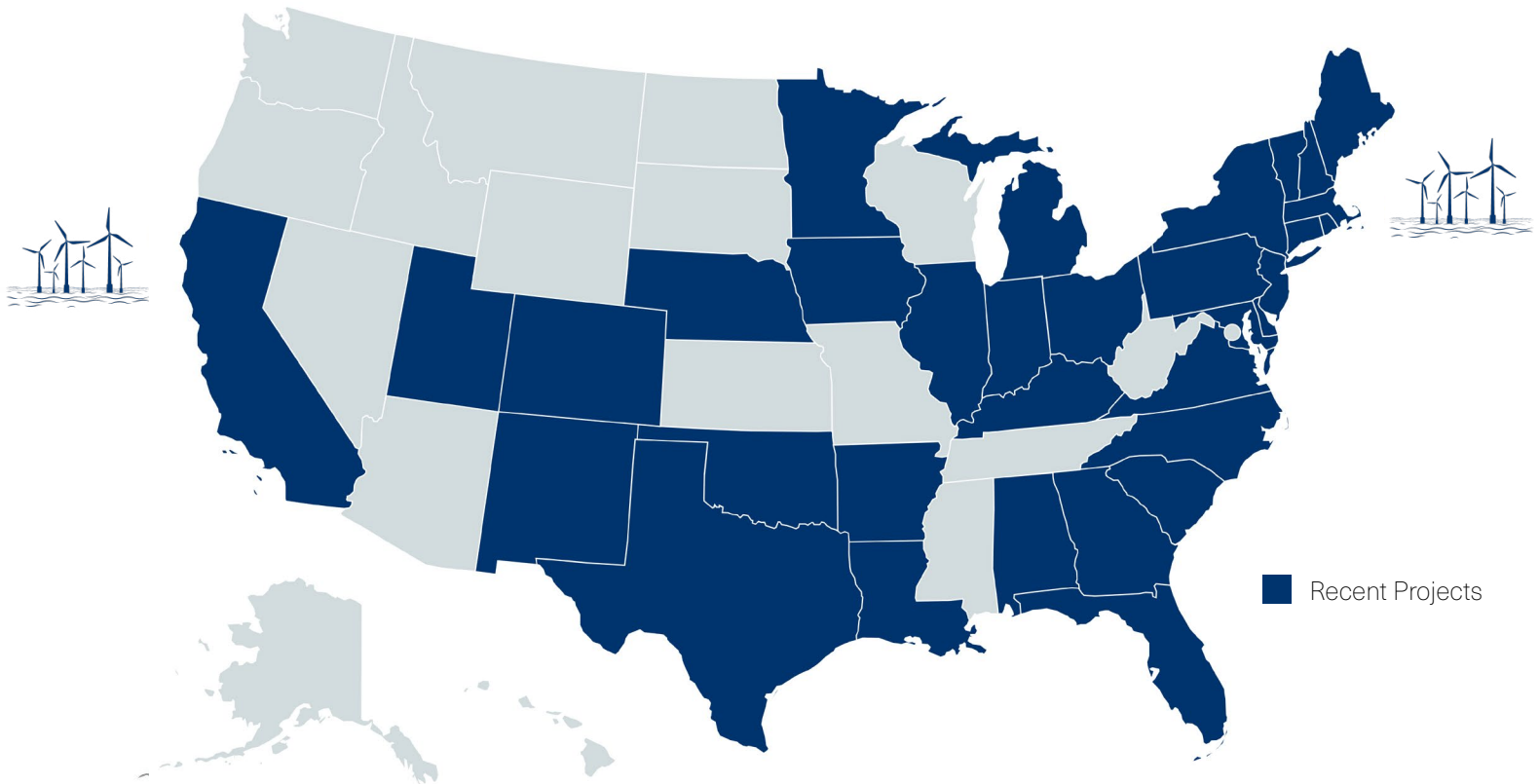
Detailed design and construction support for developers and utilities for **MANY BATTERY ENERGY STORAGE SYSTEMS (BESS)** in the Northeast.

Evaluation of **8 PUMP STORAGE** locations.

**OVER 50** solar coupled battery storage systems.

# WHERE WE WORK

RLC has supported hundreds of Power Generation projects throughout the United States. Our Engineering and Project Management Teams collaborate with clients nationwide pertaining to their engineering needs, from system concepts and feasibility to design and commissioning. We provide engineering solutions for complex power systems that serve a variety of energy-related technologies.



## OUR EXPERIENCE SPANS THE COUNTRY

OFFICES AND SATELLITE  
LOCATIONS IN

**12+**

STATES ACROSS THE  
COUNTRY

SUPPORTED

**500+**

PROJECTS FOR UTILITIES  
AND DEVELOPERS

OUR EMPLOYEE  
REGISTRATIONS SPAN

**24+**

STATES ACROSS THE  
COUNTRY

# PROJECT MANAGEMENT ORGANIZATION

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At RLC, great project management is more than just cost, schedule, quality, and scope. Building relationships and trust with our clients are critical elements to ensure a projects successful execution. RLC's project managers utilize a variety of skills to effectively perform their jobs through communication, planning and forecasting, scheduling and time management, budgeting, technical expertise, risk management, and problem-solving, to ensure our clients success.

Projects are often complex and involve numerous stakeholders, having a project manager in place is essential to make certain projects start on time, stay within budget, and meet expectations. Our project managers are highly experienced with the leadership capabilities to effectively guide, manage, and support our clients. They are experts in utilizing best practices and have a clear understanding of the various processes required for the successful implementation and completion of any project.

**We partner with clients to ensure projects are completed on-time and under budget.**

**Our project management team has experience in the following areas:**

- Leading the Planning of and Successful Execution of Projects
- Project Scheduling
- Earned Value Management (EVM)
- Financial Planning and Cost Controls
- Contract Management
- Quality Assurance and Quality Control
- Risk Assessment and Management
- Project Communication Plan
- Resource Staffing Plans





RLC's PMO team has developed procedures and best practices required for the successful implementation and completion of any project and is devoted to ensuring consistency, efficiencies, and better management of costs.

# CLIENT REFERENCES

RLC is extremely proud of our established reputation with our clients. Please feel free to contact the following references regarding our performance and services.

## POWER SYSTEM STUDIES

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## POWER DELIVERY

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## POWER GENERATION

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**Christopher Reino**, Senior Project Manager  
Eversource Energy  
Phone: 413-727-2845  
E-mail: Christopher.Reino@eversource.com

Integrity and accountability are what drive our highly experienced engineers. We provide our clients with reliable innovative engineering solutions, tailored to fit their specific needs. We have had the privilege to work with utilities throughout the Northeast, independent system operators, and solar and wind developers all across the Northeast, Canadian Maritimes, and beyond.

*"We believe in providing our customers with the most reliably engineered planning and design to accommodate the energy demands of today's world."*

-Rick Conant

## OUR CLIENTS

Avangrid ●  
Borrego Solar ●  
Central Maine Power Company ●  
Cianbro Corporation ●  
CS Energy ●  
C2 Omega ●  
Discovery Wind and Solar Energy ●  
Dominion Energy ●  
Eversource Energy ●  
FirstLight ●  
Great River Hydro ●  
Green Mountain Power ●  
ISO New England ●  
Longroad Energy Partners ●  
MYR Group ●  
National Grid ●  
Nexamp ●  
NextEra Energy ●  
Norwich Solar Technologies ●  
Versant Power ●



# MANAGER BIOS

## RICK CONANT, PE – MEMBER-MANAGER

As the Member-Manager and Founder of RLC Engineering, Rick offers utility providers and developers a rich background in power system studies and power delivery engineering excellence. With over 30 years of experience in the electric utility industry, Rick provides clients with a diverse knowledge of power system operation from both a planning and operational perspective in tandem with exceptional professional engineering.



## BRIAN CONROY, PE – MANAGER OF POWER SYSTEM STUDIES

Brian oversees transmission and distribution system planning and operational studies for electric utilities, grid operators and energy developers. With over 33 years of experience in the electric utility industry, Brian and his team are prepared to assist utilities and developers interconnecting to the power grid with the most trustworthy power system studies to maintain the security and dependability of the electric grid. Brian is a senior member of IEEE.

## PHIL NADEAU, PE, PMP – MANAGER OF POWER DELIVERY

Phil has over 30 years of professional experience in the utility and manufacturing industries and works alongside both our clients and our in-house team from a project's initial concept to final commissioning. Phil is well-versed in the management of all project phases including development, planning, execution, monitoring, controlling and closeout of utility-based capital investment projects with a primary focus on creating industry-leading quality output.



## JUSTIN DODD, PMP – INTERIM MANAGER OF POWER GENERATION & ENGINEERING

Justin has over 17 years of combined experience in the energy and utilities markets. As Business Development Manager, Justin brings a wealth of expertise in driving business growth through strategic planning with hands-on execution, client relationship management, and innovative solutions. Justin is a registered PMP.

## JOHN JOYCE, PMP – PMO MANAGER

John has over 30 years of experience in the electrical utility industry in the areas of engineering, construction and project management. John leads a team of project managers and works in close collaboration with RLC clients in all segments of a project from scheduling, to finance, to engineering, to construction. John ensures that RLC's company standards are upheld, while also assuring excellent client satisfaction in delivering quality engineering services in a timely and cost-effective manner.



## JUSTIN DODD, PMP – MANAGER OF BUSINESS DEVELOPMENT

Justin has over 17 years of combined experience in the energy and utilities markets. As Business Development Manager, Justin brings a wealth of expertise in driving business growth through strategic planning with hands-on execution, client relationship management, and innovative solutions. Justin is a registered PMP.

# PRINCIPAL ENGINEERS

## POWER SYSTEM STUDIES

- KWAME ANDOH  
PRINCIPAL POWER SYSTEM ENGINEER
- DAVE CONROY, PE  
PRINCIPAL POWER SYSTEM ENGINEER
- DAVE GREEN  
PRINCIPAL POWER SYSTEM ENGINEER
- DAN LEWIS  
PRINCIPAL POWER SYSTEM ENGINEER
- LEIGH PAINE  
PRINCIPAL POWER SYSTEM ENGINEER
- MIKE POULIN  
PRINCIPAL POWER SYSTEM ENGINEER
- HEATHER ROBERTS, PE  
PRINCIPAL POWER SYSTEM ENGINEER
- TAMMY ROBERTS, PE  
PRINCIPAL POWER SYSTEM ENGINEER
- BOB RUSSO, PE  
PRINCIPAL POWER SYSTEM ENGINEER
- ASA SPROUL, PE  
PRINCIPAL POWER SYSTEM ENGINEER
- WAINE WHITTIER, PE  
PRINCIPAL POWER SYSTEM ENGINEER

## POWER DELIVERY

- SUSAN ALLARIE  
PRINCIPAL ELECTRICAL ENGINEER
- CHRIS BENNETT, PE  
PRINCIPAL PROTECTION ENGINEER
- MATTHEW BONNEAU, PE  
PRINCIPAL PROTECTION ENGINEER
- KATIE DUMAS, PE  
PRINCIPAL PROTECTION ENGINEER
- CRAIG LAKIN, PE  
PRINCIPAL PROTECTION ENGINEER
- CHRIS LYONS, PE  
PRINCIPAL CIVIL ENGINEER
- JUSTIN MACDONALD, PE  
PRINCIPAL ELECTRICAL ENGINEER
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PRINCIPAL CIVIL ENGINEER
- PAUL VILLENEUVE, PE  
PRINCIPAL PROTECTION ENGINEER

## POWER GENERATION

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- JOSÉ DONNELL, PE  
PRINCIPAL ELECTROMECHANICAL ENGINEER
- DAVE ESTEY, PE  
PRINCIPAL ELECTRICAL ENGINEER
- TEDD GIFFORD, PE  
PRINCIPAL ELECTRICAL ENGINEER
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