ENERGYWORKS
ENERGY & INFRASTRUCTURE SERVICES

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ENERGYWORKS PROFESSIONAL SERVICES

STATEMENT OF QUALIFICATIONS

Professional Services

Wind Power - Development, Implementation, Operations and Maintenance

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EnergyWorks Professional Services

The ability to adapt to a changing market

Introduction

EnergyWorks was established by Bechtel Enterprises, Inc. and PacifiCorp in 1995 in response to evolving energy and infrastructure needs utilizing both conventional fossil fuel sources, primarily liquid and natural gas fuels and renewable sources such as wind. In 1999, the company was purchased by Iberdrola, S.A., one of Europe's leading electric utilities. As an Iberdrola subsidiary, EnergyWorks expanded to include operations in six countries, with commercial and industrial energy infrastructure investments totaling nearly $300 million.

In mid-year 2001, EnergyWorks senior management negotiated a buyout of operations in the United States and Canada. EnergyWorks North America was formed as a Maryland limited liability company. The owner-manager principals of EnergyWorks North America have collaborated on a wide variety of successful energy and infrastructure projects since 1992.

One of EnergyWorks' primary areas of business focus is the rapidly evolving wind industry. Since its inaugural Costa Rican wind projects in 1996, EnergyWorks has expanded its presence in the wind industry and is currently managing the project implementation of a number of number of projects in the US and Canada, ranging from a 150 MW, utility owned facility in Canada to a 7.5 MW, developer-driven showcase project within an existing, confined, waste water treatment plant in the United States. EnergyWorks has played a key role in the development support and implementation of over 1,500 MW of wind power generation. Construction Management, Development, Implementation and Upgrade/Repair Management workload in **2008-2010** includes the following:

1. 50 MW wind farm, Siemens – Project/Site Managerment – Maine
2. 99 MW wind farm, Vestas – Project/Site Management – New Hampshire
3. 138 MW wind farm, Siemens – Project/Site Management – Manitoba, Canada
4. 20 MW wind farm, NORDEX – Project/Site Management – Wisconsin
5. 101 MW wind farm, Siemens Project/Site Management - California
6. 23 MW wind farms, Suzlon – Site Management – Kansas & Idaho
7. 65 MW wind farm, Vestas – Site Management – Oregon
8. 80 MW wind farm, Gamesa – Project Management – Illinois
9. 52 MW wind farm, Gamesa – Project Management – Illinois
10. 290 MW wind farm, MHI – Project/Site Management – Texas
11. 120 MW wind farm, GE – Project/Site Management - Texas
12. 90 MW wind farm, Gamesa – Construction Management – Pennsylvania
13. 60 MW wind farm, GE – Site Management – South Dakota
14. 60 MW wind farm, GE – Site Management - Wisconsin
15. 100 MW wind farm – Site Management - multiple New York
16. 60 MW wind farm – Site Management - Michigan
17. Multiple sites throughout US and Canada – WTG Repair / Maintenance Management

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The EnergyWorks team is diverse; it has worked with many of the wind turbine suppliers, General Electric, Vestas, Gamesa, Mitsubishi, Siemens, Nordex and NEG-Micon (now integrated into Vestas). The team has worked in many areas of the world, including North America, Latin America and Europe, and can support any individual stage of a wind project venture or provide support to a project venture from development and implementation to operations and maintenance. What is your need?

Organization and Approach

The organization and approach of EnergyWorks Professional Services (EWPS) are built upon the broad and complementary capabilities of its Principals, who have collaborated on wide variety projects over the last fifteen years. The Principals combine many years of professional experience in the disciplines of development, engineering, construction management, project management, operations, maintenance and asset management. This experience spans industrial and institutional sectors from petroleum and chemicals, manufacturing, electrical utilities to military and governmental agencies.

Focus and Capabilities

EnergyWorks Professional Services was established to respond to needs to plan, develop, and implement medium-scale capital projects. Such projects require the same sophistication as large projects; however, their economics cannot tolerate organizational redundancies typically inherent in the management of large projects. EWPS's solution is to create an efficient, customized service offering to ideally complement the in-house capabilities of its clients, allowing the client to concentrate on its core business, usually as developer, marketer, financier, equipment supplier or facility operator.

The offering by EnergyWorks includes all phases of project development, project implementation and project operations and maintenance.

Project Development Services – Project Development Services can be provided to acquire existing assets or develop and implement a capital project under a variety of funding scenarios, including limited recourse project finance. This capability includes:

1. **Feasibility Studies** — Proposed sites are analyzed to determine wind project feasibility based on site inspections, wind resource information, regulatory requirements, energy market conditions and renewables tax credits, and discussions with stakeholders such as local authorities, landowners, and electrical network operators.

2. **Wind Measurements and Analysis** — A crucial step in validating the viability of proposed sites is performing direct wind measurements to augment available meteorological data. This process could take a year or two depending on the quality of existing wind data.

3. **Feed-In, Power Purchase, and Interconnection Agreements** — Agreements on grid interconnection and power transport must address utility concerns regarding transmission capacity, reliability, and effects on grid operations. Power purchase agreements can be simple energy-only contracts or more sophisticated arrangements that include capacity, energy, ancillary services, dispatchability, and other grid support services

4. **Building Permit Inquiry** — The attitude and requirements of the permit granting authorities and the local community are determined early in the process and a preliminary application for granting a building permit must be submitted to appropriate authorities.

5. **Property Arrangements** — Property arrangements needed to operate large wind farms differ significantly from that for distributed wind projects with many small clusters on farmland or other individually owned property. Property arrangements typically must meet financial, environmental, zoning, and leasing objectives of different stakeholders.

Project Design and Optimization — This is the step where the value of a project is maximized. Wind turbines, project configuration (farm, distributed, hybrid), operating strategies, and risk management strategies are designed or selected to maximize project value based on the unique needs and constraints of the region.

1. **Manufacturer and subcontractor selection —** Once the technical requirements of a project are fully developed, appropriate technologies and vendors will be selected and delivery, pricing, and other terms established.
2. **Final Feasibility Study —** The economic viability of a project is thoroughly analyzed on the basis of all "hard facts" and requirements that have become evident in the previous stages of project development. The final feasibility study will include expert reports and recommendations on all the issues identified above.
3. **Proposals, Applications, and Contract Negotiations —** Final applications for building permits, proposals for power purchase agreements, property agreements, etc. will be submitted and final agreements negotiated once the detailed feasibility study is complete.

Project Implementation Services – Project Implementation Services are professional services necessary to take a project from the “on-paper” phase to installed assets. This capability includes:

1. **Basic and Detailed Engineering and Design**—The conceptual design presented in feasibility study is evolved into a basic design followed by detailed design. These stages incorporate technical details from the selected supplier of major equipment. Often, cost-benefit studies are performed to optimize a design or solution.
2. **Contract negotiations** – Contraction negotiations are required for the procurement of major equipment and construction services. Skilled contract negotiators can save the owner substantial money.
3. **Project Management** – The project management team will include a project manager and project controls (budget and schedule control). Additional support staff capability includes safety, procurement, logistics and quality. The project management team advances the successes brought about during the project development phase.
4. **Site Management / Construction Management** – For large projects, a site project manager may be required with a complement of construction manager(s), field engineers, safety officer, logistics, quality control and project controls. The site team is an extension of the project management team.
5. **Commissioning** – Commissioning specialists will transition the project from a construction program into an operating facility.

Operations and Asset Management Services – Operations and Asset Management Services set up the project operation by hiring key staff and implementing technical and business systems to maximize revenue while minimizing expenses.

1. **Annual business plan development** – A management tool required to forecast revenues and expenses.
2. **Asset Management and Staffing of the Operating Facility –** An analysis is required to optimize the skill-sets required. These skill-sets are either hired or subcontracted. An efficient team is established to operate and maintain the facility over the life of the facility.
3. **Stocking of consumables and spare parts –** This activity is an iterative process to provide the optimal initial stocking of supplies and the on-going change-out of parts and consumables.

Service Approaches

For clients accustomed to in-house management of project execution, EWPS expands their capabilities by adding depth and/or breath to project development and execution. EWPS is highly sensitive to client internal processes and, where necessary, adapts to established policies and procedures. In so doing, the EWPS team integrates seamlessly with the client's organization. EnergyWorks Professional Services' capabilities are offered as **five distinct service categories:**

- **Technical Consulting** – Technical Consulting services include the performance of pre-engineering studies, basic design, troubleshooting, engineering analysis, reviews (including HAZOPS), inspections and audits which may be limited to a particular technical aspect of capital project or operating facility.
    - Pre-Engineering Studies – Include initial site investigations to define/refine the scope of the project, develop the technical solution (incl. heat and material balance, water balance, short circuit studies), develop preliminary cost estimates and milestone schedule.
    - Basic design – Following pre-engineering, a basic design will be performed to establish the fundamental framework of the project including site layout, process flow diagram, electrical single line, piping and instrumentation diagrams, equipment list, equipment specification, and design basis. The project cost estimate and milestone schedule will be further refined.
- **Engineering, Procurement and Construction (EPC) Management** –
  Engineering, Procurement and Construction Management services include integration and coordination of engineers, equipment suppliers and construction contractors, on-site management, planning and cost control, quality of workmanship and facility commissioning. EWPS will perform as the client's construction site manager or take on the overall EPC management function on behalf of its clients.
    - EWPS develops customized pre-engineering studies, basic designs including optimized heat material balances, water balances, general plant layout, process flow diagrams (PFD), piping and instrumentation diagrams (P&ID), electrical single line, equipment list, major equipment specifications, and plant design criteria.
    - EWPS manages completion of detailed design, equipment procurement, construction subcontract execution, project scheduling and updated project budgets.
    - EWPS coordinates the delivery of equipment and on-site construction activity.

- EWPS integrates commissioning activity at the time during construction such that overlap of construction and commissioning occurs with minimum interference to meet accelerated project schedule timeframes.
- EWPS integrates the operations team into commissioning activity to provide a smooth transition from construction to plant commercial operations.

- **Project Management** – Project Management services provide broad project oversight on behalf of the client. EWPS will monitor performance of engineers, suppliers and construction contractors and act to ensure that project milestones, budget, construction quality and specific performance parameters are met.

  - EWPS provides full-time, on-site construction coordination and supervision.
  - EWPS provides logistical coordination of shipment of equipment from point of manufacture to the job site including expertise to move international shipments through customs.

- **Operations and Asset Management** – Operations and Asset Management services include the development of business and production systems, staffing (including training) and strategies to implement the facility Operations and Maintenance activities. Asset Management establishes long-term operational criteria for production planning, asset evaluations and annual profit and loss management.

  - EWPS provides operational expertise to train permanent plant management, operations and maintenance personnel. Long-term operations oversight and supervision (as necessary) is available as needed to supplement local personnel in critical plant operations.

- **Management Consulting** – Management Consulting involves the transfer of management know-how to the client without direct management and supervision by EWPS. Strategic mentoring of program management provides critical insight into the evolving wind market place.

Individual and Project Experience

The experience of key EWPS team members, including past project involvement are described in the following attachments.

Attachment A – The Management Team – Principles – Summary

Attachment B – Project Experience - Summary

Attachment A – The Management Team

PATRICK THOMPSON – *President and Chief Executive Officer*

Mr. Thompson was elected President and Chief Executive Officer of the EnergyWorks Group of Companies in 1999 and has continued to lead the profitable growth of the business since completing a management of the North American operations in 2001. Mr. Thompson has over 30 years experience in the energy industry and has held senior executive, business, engineering and development positions with the Bechtel Group and Iberdrola. Prior to joining Bechtel Corporation he served as a nuclear submarine office in the United States Navy. He holds a Bachelors of Science degree in Engineering from the United States Naval Academy, a Master's of Science in Engineering from the University of Michigan, and a MBA from the University of California.

GEORGE EMSURAK – *Executive Vice President and Chief Operating Officer*

Mr. Emsurak is responsible for the technical, engineering, construction and operations of the EnergyWorks Group of Companies. Mr. Emsurak has 30 years of project development, construction, management, and operations experience and has held senior positions with major construction and operating companies, including, Bechtel Corporation, John Brown E&C, Gulf Oil Corporation and the United States Navy Civil Engineers Corps. Mr. Emsurak has extensive experience in the design, development, construction and operation of gas-fired, liquid-fired, and renewable energy projects. He holds two Bachelor of Science degrees in Petroleum Engineering and Mineral Engineering from Pennsylvania State University.

JAMES WEIGLEY - *Chief Financial Officer*

Mr. Weigley is responsible for the overall financial management of the company, including planning and budgeting. Mr. Weigley is responsible for the overall financial management of the company, including planning and budgeting. Mr. Weigley has over 30 years of experience as in various senior financial management positions for domestic and international ventures. His experience includes ten years in the power segment with EnergyWorks (Bechtel/PacifiCorp) and Parsons/Gilbert Associates. Mr. Weigley began his career as a CPA working with KPMG. His responsibilities and area of expertise include managing and organizing business processes, system implementations and business combinations. Mr. Weigley holds a Bachelor of Science degree in Accounting from Susquehanna University in Selinsgrove, Pennsylvania.

MICHAEL MCCASKEY – *Vice President, Marketing & Sales*

Mr. McCaskey is responsible for the planning and development of new business opportunities and the development of governmental and institutional relationships. Mr. McCaskey has over 30 years of business experience in various sales and marketing positions for Eastman Kodak and Trane Company. In addition, he has held senior management positions in two non-profit organizations. Mr. McCaskey holds a Bachelor of Science degree in Mechanical Engineering from LeTourneau University and a Masters degree in Theology from Covenant Seminary.

JOHN MORRIS – *Business Unit Manager*

Mr. Morris is responsible for the management of the Professional Services Business Unit and has served in this capacity, as project and site manager on multiple sites throughout the US and Canada since 2004. Prior to joining the EnergyWorks Group of Companies in 2004, he held several positions in project and construction management both domestically and internationally. Mr. Morris is bi-lingual, fluent in English and Spanish.

JUAN CARLOS SCHIAVON URIEGAS – *Manager of Electrical Engineering and Operations*

Mr. Uriegas is responsible for management of engineering, construction and operations. He has contributed significantly to solving a multitude of electrical interconnect power quality and control challenges. He brings a broad understanding of electrical, mechanical and controls systems. He holds a Master degree in Electrical power Systems Analysis and Bachelors of Science degree in Mechanical and Electrical Engineering, both at the National Autonomous University of Mexico. Mr. Uriegas is bi-lingual, fluent in Spanish and English.

DANIEL BROWN – *Senior Construction Manager*

Mr. Brown is responsible for the management of construction projects. He has proven valuable in not only resolving a multitude of construction related challenges, but also in Landowner, Utility, and Contractor relations. He brings a wide range of experience in industrial construction, process applications and capital project management to the team. Drawing from experiences in nuclear, petro-chemical and all aspects of conventional power generation as well as numerous other industries, Mr Brown has brought a wide range of management and problem solving skills to our clients and the other members of the EnergyWorks team.

Project Managers, Site Managers and Specialists – To be assigned based on the specific needs of the project.

Attachment B – Project Experience - Summary

Project Implementation

EnergyWorks involvement in Wind projects is extensive and continues to grow. The following provides a listing of specific wind project involvement. Refer to qualification packages for other EnergyWorks energy and energy infrastructure experiences.

Wind Power Projects

- 290 MWe (Mitsubishi turbines) Gulf Winds I Wind Farm, Corpus Christi, Texas, Project Management and Site Management
- 120 MWe (GE turbines) Great Plains Wind Farm, Gruber, Texas, Project and Site Management
- 69 MWe (GE turbines) Michigan Thumb Wind Farm, Bad Axe, Michigan, Site Management
- 60 MWe (GE turbines) Wessington Springs Wind Farm, South Dakota, Site Management
- 60 MWe (GE turbines) Butler Ridge Wind Farm, Wisconsin, Site Management
- 60 MWe (GAMESA turbines) Allegheny Ridge II, Altoona, Pa, Site Management
- 80 MWe (Gamesa turbines) GSG Wind, West Brooklyn, IL, Project Management
- 52 MWe (Gamesa turbines) Mendota Wind Farm, Mendota, IL, Project Management
- Multiple NY Wind farms in upstate New York (GE turbines), Site Management
- 300 MWe (Mitsubishi and GE turbines) Cedar Creek Wind Farm, Gruver, Colorado, Project Management and Site Management
- 63 MWe (Vestas V-90) Solano Wind Project, Sacramento, California, Project Management
- 90 MWe (Gamesa) Allegheny Ridge, Central Pennsylvaina, Construction Management
- 63 MWe (Vestas V-90, 105m tower) Snyder Wind Project, Snyder, Texas, Project Management
- Multiple Sites throughout US and Canada, WTG Upgrade and Repair Management
- 90 MWe (90 x 1000A, 1.0MW, Mitsubishi) Aragonne Mesa Wind Farm, Santa Rosa, New Mexico, construction site representative for Babcock & Brown.
- 150 MWe (83 x V80, 1.8MW, 67m, Vestas) Rushlake Creek wind generation facility, Swift Current, Saskatchewan, $200 MM CAN, project management, construction management.

- 54 MWe (30 x V80, 1.8MW, Vestas) Miller Mountain wind generation facility, Gaspe region of Quebec, Canada, construction management.

- 54 MWe (30 x V80, 1.8MW, Vestas) Copper Mountain wind generation facility, Gaspe region of Quebec, Canada, construction management.

- 7.5 MWe [5 x sle, 1.5MW, GE Wind Energy (GEWE), 77m rotor wind turbines on 80 meter, 3 section towers], Jersey Atlantic wind project, Atlantic City, New Jersey, Owners Engineer, constructions management, on-going.

- 24 MWe [12 x G87 2MW, Gamesa], Bear Creek, Wilkes Barre, Pennsylvania, construction management, on-going.

- 7 MWe (9xM1500/750 wind turbine generators, NEG Micon) Facility; Tilaran, Costa Rica; $7 MM; Project Management, Operations and Asset Management.

- 24 MWe (32xNM750/44 wind turbine generators, NEG Micon) wind generation facility; Tilaran; Costa Rica; $30 MM; EPC Development.

- 24 MWe (33xNM750 wind turbine generators, NEG Micon) wind generation facility; Foote Creek; Wyoming USA; Construction management for wind turbine supplier, accelerated schedule, remote location.

Other Power Projects – Energy and Energy Infrastructure

Refer to EnergyWorks Infrastructure Services, EnergyWorks BioPower or EnergyWorks Field Service for broad breath of experience.

Attachment C – Wind Project Case Study