WireIE and UOIT: "Building the Model for Intelligent Energy Networks"

An Interview with Robert Barlow, President and C.E.O., WireIE

In 2009, WireIE established an exclusive relationship with The University of Ontario's Institute of Technology (UOIT) to advance the understanding of 'intelligent energy' networks and the communications infrastructure required to optimize their performance.

Working in collaboration with an expert team headed by Dr. Vijay Sood, Associate Professor, Faculty of Engineering and Applied Science, UOIT, the first phase of the research partnership produced a comprehensive White Paper on the status of existing 'smart grids'. In 2010, the research initiative turned its focus to the development of computer simulation models to capture the complex requirements of intelligent energy networks needed to manage a growing component of the world's energy future.

Recently, Rob Barlow, WireIE's President and C.E.O. shared his point of view on the evolution of intelligent energy networks and confirmed the company's commitment to be a leader in the transformation of the communications networks that will drive the next generation of intelligent energy systems.

How does 'intelligent energy' fit into WireIE's business model?

WireIE was created with one goal in mind: to enable clients to transform their telecommunications infrastructure to deliver a limitless network experience. We are specialists in designing, building and managing Next Generation wireless networks.

Our expertise in maximizing networks is very much in sync with the growing demand for 'smart grids' or, as we prefer to describe them, 'intelligent energy' systems. Increasingly governments are investing in hydro infrastructures that require high performance data management capabilities to monitor, anticipate and allocate alternate sources of energy to optimize performance and ensure the highest level of flexibility, efficiency and safety.

What's driving the interest in 'Intelligent energy'?

We believe that intelligent energy will continue to be a growth industry in mature and developing nations alike as governments and industry embrace distributed energy management as a key social, political and economic issue of our time.

It is clear that investment in a Smart Grid Foundation™ or 'intelligent energy' network has not kept pace with demand or technological advancements. In fact, many systems in operation today are based on design characteristics that are now 50 years old. They are outdated and unsustainable.

Robert Barlow, President and C.E.O., WireIE

Business and government leaders understand that you cannot run a 21st century electrical network on a 20th century infrastructure. Increasingly they are looking to firms like WireIE and our global partners to help them plan the intelligent energy systems that modern economies and environmentally concerned citizens demand.

What changes have you seen over the past few years?

In Ontario and across North America, the movement toward smart grid adoption has gained considerable momentum as regions and utilities seek to address the urgent issues of an aging power grid and the changing demands of power generation, consumption and conservation. There is a shared consensus that the power grid we depend upon to sustain the fabric of our economy and lifestyle is long overdue for an update.

The creation of a Smart Grid Foundation™ or 'intelligent energy' network contemplates a number of important factors ranging from the essential generation, transmission, storage and distribution of power to the more complex but associated challenges of supporting economic growth while enabling a more environmentally friendly use of energy.

In Ontario for example, the IESO's Smart Grid task force report in 2009 called for early adoption of a smart grid to address a wide spectrum of needs both economic and environmental while simultaneously addressing the reliability and power quality issues faced by the aging transmission networks.

What is your opinion regarding the impact of the report?

It is encouraging that the report was quickly adopted and endorsed by the provincial government.

Since then, however, much of the media attention has focused on outcomes such as 'smart metering,' the adoption of the electric vehicle and how a Smart Grid Foundation™ will enable more economically motivated and conservation-oriented consumers to share more alternate energy options with the network.

As task force chair, David McFadden, noted in media comments at the time, "Smart meters are but one small — albeit significant piece — of a much larger, more powerful puzzle. What we should be doing is moving rapidly and taking a real lead in terms of systems, technology, software, all the way through the entire electricity system."

What do you believe needs to be done now?

Nearly two years later, we need to take full measure of the opportunity and the scope and scale of the challenge to create a truly intelligent, comprehensive and integrated energy network.

Through our partnership with the University of Ontario's Institute of Technology, we are proud to support the pioneering work of Dr. Vijay Sood who was recently designated as a Fellow of the Canadian Academy of Engineers in recognition for his work in grid design and deployment for more than 30 years.

For example, with the addition of alternative or green power generation, the essential nature of grid design is radically altered. What emerges in its place is the need for a new level of flexible transmission and operations management that requires not only enormous capacity to manage and condition power, but also the need to exchange the continuous data required to facilitate shifting capacity needs on the grid.

His team at UOIT is developing smart grid models to help strategically drive the design and future deployment of a grid system that can fully meet the evolving needs of Ontario. Over the next six months, the research team will refine computer models for the communications infrastructure for intelligent energy networks for both urban and rural environments.

How do you see the evolving role of the communications infrastructure?

Increasingly, we see the information layer as the nervous system of intelligent energy design and management. It is akin to creating a 'miniature internet' for the power system.

It is perhaps the most important determining factor in deciding the scale and operational limits of a power grid. The absence of a robust communications infrastructure will undermine the utility of the grid. It is that important.

In recognition of that challenge our research partnership is now focused on the development of modeling software with the capacity to fully anticipate the variety and dimension of needs in a dynamic smart grid deployment.

We believe investment made in planning and simulation will translate into critically important knowledge for grid design and ensure that our infrastructure is built with room for growth and flexibility.

> It is our point of view that better modeling will help take some of the inherent risk out of the planning process and focus capital spending where it can have the greatest benefit.

What other factors will impact the evolution of intelligent energy?

Canada's future as a meaningful contributor to the evolution of intelligent energy will be decided by our capacity to invest in knowledge and grow our human capital.

Other jurisdictions have recognized the strategic value of investing in this area and have made significant financial commitments. The Obama administration, for example, has already dedicated billions to modernize America's smart grid.

Beyond financial resources, our success will be determined by our investment in the professional development of the next generation of leaders. Our universities have an enormous challenge and opportunity to develop curriculum and grow the expertise of the next generation of planners, engineers, software developers, and technicians who will collectively transform our networks and our economies.

The choice for our private sector is to either invest in thought leadership and innovation or face an inevitable 'brain drain' to universities and enterprises that see the enormous business potential of the intelligent energy sector.

What can we expect from WireIE?

For our part, WireIE is proud to support the development of the best thinking and best practices for the evolution of intelligent energy networks that forward-looking clients are demanding.

Our focus is to help our partners and our clients address the compelling need for cost-effective networks that drive economic development, innovation and prosperity. Our value is the expertise of our team, our partnership philosophy and our ability to provide 'strategy, solutions and stewardship' for their investments.

Our partnership with UOIT is creating opportunities to advance knowledge, develop proprietary expertise and position WireIE at the centre of the discussion on the future of this critically important issue.

We look forward to sharing the results of our research and development initiatives in partnership with UOIT in 2011 and beyond.