

## Wisconsin and the Midwest Region’s Energy, Power and Control Hub

### Statement of Qualifications

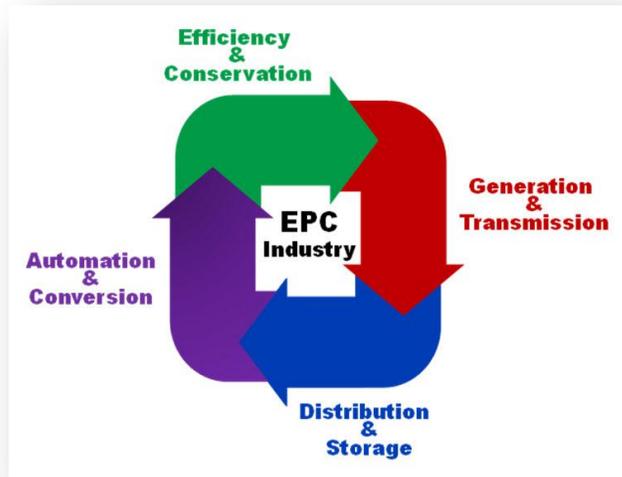
#### **Energy, Power and Control - A Rich History in the Wisconsin Region**

The Wisconsin Energy Research Consortium, known as WERC, was founded in a region rich in the tradition of innovation and leadership in energy, power and control (EPC) and related manufacturing, research and education. The region boasts inventors and entrepreneurs such as Edward P. Allis (Allis-Chalmers), Warren Johnson (Johnson Controls), and James Allen (The Allen-Bradley Company, now Rockwell Automation).

Today, WERC’s Wisconsin/Midwest Region is uniquely positioned for leadership in the EPC industry. The organization focuses its members, and the strong combination of industry, collaborative and academic assets in an eight state region, on five mission critical areas: (1) Technology Innovation, (2) Market and Industry Expansion, (3) Public Policy Support, (4) Workforce Development, and (5) Organizational Development and Strategic Collaboration. Table 1, below, summarizes the Industrial, Collaborative and Academic Assets of WERC and the Wisconsin/Midwest Region.

**Table 1. WERC’s Industry, Academic and Collaborative Assets**

Industry Assets	Collaborative Assets	Academic Assets
<ul style="list-style-type: none"> <li>25 Large International Industrial Members with Cumulative Revenues of \$38 B and Employment of 100,000 in EPC</li> </ul>	<ul style="list-style-type: none"> <li>Proven Precompetitive University, Technical College and Industry Research Collaboration</li> <li>Microgrid Research Centers in Milwaukee and Madison</li> </ul>	<ul style="list-style-type: none"> <li>Over \$1.25 B in Annual University Energy Research</li> <li>Nationally Recognized EPC University Research Labs and Research Centers</li> </ul>
<ul style="list-style-type: none"> <li>Largest US Cluster of Power and Control Companies</li> </ul>	<ul style="list-style-type: none"> <li>Detailed Long-term Strategic Plan Created and Approved by Over 30 Members</li> <li>Expanding to 8 states and over 100 members</li> </ul>	<ul style="list-style-type: none"> <li>Home of Wisconsin Energy Institute &amp; Great Lakes Bioenergy Research Institute</li> <li>Connections with Argonne National Lab</li> </ul>
<ul style="list-style-type: none"> <li>Largest US Cluster of Performance Contracting Companies</li> </ul>	<ul style="list-style-type: none"> <li>Research and Business Accelerator Facility Opening in 2014</li> </ul>	<ul style="list-style-type: none"> <li>Five Full-time Engineering Colleges with Over 10,000 Undergraduate and 2,000 Graduate Students</li> </ul>
<ul style="list-style-type: none"> <li>Largest US Cluster of Reciprocating Engine Driven Generator Companies</li> </ul>	<ul style="list-style-type: none"> <li>Partnerships with Water Council, Wisconsin Economic Development Corporation, State Energy Office and the Milwaukee -7</li> </ul>	<ul style="list-style-type: none"> <li>Sixteen Technical Colleges with Over 400,000 Students</li> </ul>



**Organizational Description**

The Wisconsin Energy Research Consortium, founded in 2009, represents one of America’s largest clusters of energy, power and control companies, educational and research institutions, and other key industry stakeholders. Located in the greater Wisconsin/Midwest region, WERC acts as a catalyst for the growth of these companies and industries, through technology innovation, advanced research, market development, information sharing, workforce development and strategic collaboration.

WERC connects and synchronizes the region’s expansive industry, collaborative and academic assets in a highly synergistic manner. Through its industry and technology roadmapping, advanced research and development and public policy efforts, WERC expects to help the consortium to achieve national leadership in technology, resulting in growth of sales and employment.

The Consortium consists of 25 nationally and internationally recognized industrial members which represent over 50% of the region’s 100,000-person workforce engaged in energy, power and controls. These businesses include industry giants such as Johnson Controls, Rockwell Automation, Briggs and Stratton, American Transmission Company, Eaton Corp and Cooper Power. Our Academic membership features four of the largest universities in the region, UW-Madison, UW-Milwaukee, Marquette University and the Milwaukee School of Engineering. The Region’s largest Technical Colleges are also active in the Consortium including Milwaukee Area Technical College, Waukesha County Technical College, Lakeshore Technical College and Northeast Wisconsin Technical College.

The industry represented by the Consortium generates over \$38 billion in sales annually. WERC’s university and college members conduct nearly \$1.25 billion in transformative research annually.

**WERC’s Vision and Mission**

WERC envisions that, through its efforts, the Wisconsin/Midwest Region will become the leading region in the United States for energy, power and control industries. The region will be known worldwide for its leading-edge research and technology development, innovative products, market leadership, corporate growth and employment opportunities in the EPC marketplace. WERC measures its success through growth in the region’s EPC sales revenue, employment and research and development.

WERC is focused on five core mission areas that are critical to the realization of our collective vision. Each mission area is supported by a board member led standing committee. These Committees offer great value to member organizations because of their interchange of information, their encouragement of new developments and contact with other related regional, national and international organizations.

## WERC's Mission

**Technology Innovation** - Innovative basic and applied research projects combined with access to proprietary intellectual property that will lead to breakthroughs in the EPC fields.

**Market and Industry Expansion** - Robust market research, industry roadmaps, industry promotion, and the incubation of new EPC industry start-up organizations.

**Public Policy Support** - Supportive state and federal public policy that will further the EPC industry cluster and WERC's targeted sectors.

**Workforce Development** – Development of a growing and dynamic workforce of engineers, scientists, technicians and business people that will become the next generation of leaders in the EPC industry cluster.

**Organization Development and Strategic Collaboration** - Expansion of membership, supporters and partners to enable desired growth in funding for core mission activities and active identification of new areas of strategic collaboration to improve the EPC Industry's best practices and competitiveness.

## WERC's Strategic Plan

WERC, and its 30+ members, embarked on a six month strategic planning process between January and July, 2012. The process resulted in a long-term strategic plan comprised of more than 80 projects distributed over three years. The Strategic Plan was approved unanimously by WERC's Board of Directors on July 27, 2012. Highlights of the Strategic Plan are as follows:

### Key Strategies

Through the strategic planning process, WERC has developed the following key strategies in order to attain its vision of the future:

- **WERC is expanding its geographical footprint**  
By expanding geographically beyond Wisconsin into the eight-state Wisconsin-Midwest Region, WERC will have the resources and footprint to better compete with other top regional organizations. WERC intends to grow contributions during the three-year plan by expanding to 100 major contributors in the eight-state region. The organization will further leverage its resources through the successful solicitation of additional state and federal grants and low interest state loans. The organization will also explore whether a name change is advisable to reflect its larger geographical footprint and improve its efficacy in realizing its goals.
- **WERC is expanding its mission.**  
WERC intends to grow its annual core mission expenditures to fund more than 80 projects identified in its Strategic Plan to accelerate growth. The increased spending will be used largely to fund the development of industry roadmaps, expand research activities and R&D centers across WERC's expanded five mission areas, establishment of a business accelerator to aid in the development of new EPC start-up companies, industry promotional activities and networks, and further supply chain development.
- **WERC has identified six technology areas that are key growth areas in the EPC market.**  
They include Microgrids, Building Energy Efficiency, Water/Energy Nexus, Energy Storage, Liquid Biofuels and Wind and Solar Power technologies. The initial focus during the next two years is in research and development activities that have the greatest opportunity for industry growth. WERC will focus on microgrids in FY13 and building energy efficiency in FY14.
- **WERC's expansion is highly targeted**  
WERC is creating industry roadmaps employing extensive market research in order to systematically and productively align efforts between the top and second-tier target market sectors and its five mission areas
- **WERC will expand its Technology Innovation area to include an Intellectual Property (IP) Exchange**

An intellectual property exchange program will be developed in FY13 and launched in FY14 to accelerate innovation and to leverage technology that has already been developed and is underutilized.

- **WERC will carefully expand its organization with proper oversight and governance**  
The Board of Directors, Executive Committee and five focused mission board committees provide oversight and support for the implementation of the Strategic Plan. Carefully selected and timed staffing and consulting additions will allow WERC to control its operating expense growth. To date, WERC has added a Director of Operations, a Director of Technology Innovation and a Regional Development Director.

**WERC’s Goals/Metrics**

WERC has established goals that can be easily measured and communicated. Reflecting its vision for the future and its mission, these goals focus on the attainment of growth in the energy, power and controls industry as follows:

<b>Category/Metric</b>	<b>Goal</b>
<b>Technology Innovation.</b> Measured by the growth in research and development activities devoted to EPC activities.	25% annual increase in the R&D funding provided by WERC contributions and WERC grant-related funding for EPC activities.
<b>Market and Industry Expansion.</b> Measured by the growth in sales of the industrial members of the Consortium, for the portion of their business devoted to the EPC area.	5% annual increase in revenues from EPC activities as validated by annual WERC census.
<b>Public Policy Support.</b> Measured by identifying and communicating to industry and stakeholders specific key public policy recommendations required to accelerate the growth of EPC activities in our key technology segments.	Provide an annual written report to members and stakeholders summarizing public policy options that will strengthen the market and remove obstacles to support the 5% annual growth requirement in each of WERC's active key technology sectors.
<b>Workforce Development.</b> Measured by the growth in employment of the industrial members of the Consortium engaged in work in the EPC area.	7.5% increase in jobs annually as validated by annual WERC census.
<b>Organization Development and Strategic Collaboration.</b> Measured by the growth in membership in the Wisconsin Energy Research Consortium.	Grow membership and supporter contributions by 40% annually during the 3 year strategic planning horizon. Evolve membership from 8 regional states.

**Strategy to Focus Technological Innovation**

Based upon an analysis of the energy, power and control markets, WERC has determined that there are significant opportunities for growth. As part of the Strategic Plan, WERC has targeted the following markets, listed in the order by which they will be targeted by the Consortium.

### ***Utility and Customer Microgrids***

- Provides the best short-term emerging market opportunities
- Market is emerging rapidly and requires technology development in areas aligned with our strengths
- WERC region has strong potential to lead the microgrid market due to its active involvement in the Consortium for Electric Reliability Technology Solutions (CERTS), strong research capability and required power and control product technologies
- Microgrid appeals to nearly all WERC members. Two Microgrid test platforms are funded and being built by WERC.
- Strong synergies with interests and capabilities in Illinois (Galvin Institute, S&C Electric & Smart Grid Network) and Michigan (Battery Manufacturing)

### ***Building Energy Efficiency***

- Microgrid technology will be the next big wave to accelerate building energy efficiency (BEE) market growth
- Microgrid and BEE markets are expected to converge, providing a huge opportunity for the WERC region to leverage leadership in both areas
- The Wisconsin/ Midwest Region is already a national leader in the large BEE market and nearly all WERC organizations find the segment attractive
- Great synergies with new states (Honeywell (MN), Siemens Building Technologies (IL))

### ***Energy-Water Nexus***

- A natural fit for the region, combining our leading strengths in both the Water and EPC fields
- Ideal opportunity to develop integrated electric, water and waste water microgrids

### ***Energy Storage for GRID, Off Grid and Transportation and EV Infrastructure***

- Offers huge market opportunities by 2020.
- Excellent fit with regional battery, power and control, microgrid and building energy efficiency

### ***Liquid Biofuels for Transportation***

- Offers large market by 2014.
- Excellent fit with strong biomass potential of region and power and control for biomanufacturing

## **WERC Member Activities Generate and Deliver Value**

- **Industry Roadmapping Projects** - WERC facilitates the development of industry roadmaps for each of its technology focus areas. The roadmaps result in detailed strategic plans for each of its five mission areas in support of industry growth. The industry roadmaps and extensive market and industry research embodied in the roadmaps is provided to our members for their internal use.
- **Technology Roadmapping Projects** - WERC facilitates the development of technology roadmaps for each of its technology focus areas. The roadmaps result in detailed strategic plans which prioritize and guide the consortium's research and development efforts. The roadmaps are provided to our research members for their internal use.
- **Mission Committee Meetings** - WERC's five focused mission committees offer great value to member organizations because of their interchange of information, their encouragement of new developments and contact with other related regional, national and international organizations.
- **Collaborative Research Projects** - WERC brings together its industry and academic members in transformative precompetitive research projects which generate new concepts and IP for the use of its funding members. Typically, any intellectual property generated by this collaborative research is made available to research members through royalty free licenses.

- **Competitive Research Projects** - WERC supports its members' desire to develop proprietary research through its sister organization, the Center for Renewable Energy Systems (CRES).
- **Annual Technology Symposiums** – WERC's annual technology symposiums provide updates to all research members regarding the progress of our collaborative research. The symposiums also offer direct access to the principal investigators and their graduate students to discuss the details of their investigation. Detailed interim and final reports are made available to our research members
- **Member Meetings** - WERC holds Member Meetings bimonthly at one of our members' locations. The meetings are topical in nature and typically include guest speakers and reports on the consortium's mission related activities. The member meetings also include a presentation and facility tour from our hosting member organization.
- **Member Website** - WERC has a private member website available to all members based on their membership level and level of engagement. This is a convenient location to access the organization's research and member meeting and committee meeting information.
- **Annual Summit** - WERC is a premier member of the Sustainability Summit. This summit occurs every March and brings together the academic and industry members from the region to review global industry best practices, research and progress towards sustainability. WERC has major presentations, an exhibit and is a member of the Executive Committee for this summit.

## **SUMMARY**

The Wisconsin/ Midwest region is uniquely qualified for national leadership in the energy, power and control field. The region's industry, collaborative and academic assets are rich and abundant. The WERC consortium is a rapidly growing, catalyzing, planning and coordinating organization for these assets. The organization has a detailed strategic plan and is governed by a board of directors composed of executives from its lead member organizations. WERC has a clear vision and well defined mission to help the region realize its vision of national leadership. WERC will enable new EPC technologies through public-private research partnerships between industry and academia. WERC will support growth of the industry and jobs in the Midwest region leveraging the strengths in the important energy, power and control market space.