

The background of the entire page is a photograph of a high-voltage power transmission line. Several large metal lattice towers are visible, with multiple power lines stretching across the frame. In the upper right, a group of workers can be seen standing on one of the towers. The sky is a clear, pale blue.

# ENGINEERING SERVICES

Providing detailed engineering for every project, including civil, structural, telecom and electrical elements.

## Phasor Engineering is Canada's Utility Services Powerhouse.

In 2022, all of Valard's engineering and geomatics services were reorganized into Phasor Engineering, a Quanta Services Company. This merger combined the individual success of each team into a fully integrated Professional Services company focused on our client's power system design and technical support needs.

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**PROUD TO BE PART OF THE**

 **Valard Group of Companies**

## WHY CHOOSE PHASOR?

Our team consists of experienced professionals, knowledgeable in every sector of the utility industry. With dozens of engineers dedicated to providing services for our clients, Phasor is well equipped to handle a wide array of project requirements.

## FIVE SPECIALIZED TEAMS

**SUBSTATIONS** - Electrical, P&C, SCADA and Studies Engineering

**LINES** - Transmission and Distribution

**TELECOMMUNICATIONS** - Fibre, Coax, and Permitting

**CIVIL** - Foundations, Geotechnical, Structural, Transportation, Civil Work and Others

**GEOMATICS** - Construction Layout, Spatial Data Acquisition

**GET IN TOUCH**

**HARVIR MANN | President**

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# SUBSTATIONS

## WE ALWAYS RISE TO THE CHALLENGE

All stations and substations ranging from 600V through to 500kV for utilities, and public and private companies across Canada in various sectors. This includes full turnkey EPC and everything in between.

Phasor's Substations group also has experience in renewables and utility scale battery storage.

## SCOPE OF SERVICES

### IN-DEPTH STUDIES

- Power Systems Studies
- Grounding Studies
- Lighting Studies
- AC Station Services and DC Supply Studies
- Protection Coordination and Settings Studies

### PHASED DESIGN PROCESS

- Conceptual Design
- Preliminary Design
- Detailed Design

### OTHER SERVICES

- IEC 61850
- Commercial PRP (parallel redundancy protocol)
- Network architecture design
- Reliability analysis
- Advanced HMI and data concentrator implementation
- Factory Acceptance Testing (FAT) featuring full substation simulation

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### MICHAEL REYNEN | Substations Engineering Manager

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# **LINE** TRANSMISSION AND DISTRIBUTION

## **THE LINES WE BUILD CONNECT COMMUNITIES**

We can help with development of transmission and distribution networks from route planning to energization.

Phasor's experience includes designing lines ranging from 500kV down to 4.16kV.

Services span from initial concept analysis and early stage development to design, construction support, and operations and maintenance. In addition, Phasor provides for POI and preferred route plans, reports on EA aspects and inputs into various permit processes.

## **SCOPE OF SERVICES**

### **TRANSMISSION (69kV to 500kV)**

- Conductor selection and optimization
- Structure selection and optimization
- Feasibility studies
- Lattice tower design
- Steel pole / wood pole design
- Route selection and structure spotting using PLS-CADD
- Development of material and construction specifications
- Factory inspection, type testing and development of inspection and test plans
- Thermal uprating, line re-mediation, re-conductoring and as-built line modelling
- Field Engineering and Inspection

### **DISTRIBUTION (4kV to 69kV)**

- Greenfield / Brownfield utility & industrial projects (oilfield, mining, etc.)
- Overhead and underground applications
- Conductor sizing and equipment specification
- Pole Line Analysis for joint-use telecom applications
- Non-linear analysis of poles
- Field Engineering and Inspection

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## **CHRIS LEE | Transmission Engineering Manager**

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# TELECOMMUNICATIONS

## PRIMED & READY

Specializing in Outside Plant (OSP) Telecommunications for service providers and utilities within Canada, our team is proficient with the design of fiber & coax infrastructure and permitting for aerial & underground placement. Experienced with feeder, distribution and service wire design within commercial and residential settings our team is keen to partner with you on your next project.

## SCOPE OF SERVICES

### DESIGN

- Fiber to the Home (FTTH)
- Commercial Fiber
- Residential Coax
- Commercial Coax
- Fiber Distribution Hub
- Node Launch
- Node Split
- Relocates
- Overbuilds

### DRAFTING

- AutoCAD
- MicroStation
- GCOMM
- SpatialNet

### PERMITTING

- Local Municipality
- Joint Use
- Railway
- Pipeline
- Transportation

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### MYLES WHITAKER | Telecom Design Manager

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# CIVIL

## WE HAVE THE EXPERTISE TO TACKLE ANY PROJECT, NO MATTER THE COMPLEXITY

Phasor's Civil Engineering group provides designs and successfully completes projects for the infrastructure, energy, and oil and gas sectors.

## SCOPE OF SERVICES

### FOUNDATION

- Foundation design including deep foundation and anchors
- Wind turbine foundation
- Shoring design
- Retaining wall design
- Pile monitoring, PDA, CAPWAP and WEAP analysis

### GEOTECHNICAL

- Geotechnical construction support
- Geotechnical desktop study
- Slope stability analysis
- Detailed geotechnical study including drilling, rock coring and reporting

### STRUCTURAL

- Steel structure design
- Tower design
- Dynamic analysis
- Rooftop studies

### CIVIL WORK & OTHERS

- Site grading
- Lifting plan

### MISCELLANEOUS

- Site support and post site inspection
- Value Engineering

## AMIN EL GENDY | Civil Engineering Manager

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# GEOMATICS

## POWER IN PRECISION

Phasor's Geomatics group applies the latest technology to get the spatial information you need to design, build and monitor your power infrastructure.

With expertise in traditional terrestrial surveys, GPS and both aerial and terrestrial scanning technologies, we can gather the information you need and present it in a number of ways, such as plans or 3D models tailored to your unique requirements.

## SCOPE OF SERVICES

### CONSTRUCTION LAYOUT

- High-Precision Construction Layout
- Right of Way Surveying and Staking
- Powerline stringing
- Layout of Transmission Lines, Distribution Networks, Substation Sites and other Power Infrastructure

### SPATIAL DATA ACQUISITION

- 3D Terrestrial Scanning
- Aerial Photo Acquisition via Drone
- LiDAR Acquisition
- 3D photos for pole loads analysis
- GPS as-built surveys

### SPATIAL DATA REPRESENTATION

- 3D Models
- Topographical Plans
- GIS
- Volume Calculations

### OTHER SERVICES

- Boundary Surveys

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