

## **Steven B. Smiley**

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### **Education:**

Bachelor of Science in Education, Central Michigan University Major – Economics; Minor Geography & Am. History	1972
Master of Arts in Geography and Economics, Central Michigan University “A Framework for Rural Community Land-Use Decision-Making”	1975
Post-Graduate Economics – Teaching Assistantship, U. of Calgary, Canada Energy and Environmental Economics: Dept. of Economics And Department of Environmental Design Science	1976-1977

### **Major Projects:**

#### **Traverse City Light & Power “Integrated Renewable Energy District Biomass Heating and Wind Power Project.”**

Under contract with TCL&P I drafted a \$400,000 grant that was accepted by the State of Michigan Public Service Commission to conduct a feasibility, planning and implementation study for integrating biomass and commercial wind power to approach 100% renewable energy supply for a large west side district in Traverse City, Michigan. The area covers approximately 6,000 to 7,000 residents, the GT Commons area, a large regional hospital, four schools, businesses and governmental facilities. This study began in August of 2005 and ran to September 2006. The results of the study indicate wood fired biomass district heat can compete with natural gas heating, and that integrated with wind power, 100% supply of renewable energy is cost effective.

#### **Traverse City Light and Power “Green Rate” Wind Power Project**

Under contract with TCL&P I conceived and developed a 600 kW green pricing utility wind power project to provide wind-generated electricity to 200 utility customers. In June, 1995, The American Public Power Association awarded TCL&P the “Energy Innovator of the Year” Award for this project. I also provide on-going energy efficiency analysis services to TCL&P customers and have assisted in the implementation and administration an energy efficiency financing program for commercial buildings.

#### **DOE Rebuild America – Rebuild Traverse Program Grant and Tasks**

Working with Traverse City Light and Power in conjunction with the State of Michigan Energy Office we received funding and are administering a US Department of Energy Rebuild America project under the Rebuild Michigan program. Tasks include energy efficiency and renewable energy analysis, program promotions, development of local partnerships, financing programs and a five year action plan.

#### **Grand Traverse Band of Ottawa and Chippewa Indians Phase II: Renewable Energy Feasibility Study**

I assisted in the drafting of a grant the Grand Traverse Band has received from the U.S. Department of Energy to conduct a “Phase II” Renewable Energy Feasibility Study, to determine the economic and

environmental benefits and requirements for implementing biomass and wind power systems on the GTB Tribal lands.

### **Little Traverse Bay Band of Odawa Indians: Phase I: Renewable Energy Strategic Planning**

I am working under contract with the Little Traverse Bay Band to lead a one year renewable energy strategic planning process for the Tribe that began in August of 2005. This study will provide the basis for a Tribal renewable energy plan and the development of a Tribal energy utility code for the implementation and operation of a Tribal energy public utilities department. This planning process is based upon a U.S. Department of Energy grant.

### **Mackinaw City Wind Power Project**

Working as Project Manager and partner with Bay Windpower, LLC we developed and implemented the largest commercial wind project in Michigan, consisting of 1.8 megawatts of installed wind power capacity, generating 4 million kW-hrs per year into the Consumer Energy grid for sale to their green power customers. The total project cost was \$1.9 million dollars and it was installed in November 2001.

### **TCL&P Residential Energy Analysis Program Development & Implementation**

Working under contract with Traverse City Light & Power, a municipal electric utility with 10,000 customers, I developed and implemented a comprehensive residential energy analysis program, including the analysis process, analysis documents and program delivery.

### **Michigan Tribal Wind Workshop: US Dept. of Energy**

Working under a US Department of Energy sponsored program I coordinated, organized and taught a comprehensive wind power workshop in Sault Saint Marie, Michigan. This workshop was for representatives of Michigan (and some Canadian) Indian Tribes to provide knowledge, guidance and analysis information to assist the Tribes in the development of wind power projects. Both large scale commercial and home power wind applications were taught. The Inter-Tribal Council of Michigan and the National Renewable Energy Laboratory assisted and supported the workshop, under the sponsorship of the US Department of Energy, Chicago Office.

### **Seminar on Biomass Energy Systems for Commercial and Public CHP**

With funding from the State of Michigan Energy Office I conducted a half-day educational seminar on the nature and potential of biomass (wood and other plant matter) heat and electric generation for commercial and utility level applications in the Traverse City area. The theme was focused on high efficiency advanced biomass gasification combined heat and power systems that can be integrated in a village setting.

### **Michigan Public Power Agency (MPPA) 10 Mega-watt Wind Project Analysis**

Under contract with the MPPA I analyzed the economic and wind power output potential for a possible 10 mW wind project consisting of the placement of wind turbines interconnected throughout the MPPA western city members including, Harbor Springs, Petoskey, Charlevoix, Traverse City, Zeeland, and Grand Haven.

### **Energy Planning Workshops – Rural Alaska Community Action Agency**

I led fourteen, two-day community energy planning workshops, in 1982, which were conducted for Alaskan Tribal and other governmental leaders in all regions of the State of Alaska. These included all of the Native Alaskan Tribes and Villages in all rural regions of the State of Alaska, including those from regions surrounding Barrow, Kotzebue, Nome, Dillingham, Cordova, Bethel, Kodiak, Juneau, Anchorage, and Delta

Junction. In addition, I trained over fifty energy auditors for State of Alaska certification under the State of Alaska residential energy conservation program.

### **Renewable Energy System for Rural Application in Romania**

In 1998 and 1999 working under contract with the Danish Folkecenter for Renewable Energy I led an international team of utility and renewable energy experts to develop and install a solar photovoltaic and windmill electric power system for a remote peasant farm in north-west Romania. This system provided the first ever electric supply to this peasant farm and rural community in Romania, located roughly 16 km from the nearest electric utility line. This project was conducted under a European Union grant with the Danish Folkecenter for Renewable Energy, the Moldavian Institute of Power Engineering and the Romanian Research and Development Center- ICEMENERG. The design and planning of the project took place in Michigan, Denmark and Romania and installed in Surducel (near Oradea) Romania in 1999.

### **Little River Band of Ottawa Indians**

I oversaw the renewable energy aspects of a USA Environmental Protection Agency (EPA) grant received by the Little River Band, entitled "On the Thunderbird Trail". This grant work included the installation of a small 3 kW windmill to provide electric charging for electric vehicles, and the measurement of emission savings from the Tribal transportation alternatives.

### **Grand Traverse Band of Ottawa and Chippewa Indians**

During a four year period I provided all economic energy analysis and planning services for the GTB Tribe including evaluation of present and future energy needs for commercial and residential developments, renewable energy systems planning (especially commercial wind energy), and GTB electric utility development. I provided the economic energy analysis for the implementation of the primary electric distribution system for the Tribal facilities in Peshawbestown, Michigan that has saved the Tribe \$100,000's.

### **Grand Traverse County, Michigan Comprehensive Energy Analysis**

I conducted a comprehensive energy analysis (HVAC, building envelope and lighting) of seven major county facilities, including: swimming pool and ice skating area, county jail, courthouse, maintenance, mental health, etc. The plan included a summary of capital energy-related improvements for all the facilities. It prioritized recommended measures for energy efficiency improvements and long-term planning.

### **"Green Group" Expert Panel on Electric Utility Deregulation**

I represented the Union of Concerned Scientist on the five-member national panel of experts completing an evaluation methodology to be utilized by "Green Group" member organizations for the assessment of electric green power programs. The final evaluation product the energy "scorecard" is available on-line sponsored by Environmental Defense. The "Green Group" is the ad hoc organization of the twenty largest environmental organizations in the USA. These organizations include those such as the Union of Concerned Scientists, Environmental Defense (Fund), Natural Resource Defense Council, Sierra Club, Audubon Society, Izak Walton League, and the Northwest Energy Coalition.

### **Union of Concerned Scientists**

Under various contracts I have provided assistance to the UCS representing them in Minnesota consulting on rural electric cooperative green pricing programs and analyzing wind project potential for farmers in conjunction with the "Minnesota Project".

## East European Electric Utility Renewable Energy Training Course

As part of a renewable energy rural electrification program for Romania, I organized and led a two-week renewable energy training course for ten East European electric utility planners and researchers from Romania, Moldova, Estonia, Bulgaria, Slovakia, and Czech Republic. This training course was under the auspices of the Danish Center for Renewable Energy and based upon a European Union Energy Commission grant. The course content included electric and thermal solar energy, small and large scale wind energy, combined heat and power generation, biogas electric generation, and other renewable energy electric utility applications.

## Commercial Wind Turbine Manufacturer Projects

In conjunction with the Danish Center for Renewable Energy, I organized and led a two week tour in 1985 of twelve Danish wind turbine manufacturers to visit California wind projects and developers. From 1986 to 1990 I represented Vind-Syssel, a Danish wind turbine manufacturer in North America that was producing 180 to 300 kW commercial wind turbines. In 1996 I represented Vestas American WT, a Danish commercial wind turbine manufacturer.

## Small Windmill Operation and Verification Program

In conjunction with the State of Michigan Energy Office I provided technical assistance and monitored the installation and operation of nine small windmills ranging in size from 400 watts to 3000 watts peak output. A report was prepared outlining the experiences, operation, and maintenance of these residential windmills.

## Home Power

My home in Leelanau County, Michigan is a 2,400 sq. ft. home and studio that has been electrically run by wind and solar power, independent from the electric utility grid for fifteen years. We operate computers, microwave ovens, toasters, refrigeration, stereo's, TV, washer/dryer and all the modern conveniences with better quality and more reliable electricity than the electric utility. With these years of experience we know what it takes to be your own electric company. The home heating and cooling comes from passive solar design applications, biomass (wood) and solar hot water.

## Professional Work History:

<u>Dates</u>	<u>Position</u>	<u>Location</u>
2006	President	Smiley Energy Services, LLC Suttons Bay, Michigan

Smiley Energy Services, LLC was established in 2006 to provide the foundation for renewable energy technical exchanges. The initial focus is for a commercial wind power technology exchange program for rapid implementation of commercial wind power by Tribal owned firms in "Indian Country." The technology exchange will transfer Danish wind turbine technology to Indian Tribes for 750, 1,500 and 2,500 KW wind turbines for installation beginning in 2008. Internationally certified wind turbines will be manufactured by Tribes and installed in Tribal sites across the North American Continent. The technology exchange program will be vertically integrated including education programs, technical training, manufacturing, installation, permitting, and policy initiatives. Other technology exchanges will eventually include biomass, bio-fuels, solar and energy storage.

1980-Present Owner/Pres.

**Bay Energy Services**  
Alaska to 1983, Michigan thereafter

Bay Energy Services is a small sole proprietor firm specializing in energy economics, renewable energy, efficiency programs and analysis, renewable energy projects, planning and system design. I provide economic energy efficiency and renewable energy based services to public/municipal electric utilities, governmental organizations, institutions, Indian Tribes, commercial and residential clients. I have particular expertise in commercial wind energy working nationally and internationally over the last fifteen years with various Danish and American wind energy organizations, electric utilities and manufacturing groups. I developed and managed award winning first USA wind power green pricing program and utility wind turbine installation for Traverse City Light and Power. I have provided energy efficiency and renewable energy workshops and services for many Indian Tribes in Alaska and Michigan.

1999- Present Co-founder

**Great Lakes Renewable Resource Institute**  
Omena, Michigan

The Great Lakes Renewable Resource Institute (GLRRI) is a not-for-profit 501(c)(3) corporation, incorporated on Earth Day 1999. The purpose of the institute is to provide leadership, scientific research, education and guidance for the feasibility, manufacture and implementation of significant renewable resource technologies in the Great Lakes Basin, North America and throughout the world. Measurable environmental and social improvement and renewable energy related economic developments are the cornerstones of the GLRRI philosophy. GLRRI has received and administered educational grants to provide low-income weatherization education, co-participant in an EPA Rebuild America program for Traverse City, MI, wind energy workshops for county and township governmental officials, and a community free bicycle project in Suttons Bay, Michigan. GLRRI was a co-sponsor for the First European Conference of Renewable Energy Centres, in September 2001 at the Danish Folkecenter for Renewable Energy.

1999-2002 Vice-President/Partner

**Bay Windpower, LLC**  
Grand Rapids, MI

I was a one-third owner and V.P. of Bay Windpower, LLC until November 2002. Bay Windpower is a commercial wind power development company based in Grand Rapids. The Mackinaw City Wind Project which I managed, installed and developed for Bay Windpower, was completed in November 2001. This project consists, initially, of two 900 kW wind turbines standing to a height of 325 feet, one mile south of the Mackinac Bridge, providing electricity for the Consumers Energy Pilot Green Power Program. Bay Windpower services included the all aspects of commercial wind power development including site selection, wind resource evaluations, project planning, marketing and development.

1977-1980 Self Employed Partner

**Blueberry Hill Designs**  
Homer, Alaska

Blueberry Hill Designs designed and constructed homes and cabins as a licensed building contractor in Alaska with emphasis on energy efficiency, super-insulation and passive solar design techniques. We constructed the first "envelope" passive solar homes as well as super-insulated homes.

1976-1977 Post-Graduate Teaching-Assistant

**University of Calgary**  
Calgary, Alberta, Canada



## Publications:

Directed the preparation of the DVD "Fueling the Future", 2005. This 14 minute Video/DVD presents renewable energy technology exchange ideas learned on a fact-finding tour to Denmark and Sweden with concentration on biomass district heating and wind power.

Authored: TCL&P Green Rate Wind Project: 1996: Video produced by TCL&P, available from Brauer Productions, Traverse City, Michigan, or the author, nine minute professional video.

Follow the Yellow Brick Road: A Model for Energy and Community Restoration. Prepared by Steven B. Smiley for the 2004 World Renewable Energy Congress XIII, Denver, CO.

Co-authored Windmill Parks in California - 2: Status Report 1985 (Vindmilleparker Californien – 2: Situationsrapport – Efterår 1985)

The Development and Implementation of a "Green Rate" Utility Wind Power Project in Michigan: 1995 Annual Conference of the American Wind Energy Association in Washington, DC

The Development and Implementation of a "Green Rate" Utility Wind Power Project in Michigan: Canadian Wind Energy Association 1995 Annual Conference, Kincardine, Ontario

Opportunities and Barriers for Developing Wind Energy on Midwestern Farms: Lessons from Minnesota. Prepared by Steven B. Smiley, January 1998, for the Union of Concerned Scientists and presented at the American Solar Energy Society Conference 1998.

Manufacturing a Hybrid American/Danish Wind Turbine: 1990 Annual conference of the American Wind Energy Association, Washington, DC

Renewable Energy System for Rural Application in Romania. Nordvestjysk Folkecenter for Vedvarende Energi, 7760 Hurup, Thy, Denmark. February 1999.

## References: Available upon request.

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