



**Rochelle Municipal Utilities**  
Rochelle, IL

Engineering Services for  
Prologis Park Substation Design

Submitted by:  
BHM Engineers, Inc.

April 20, 2020





April 20, 2020

Rochelle Municipal Utilities  
Adam Lanning – Utility Manager  
700 West Second Avenue  
Rochelle, IL 61068

Ref: Proposal for Professional Engineering Services  
Prologis Park Substation

BHMGM is pleased to submit for RMU's consideration our qualifications and proposal for professional engineering services relative to the Prologis Park Substation Installation. This proposal is for the design work required for the new project.

The success of any project is not determined by the name of the firm or lengthy lists of prior projects, but rather by the individuals doing the work. BHMGM's team presented here has demonstrated its ability to perform on similar projects, as documented in our proposal.

The caliber of our work is not only reflected in our design work, but also in our careful consideration of other important aspects of the project, such as project coordination and communication. We encourage you to contact our references to discuss our capabilities and performance on similar projects.

We look forward to the opportunity to be of service to RMU. If you have any questions, please do not hesitate to contact me.

Sincerely,  
**BHMGM Engineers, Inc.**

A handwritten signature in black ink, appearing to read "Jason F. Jackson". The signature is fluid and cursive, with a prominent initial "J" and "F".

Jason F. Jackson, P.E.  
Project Manager

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## **INTRODUCTION / BACKGROUND INFORMATION**

### **A. ABOUT BHMGM**

BHMGM Engineers, Inc. was established in 1972 to provide comprehensive engineering services to local, state, federal and private entities. The company provides complete engineering services for electric, natural gas, water, and wastewater utilities including planning, feasibility, valuation and rate studies; design for electric, natural gas, water, and wastewater distribution and transmission facilities, electric substations and natural gas regulator stations; and engine, turbine, hydro-electric, and wind power production facilities. BHMGM provides engineering services throughout the Midwest from its offices in Arnold, Missouri, Collinsville, Illinois and Mount Vernon, Illinois.

Among the staff are ten registered professional engineers, both electrical and mechanical engineers. Their professional abilities and experience establish the foundation on which the company and its reputation have been built.

### **B. STAFF CAPABILITIES**

#### **Organizational structure of the firm**

BHMGM Engineers will assign a project team consisting of a Project Manager and Project Engineer along with support staff including engineers, designers, and drafters to each project that is assigned to BHMGM Engineers. The company is staffed by a total of 39 professionals and support personnel.

### **C. INVOLVEMENT OF PRINCIPLES OF THE FIRM**

Our philosophy at BHMGM is to have our principals involved in the day-to-day engineering design aspects of a project. Consequently, all of the owners are "hands-on" engineers. This philosophy is successful because all of our principals enjoy doing engineering work as opposed to being strictly managers or business developers.

We believe that our philosophy of having principals of the firm involved in the detailed engineering aspects of projects is one of the key features that distinguishes BHMGM from other firms.

### **D. FACILITIES / EQUIPMENT**

The BHMG office and its affiliates are equipped with the most current project management and design software. We utilize AutoDesk AutoCAD, Bentley Microstation, Microsoft Project, Power Line Systems PLS-CADD, ESRI Arc Map, Aspen and ETAP Power System Analysis. BHMG maintains its own FTP site for the transfer of drawing and documentation packages with clients.

#### **E. OFFICES**

BHMG has offices in Arnold, Missouri, Collinsville, Illinois and Mount Vernon, Illinois. This project will be staffed from our Arnold office:

630 Jeffco Blvd.  
Arnold, MO 63010  
Telephone: 636-296-8600

#### **F. PROFESSIONAL LICENSE**

BHMG has a Certificate of Authority to provide professional engineering services in the State of Illinois, license number 184004266-0002.

## **Project Team / Resumes**

### **BHMG Engineers**

- Lukas Pirok – Principal
- Jason Jackson – Project Manager/Engineer
- Richard Gu – Project Engineer
- Erich Thorman – Designer



Lukas C. Pirok, P.E., COO/Principal

### PROFESSIONAL OVERVIEW

Mr. Pirok has responsibility of managing the operations of BHMGG Engineers. He is responsible for the design of many of the firm’s projects for electrical facilities, including transmission lines, distribution lines, and generating plants. He is involved with the design, specification preparation, material procurement, and site inspection for those projects. He is involved with the PLS-CADD design and modeling for all transmission and distribution line projects. Additionally, his responsibilities involve him in the preparation of fully allocated cost of service studies and unbundled rate studies for many electric systems. He has primary responsibility for the firm’s Environmental Protection Agency (EPA) permit applications and assists clients in the area of EPA regulatory compliance.

<p><b>Title:</b> COO/Principal</p> <p><b>Years of Experience:</b> 11</p> <p><b>Education:</b> Bachelor of Science Degree, Mechanical Engineering, Southern Illinois University at Edwardsville, IL</p> <p><b>Registrations:</b> Professional Engineer – IL</p> <p><b>Employment History:</b> BHMGG Engineers, Inc., St. Louis, MO</p> <ul style="list-style-type: none"> <li>• 2019-Present, Chief Operating Officer and Principal</li> <li>• 2015-2019, Vice President and Principal</li> <li>• 2013-2015, Project Engineer</li> <li>• 2008-2013, Mechanical Engineer</li> </ul> <p>Anheuser-Busch, Inc., 2006-2008</p> <p><b>Professional Affiliations:</b> National Society of Professional Engineers</p>	<p><b>REPRESENTATIVE EXPERIENCE</b></p> <ul style="list-style-type: none"> <li>• Ameren Missouri – Hayti-73 34.5KV Distribution Line</li> <li>• Prairie Power, Inc. – Aley 138kV Tap to Bollard Substation</li> <li>• Prairie Power, Inc. – Poplar City to Kilbourne 69kV Transmission Line</li> <li>• Mascoutah, IL – 138kV Transmission Line</li> <li>• Rochelle, IL – 138kV Line Rebuild</li> <li>• Rochelle, IL - Electric Distribution System Expansion</li> <li>• Rochelle, IL -Electric System Voltage Conversion</li> <li>• Oglesby, IL – Electric Distribution System Improvements</li> <li>• Malden, MO – Electric Distribution System Rebuild</li> <li>• Greenup, IL – Electric System Voltage Conversion</li> <li>• Newton, IL – Electric Distribution Circuit A Upgrade</li> <li>• Prairie Power – Adams to Kellerville OPGW Replacement</li> <li>• Prairie Power – Burton Tap OPGW Replacement</li> <li>• Prairie Power – St. Anthony to Quincy OPGW Replacement</li> <li>• Palmyra, MO – Electric System Voltage Conversion</li> </ul>
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Jason Jackson, P.E., Project Engineer / Project Manager

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## PROFESSIONAL OVERVIEW

Mr. Jackson's responsibilities with BHMg include project management, engineering, substation design, mechanical design, specification preparation, site inspection and field service in electrical generating plants, electric substations, distribution systems, and miscellaneous other facilities. He has completed gas transmission line designs, cooling tower installations, combustion gas turbine installations, diesel reciprocating engine installations, substation designs, and fuel storage systems.

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**Title:** Project Manager

**Years of Experience:** 19

**Education:**

B.S. Mechanical Engineering  
Southern Illinois University at Carbondale, IL, 2000

**Registrations:**

Professional Engineer – MO, IL, IN, IA, KY

**Employment History:**

BHMg Engineers, Inc.  
St. Louis, MO:

2010-Present  
Project Engineer  
2001-2004  
Mech Engineer

Caterpillar, Inc.,  
Lafayette, IN,  
2008-2010  
2004-2006  
Team Leader

AK Steel  
Rockport, IN  
2007-2008  
Senior Engineer

Three I Engineering  
Evansville, IN  
2006-2007  
Senior Design Engineer

Clark Dietz, Inc.  
Champaign, IL  
2000-2001 – Mechanical Engineer

**Professional Affiliations:**

American Society of Mechanical Engineers

## REPRESENTATIVE EXPERIENCE

- Rock Falls, IL – Avenue A substation, distribution substation and generation design
- Ameren IL – Bureau substation, 4 position 138kV ring bus substation design
- Prairie Power, Inc. – Liberty Substation, 138/69kV substation design
- Prairie Power, Inc. – Pittsfield Substation upgrades, 138kV terminal addition
- Ameren MO – Meramec substation, 10 position 138kV substation controls upgrades, new 138kV terminal design, site upgrades
- Ameren MO – Franklin substation, 3 position 138kV substation line breaker installation and associated upgrades
- West Liberty, IA – Substation Expansion; 69 to 12.47kV distribution substation with metal clad switchgear
- Ameren IL – Grand Tower substation, 1 new terminal position 138kV substation design
- Hannibal, MO – Generator Installation; (10) 2MW high speed diesel generator installation
- Ameren IL – Edward Substation Upgrades; 138kV bus extension for 69kV transformer feed
- Hannibal, MO – Southside Transformer Replacement; 20MVA 34.5 to 13.8kV auto transformer replacement
- Mascoutah, IL – 138kV Transmission Line; 5+ mile 138kV mono-pole steel pole line design
- St. Charles, IL – Substation #9; physical design of 34.5 to 12.47kV distribution substation
- Prairie Power, Inc. – Ballard 138kV Substation; 6 position 138kV ring bus substation design
- McLeansboro, IL – Electric System Voltage Conversion, 2.4 to 12.47kV municipal electric voltage conversion, and upgrade 69.12.57kV dual transformer distribution substation design
- Marshall, IL – North Substation Upgrades; 5 unit 13.8kV metal clad switchgear replacement
- Marshall, IL – South Substation Upgrades; 15MVA 69 to 13.8kV power transformer replacement
- Palmyra, MO – Electric System Voltage Conversion; 4.16 to 12.47kV municipal electric system voltage conversion
- Flora, IL – Electric System Voltage Conversion; 4.16 to 12.47kV municipal electric system voltage conversion, with new dual transformer 69 to 12.47kV distribution substation design
- Waterloo, IL – Generator Relocation and Upgrades; emission upgrades to diesel generators, Arc flash substation upgrades, and 7.5MW combustion turbine installation



Richard Gu, P.E., Electrical Engineer

PROFESSIONAL OVERVIEW

Mr. Gu has 26 years of experience. He has been involved in power substation/generation station design, power system and equipment control and protection, relay protection setting, system fault/load/coordination study, project management, system studies and planning, system operation and construction management, system automation and SCADA system, power quality case studies, and project commission/testing and troubleshooting.

Title: Senior Project Engineer

Years of Experience: 26

Education: Master of Science Degree Electrical and Computer Engineering University of Missouri-Columbia, 1995

Registrations: Professional Engineer – MO,

Employment History: BHM Engineers, Inc. St. Louis, MO 2017 – Present

Advantage Engineering. Inc. Chesterfield, MO 1993 - 2017

REPRESENTATIVE EXPERIENCE

- Ameren, MO/IL, Substation design, expansion and upgrade.
• Southern Illinois Power Cooperation, IL – 161KV Ring Bus Substation and Switch Station Design.
• Corn Belt Energy, IL – 138K, 69KV and 34KV Substations Design and Construction Management. System Long Range/Construction/Contingency Plans. Relay Protection.
• City of Grand Island, NE – 115KV Substation Design. System Protection Upgrade.
• Abeinsa, AZ, TX, OR - 345KV Substation Commission/Startup/ and Protection
• Southwestern Electric Cooperative, IL. 34/69KV Substation Design. System Long Range/Construction Plans.
• MidAmerican Energy, IA – 345KV Substation Expansion.
• City of Independence, MO, 69KV Substation Design.
• Florida Power & Light Company, Substation Expansion & Upgrades



Erich Thorman, Electrical Designer

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## PROFESSIONAL OVERVIEW

Mr. Thorman's responsibilities with BHMg include substation design, specification preparation, site inspections, and field service in electrical generating plants, electric substations, distribution systems, and miscellaneous other facilities.

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**Title:** Electrical Designer

**Years of Experience:** 8

**Education:**

Associate in Electrical Systems Design, Ranken Technical College, St. Louis, Missouri (2012)

**Employment History:**

BHMg Engineers, Inc.  
St. Louis, MO  
2018-Present  
Electrical Designer

Sargent & Lundy, LLC  
2012-2018  
Electrical Designer

**Professional Affiliations:**

None

## REPRESENTATIVE EXPERIENCE

- Rock Falls, IL – Avenue A Substation Upgrades
  - Prairie Power – St. Anthony Substation Upgrades
  - Prairie Power – Pittsfield Substation Expansion
  - Ameren MO – Franklin Substation, 138kV Breaker and relay upgrades
  - Ameren MO – Meramec Substation, 138kV Substation Upgrades
  - Ameren MO – Euclid Substation, 69kV Substation Upgrades
  - Ameren MO – Deer Creek substation, 38/15kV Distribution substation design
  - Ameren IL – Mason substation, 6 position 138kV ring bus substation design
  - Ameren IL – Tazewell substation, Substation Upgrades
  - Ameren IL – Hallock substation, Substation Upgrades
  - AEP EAST – New Carlisle substation, 138kV box bay expansion substation design
  - AEP EAST – Pigeon River substation, 69kV box bay expansion substation design
  - ComEd – Hegewisch substation, 6 position 138kV ring bus expansion substation design
  - ComEd – Waukegan substation, 138kV Substation Upgrades
  - ComEd – Crawford substation, 345/138kV Substation Upgrades
  - ComEd – Northwest Substation, 138kV Substation Upgrades
  - ComEd – Portage Substation, 138kV Transformer Replacement
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# MEMORANDUM OF AGREEMENT

## PROJECT DATA

Date: 04/20/2020

Project Name: Prologis Park Substation Installation

Owner's Project Number: \_\_\_\_\_

BHMG Project Number: 2031

Description of Service: Provide Professional Engineering Services to design, assist in procure, and standard construction support for the proposed 138kV Prologis Park Substation installation, as further described in Exhibit A attached.

## AGREEMENT DATA

Name: Rochelle Municipal Utilities

Address: 700 West Second Avenue, PO Box 456

City: Rochelle, IL 61068

Contacts: Mr. Adam Lanning

Phone: \_\_\_\_\_

Status:  Estimate  
 Quotation  
 Revision to Original

Fee Basis:  Cost Multiplier  
 Lump Sum  
 Not to Exceed

Dates: Start Upon Authorization

Complete \_\_\_\_\_

The effective date of this agreement and all services and obligations shall be the date of this agreement. The terms and conditions under which we are providing these services are set out on the reverse side of this page and incorporated herein by reference.

## BILLING DATA

Monthly 30 days net  
 Other (explain)

The above is intended as a summary of our agreement for the performance of the work described. Please examine it carefully and, if accurate, indicate your approval and acceptance in the space provided below.

### **BHMG Engineers, Inc.**

By:   
Jason F. Jackson, Project Manager

## ACCEPTED

The undersigned hereby states that they represent the owner(s) of the above described project and that the terms and conditions stated above are understood by them and herewith agreed to and accepted. You are hereby authorized and directed to proceed with the work outlined above.

Date \_\_\_\_\_

Signature: \_\_\_\_\_

\_\_\_\_\_  
(Print Name & Title)

## **Exhibit A – Prologis Park Substation Installation**

This Exhibit is attached to and made part of the Memorandum of Agreement dated \_\_\_\_\_, 2020 between the Rochelle Municipal Utilities, Rochelle, Illinois (Owner) and BHMG Engineers, Inc. (Engineer or BHMG) providing for professional services.

### **Description of the Project:**

The Rochelle Municipal Utilities has elected to proceed with the installation of a new distribution substation located at Prologis Park to supply 34.5kV and 13.8kV to the proposed loads. This project is dependent on the new proposed 138kV ring bus by ComED, as detailed below.

The project schedule requires the energization of systems by Fall 2021. The project includes some long lead time equipment, so it is paramount to complete these specification and procurement activities as soon as possible.

### **Scope of Professional Services:**

#### **Preliminary Phase:**

- Project kickoff and data collection/review:
  - Meet with staff to review the proposed scope and requirements for the system.
- Engineering assessment and design:
  - Perform necessary survey of the existing substation.
  - Complete geotechnical explorations and soil borings.
  - Visit site as necessary to finalize pre-engineering details and layout.
  - Prepare preliminary design layouts for the proposed design.
  - Assist in the system protection design for the system.

#### **Equipment Selection & Specifications:**

- Assist in equipment selection and specification generation for major equipment items.
- Prepare specifications for the installation.

#### **Physical Substation Design:**

- Generate designs and updates for the following systems:
  - Ground grid
  - Conduit plan
  - Foundation plan
  - Foundation design
  - General arrangements
  - Equipment sections
- Create analysis and calculation reports for design.
- Conduct review meetings of the drawings and specifications with the client at the 50%, 75%, 95%, completion, upon request.

- Incorporate the client's comments in the drawings and specifications.

**Electrical Substation Design:**

- Generate designs and updates for the following systems:
  - One-line diagrams
  - Panel layouts
  - Schematics
  - Wiring diagrams
- Create analysis and calculation reports for design.
- Conduct review meetings of the drawings and specifications with the client at the 50%, 75%, 95%, completion, upon request.
- Incorporate the client's comments in the drawings and specifications

**Construction Phase:**

- Construction services:
  - Attend pre-construction meeting with the contractor and client staff.
  - Review and respond to any technical issues identified during construction.
  - Provide onsite visits to resolve any technical issues that cannot be addressed by phone conversation.
  - Provide onsite inspection of the construction.
  - If necessary, review change order requests.
  - Receive contractor's record drawing markups, incorporate them and submit final record drawings.

**Owner Participation:**

The Owner is requested to assist the Engineer by placing at his/her disposal all available information pertinent to the control drawings, relay settings, and other data which may be useful to the Engineer in the course of the work.

The Owner is requested to designate a person or persons to act as the Owner's representative with respect to the work to be performed under this agreement; and such person or persons should have the authority to transmit instructions, receive information, interpret and define the Owner's policies and decisions pertinent to the work covered by this agreement.

**Engineer's Compensation:**

Compensation for the engineering services provide in accordance with this agreement shall be a not to exceed amount of following, which will be billed as time and expenses as they are incurred, and the project can be suspended at any time:

- Engineering Design: \$495,000.00
- Construction Admin/Observation: \$200,000.00
- **Total: \$695,000.00**

BHMG will submit for payment based on monthly progress of work.

**Additional Services of Engineer:**

At the request of the Owner, the Engineer can provide additional services, either directly or through its affiliates, at regular hourly rates for such work plus out of pocket expenses. Such work may include items not otherwise provided for by this agreement.

**TERMS AND CONDITIONS**  
**BHMG Engineers, Inc.**

To assure an understanding of matters related to our mutual responsibilities, these terms and conditions for services are made a part of this agreement for our services:

**AMENDMENTS**

This agreement may be amended in writing providing both the Owner and Company agree to such modifications.

**COMPENSATION FOR SERVICES**

The basis for compensation will be as identified in the agreement.

When "Lump Sum" payment is utilized, it shall include all labor and expenses (for the scope of work as defined in the agreement) incurred by the Company and shall not exceed the fixed payment amount without prior authorization of the Owner.

When a "Payroll Costs" payment is utilized it shall be computed by a multiplier factor times payroll cost plus reimbursable expenses.

The "Payroll Costs" means the salaries and wages paid to all personnel engaged directly on the work plus the cost of customary and statutory benefits including social security contributions, unemployment, health, sick leave, vacation, workman's compensation, incentive and holiday pay applicable thereto.

"Reimbursable Expenses" means the actual expenses incurred directly or indirectly in connection with the work including but not limited to the following: Transportation and subsistence, toll telephone calls, telegrams, reproduction or printing, computer time and outside consultants.

The "Multiplier" is a factor for general direct overhead, indirect costs, profit and other costs. The Multiplier factor rate shall be identified in the agreement.

**TIME OF PAYMENT**

The Company may submit monthly statements for services and expenses based upon the proportion of the actual work completed at the time of billing. Unless provided for otherwise, payments for engineering services will be due and payable thirty (30) calendar days from the issuance of the Company's statement.

**LATE PAYMENT**

If the Owner fails to make any payment due the Company for services and expenses within the time period specified, a service charge of 1-1/2% per month will be added to the Owners account. This is an annual rate of 18%.

**LIMITATION OF LIABILITY**

The Owner agrees to limit the Company's liability to the Owner and to all construction contractors and subcontractors where applicable, on this work, for damages to them, due to the Company's negligent acts, errors or omissions, such that the total aggregate liability of the Company to all those named shall not exceed \$50,000 or the Company's total fee for services rendered on this work, whichever is greater.

**TERMINATION**

This agreement may be terminated by either party upon written notice. Any termination shall only be for good cause such as for legal, unavailability of adequate financing or major changes in the work. In the event of any termination the Company will be paid for all services and expenses rendered to the date of termination on a basis of payroll cost times a multiplier of 2.5 (if not previously provided for) plus reimbursable expenses.

**REUSE OF DOCUMENTS**

All documents including drawings and specifications furnished by Company pursuant to this Agreement are instruments of his services in respect of the work. They are not intended or represented to be suitable for reuse by Owner or others on extensions of this work, or on any other work. Any reuse without specific written verification or adaptation by Company will be at Owner's sole risk, and without liability of Company, and Owner shall indemnify and hold harmless Company from all claims, damages, losses and expenses including attorneys fees arising out of or resulting therefrom. Any such verification or adaptation will entitle Company to further compensation at rates to be agreed upon by Owner and Company.

**ESTIMATES OF COST**

Since the Company has no control over the cost of labor, materials or equipment or over a Contractor(s) method of determining prices, or over competitive bidding or market conditions, his opinions of probable Project Cost or Construction Costs that may be provided for herein are to be made on the basis of his experience and qualifications and represent his best judgment as a design professional familiar with the construction industry, but Company cannot and does not guarantee that proposals, bids or the construction cost will not vary from opinions of probable cost prepared by him. If the Owner wishes greater assurance as to the construction cost, he shall employ an independent cost estimator.