



GLOBAL. RENEWABLE. THINKING.

STATEMENT OF QUALIFICATIONS

00. TOC

01.	INTRODUCTION	02
02.	PHILOSOPHY	04
03.	SPECIALTIES	05
	HYBRID MICROGRID SOLUTIONS	06
	<i>Prefeasibility and Design Engineering</i>	
	<i>Management Consulting, Contract Formation and Economic Analysis</i>	
	<i>Owners Engineering and Installation Supervision</i>	
	SOLAR & WIND POWER	08
	<i>Project Development and Planning</i>	
	<i>Renewable Power Due Diligence and Transaction advisory</i>	
	<i>Project Execution</i>	
	<i>Client Capacity Building & Asset Management Support</i>	
	<i>Corporate Off-take and Behind the Meter Services</i>	
	DISPUTE RESOLUTION SERVICES	10
	<i>Change Management</i>	
	<i>Arbitration Support</i>	
	<i>Procurement Support</i>	
04.	PROJECT CASE STUDIES	12
05.	NOTES	16

Tel: 1 800 905 2450
info@phoventus.com

TORONTO 4200 South Service Road, Suite 102, Burlington, Ontario, L7L 4X5
NEW YORK 45 Wall Street, New York, New York, 10005

www.phoventus.com



01. INTRODUCTION

At Phoventus, our mission is excellence in advisory and engineering services to the renewable energy, electrification, and hybrid power markets. We provide value-added strategic management, engineering, and environmental consulting and advisory services to power clients of every type, mission, and purpose around the world.

CORE MARKETS



With more than 50 years combined experience in their respective fields, the Phoventus management team has provided successful consulting services for over 500 distributed energy projects around the world. In everything we do, our goal is to minimize risk for our clients, maximize project efficiency and profitability, and guarantee their long-term success.

From our offices in Toronto and New York, our experienced team of energy industry professionals offers unparalleled expertise on the core issues affecting our clients.

Our goal is simple: To maintain excellence in all we do so we can serve our clients better than anyone else. That aim is at the heart of our company's philosophy.



Hands on approach



Electrification



Public speaking and Industry support



Construction experience

GLOBAL EXPERIENCE



02. PHILOSOPHY

Focus on the core issues affecting the Global Development, Performance, and Profitability of Distributed Power and Energy projects on behalf of our clients.



GLOBAL

Build on our passion for the expansion of renewable energy use and universal access to affordable electricity for all, ensuring we stay at the forefront of developments in renewable energy, storage and microgrid/off-grid technology, project development, and finance, so our clients can be confident they are in safe hands.



RENEWABLE

Maintain a high standard of excellence in advisory services through all stages of a project's lifecycle, starting with early-stage environmental assessments through to developer risk management and safeguarding the interests of power producers/operators and long-term ownership stakeholders.



THINKING

03. SPECIALTIES

In everything we do, our aim at Phoventus is to minimize and mitigate risk for our clients through all stages of a project's lifecycle, maximize project efficiency and profitability, and guarantee success for their renewable energy business strategies and project development goals.

Our services are comprehensive consisting of full lifecycle project management, which means we can offer you everything you need from project beginning to end. From big to small, local to global, our dedicated team of energy industry specialists is here to advise on and help implement the right solutions for you and your business.



HYBRID MICROGRID SOLUTIONS

phoventus.com/hybrid-microgrid-solutions/

Our services span all stages of your hybrid power project's lifecycle, starting with early-stage environmental, technical and financial feasibility assessments through to risk management and safeguarding the interests of power producers and long-term ownership stakeholders.

Prefeasibility and Design Engineering

- Preliminary engineering, design and studies
- Capital and operational cost budgeting
- Environmental constraints assessment, environmental impact assessments and permitting (including government, public and Indigenous consultation)
- Energy yield assessment

Management Consulting, Contract Formation, and Economic Analysis

- Techno-economic assessments of on-site power generation options
- Integration studies and synthetic PPA evaluation
- Review of significant agreements and pro forma

Owners Engineering and Installation Supervision

- Contract reviews
- Owner's engineering services
- Preparing and managing specifications
- Reviewing bids
- Reviewing contractor performance



*“Phoventus is here to help you through the maze of hybrid power options available. **We understand what will and won't work – and why.**”*



As the Managing Director of Phoventus, Rob Lydan builds on his experience, devoting his time to assisting clients achieve exceptional outcomes.

SOLAR & WIND POWER

phoventus.com/wind-solar/



Kathryn Klement is a Senior Member of the IEEE and has published papers in IEEE conference proceedings and the IEEE Transactions on Industry Application journal, for which she acts as a peer reviewer.

Project Development and Planning

Project developers face ever-changing regulatory, environmental, and technical constraints unique to each project. The slightest delay thanks to any of these limitations can ultimately undermine the financial viability of a project. We make sure this does not happen to our clients. At Phoventus, we ensure projects are designed to factor in these constraints, with risk-mitigation strategies designed-in from the start so that project plans can move through the planning/permitting process smoothly, without delay, and with the best possible chance of approval to proceed.

We employ our broad experience in development stage projects to ensure our clients' development budgets are being spent in the right places to de-risk and advance their projects.

Our services include:

- Environmental constraints assessment, environmental impact assessments and permitting (including government, public and Indigenous consultation)
- Energy yield assessment
- Preliminary engineering, design, and studies
- Capital and operational cost budgeting
- Support on interconnection application and geotechnical investigation

Renewable Power Due Diligence and Transaction Advisory

We provide comprehensive technical and environmental due diligence services for projects under development in construction and operating. From essential fatal flaw reviews to providing technical assistance to lenders for project finance, our goal is to provide insightful advice to help our clients identify, assess and mitigate project risk. In doing so, we help them determine the financial implications of their projects or asset acquisitions to ensure they have the necessary and correct information to make appropriate decisions.

Our services include:

- Resource assessment and uncertainty analysis
- Review of equipment, vendors, contractors and designs
- Environmental constraint identification, permitting status and compliance analysis
- Review of significant agreements and pro forma
- Review of project schedule, execution planning, and construction
- Independent Engineer reporting and certification

Project Execution

We support clients through every stage of the project construction process. This includes setting expectations and managing, monitoring and adding value through upfront planning and engineering support.

Other services include:

- Contract reviews
- Owner's engineering services
- Preparing and distributing specifications
- Reviewing bids
- Reviewing contractor performance

Phoventus also provides project commissioning support and energy production verification to close out the project.

Client Capacity Building & Asset Management Support

We provide asset management advisory services that encompass day-to-day operations and maintenance, portfolio management, and investment and divestment planning.

Our services include:

- Training and mentoring
- Performance evaluations and optimization
- Budgeting for maintenance and capital spending
- Support contracting with O&M providers, managing and reviewing their performance
- Environmental compliance monitoring
- Engineering investigations, changes, and studies such as arc flash and power quality

Corporate Off-take and Behind the Meter Services

For corporations and industrial electricity users seeking to lower their electricity costs and carbon footprint, we provide a range of services including:

- Techno-economic assessments of on-site power generation options
- Procurement of electricity through power purchase agreements (on-site or virtual)
- Integration of renewables with energy storage and generators for micro-grid or remote sites

DISPUTE RESOLUTION SERVICES

phoventus.com/dispute-resolution/

The management, supervision, and closeout of EPC construction contracts are fundamental to the success of our clients. We are uniquely qualified to assist our client in closing gaps between themselves and their construction partners.

Change Management

- Engineering change review and alignment with contract expectations and market value
- Cost-benefit analysis and risk allocation
- Contractor supervision
- Project Controls

Forensic Engineering

- Expert and technical review of change disputes
- Forensic engineering studies and reporting
- Counsel technical support
- Lien, waiver and closeout documentation management

Procurement Support

- Contract formation
- Technical appendix, statements of work and terms of reference
- Bid specs and RFP composition, distribution and management
- Bid ratings and bid management
- Design basis and unit measure takeoff calculations



“Phoventus provides advice to clients needing assistance in resolving disputes surrounding renewable power projects.”

“Rob and his team are among the best professional engineers that we have worked with in solar space.”

“They provide timely advice and critical insight into design, procurement and development problems that reduce costs, reduce risk and move projects forward.”

- Thomas J. Timmins, Gowling WLG

04. PROJECT CASE STUDIES



PRE-FEASIBILITY STUDY FOR INTEGRATION OF RENEWABLE POWER IN SOUTH GOBI MINES

Wind & Solar | Mongolia | International Finance Corporation (IFC)

Phoventus is completing a pre-feasibility study for IFC and three mining companies to assess the potential to integrate renewable power sources with thermal generation at three mines located in the South Gobi region of Mongolia. The purpose of the study is to develop a business case for renewable power opportunities considering power demand, site characteristics, community benefits, permitting and regulatory requirements, electrical and control system design, and solar and wind resource.



TRANSACTION ADVISORY FOR BATTERY STORAGE SYSTEM

13MW/ 53MWh | Energy Storage | Ontario

Phoventus reviewed the business case and completed a technical analysis of the Leclanché battery technology for a prospective buyer of the battery system. This system has a contract under IESO Energy Storage Procurement Phase 1 to provide ancillary grid services and it will be connected to the Toronto Hydro grid.

WATER TREATMENT FOR LANDFILLS

Water, Electrification & Solar | Tennessee & Ohio | Xogen Technologies

Xogen deploys an electrolytic wastewater treatment technology in modular and customized systems to treat wastewater contaminants. Xogen engaged Phoventus to assist in resolving DC power design challenges related to the flexible implementation of these systems to meet treatment design parameters and to model the business case for powering the systems using solar.

100% CO2 FREE ELECTRICITY SUPPLY FOR PLANT SPARTANBURG

Wind, Solar & Other Renewables | South Carolina | BMW Manufacturing Co.

One of Phoventus' employees was project manager for this assignment carried out by Hatch and Greener by Design, which entailed consulting to BMW on a strategy to supply the electricity consumed by its US operations with carbon-free sources, including examination of on-site, near site, and off-site renewable power options and purchase of Renewable Energy Certificates.

ENVIRONMENTAL OVERSIGHT FOR HENVEY INLET WIND ENERGY CENTRE

300 MW | Wind | Central Ontario | Pattern Energy and Nigig Power Corporation

Phoventus provided on-site environmental management during construction of this 300 MW wind project with an 86 km transmission line. Located on Henvey Inlet First Nation (HIFN) Reserve Lands, this project is subject to the HIFN Land Laws. An Environmental Stewardship Regime has been developed for environmental protection which includes an environmental assessment process.

ASSESSMENT OF MINE FOR INTEGRATION OF RENEWABLE POWER

9 MW | Wind, Solar & Electrification | Madagascar | Rio Tinto

Phoventus staff were project sponsor and electrical lead for the team investigating the use of renewable power to reduce electricity costs and greenhouse gas emissions at the diesel-powered QMM mine. We visited the site, completed the integration and sizing analysis, developed designs, and presented the business case to Rio Tinto's management.

INDEPENDENT ENGINEER FOR ONTARIO WIND FARMS

405 MW | Wind | Ontario | Brookfield Renewable Partners

One of Phoventus' employees was project manager for this assignment carried out by Hatch to prepare independent engineer reports for a portfolio of operating wind assets, covering asset condition, environmental compliance, and past and future O&M / CAPEX spending, in support of a potential equity sale.

"The team at Phoventus bring dedication, critical insights and rare in-depth industry experience to our projects."

"They are knowledgeable, practical and dedicated to delivering high-quality outcomes. We enjoy working with Phoventus and welcome the opportunity to recommend them to others."

- Lee Anderson, CBRE Caledon Capital Management

04. PROJECT CASE STUDIES



PROJECT MANAGEMENT FOR MASSACHUSETTS SOLAR PORTFOLIO

15 MW various sites | Solar | Massachusetts

Phoventus is providing project management services for the late-stage development and construction of this portfolio of 5 community solar projects. We have supported the acquisition of the projects and managed the team in preparing the plans for construction including Interconnection Supply Agreements with National Grid, detailed engineering, project controls, and contracting.



FEASIBILITY STUDY AND EPCM FOR 6 ROOFTOP SOLAR PROJECTS

710 kW | Solar | Ontario | Thunder Bay Hydro

Phoventus staff were lead electrical engineer and project sponsor for the Hatch team that completed the engineering, procurement and construction management for the portfolio. This followed a detailed feasibility study analysing potential for solar power at various municipal-owned rooftop and ground-mounted sites, assistance obtaining power purchase agreements, and interconnection applications to the utility.



OWNER'S ENGINEER FOR NORTH SHORE SOLAR

75 MW | Solar | California | Sunpin Solar

Phoventus managed the project team that provided Owner's Engineer services to prepare the project for construction, including support on electrical, interconnection, geotechnical, SCADA, equipment selection and contractor specifications.

PRELIMINARY DESIGN FOR ALBERTA SOLAR PROJECTS

35 MW | Solar | Alberta | Transparent Power

Phoventus developed the preliminary layouts and energy production analysis for two utility scale solar projects in Alberta, working with the project developer to make suitable equipment selections to meet the project risk profile and utility requirements. We also introduced our client to prospective buyers in the solar development community.

TRANSACTION ADVISORY FOR YAMAGATA SOLAR PROJECT

45 MW | Solar | Northern Japan

Phoventus is supporting the acquisition of the development stage Yamagata Solar Project, including technical support on the project capacity and energy estimation, resource assessment, and construction cost budgeting.

PROJECT MANAGEMENT FOR COMMUNITY ENERGY PORTFOLIO

6.5 MW | Solar | Minnesota

Phoventus is providing project management services for the late stage development and construction of this portfolio, including assistance in EPC contracting and review of the equipment and energy yield assumptions contained in the pro forma agreement.

"All of us at Entropy would like to express our appreciation for the work that Kathryn Klement and the team performed as Independent Engineer for the project finance of Entropy's 5MW Cayman Solar Project by CIBC First Caribbean International Bank."

"The project was the first utility scale solar project developed in Cayman Islands, which posed a unique set of challenges. A number of unusual design and engineering principles needed to be incorporated to address hurricane force wind loading, difficult soil and rock conditions, and the lack of a substantial service and support infrastructure to accommodate the service and maintenance needs of the plant. Kathryn and the team worked with us to fully understand and address potential risks, delivering their work professionally, on time, and on budget. We appreciated Kathryn's diligent efforts and look forward to working with her in the future."

- David March, Entropy Investment Management

Change Control Budgeting Compliance
Assessments Planning Construction Management
Vendors Strategic Uncertainty Analysis Due Diligence
Global Electrification Engi
Species at Risk Corporate Solar Transaction
Project Management Advisory Professional
Design Toronto EPCM Permits Community Enviro
O&M Wind New York Yield
Microgrid Consultation Solar Project D
Experienced Energy Storage Consu
Contracts Owners Engineer Operations
Renewable Power Schedule
Asset Management Natural Heritage Electrical



TORONTO - NEW YORK

4200 South Service Road, Suite 102, Burlington, Ontario, Canada, L7L 4X5
Tel: 1 800 905 2450 info@phoventus.com

www.phoventus.com