

## SUMMARY

**Philippe Dunsky brings over twenty years of experience advising clients throughout North America in the fields of energy efficiency and renewable energy.** He has extensive experience in the design, evaluation and support of effective plans, policies, programs and opportunities, for clients ranging from electric and gas utilities to government agencies, private power producers, non-profit organizations and energy efficiency firms. Philippe couples strong analytical skills and creativity with a fundamental understanding of energy markets and environmental concerns. He brings to his work a passion for bridging the gap between economic growth and environmental sustainability. In addition to his consulting work, Philippe has been appointed to the boards and committees of an array of public organizations and private firms.

Philippe's work has focused largely on the following areas:

- **Comprehensive Plans:** DSM portfolio reviews and preparation of full-scale EE/RE plans, including all related issues such as policies and frameworks, portfolio design, design of individual programs and strategies, savings and cost-effectiveness analysis, benchmarking, and others. This work may also include regulatory support, including responding stakeholder consultations, hearings preparation, expert testimony, and other strategic support.
  - *Sample clients: Efficiency Maine Trust, N.J. Board of Public Utilities, Quebec Energy Efficiency Agency, NB Power, Manitoba Hydro, Efficiency Nova Scotia Corporation*
- **Program Design:** Designed dozens of EE/RE programs, including: low-income retrofit (including owner and renter markets), home energy retrofit (including single- and multi-fuel), residential new construction, residential heating systems (including advanced/renewable heat), appliance turn-ins, efficient plug loads, fuel switching, small commercial retrofit, large commercial custom (comprehensive), small and large industrial, and customer-sited renewable power generation programs.
  - *Sample clients: BC Hydro, Terasen Gas, NYSEERDA, Government of Saskatchewan, City of Toronto, Hydro-Quebec, Quebec Bureau of Energy Efficiency & Innovation, Nova Scotia Power Inc.*
- **Best Practice Reviews:** Conduct numerous reviews of best practice and lessons learned from experience with a diverse set of EE/RE program and strategic areas, including: residential retrofit, new construction, energy technology innovation, low-income

programs, innovative financing mechanisms, high-efficiency products and appliances, home and building energy performance labelling requirements, small business direct install programs, large commercial custom (including negotiated approaches), behavioural (including home energy reports), small-scale renewable power, and others.

– *Sample clients: Hydro-Quebec, Efficiency Maine Trust, Efficiency New Brunswick, Terasen Gas, Long Island Power Authority, Saskatchewan Go Green Fund.*

- **Cost-Effectiveness and Market Potential:** Conducted detailed cost-effectiveness analysis for thousands of measures/building types, dozens of programs and several comprehensive plans, using the full slate of standard cost-effectiveness test procedures. Developed economic and achievable potential studies at various levels of granularity, for both energy efficiency and demand response. Advised clients and presented to international audiences on appropriate cost-effectiveness testing methodologies, protocols, policies and algorithms.

– *Sample clients: California Public Utilities Commission, NB Power, Newfoundland and Labrador Hydro, Quebec Energy Efficiency Agency, Efficiency Maine Trust, New Jersey Board of Public Utilities, Hydro-Quebec, BC Hydro, Efficiency Nova Scotia.*

- **Next-Generation Strategies and Opportunities:** Assessed opportunities and developed innovative strategies for “next-generation” opportunities, including: home energy labeling, building energy performance benchmarking, innovative financing models, advanced (“smart”) thermostats, demand response opportunities, community engagement strategies, small-scale renewable power, and advanced green heating systems. Also managed opportunity and technology assessments for advanced technologies including solar (PV and CSP), deep-well geothermal, hydrokinetic, whole-house pellet systems, advanced biomass/biogas, and others.

– *Sample clients: Northeast Utilities, National Grid, Northeast Energy Efficiency Partnerships (NEEP), Canada Mortgage and Housing Corp., B.C. Ministry of Energy and Mines, Efficiency Nova Scotia, Quebec Energy Efficiency Agency, Center for Energy Advancement through Technological Innovation (CEATI)*

- **Program Evaluation:** Led and supported program evaluations, including: process and impact evaluations; assessment and design of evaluation plans; counsel on evaluation planning, strategies, and approaches; methodological issues including attribution (conventional and non-conventional programs), net-to-gross (including spillover and market effects), logic models and evaluation surveys; development of evaluation protocols and savings algorithms; assessment of program-related non-energy benefits; and others.

– *Sample clients: California Public Utilities Commission, Canadian Office of Energy Efficiency, Northeast Energy Efficiency Partnerships, Hydro-Quebec, Quebec Energy Efficiency Agency, Efficiency Nova Scotia Corporation, Efficiency Maine Trust, Equiterre.*

- **Others:** Many other advisory services including EE/RE policy, administrative models, technical support, incentive regulation, staff training, benchmarking, greenhouse gas / carbon strategies, non-energy benefits, employment impacts, and a host of others.

– *Sample clients: Ontario Power Authority, Manitoba Hydro, Efficiency Vermont, Efficiency NB, Association of Energy Service Professionals, Rio Tinto Alcan, Canada Economic Development.*

## PROFESSIONAL EXPERIENCE

- 2004 --**      ***Dunsky Energy Consulting***  
Founder/President of leading energy efficiency and renewable energy consulting firm. Research, analysis and strategic counsel for a broad clientele comprised of utilities, government agencies, private firms and non-profit organizations.
- 2004-2005**    ***McGill University***  
Lecturer in the Faculty of Management.
- 1996-2004**    ***Helios Centre for Sustainable Energy Strategies***  
Executive Director of an independent, sustainable energy think tank focused on the intersection between climate, energy solutions and market issues. Diverse clientèle including governments, consumer and environmental groups, utilities, large industry, independent power producers and First Nations.
- 1995-1996**    ***Independent Energy Consultant***  
Consulting for various governmental and non-governmental bodies. Projects included design of large residential energy efficiency retrofit program and assessment of a variety of demand and supply-side options. Also named to several blue-ribbon panels.
- 1991-1994**    ***ENJEU Inc.***  
Energy Director for environmental non-profit. Played a key role in conducting research as well as representation in utility consultative and collaborative processes.

## EDUCATION & TRAINING

- Trainer (U.S. and Canada)**    Association of Energy Service Professionals, 2013--
- Lecturer**                            Faculty of Management, McGill University, 2004-05
- Post-Graduate Diploma**      Economics, University of London (U.K.), 2002
- Guest Lecturer**                Many university courses addressing business strategies, management, energy, and the environment, including at McGill University, University of Montreal-HEC, University of Laval, and Concordia University.

## CURRENT PROJECTS

Mr. Dunsky is currently responsible for several key projects including:

- Lead the three-year impact evaluation of California's 23 new programs focused on the use of innovative financing mechanisms to support EE/RE, for the **California Public Utilities Commission**
- Development of a comprehensive, three-year Integrated Demand Side Management (IDSM) Plan, for **NB Power, Efficiency New Brunswick, the Government of New Brunswick and municipal utilities**.
- Assess and define least-cost policy and technology pathways and scenarios, as well as their pacing, in order to achieve the **State of Vermont's** long-term energy and climate objectives (including economy-wide energy modelling of all potential technological choices and regulatory policies).
- Assist a large utility to identify new opportunities for meeting aggressive natural gas savings targets in the C&I and industrial sectors, for **Northeast Utilities**.
- Examine leading practices and assess strategic options for residential retrofit and new construction programs, for the **Canadian Office of Energy Efficiency** (NRCan).
- Assess options and advise the **City of Saskatoon** on strategies for an innovative solar energy program.
- Strategic assistance on issues including program design, innovative financing, regulatory and cost-effectiveness frameworks, and technical support – for **Efficiency Nova Scotia**.
- Identify and assess options, and consult with lenders and building portfolio owners nationwide, for innovative financing mechanisms to support EE/RE in the large C&I buildings sector across Canada.
- Official provider of DSM training courses, including beginner and advanced levels, for the **Association of Energy Service Professionals (AESP)**.

## PAST PROJECTS (HIGHLIGHTS)

Throughout his consulting career, Mr. Dunsky has been responsible for hundreds of consulting projects. Below are several highlights of past projects:

### In 2013

- Part of the team providing targeted DSM services, on behalf of the **Ontario Power Authority**, to the commercial buildings retail market (led by Summerhill).
- Assessment of market opportunity and multi-party value propositions of advanced thermostat technologies, for **Northeast Utilities and National Grid**.
- Program review, design assistance and business case development for **BC Hydro's** residential retrofit and residential low-income programs.
- Evaluation (both process and impact) of the **Efficiency Maine Trust's** innovative *Property Assessed Clean Energy (PACE)* program, as well as review of lessons learned from similar programs (led by ODC)
- Review of status and lessons learned, for **Northeast Energy Efficiency Partnerships**, from early implementation of residential and C&I building energy performance labeling policies.

- Development of a Property-Assessed Clean Energy financing model and business case for the **Quebec Association for Energy Management**, among other partners
- Demand response potential study and technology assessment, for **Hydro-Québec** (led by Technosim)
- Assistance to **Efficiency Maine Trust** regarding a variety of topics including both quantitative analysis and strategic counsel.

#### In 2012

- Energy policy support, including assessment of leading practices in Canada, the U.S. and Europe, and identification of key policy opportunities, for the **government of Quebec**.
- Lead on an electric DSM potential study update for **NB Power**.
- Analytic support for **Environment Northeast** study of the macro-economic impacts (GDP, tax revenue, employment) of various DSM scenarios for four Canadian provinces.
- Assessment of the early experience with mandatory building energy performance rating and disclosure policies, for **Northeast Energy Efficiency Partnerships**

#### In 2011

- Economic and energy performance assessment of the dishwasher market, in support of the **Office of Energy Efficiency's** regulatory functions.
- Assessment of the costs, benefits and other implications of various levels of potential medium- and long-term energy savings requirements, for a **confidential provincial government**.
- Program evaluation best practices review, and assistance in developing an evaluation plan for the **Canadian Office of Energy Efficiency's** residential programs (with ERA).
- Analytic and strategic assistance to the **Government of B.C.** regarding a potential "Pay-As-You-Save (PAYS)" financing program
- Best practice assessment, analysis and design of a small-scale renewable energy incentive strategy for the **Government of Saskatchewan's** Go Green fund.
- Development of a residential fuel switching program for **Nova Scotia Power Inc.** focused on retrofits aimed at natural gas and wood pellet heating systems.
- Achievable potential assessment and strategic direction for a **confidential electric utility**.
- Strategic review and assessment of inherited electric DSM plans for Canada's first-ever dedicated "energy efficiency utility", **Efficiency Nova Scotia Corp.** Recommendations for new programs and policies to significantly enhance energy savings with a view to achieving ambitious savings targets. Additional support through regulatory process.
- Design of a residential new construction program, for British-Columbia's **Terasen Gas Co.**, to promote adoption of advanced energy efficiency and renewable energy options beyond a newly-enhanced building code requirement.
- Development of comprehensive train-the-trainer modules as well as quality control and quality assurance protocols for an **Ontario Power Authority** energy efficiency program for low-income customers (led by GCC).
- Strategic review and assistance to **BC Hydro** in support of its long-term residential new construction program, with a focus on both advanced energy efficiency and renewable energy options.

- Strategic assistance for **Efficiency New Brunswick** focused on redesigning and optimizing their programs aimed at both small and medium/large sized commercial, institutional and industrial customers. Portfolio-level strategic counsel as well.
- Design, implementation assistance and evaluation for the **Québec Energy Efficiency Agency's** low-income energy efficiency pilot program.
- Assessment and development of a strategy, for the **Québec Energy Efficiency Agency**, aimed at requiring home energy evaluations and labelling at the time of sale.
- Development of a strategy to maximize direct and indirect market effects from a **confidential electric utility's** large-scale commercial buildings program.

#### In 2010

- Development of the **Efficiency Maine Trust's** first triennial energy efficiency plan addressing all fuels and sectors, including responsibility for all residential and enabling strategies.
- Measure characterization, screening and program design assistance for a **Newfoundland and Labrador Hydro** efficient products program for rural customers.
- Development of, and implementation assistance for an all-fuels residential energy efficiency program (pilot project) directed at low- and moderate-income consumers. For the **Quebec Energy Efficiency Agency**.
- Strategic review, including gap analysis and program assessments, of **Conserve Nova Scotia's** full portfolio of energy efficiency programs.
- Assistance in the design and development of a CO2 reduction program aimed at large industrial customers, for the **NY State Research and Development Authority** (led by ERA)
- Strategic counsel regarding the opportunity for fuel switching and fuel choice strategies to play a role in **Nova Scotia Power Inc.'s** industry-leading electric demand-side management objectives. Including high-level opportunity analyses and recommendations for policy and regulatory frameworks.
- Assistance in the review and design (or redesign) of large-scale energy efficiency programs for **Hydro-Québec's** commercial, institutional and industrial sector customers.
- Industrial supply chain and policy gap analysis of wind and biomass-related industries, and public policy recommendations for maximizing economic development, for the **Canada Economic Development Agency**.
- Market opportunity assessment for energy efficiency programs aimed at early retirement of inefficient refrigerators and air conditioners. For **Recyclage Ecosolutions**.

#### In 2009

- White paper and roadmap for Northeastern states interested in adopting mandatory building energy labelling and upgrade policies, for the **Northeast Energy Efficiency Partnerships (NEEP)**.
- Strategic evaluation of Manitoba Hydro's complete portfolio of electric and natural gas energy efficiency programs. Work includes comparative assessments of utility's major programs (all sectors combined) with leading North American practices, as well as qualitative evaluation and benchmarking of the portfolio as a whole, in order to pinpoint strengths and weaknesses. For **Manitoba Hydro**.
- Turnkey design/development of a small-business energy efficiency program for **Hydro-Québec**. Included market characterization, measure analysis and selection, review of North American best practices, definition of key strategic issues and options, and recommendations, design of management and delivery structures, risk analysis, detailed analysis and forecasting of savings, costs



and cost-effectiveness, development of a logic model and evaluation plan, budget, implementation timeframe and follow-up services.

- Senior Advisor to the team tasked with developing a portfolio of energy efficiency programs and policies to help New Jersey meet its ambitious savings target of 20% by 2020. Work covered all sectors and fuels. For the **New Jersey Board of Public Utilities** (led by NEEP).
- Member of **Enbridge Gas Distribution's** Energy Efficiency Audit and Evaluation Committee – counsel on evaluation and audit issues including free ridership, spillover and other net-to-gross issues.
- Opportunity study of a potential residential energy efficiency program for **Efficiency New Brunswick**. Also prepared a high-level, 10-year energy savings opportunity assessment for the province, including analysis of costs, benefits and employment impacts.
- Market analysis of opportunities for using existing renewable power assets to generate additional revenue streams through carbon credit, renewable energy and other environmental attributes. For a **confidential industrial customer**.
- Strategic counsel to the **Québec Energy Efficiency Agency** on a variety of topics, including strategic planning, portfolio design, cost-benefit tests and policies, analytic tools, and options for advanced policies. Also provided expert testimony in the Agency's first regulatory proceeding.

#### In 2008

- Turnkey design of an aggressive, state-of-the-art low-income energy efficiency program. Work included design of all essential program components as well as forecasts of energy savings, costs and benefits for a program aimed at all energy sources (electric, gas, oil, propane and wood). For **Hydro-Québec** with the active participation of the **Agence de l'efficacité énergétique** and of **Gaz Metro**.
- Analyses and strategic counsel aimed at increasing savings and improving the performance of a residential energy efficiency program. For **Efficiency New Brunswick**.
- Analysis and expert testimony regarding a proposed low-income energy efficiency program developed by Manitoba Hydro. **Manitoba Public Interest Law Centre**.
- Strategic evaluation of a large utility's full portfolio of energy efficiency programs, including all residential, business and institutional sector strategies. For **Hydro-Québec**.
- Assistance in development of energy efficiency training materials for the **Association of Energy Service Professionals (AESP)**, covering issues including estimating energy savings, the economics of energy efficiency, program design and others (led by OEI).

#### In 2007

- Analysis and counsel to the **Vermont Energy Investment Corporation** regarding potential costs and savings of a second refrigerator early retirement program for northeastern U.S. states.
- Critical assessments of an array of energy efficiency plans and proposals from the Ontario Power Authority's Conservation Bureau. Also named to high-level OPA advisory group. For the **Ontario Power Workers Union**.
- Staff training on key energy efficiency concepts, including market barriers, design and planning principles, cost-effectiveness tests and potential studies, among others, for **Efficiency New Brunswick**.
- Various scopes of work regarding primarily best practices in low income energy efficiency programs, as well as presentation to roughly 100 **Hydro-Québec** staff on innovative energy efficiency strategies.

#### In 2006

- Review of the State of Maine's draft energy efficiency plan, including high-level issues and approaches, as well as analysis of new program opportunities involving front-loading washers,

efficient computer power supplies and heat pumps, for the *State of Maine Office of the Public Advocate* (led by OEI).

- Assessment of electric planning reliability issues, for *Ontario PWU*, arising from energy efficiency objectives developed by the OPA and built into integrated resource planning scenarios. Analysis of planning risks included review of planned/forecast savings over time in more than a dozen regions (led by ERA).
- Comparative analysis of medium-term energy savings goals from a variety of North American and European jurisdictions for all fuel types and sectors, with a view to assisting the *Quebec Energy Efficiency Agency* in adopting 10-year savings targets.
- Led a series of thematic meetings for *Hydro-Québec* senior staff aimed at developing the utility's policies and strategies with regard to a variety of energy efficiency related issues, including : rates, market barriers, incentive tools, emerging technologies, savings targets, success indicators, distribution of roles and responsibilities among parties, governance and implementation structures, and transition strategies.
- Market and incentive program opportunity assessment for encouraging adoption of efficient computer power supplies. Included market characterization, economic evaluation including cost-effectiveness screening, energy and CO2 savings forecasts, and design of a high-level market strategy. For *Natural Resources Canada (Office of Energy Efficiency)*.
- Held focus groups in order to identify strengths and weaknesses of technical and strategic aspects of a new construction energy efficiency program aimed at multi-unit residential buildings. Jointly for the *Quebec Energy Efficiency Agency and Hydro-Québec*.

#### In 2005

- Best practice study for *Hydro-Québec* of government and utility programs aimed at accelerating proper installation of ground-source heat pumps (GSHP). Included review of Canadian, U.S. and European practices.
- Pre-feasibility study regarding a possible centre for excellence in CO<sub>2</sub> emission reduction technologies. Included assessment of technologies and opportunities developed or under development by Quebec-based firms, as well as policy gap analysis. For the *Quebec Metro Technology Park* (with Marcon)
- Economic and GHG analysis, pre-feasibility study and development of an energy efficient computer transformer market transformation program in Canada, for *Ecos Consulting*.
- Detailed review of fund's portfolio of 20 gas DSM programs, including quantitative and qualitative assessment of each program's costs and benefits, as well as review of each program's incentive levels, incentive design, market strategy and target clientèle. For Gaz Metro's *Energy Efficiency Fund*.
- In-depth review and assessment of an electric utility's \$1 billion energy efficiency plan, including program-by-program best practices gap analysis, benchmarking, identification of new opportunities and 75 recommendations for improved performance. Also included expert testimony before regulatory board. For an ad-hoc *coalition of municipal, business, consumer, environmental and industrial stakeholders*.
- International benchmarking of models for organization and delivery of energy efficiency services, including review of models in Canada, the U.S., Europe and Australia. For *Equiterre*.

#### In 2004

- Review of North American "best practices" for select residential energy efficiency programs. Also review of programs aimed at encouraging commercialization of innovative and emerging energy efficiency technologies or strategies. For *Hydro-Québec*.



- Assessment of the potential for accelerated electrical energy efficiency gains in Québec. Included development of programs in the residential, commercial/institutional and small and medium industrial sectors, as well as detailed cost analyses. Also testimony at a regulatory hearing. For an ***ad-hoc coalition of environmental stakeholders***.
- Comparative assessment of the economic, environmental and labour impacts of a series of supply and demand-side options, namely a combined-cycle power plant, wind power development scenarios and accelerated energy efficiency programs. Also testimony at a regulatory hearing. For an ***ad-hoc coalition of environmental and consumer groups***.

#### **Pre-2004**

*Prior to founding Dunsky Energy Consulting, Philippe Dunsky led consulting projects in a variety of capacities in the fields of energy efficiency, renewables and climate change. Below are select examples of work.*

- 1997-2003: Expert testimony in a dozen regulatory hearings, addressing primarily utility energy efficiency plans and programs, as well as renewable energy strategies and performance-based regulation. For a broad array of economic, social and environmental stakeholders.
- 2003: Review and analysis of policies and strategy options for meeting climate change commitments under the Kyoto Protocol, for the ***Quebec Environment Department***.
- 2003: Establish methodology to identify all existing and planned (10 years out) renewable energy projects in Canada, the U.S. and Mexico. For the ***North American Commission on Environmental Cooperation***.
- 2003: Member of expert working group dealing with the linkages between fiscal policy and industrial energy efficiency investments. For the ***National Round Table on the Economy and the Environment***.
- 2002-03: Supervised staff work on U.N.'s Clean Development Mechanism (Kyoto Protocol mechanism). Mandates included opportunity studies in a variety of African countries, as well as defining obstacles to successful project completion. For a ***variety of clients***.
- 1998-2002: Consulting and strategic counsel in the context of several Parliamentary Committee mandates to examine Hydro-Quebec's successive strategic plans (1997, 1999, 2002). Examined draft plans, provided support to MPPs, thematic training sessions, analysis and thematic reports, preparing questions, live support during hearings, and drafting final reports. Focus on energy efficiency, new energy technologies, R&D, market competition/deregulation, demand forecasts and capital investment plans. For the Quebec Parliament's ***Commission on Labour and the Economy***.
- 1991-2002: Participation in a vast array of consultative or negotiating committees with electric and gas utilities, addressing primarily energy efficiency plans, potential studies, performance-based regulatory regimes, resource planning and rate structures. For ***a broad spectrum of stakeholder groups***.
- 2001: Design of energy efficiency programs aimed at improving building envelopes of existing, natural gas heated homes. For ***Gaz Metro's Energy Efficiency Fund***.
- 2000-01: Two studies quantifying the costs and benefits, as well as labour and environmental impacts, of a proposed Canada-wide energy efficiency program for low-income customers. For ***Equiterre, Green Communities Association, and Vivre en Ville***.
- 1996-2001: Training for a variety of clients on the principles and approaches toward and opportunities for energy efficiency. Also similar training addressing renewable energy, climate change strategies and opening electricity markets to competition. ***Government of Canada, other clients***.
- 2000: White paper for utility regulators on appropriate treatment of energy efficiency and DSM. Addressed market barriers, screening tests, regulatory principles and models, integrated resource

planning and incentive mechanisms under competitive market structures. For the **Quebec Energy Efficiency Agency**.

- 1998: Strategic counsel and analysis for an independent wind power developer, including analysis of value-added revenue opportunities from budding environmental attribute markets. For **NEG Micon Canada**.
- 1996: Designated Large Project leader within historic Premier's Economic Summit (Business and Jobs Committee). Responsible for assessing value of large project proposals in the energy and environmental sectors, and providing support to developers throughout the process.
- 1995-96: Lead on design of large-scale, community-based, multi-fuel energy efficiency program aimed at residential retrofits. Work included coordinating a team of Energy Department staff, program design, cost-benefit analysis, supervision of a labour impact study, assessment of forecast environmental benefits, and public presentation of the program jointly with the Quebec **Minister of Natural Resources**.
- 1995-96: Named by the Minister of Natural Resources to a **blue-ribbon panel** tasked with revamping the province's energy policy. Tasks included holding public hearings in 10 communities, review of some 300 oral and written briefs, fact-finding missions, 50 panel meetings, negotiation of a final, consensus report including nearly 200 recommendations, the most important of which were quickly translated into official provincial policy.
- 1995: Main author of a technical/economic analysis of past and future trends in wind energy and passive solar technologies. Also led a team in defining the group's positions on energy and transportation issues, recorded in a three volume briefing. For **Environnement Jeunesse**.
- 1995: Development and write-up of government agency's policy on energy and transportation issues. For **Government of Québec's Permanent Youth Council**.

#### PUBLISHED ARTICLES AND BOOK CHAPTERS (PARTIAL LIST)

- 2013 "Coast-to-Coast: An Update on On-Bill Financing Program Strategies". Johnson, Degens, Dixon, Flanders, and Dunsky, in *International Energy Program Evaluation Conference Proceedings*.
- 2012 "Establishing Savings Algorithms and Evaluation Procedures for Emerging Technologies and Innovative Program Approaches". McCowan, Dunsky, Livingston, and Sutter, in *American Council for an Energy Efficient Economy 2012 Summer Study Proceedings*.
- 2012 "DSM Cost-Effectiveness: When the TRC Harms Efficiency, What's Next?", *American Council for an Energy Efficient Economy*. Dunsky and Boulanger, in *American Council for an Energy Efficient Economy 2012 Summer Study Proceedings*.
- 2010 "Nobody's Perfect: Choosing (and Improving) Models for Energy Efficiency Program Administration". Dunsky and Lindberg, in *American Council for an Energy Efficient Economy 2010 Summer Study Proceedings*.
- 2010 "Small Goes BIG: Large-Scale Savings from Small Commercial Customers", Dunsky and Gobeil, in *American Council for an Energy Efficient Economy 2010 Summer Study Proceedings*.
- 2010 "Transforming Markets with Mandatory Building Energy Labeling". Dunsky, Lindberg and Fasey, in *American Council for an Energy Efficient Economy 2010 Summer Study Proceedings*.
- 2010 "Mandatory Energy Disclosure for Existing Homes and Buildings: A New Policy Opportunity". Dunsky and Lindberg, in *Association of Energy Service Professionals (AESP)*.
- 2008 "The Current Electrical Revolution: Portrait of a Newly Emerging Architecture in Industrialized Countries", *SAPIENS*, Vol. 1, Issue 2, 2008. Sole author.

- 2006 "Transforming the Market for Efficient Power Supplies: Opportunities Assessment and Early Experience in Canada", ACEEE 2006 Summer Study – Proceedings, August 2006. Lead author, with I. Saint-Laurent, K. Dunn and V. Fulbright.
- 2006 "Québec's Economic Energy Efficiency Potential: Results of a Utility-Stakeholders Working Group Process", ACEEE 2006 Summer Study – Proceedings, August 2006. With B. Gobeil and M. Parent.
- 2004 "The Electricity Revolution Underway: Portrait of an Emerging New Architecture in Industrialized Nations", Vertigo, Spring 2004. Sole author. [French]
- 2003 "Gas Turbines and Renewable Energy: Comparing Apples with Apples", Cahiers de l'énergie (Energy Perspectives), October 2003. Contributor, with M. Bolinger, R. Wiser and W. Golove. [French]
- 2003 "Canadian Industry and the Kyoto Protocol", Cahiers de l'énergie (Energy Perspectives), April 2003. Lead author, with Patrick Henn. [English and French]
- 2002 "What Energy Future? – Understanding the current transition to better plan for the future", Cahiers l'énergie, December 2002. Sole author. [French]
- 2001 "Lessons from California's Energy Crisis", CHOC (magazine of the Quebec Electricity Industries Association), June 2001. Sole author. [French]
- 2001 "California's Power Crisis: The Demand Side of the Equation", in Inside Energy (U.K.), April 2001. Sole author. [English]
- 2001 "Lessons from the California Power Crisis", simultaneously in PowerOnline and ElectricNet, Feb. 20, 2001. Sole author. [English]
- 2000 "1920-1995 and Beyond: Trending Downwards", in Cogeneration and On-Site Power Production, James and James Science Publishers, no 6, Nov.-Dec. 2000, 29-34. Sole author. [English]
- 1999 "Keeping the Promise: Making Renewable Portfolio Standards Work", in WindPower '99, Proceedings of the American Wind Energy Association 25th Annual Conference, Paper #27, Chapter 6A: Economics. Sole author. [English]
- 1998 "Residential DSM Programme Development and Implementation – Lessons from PRIME", in Energy Efficiency in a Competitive Environment, Proceedings of the American Council for an Energy Efficient Economy (ACEEE) 1998 Summer Study on Energy Efficiency in Buildings, Panel on International Collaborations and Global Market Issues, Volume 5, pp. 5.61-5.72. Sole author. [English]
- 1998 "Challenges for Effective Competition in Large Hydro-Dominated Markets – The Case of Québec", in Deregulation of Electric Utilities, Chapter 5 (pp. 101-117). Norwell, Mass and Dordrecht, Netherlands: Kluwer Academic Publishers, 1998. Topics in Regulatory Economics and Policy, vol. 28. Lead author, with P. Raphals. [English]
- 1998 "Toward Improved Reliability – Lessons from the Ice Storm", in L'Énergie au Québec – Quels sont nos choix?, Chapter 5 (pp. 85-98). Montreal, Qc: Les éditions écosociété, 1998. Lead author, with P. Raphals. [French]
- 1997 "New Renewable Energy Technologies", in Le mercure solaire, published as series in successive editions over three years. Sole author. [French]
- 1996 "Perspectives for Wind Power in Quebec: Past and Future Trends and Cost Forecasts", in Energy Studies Review, Volume 7, No. 3, pp. 276-291. Sole author. [French]
- 1996 "Toward a Demand-Side Future", in Profiting from Energy Efficiency, Proceedings of the American Council for an Energy Efficient Economy (ACEEE) 1996 Summer Study on Energy Efficiency in Buildings, Panel on Energy and Environmental Policy, Volume 9, pp. 9.39-9.48. Sole author. [English]
- 1996 "Against the Tide", in Canadian Energy Markets, October-November 1996, online version. Sole author. [English]
- 1995 "Playing With Fire", in Hydro-Québec – Autres temps, autres défis, University of Quebec at Montreal's annual Series on Leaders of Contemporary Québec, pp. 267-279. Montreal: Presses de l'Université du Québec, 1995. Sole author. [French]
- 1994 "Sustainable Energy Development in Quebec – Opportunities and Outlook", in Le développement durable, Proceedings of Hydro-Québec conference, 15 p. (unnumbered). Sole author. [French]

- 1994 "Playing with Fire: Hydro-Québec Faces Serious Risk by Following its Current Path. It Could Still Change Course", in Perspectives, vol. 6, no. 2, February-March, pp. 9-11. Sole author. [English]
- 1994 "E4=Energy, Economy, Environment, Ethics", in L'ENJEU, vol. 13, no. 3, p.45. Sole author. [French]

## PUBLIC SPEAKING

- 2013 **AESP New Adventures in EM&V (online)**: "'Standard' Cost-Effectiveness Tests? Not Quite".
- 2013 **Bright Business Conference (Halifax)**: "Revisiting Cost-Effectiveness Screening".
- 2013 **ACEEE Finance Forum (Chicago)**: "International Experience with Innovative Financing Mechanisms for Energy Efficiency and Demand-Side Renewables".
- 2013 **Association of Quebec Economists (Quebec City)**: "Energy Efficiency: the High-Value, Low-Cost, Underdeveloped Resource".
- 2012 **Efficiency First (online)**: "Inside the Black Box", national webinar.
- 2012 **Association of Energy Service Professionals (online)**: "Screening Energy Efficiency: Best Practices" webinar panel.
- 2012 **American Council for an Energy Efficiency Economy (Pacific Grove, CA)**: "When the TRC Harms Efficiency, What's Next?"
- 2012 **AESP Summer Conference (Toronto)**: "Will New Codes & Standards Kill Efficiency?"
- 2011 **Americana – 9<sup>th</sup> Biennial International Environmental Technology Conference (Montreal)**: "An Energy Rating for Every Building – Mandatory Labelling for Commercial Buildings".
- 2010 **4<sup>th</sup> National Geoexchange Technical and Policy Forum (Montreal)**: "Unleashing Demand through Innovative Financing Strategies".
- 2010 **American Council for an Energy Efficiency Economy (Pacific Grove, CA)**: several speaking engagements.
- 2010 **Association of Energy Service Professionals 20<sup>th</sup> Conference (Tucson)**: "Mandatory Energy Disclosure for Existing Homes and Buildings: A New Policy Opportunity"
- 2009 **Affordable Energy Conservation Forum (Vancouver)**: "Lessons for (Private) Low-Income Home Energy Efficiency Programs"
- 2009 **Quebec Association for Energy Management (Montreal)**: "Leadership in Energy Efficiency in North America"
- 2008 **Time for Action (Toronto)**: "Energy Efficiency for Private Low-Income Homes"
- 2008 **Quebec Energy Efficiency Public Consultation** (luncheon keynote): *The Challenge of Leadership*
- 2007 **Canadian Association of Members of Public Utilities Tribunals (CAMPUT)**: *Utilities and the Environment: What More Should Be Done?*
- 2007 **McGill University Conference on Business Sustainability (Montreal)**: *The Challenge of Energy*
- 2006 **Unisfera Conference on Business and Sustainability**: *Negawatts: From Fantasy to Reality*
- 2006 **American Council for an Energy Efficient Economy (Pacific Grove, CA)**: "Transforming the Market for Efficient Power Supplies: Opportunities Assessment and Early Experience in Canada"
- 2006 **Quebec Association for Energy Management (Drummondville)**: "Coming Soon: Efficient PCs", and "Energy Policy: What Role for Efficiency?"
- 2006 **Association of Québec Economists (guest luncheon speaker)**: "The Energy Challenge: Getting More with (a)lot Less"
- 2003 **CLD Manicouagan (guest luncheon speaker)**: "Energy in the 21<sup>st</sup> Century"
- 2003 **Canadian Association of Members of Public Utilities Tribunals (Banff, AB)**: "Kyoto: Implications for Utility Regulation"
- 2001 **Circle of International Affairs**: "The Future of Energy in North America"
- 2000 **Canadian Gas Association (Montreal)**: "Convergence of Technology, Market and Societal Forces: Implications for the Gas Industry"
- 2000 **Canadian Institute of Energy (Vancouver)**: "Distributed Generation: Needs and Opportunities, Promise and Concern"

- 1999 **Canadian Electricity Association (Calgary):** *"Standing at the Crossroads: Early Thoughts on a Regulatory Agenda for Distributed Energy Technologies"*
- 1999 **American Wind Energy Association (Burlington):** *"Exploring the Limitations of the Renewables Portfolio Standard"*
- 1999 **Canadian Association of Members of Public Utilities Tribunals (CAMPUT):** *"Sustainability and Competitive Energy Markets"*
- 1998 **Association of Québec Biologists:** *"Competitive Markets and New Energy Sources: Synergies"*
- 1998 **Canadian Electricity Association (CEA):** *"Restructuring and the Environment: Running the Treadmill"*
- 1998 **Institut for Environmental Sciences:** *"Energy Sustainability in an Era of Uncertainty : A Role for Regulators"*
- 1997 **International Workshop on Deregulation of Electric Utilities:** *"Challenges for Competition in Large Hydro-Dominated Markets"*
- 1997 **International Research Institute:** *"Emerging Energy Architectures and the Role of Distributed Power"*
- 1996 **American Council for an Energy Efficient Economy (Pacific Grove, CA):** *"Toward a Demand-Side Future"*

#### ADVISORY COMMITTEES AND BOARDS

- 2002-12 Green Municipal Fund – Governing Council (\$650M revolving loan fund)
- 2009-12 Green Municipal Fund – Investment Committee (oversight of \$650M assets)
- 2010-11 B.C. Green Landlords Project – Advisory Committee
- 2009-12 Parta Sustainable Solutions – Board of Directors
- 2004-10 Quebec Action Fund for Sustainable Development – Board of Directors
- 2008-09 Enbridge Gas Company – DSM Evaluation and Audit Committee
- 2006-08 Unisfera International Centre – PlanetAir Advisory Committee
- 2005-07 Sustainable Development Investment Fund (venture cap fund) – Vice-President
- 2006 Quebec Energy Efficiency Agency – Board of Directors
- 2005-06 Environmental Laws Revision Panel – Member (named by Environment Minister of Quebec)
- 1999-05 Ethical Investment Group – Co-president, President of Stock Trading Committee
- 2003-04 National Round Table on the Environment and the Economy – Energy Efficiency Fiscal Strategies committee
- 1996-04 Helios Centre – Board of Directors
- 1998-00 Mile End Community Energy Efficiency Project – Expert Advisory Committee
- 1998-00 Daphna Foundation – Board of Directors
- 1999 New York Wind Project – Advisory Committee
- 1998 EcoNeighbourhood Prize (City of Montréal) – Member of the Jury
- 1995-98 Mauricie Community Energy Efficiency Centre – Expert Advisory Committee
- 1997-98 Regional Environment Council of Montreal – Board of Directors
- 1996 Premier's Economic Summit, Business and Jobs Committee – Head of Large Energy and Environment Projects
- 1995-96 Public Debate on Energy – Panel Member
- 1995-97 Quebec Climate Change Coalition – Board of Directors
- 1994-97 Environnement Jeunesse – Board of Directors
- 1993-94 Hydro-Quebec – Advisory Committee on Public Participation
- 1993-94 Hydro-Quebec – Advisory Committee on Role of Electricity in Industrial Development
- 1992-93 Hydro-Quebec – Advisory Committee on Integrated Resource Planning (IRP)

# Kyrke Gaudreau

B.Eng., MES, PhD

Phone: (778) 349-7829 | E-mail: kyrke.gaudreau@gmail.com

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## Summary of Qualifications

- Comprehensive and integrated knowledge of sustainability theory and practice developed through research and consulting experience and advanced degrees in Environmental Studies.
- Experienced communication skills in a wide variety of media, including technical report writing, academic and popular science articles, professional presentations, and audio and video interviewing.
- Strong team player with substantial teamwork experience who encourages collaboration and information exchange to innovate for sustainability. Able to work constructively with students, administration, faculty and operations to develop positive synergy.
- Sound judgment and excellent interpersonal communication skills in English with advanced ability in French.
- Lifelong learner with a passion for sustainability in higher education institutions.

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## Current Employment

### Sustainability Manager

October 2013 – Present

University of Northern British Columbia

- Contribute to broader University strategy and policy related to sustainability.
- Provide expertise to, and promote constructive partnerships between, faculty, staff, administration and students.
- Help organize sustainability related activities and initiatives on campus.

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## Education

### Doctorate of Social and Ecological Sustainability

2009-2013

University of Waterloo, Ontario, Canada

- Awards - NSERC Post Graduate Scholar and FQRNT (Quebec) Doctoral Scholar.
- Research focus - Sustainability assessment of energy systems.

### Masters of Environment and Resource Studies

2007-2009

University of Waterloo, Ontario, Canada

- Awards - NSERC Canada Graduate Scholar and AUCC Students for Development Scholar
- Research focus - Energy and environmental accounting

### Bachelor of Civil Engineering, Minor in Environmental Engineering

2003-2007

McGill University, Quebec, Canada

- Grades and Awards - CGPA 3.97/4.0 and British Association Medal for highest graduating CGPA in Civil Engineering (2007)

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## Sustainability Assessment Consulting

### Sustainability Assessment of the Manitoba Power System Plan

2013 – Present

Consultant for the Consumers Association of Canada – Manitoba Branch

- Developed and applied a sustainability assessment framework for application by the Public Utilities Board of Manitoba related to Manitoba Hydro's 'Need For and Alternatives To' submission.
- Prepared sustainability based Information Requests on behalf of CAC Manitoba that were submitted to the decision-making Panel.

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## **Environmental Impact Assessment of Keeyask Hydro Dam**

May-December 2013

Consultant for the Manitoba Public Interest Law Centre

- Developed a sustainability assessment framework for application by the Clean Environment Commission of Manitoba
- Prepared sustainability based Information Requests on behalf of MPILC that were submitted to the decision-making Panel.

## **Environmental Impact Assessment of nuclear waste storage**

2012-2013

Consultant for the Canadian Environmental Law Association (CELA).

- Assessed the cumulative effects and socioeconomic impacts of Ontario Power Generation's proposed Deep Geological Repository for low and intermediate nuclear waste proposed for Kincardine, Ontario.
- Prepared Information Requests on behalf of CELA that were submitted to the decision-making Panel.

## **Sustainability assessment of Brazilian sugarcane-ethanol**

2011-2013

Research consultant for the School of Public Health at the University of São Paulo.

- Developed and applied a sustainability assessment to assess the environmental and socio-economic impacts of sugarcane-ethanol production in São Paulo state, Brazil.
- Wrote technical research articles to disseminate the results of the project.

## **Sustainability Assessment of Ontario Power System Plan**

2008

Consultant for the Green Energy Coalition of Ontario

- Assessed the sustainability of Ontario's Integrated Power Systems Plan, particularly to regards to agriculture and bioenergy.
- Contributed to the writing of a report and journal article relating to the assessment, both of which helped inform the hearings held by the Ontario Energy Board.

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## **Other Sustainability Related Work Experience**

### **Supervisor – ERS Honours Thesis**

2011-2013

Environment and Resource Studies – University of Waterloo

- Supervising nine undergraduate students for their 4<sup>th</sup> year honours theses. Providing guidance for a broad variety of topics, including sustainability in higher education, energy strategy, composting, youth mobilization through social media, dispute resolution, and sustainable agriculture.

### **Course Instructor – ERS 270 Introduction to Sustainable Agriculture**

Winter 2012

Environment and Resource Studies – University of Waterloo

- Taught basic theory and practice of sustainable agriculture.
- Designed lecture and examination material and oversaw general course structure.

### **Course Instructor – Introduction to Sustainability Assessment**

November 2012

School of Public Health, University of São Paulo, São Paulo, Brazil

- In collaboration with Dr. Jenny Pope, Director of Integral Sustainability Australia, designed and taught a short course on sustainability assessment practice.

### **Research Consultant - Energy Hub Management Systems**

2009-2010

University of Waterloo and Hydro One

- Worked in a team environment to develop and implement dynamic energy management systems in residential, commercial, industrial and agricultural settings.
- Determined the impacts of time-of-use electricity rates and other demand-management programs on the agriculture sector of Ontario.

### **Biomass stove builder**

Summer 2011

Intern with Resource Efficient Agricultural Production (REAP) Canada

- Assessed the potential for sustainable agriculture and energy production in Senegal.
- Designed and disseminated biomass gasifier stoves as part of REAP Canada's mandate in Senegal.

### **Researcher - Energy Policy in Ontario**

Fall 2007

Environment and Resource Studies – University of Waterloo

- Developed an annotated bibliography relating to sustainable energy policy in Ontario and Canada.



# Kyrke Gaudreau

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## Selected University Administrative Experience

**Co-chair - Environment Teaching and Learning Committee** 2012-2013

Faculty of Environment, University of Waterloo

- Part of a faculty wide committee to promote teaching excellence and explore the role of technology in the classroom. Attend monthly meetings to ensure the Teaching Fellow is successful in her role.
- Organized graduate student Town Halls in March 2013 to elicit feedback from graduate students.

**Website manager – Sustainability Projects** 2012-2013

Environment and Resource Studies, University of Waterloo

- Maintained three sustainability-oriented websites for Prof. Robert Gibson: Sustainability Assessment Project, Biosphere Sustainability Project, the Assessment and Planning Project.
- Developed content using both Wordpress and Drupal content management systems.

**Member – ERS Curriculum Committee** 2011-2012

Environment and Resource Studies, University of Waterloo

- Part of a team that proposed and designed a new sustainability masters program in ERS. The proposal was successful and the first cohort of students will begin September 2013.

**Graduate student representative** 2011-2012

Environment and Resource Studies, University of Waterloo

- Attended departmental meetings to represent the interests of graduate students.
- Served on a variety of sub-committees relating to developed new degree programs and websites.

**Front Counter advisor – McGill Engineering Student Services** 2005-2006

Faculty of Engineering, McGill University

- Provided advice to students to help them succeed in their engineering studies.
- Performed basic clerical duties such as filing and responding to phone calls and emails.

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## Community Service

**Editor - Alternatives Journal** 2012 - Present

Alternatives Journal, Kitchener, Ontario

- Attended editorial board meetings and helped provide guidance for upcoming journal issue themes.
- Provided expert guidance relating to energy and other sustainability challenges and opportunities.

**Member – Kitchener Safe and Healthy Communities Advisory Committee** 2013

City of Kitchener, Ontario

- Advises council and staff on policies, programs and services offered directly by or in conjunction with the city that relate to the health of the city with a focus on community safety and crime prevention.

**Urban Farmer** Summer 2012

The Kitchener Working Centre Garden, Kitchener, Ontario

- Volunteered one day a week to perform general farming duties at a two-acre market garden.

**Bicycle Mechanic** 2008 - 2013

Waterloo University Bicycle Centre, University of Waterloo

- Introduced cyclists to the basics of bike mechanics and provided professional advice on how to fix and maintain their bicycles.
- Rebuilt bicycles for to be sold at an auction.

**Organic Farmer** Summer 2010

Plan B Organic Farm, Flamborough County, Ontario

Volunteered three days a week at Plan B Organic farm, including general farm duties, as well as assessing the potential for bioenergy production on-farm.

# Kyrke Gaudreau

B.Eng., MES, PhD

## Publications

### Peer Reviewed Journal Articles

- Duarte, C. G., K. Gaudreau, et al. (2013). "Sustainability assessment of sugarcane-ethanol production in Brazil: A case study of a sugarcane mill in São Paulo state." *Ecological Indicators* 30(0): 119-129.
- Gaudreau, K., R. Fraser, et al. (2009). "The Tenuous Use of Exergy as a Measure of Resource Value or Waste Impact." *Sustainability* 1(4): 1444-1463.
- Gaudreau, K. and R. B. Gibson (2010). "Illustrating integrated sustainability and resilience based assessments: a small-scale biodiesel project in Barbados." *Impact Assessment and Project Appraisal* 28(3). Voted best paper of 2010 for Impact Assessment and Project Appraisal
- Gaudreau, K., et al. (2012). "The Characteristics of the Exergy Reference Environment and Its Implications for Sustainability-Based Decision-Making." *Energies* 5(7): 2197-2213.
- Winfield, M., R. B. Gibson, Markvart, T., Gaudreau, K. Taylor, J. (2010). "Implications of sustainability assessment for electricity system design: The case of the Ontario Power Authority's integrated power system plan." *Energy Policy* 38(8): 4115-4126.

### Popular Science Articles

- Gaudreau, K. (2009). "Biofuel Basics." *Alternatives* 35(2): 14-19.
- Gaudreau, K. (2009). "Mending our Fuelish Ways." *Alternatives* 36(1): 5.
- Herod, M. and K. Gaudreau (2012). "Recipe to Prevent Crime: Grow Local Ingredients." *American Community Garden Association: Community Greening Review* 17: 1.
- Gaudreau, K. (2012). "Paul Ehrlich's Recipe for Recasting Humanity." *Alternatives* (online)
- Gaudreau, K. (2013). "Hope Grows on Trees." *Alternatives* 39(2): 3.
- Gaudreau, K. (2013). "The Grapes of Math – Using advanced science to produce wine in the desert." *Alternatives* 39(4): 3.
- Gaudreau, K. (2013). "The Endocrine Game." *Alternatives* 39(5): 12.

### Conference Papers

- Duarte, C. G., et al. (2011). Sustainability assessment of sugarcane ethanol: briefing from a case study of a Brazilian mill. *Proceedings IAIA11*, Puebla, Mexico.
- Gaudreau, K., et al. (2010). Emergy and Sustainability in a Complex World. *Sixth Biennial Emergy Research Conference*. Gainesville, Florida, University of Florida: 15.
- Gaudreau, K., et al. (2010). Resource Accounting and Waste Impact: Limitations of Exergy as a Sustainability Tool. *ASME 2010 - 4th International Conference on Energy and Sustainability*. S. Stewart. Phoenix, Arizona, ASME.
- Gaudreau, K., et al. (2010). Integrated sustainability and systems assessment applied to small-scale biodiesel in Barbados. *Advances in Energy Studies* M. Giampietro. University of Barcelona, Barcelona, Spain: 10.
- Gaudreau, K., et al., Agricultural residues for bioenergy in Senegal. *Proceedings IAIA12*, 2012a Porto, Portugal.
- Gaudreau, K., et al., A new framework for assessing energy systems. *Proceedings IAIA12*, 2012b Porto, Portugal.

### Book Reviews

- Gaudreau, K. (2009). "It's SOHO Sustainable - A review of The Ecosystem Approach: Complexity, Uncertainty and Managing for Sustainability." *Alternatives* 35(3): 28.
- Gaudreau, K. (2010). "Bursting Bubbles - A review of Beyond the Bubble; Imagining a new Canadian economy." *Alternatives* 36(3).
- Gaudreau, K. (2010). "Fuel's Fool - A review of The Biofuel Delusion: The Fallacy of Large Scale Agro-Biofuels Production." *Alternatives* 36(6): 42-43.
- Gaudreau, K. (2011). "Squabbling Munks - A Review of The Munk Debates - Volume 1." *Alternatives* 37(3).
- Gaudreau, K. (2012). "Power over Perception: A review of 'EcoMind: Changing the way we think to create the world we want.'" *Alternatives* 38(5).
- Gaudreau, K. (2012). "The Enviro-Industrialist - A review of Industrial Evolution: Local Solutions for a Low Carbon Future." *Alternatives* 38(3): 2.

# Kyrke Gaudreau

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## Selected Public Speaking

### Formal Interviews

- Alternatives Journal: The Energy of Slaves – An Interview with Andrew Nikiforuk. September 2012.  
<http://www.alternativesjournal.ca/community/blogs/aj-editorial-board/interview-energy-slaves>

### Conference presentations

- 2012 International Association for Impact Assessment – May 27 – June 1, Porto, Portugal.  
Presentation title: “The combustion of agricultural residues for cooking applications in Senegal.”
- 2012 International Association for Impact Assessment – May 27 – June 1, Porto, Portugal.  
Presentation title: “The relationship between energy, technology and society – Towards and appropriate technology framework for impact assessment.”
- Advances in Energy Studies 2010 - October 19-21, Barcelona, Spain. Presentation title: “Integrated sustainability and systems assessment applied to small-scale biodiesel in Barbados”
- ASME 2010 - 4th International Conference on Energy and Sustainability - May 17-22, Phoenix, Arizona, U.S. Presentation title: “Resource Accounting and Waste Impact: Limitations of Exergy as a Sustainability Tool”

### Invited Lectures

- **ENV Speaker Series** – Where the Research Ends: A debate on the role of academia in a changing world. Presented with Prof. Robert B. Gibson. University of Waterloo, Ontario, October 2012
- **PLAN 474** – Guest lecture: The Soft Energy Path and Renewable Urban Energy Production, University of Waterloo, June 2012
- **ERS 701** – Guest lecture: Sustainability in Complex Systems, University of Waterloo, November 2011
- **ENV 311** – Guest lecture: Applying Systems Thinking to the Combustion of Agricultural Residues in Senegal. University of Waterloo, November 2011
- **WUSC National Research Forum** – Invited lecture: Sustainability and Innovation in Senegal. World University Service of Canada, Ottawa, Ontario, November 2011
- **ENV Speaker Series** – Sustainability Assessment of Agricultural Residues in Senegal. University of Waterloo, Ontario, October 2011
- **Grade 9 Class** – Invited lecture on organic agriculture. Place Cartier Adult Education Centre, Beaconsfield, Quebec, November 2010
- **ENV Speaker Series** – Sustainable biodiesel production in Barbados, University of Waterloo, January 2009

**Robert B. Gibson**

***Curriculum vitae***

January 2014

Professor and Associate Chair, Graduate Studies  
Department of Environment and Resource Studies  
Faculty of Environment, University of Waterloo  
Waterloo, Ontario, Canada N2L 3G1  
phone (519) 888-4567 x 33407; fax (519) 746-0292; e-mail rbgibson@uwaterloo.ca

Cross-appointed to the Department of Geography and to the School of Planning,  
University of Waterloo  
Adjunct Faculty Member, University of Manitoba, Natural Resources Institute (2008- )  
Associate Faculty Member, Social Innovation Generation, University of Waterloo  
(2009- )

*Education:*

Ph.D., 1982, University of Toronto, political science (theory, Canadian government and policy)  
dissertation: *An Examination of the Fundamental Basis for Valuing Participation*  
M.A., 1973, University of Toronto, political science  
B.A. (honours), 1972, Glendon College, York University (political science and philosophy)

*Employment/professional appointments:*

1981- sessional lecturer (1981-83), assistant professor (1983-9), tenured associate professor (1989-2004), professor (2004- ) Department of Environment and Resource Studies, University of Waterloo; associate chair graduate studies  
2002 (January-July) visiting scholar, Sustainable Development Research Institute, University of British Columbia, Vancouver, British Columbia  
1997 (January-July) visiting associate professor and Lansdowne Fellow, Faculty of Law, University of Victoria, British Columbia  
1981-90 tutor/senior tutor, Environmental Studies Programme, Innis College, Univ. of Toronto  
1977- environmental/sustainability policy researcher/consultant  
1978-79 founding editor of the *Probe Post*, bi-monthly periodical, Pollution Probe Foundation  
1975-76 policy analyst, Environmental Management Service, Environment Canada, Hull  
1973, 74 researcher, Science Council of Canada, Ottawa

*Academic areas of interest:*

Sustainability assessment criteria development, process design and implementation at the strategic and project levels

Sustainability conception and integration in policy making, assessment, corporate greening, urban growth management and landscape scale governance  
 Advanced environmental assessment; strategic environmental assessment  
 Sustainability theory, ethics, relations to complex systems and resilience thinking  
 UNESCO Biosphere Reserves, initiatives integrating livelihoods, stewardship and learning  
 Environmental politics and policy making; environmental protection regulatory processes; "voluntary" corporate initiatives; public involvement in environmental decision making  
 History of environmental thought; ideology and the environmental movement  
 Environmental journalism  
 Northern development planning, project assessment and regulation  
 Democratic theory and public participation

### Publications

#### Books (\*refereed) last 15 years:

- Paul Muldoon, Alastair Lucas, Robert B. Gibson and Peter Pickfield, *An Introduction to Environmental Law and Policy in Canada* (Toronto: Emond Montgomery Publications, 2008), 256pp.\*
- Robert B. Gibson, with Selma Hassan, Susan Holtz, James Tansey and Graham Whitelaw, *Sustainability Assessment: criteria and processes* (London: Earthscan, 2005), 254pp.
- Robert B. Gibson, editor, *Voluntary Initiatives and the New Politics of Corporate Greening* (Peterborough: Broadview Press, 1999), 268pp.\*

#### Monographs and major commissioned reports (\*refereed) last 15 years:

- Deborah Carver, Robert B. Gibson, Jessie Irving and Erin Burbidge, *Inter-jurisdictional Coordination of EA: Challenges and opportunities arising from differences among provincial and territorial assessment requirements and processes*, a commissioned report prepared for the Canadian Environmental Assessment Agency, through the Environmental Planning and Assessment Caucus, 20 November 2010, 121pp.; <http://rcen.ca/caucus/environmental-planning-and-assessment/resources> and <https://uwaterloo.ca/next-generation-environmental-assessment/research-contributions/dissertations-theses-monographs-and-major-reports>
- Hugh Benevides, Denis Kirchhoff, Robert Gibson and Meinhard Doelle, *Law and Policy Options for Strategic Environmental Assessment in Canada*, report commissioned by the Canadian Environmental Assessment Agency, September 2008, revised October 2009, 88pp. <http://rcen.ca/caucus/environmental-planning-and-assessment/resources> and <http://ssrn.com/abstract=1660403> and <https://uwaterloo.ca/next-generation-environmental-assessment/research-contributions/dissertations-theses-monographs-and-major-reports>
- Robert B. Gibson, Mark Winfield, Tanya Markvart, Kyrke Gaudreau and Jennifer Taylor, *An Analysis of the Ontario Power Authority's Consideration of Environmental Sustainability in Electricity System Planning*, prepared for the Green Energy Coalition, Pembina Institute and Ontario Sustainable Energy Association, submitted

to the Ontario Energy Board, 1 August 2008, 200 pp.;  
<https://uwaterloo.ca/sustainability-assessment-project/publications/formal-submissions>.

Robert B. Gibson, *Sustainability-based assessment criteria and associated frameworks for evaluations and decisions: theory, practice and implications for the Mackenzie Gas Project Review*, a report commissioned by and prepared for the Joint Review Panel for the Mackenzie Gas Project, final report 26 January 2006, 67pp.;  
<http://www.acee-ceaa.gc.ca/default.asp?lang=En&n=155701CE-1>, and  
<http://ssrn.com/abstract=1663015>, and <https://uwaterloo.ca/sustainability-assessment-project/publications/dissertations-and-published-reports>

Carol Hunsberger, Robert B. Gibson and Susan K. Wismer, *Increasing citizen participation in sustainability-centred environmental assessment follow-up: lessons from citizen monitoring, traditional ecological knowledge, and sustainable livelihood initiatives* (including case studies by Carol Hunsberger, F. Tyler Shaw and Thalia Santisteban), monograph prepared for the Canadian Environmental Assessment Agency Research and Development Program, April 2004, 88pp.;  
<http://www.ceaa.gc.ca/default.asp?lang=En&n=C7B298F5-1> also available in French August 2005; also <https://uwaterloo.ca/sustainability-assessment-project/publications/dissertations-and-published-reports>\*

Michelle Boyle, Robert B. Gibson, Deborah Curran, and Karin Foreman, *The Capital Regional District Growth Strategy: Herding Cats onto the Road to Sustainability*, The Assessment and Planning Project, British Columbia Case Report No. 6 (Waterloo: Integrating the Environment into Planning for Growth Study, ERS/UWaterloo, March 2003), 93pp.; <https://uwaterloo.ca/assessment-planning-project/british-columbia-case-studies>.\*

Robert B. Gibson, *Specification of Sustainability-based Environmental Assessment Decision Criteria and Implications for Determining "Significance" in Environmental Assessment*, monograph prepared for the Canadian Environmental Assessment Agency Research and Development Programme, revised January 2002, 40pp., also available in French translation; <https://uwaterloo.ca/sustainability-assessment-project/publications/dissertations-and-published-reports>\*.

#### Journal:

*Alternatives Journal*: Canadian environmental ideas and action, volume 12, number 1 (fall 1984) and following quarterly, co-editor (with Douglas Torgerson 1984-86, with Ted Schrecker 1986-87) editor (1988-2000) and co-editor (with Ray Tomalty 2000-2002), chair of editorial board (2003- ), columnist – “What’s the Big Idea” (2010- ); refereed outreach journal since fall 1986; journal of the Environmental Studies Association of Canada since 1995; bimonthly since 2004.

#### Selected journal articles and chapters in books (\*refereed) last 15 years:

Yoichi Kumagai, Robert B. Gibson and Pierre Filion, “Evaluating long-term urban resilience through an examination of the history of green spaces in Tokyo,” *Local Environment* (in press, 2014).\*

Robert B. Gibson, “Applying a sustainability test to a hydrocarbon megaproject,” sidebar story, chapter 6 of David P. Lawrence, *Environmental Impact Assessment – practical*

- solutions to recurrent problems*, second edition (Hoboken, New Jersey: John Wiley and Sons, 2013), pp.151-153.\*
- Robert B. Gibson, "Avoiding sustainability trade-offs in environmental assessment," *Impact Assessment and Project Appraisal* 31:1 (2013), pp.1-12; DOI:10.1080/14615517.2013.764633.\*
- Sameer H. Shah and Robert B. Gibson, "Large dam development in India: sustainability-criteria for the assessment of critical river basin infrastructure," *International Journal of River Basin Management* 11:1 (2013), pp.33-53; <http://dx.doi.org/10.1080/15715124.2012.754445>.\*
- Carla Grigoletto Duarte, Kyrke Gaudreau, Robert B. Gibson, Tadeu Fabrício Malheiros, "Sustainability assessment of sugarcane-ethanol production in Brazil: a case study of a sugarcane mill in São Paulo state," *Ecological Indicators* 30 (2013), pp.119-129; <http://dx.doi.org/10.1016/j.ecolind.2013.02.011>.\*
- Robert B. Gibson, "In full retreat: the Canadian government's new environmental assessment law undoes decades of progress," *Impact Assessment and Project Appraisal* 30:3 (2012), pp.179-188; DOI: 10.1080/14615517.2012.720417.
- Robert B. Gibson, "Why sustainability assessment?" chapter 1 in Alan Bond, Angus Morrison-Saunders and Richard Howitt, editors, *Sustainability Assessment: pluralism, practice and progress* (London: Taylor and Francis, 2012), pp.3-17.\*
- Robert B. Gibson, "Sustainability assessment in Canada," chapter 11 in Alan Bond, Angus Morrison-Saunders and Richard Howitt, editors, *Sustainability Assessment: pluralism, practice and progress* (London: Taylor and Francis, 2012), pp.167-183.\*
- Robert B. Gibson, "Application of a contribution to sustainability test by the Joint Review Panel for the Canadian Mackenzie Gas Project," *Impact Assessment and Project Appraisal* 29:3, special issue on enhancement of positive effects in environmental assessment, (September 2011), pp. 231-244.\*
- Robert B. Gibson, "Alternatives: three short essays about options that rattle the authorities," *Alternatives Journal* 37:6 (2011), pp.10-13.\*
- Robert B. Gibson, "Sustainability and the Greenbelt," *Plan Canada* 51:3 (2011), pp.38-41.
- Robert B. Gibson, "Three analyses of the amendments to the Canadian Environmental Assessment Act made through the Budget Implementation Act, 2010," *Canadian Environmental Law Reports*, 3rd series, 51:2 (2010), pp.184-216.\*
- Robert B. Gibson, Hugh Benevides, Meinhard Doelle and Denis Kirchhoff, "Strengthening strategic environmental assessment in Canada: an evaluation of three basic options," *Journal of Environmental Law and Practice*, 20:3 (2010), pp.175-211.\*
- Yoichi Kumagai, Robert B. Gibson and Pierre Filion, "Translating resilience into the urban context: past successes and future uncertainties in Tokyo," *Critical Planning* 17 (summer 2010), pp.2-22.\*
- Kyrke Gaudreau and Robert B. Gibson, "Illustrating integrated sustainability and resilience based assessment: a small-scale biodiesel project in Barbados," *Impact Assessment and Project Appraisal*, 28:3 (September 2010), pp.233-243.\*
- Mark Winfield, Robert B. Gibson, Tanya Markvart, Kyrke Gaudreau and Jenny Taylor, "Implications of sustainability assessment for electricity system design: the case of the



- Ontario Power Authority's Integrated Power System Plan," *Energy Policy* 38 (2010), pp.4115-4126.\*
- Peter Croal, Robert B. Gibson, Charles Alton, Susie Brownlie and Erin Windibank, "A decision-maker's tool for sustainability-centred strategic environmental assessment," *Journal of Environmental Assessment Policy and Management* 12:1 (March 2010), pp.1-27.\*
- Robert B. Gibson, "Beyond the pillars: sustainability assessment as a framework for effective integration of social, economic and ecological considerations in significant decision-making," in William R. Sheate, ed., *Tools, Techniques and Approaches for Sustainability: Collected Writings in Environmental Assessment Policy and Management* (London: World Scientific Publishing, 2009), journal paper previously published in JEAPM in 2006.\*
- Robert B. Gibson and Kevin S. Hanna, "Progress and uncertainty: the evolution of federal environmental assessment in Canada," in Kevin S. Hanna, editor, *Environmental Impact Assessment: Participation and Practice, second edition* (Toronto: Oxford University Press, 2009), pp.18-36, update and revision of chapter in initial edition published in 2005.\*
- Graham S. Whitelaw, Paul F.J. Eagles, Robert B. Gibson, and Mark L. Seasons, "Roles of environmental movement organizations in land-use planning: case studies of the Niagara Escarpment and Oak Ridges Moraine, Ontario, Canada," *Journal of Environmental Planning and Management* 51:6 (November 2008), pp.801-816.\*
- Robert B. Gibson, "Making a better world, one undertaking at a time: sustainability assessment and innovative decision making in Canada," in Glen Toner, editor, *Innovation, Science and Environment: Canadian Policies and Performance 2008-2009* (Montreal/Kingston: McGill-Queens University Press, 2008), pp.53-73.\*
- Alberto Fonseca and Robert B. Gibson, "Application denied," *Alternatives Journal* 34:4 (2008), pp.10-12.\*
- Robert B. Gibson, "Integration through sustainability assessment: emerging possibilities at the leading edge of environmental assessment," in Kevin S. Hanna and D. Scott Slocombe, eds., *Integrated Resource and Environmental Management: concepts and practice* (Oxford and Toronto: Oxford University Press, 2007), pp.72-96.\*
- Cushla Matthews, Robert B. Gibson and Bruce Mitchell, "Rising waves, old charts, nervous passengers: navigating towards a new water ethic," in Karen Bakker, ed., *Eau Canada: governing Canada's waters* (Vancouver: UBC Press, 2006), pp.335-358.\*
- Robert B. Gibson, "Sustainability assessment: basic components of a practical approach," *Impact Assessment and Project Appraisal* 24:3 (2006), pp.170-182 [recipient of the 2006 "Best Paper Published in *Impact Assessment and Project Appraisal*" award from International Association for Impact Assessment].\*
- Robert B. Gibson, "Beyond the pillars: sustainability assessment as a framework for effective integration of social, economic and ecological considerations in significant decision making," *Journal of Environmental Assessment Policy and Management* 8:3 (2006), special issue on sustainability assessment, pp.259-280.\*
- Robert B. Gibson, "Sustainability assessment and conflict resolution: reaching agreement to proceed with the Voisey's Bay nickel mine," *Journal of Cleaner Production* 14: 3/4 (2006), special issue: Improving Environmental, Economic and Ethical Performance

- in the Mining Industry. Part 1. Environmental Management and Sustainable Development, pp.334-348.\*
- Robert B. Gibson and Steven W. Peck, "From advanced eco-efficiency to systemic sustainability: what leading companies are doing and what assistance and pressure they need from governments and other players," in Ray Côté, Ann Dale and James Tansey, editors, *Industrial Ecology: Implications for Canada in the 21st Century* (Vancouver: UBC Press, 2005), pp.134-150.\*
- René Kemp, Saeed Parto and Robert B. Gibson, "Governance for sustainable development: moving from theory to practice," *International Journal for Sustainable Development* 8:1/2 (2005), pp.12-30.\*
- Carol A. Hunsberger, Robert B. Gibson and Susan K. Wismer, "Citizen involvement in sustainability-centred environmental assessment follow-up," *Environmental Impact Assessment Review* 25 (2005), pp.609-627.\*
- Robert B. Gibson and Kevin S. Hanna, "Progress and uncertainty: the evolution of federal environmental assessment in Canada," in Kevin S. Hanna, editor, *Environmental Impact Assessment: Participation and Practice* (Toronto: Oxford University Press, 2005), pp.16-32.\*
- Robert B. Gibson, "We just don't know: lessons about complexity and uncertainty in Canadian environmental politics," in Robert Paehlke and Douglas Torgerson, editors, *Managing Leviathan: Environmental Politics and the Administrative State*, second edition (Peterborough: Broadview Press, 2005), pp.145-170.\*
- Michelle Boyle, Robert B. Gibson and Deborah Curran, "If not here, then perhaps not anywhere: urban growth management as a tool for sustainability planning in British Columbia's Capital Regional District," *Local Environment* 9:1 (2004), pp.21-43.\*
- Robert B. Gibson, "From Wreck Cove to Voisey's Bay: the evolution of federal environmental assessment in Canada," *Impact Assessment and Project Appraisal* 20:3 (September 2002), pp.151-159 [recipient of "2002-2003 Best Paper Published in *Impact Assessment and Project Appraisal*" award from International Association for Impact Assessment].\*
- Robert B. Gibson, "The major deficiencies remain: a review of the provisions and limitations of Bill C-19, an Act to amend the *Canadian Environmental Assessment Act*," *Journal of Environmental Law and Practice* 11 (2001), pp.83-103.\*
- Kirk Stinchcombe and Robert B. Gibson, "Strategic environmental assessment as a means of pursuing sustainability: ten advantages and ten challenges," *Journal of Environmental Assessment Policy and Management* 3:3 (2001), pp.343-372.\*
- Anita Walker and Robert B. Gibson, "Assessing trade: an evaluation of the Commission for Environmental Cooperation's analytic framework for assessing the environmental effects of the North American Free Trade Agreement," *Environmental Impact Assessment Review* 21 (2001), pp.449-468.\*
- Robert B. Gibson, "Trading short-sightedly: DFAIT on the environment," [the Department of Foreign Affairs and International Trade is proposing to avoid considering sustainability in its environmental assessments of anticipated trade agreements] *Policy Options* (Jan.-Feb. 2001), pp.83-87.

Robert B. Gibson, "Favouring the higher test: contribution to sustainability as the central criterion for reviews and decisions under the *Canadian Environmental Assessment Act*," *Journal of Environmental Law and Practice* 10:1 (2000), pp. 39-55.\*

Robert B. Gibson, "Diversity over solidarity: what we have learned and where we have come in 30 years of eco-activism," *Alternatives Journal* 26:4 (fall 2000), pp. 14-16.\*

Stephen W. Peck and Robert B. Gibson, "Pushing the revolution: leading companies are seeking new competitive advantage through eco-efficiency and broader sustainability initiatives," in *Alternatives Journal* 26:1 (winter 2000), pp.20-29.\*

Selected technical reports, public lectures, conference papers, formal submissions, and other research reports (refereed\*) last 12 years

Robert B. Gibson. "Sustainability assessment and the Keeyask case," presentation to the Manitoba Clean Environment Commission review and hearings on the proposed Keeyask Hydropower Project, on behalf of the Manitoba Public Interest Law Centre acting for the Consumers Association of Canada (Manitoba Branch), 14 November 2013.

Kyrke Gaudreau and Robert B. Gibson, *Framework for Sustainability-based Assessment for the Keeyask Hydro Project*, report prepared for Manitoba Public Interest Law Centre acting for the Consumers Association of Canada (Manitoba Branch), submitted to the Manitoba Clean Environment Commission review and hearings on the proposed Keeyask Hydropower Project, 5 November 2013, 91pp.

Robert B. Gibson (with contributions from Lindsay Staples, Rick Hendriks Anna Johnston and others), "Framework for Sustainability-based Assessment for the Site C Joint Panel Review," report prepared for the Peace Valley Landowners Association and submitted to the Joint Review Panel for the Site C Hydropower Project, 31 October 2013, 9pp.

Robert B. Gibson and W. Lindsay Staples, "Comments on Environmental Impact Statement for the proposed Site C Project and associated requests for additional information," submission to the Site C Joint Environmental Assessment Review, prepared for the Peace Valley Landowners Association, 4 April 2013, 28pp.

Robert B. Gibson and A. John Sinclair, "Harmonizing upward: more advanced and more strategic," IAIA 2013 *Impact Assessment: the Next Generation*, Calgary, Canada, 14 May 2013.

Robert B. Gibson and Amy V. Robinson, "Assessing the legacy effects of mining," presentation to IAIA 2013 *Impact Assessment: the Next Generation*, Calgary, Canada, 15 May 2013.

Robert B. Gibson, with contributions from Lindsay Staples, Rick Hendricks and others, "Framework for Sustainability-based Assessment for the Site C Joint Panel Review," prepared for *Site C Workshop*, organized by the Yellowstone to Yukon Conservation Initiative, Treaty 8 First Nations and the Peace Valley Environment Association, Vancouver, BC, 7 December 2012; <https://uwaterloo.ca/sustainability-assessment-project/publications/formal-submissions>

Robert B. Gibson, "Sustainability, complexity and assessment in the Ring of Fire," invited presentation to international workshop on *Systems and resilience-based approaches to regional planning and assessment for sustainability*, University of Waterloo, Ontario, Canada, 7 May 2013.

- Rebecca Pollock with Maureen Reed, Robert Gibson, George Francis, Ryan Bullock, Kathryn Jastremski, Oksana Zbranyk and Colleen George, *Learning from each other: Canadian Biosphere Reserves (BRs) and Model Forests (MFs) Discussion Document*, prepared for a Biosphere Reserves and Model Forests Project workshop, University of Waterloo, 13 February 2013, 28pp.; posted with the workshop report at <https://uwaterloo.ca/biosphere-sustainability-project/research-contributions/workshop-reports>
- Robert B. Gibson, "Affidavit (on the appropriate approach to environmental assessment and planning for developments in the Ring of Fire region in general and the proposed Cliffs Natural Resources Inc. chromite mine and related infrastructure)," prepared for the Mattawa First Nations, for a Federal Court application between the Mattawa First Nations and The Attorney General of Canada and Cliffs Natural Resources Inc., 11 June 2012, 75pp. plus exhibits.
- Robert B. Gibson, "Trade-offs and the design of next generation assessment regimes," paper presented at *Energy Future: the Role of Impact Assessment*, 32nd Annual Conference of the International Association for Impact Assessment, Porto, Portugal, 29 May 2012
- Robert B. Gibson and Jenny Pope, "Sustainability assessment for responsible development: the Mackenzie Gas and Browse LNG Precinct projects," paper presented at *Energy Future: the Role of Impact Assessment*, 32nd Annual Conference of the International Association for Impact Assessment, Porto, Portugal, 30 May 2012
- Robert B. Gibson, "**What would remain? notes on the key substantive changes to federal environmental assessment in the proposed *Canadian Environmental Assessment Act 2012* included in the omnibus budget implementation Bill C-38,**" prepared for the Canadian Environment Network, Environmental Assessment Caucus, 17 May 2012; available at <http://rcen.ca/caucus/environmental-planning-and-assessment/resources> and at [http://www.envirolawsmatter.ca/environmental\\_assessment](http://www.envirolawsmatter.ca/environmental_assessment).
- Robert B. Gibson, "Which way now? what to do about environmental assessment in Canada," The Riddell Faculty Seminar at the University of Manitoba, Winnipeg, 2 March 2012.
- Robert B. Gibson, "Revision of the Canadian Environmental Assessment Act as a next generation regime," presentation and submission to the Standing Committee on Environment and Sustainable Development concerning the review of the *Canadian Environmental Assessment Act*, 3 November 2011, plus supplementary submission, "React to the symptoms or treat the underlying problems? a comparison of two basic approaches to addressing the deficiencies of the *Canadian Environmental Assessment Act*," 28 November 2011.
- Robert B. Gibson, "Aims for a sustainable Grand River watershed," invited panel presentation, *Grand River Watershed Forum: a sustainable watershed – can we get there from here?* Cambridge, Ontario, 16 September 2011.
- Carla Grigoletto Duarte, Kyrke Gaudreau, Robert B. Gibson, Tadeu Fabrício Malheiros, "Sustainability assessment of Brazilian sugarcane ethanol: briefing from a case study in a Brazilian mill," in proceedings of *Impact Assessment and Responsible Development*, the annual conference of the International Association for Impact Assessment, Puebla, Mexico, 28 May-4 June 2011.

- Tanya I. Markvart and Robert B. Gibson, "Walking the talk: towards a strategic sustainability planning framework and sustainability assessment tools for the Town of Caledon," commissioned by the Town of Caledon, 29 April 2011, 92pp.
- Robert B. Gibson, "What might happen if Canada's oil and gas ambitions were to face next generation environmental assessment," invited paper presented to *Clean Energy Superpower and Environmental Assessment: Canada's Ambitions and Choices*, conference of the Queen's University Institute for Energy and Environmental Policy, Kingston, 15 April 2011.
- Robert B. Gibson, "Big ideas for greenbelts: aim higher," *Global Greenbelts Conference*, Toronto, 24 March 2011.
- Robert B. Gibson, "Next generation environmental assessment," invited paper presented to *Reviewing Environmental Law: A Conference for Public Interest Environmental Law Practitioners*, Vancouver, 4 February 2011.
- Kyrke Gaudreau, Robert B. Gibson and Roydon A. Fraser, "Integrated sustainability and systems assessment: application to a small-scale biodiesel project in Barbados," paper presented at *Advances in Energy Studies 2010* Conference, Barcelona, Spain, 19-21 October 2010 (presented by Gaudreau).
- Robert B. Gibson, "Framing an environmental assessment of NAFTA," background paper prepared for the Commission on Environmental Cooperation Face-to-Face Meeting of Panel of Experts, Washington, DC, USA, 9 July 2010.
- Robert B. Gibson, "A comparison of the basic needs for improvement of the Canadian Environmental Assessment Act with the substance and implications of amendments proposed in Bill C-9," a submission to the House of Commons Standing Committee on Finance, 11 May 2010, 16pp. [also included as an addendum to the submission from the Canadian Environmental Law Association, published at <http://www.cela.ca/canadian-environmental-assessment-act>]
- Robert B. Gibson, "Sustainability and the future of environmental assessment," Environmental Law Lecture, University of Ottawa Law School, 20 January 2010.
- Robert B. Gibson, "Linking Sustainability Assessment and Growth Management," Urban Forum lecture, Ottawa, 20 January 2010.
- Robert B. Gibson, "Improving the decision-making regime for renewable electricity generation in British Columbia," invited presentation to West Coast Environmental Law Dialogue, *Emerging Solutions for Clean Green Power*, Vancouver, 11 January 2010, video of dialogue and summary document including presentation notes published at <<http://wcel.org/resources/emerging-solutions-clean-green-power>>
- Robert B. Gibson, "Contribution to sustainability as the emerging test in environmental assessments," keynote address to Ontario Association for Impact Assessment 2009 Annual Conference, *Environmental Assessment at a Crossroads*, Toronto, 22 October 2009.
- Robert B. Gibson, "Sustainability assessment: understanding the big picture," invited closing paper, workshop on *Shifting Sands: Shaping Sustainability in Northwestern Saskatchewan*, Saskatoon, 25 September 2009.
- Robert B. Gibson, "Sustainability assessment as a vehicle for innovation and integration: lessons from recent Canadian cases," AAAS Annual Meeting, Session on Science and Technology for Sustainability Innovation, Chicago, 13 February 2009

- Peter Croal, Robert B. Gibson, Charles Alton, Susie Brownlie and Erin Windibank, *A Decision-Maker's Tool for Sustainability-Centred Strategic Environmental Assessment*, paper presented to International Association for Impact Assessment annual conference, *The Art and Science of impact Assessment*, Perth, Australia, 8 May 2008 [presented by Peter Croal].
- Robert B. Gibson, "Sustainability and indicators," invited leading presentation to workshop on *Measuring the Success of the Greenbelt*, organized by the Friends of the Greenbelt Foundation, Toronto, 5 July 2007.
- Robert B. Gibson, "Considerations for a sustainability-based evaluation of the proposed Whites Point Quarry and Marine Terminal project," presentation and formal submission to the hearings of the Whites Point Quarry and Marine Terminal Joint Review Panel, Digby, Nova Scotia, 26 June 2007, supplemented by an addendum to the submission, plus appendices, 29 June 2007; <https://uwaterloo.ca/sustainability-assessment-project/publications/formal-submissions>
- Robert B. Gibson, "Common imperatives in peculiar places: applying generic criteria in sustainability assessments," paper presented to International Society for Industrial Ecology Conference 2007, Toronto, 20 June 2007.
- Robert B. Gibson, "Sustainability assessment and citizenship," invited paper presented to *Global Citizenship conference*, panel on Crossroads for Planet Earth, Wilfrid Laurier University, 10 March 2007.
- Robert B. Gibson, "Sustainability assessment: making the world better, one undertaking at a time," invited presentation to *Creating a Climate for Change: the Latonnell Conservation Symposium*, Nottawasaga, Ontario, 16 November 2006.
- Robert B. Gibson, "Application of the 'positive contribution to sustainability' test in environmental assessment in Canada," presentation to Environment Canada's National Environmental Assessment Practitioners' Workshop on *Sustainability in Environmental Assessment of Infrastructure Projects*, Whistler, British Columbia, 24 October 2006 [delivered by teleconference].
- Robert B. Gibson, "Sustainability assessment: creeping away from the precipice, one undertaking at a time," special invited presentation to a meeting of the State Sustainability Commissioners and the Sustainability Collaborative, Perth, Australia, 31 March 2006.
- Robert B. Gibson, "Sustainability-based strategic environmental assessment," presentation to a seminar on assessment and sustainability organized by the Commissioner for Environmental Sustainability, State of Victoria, Melbourne, Australia, 28 March 2006.
- Robert B. Gibson, "Sustainability assessment framework," a presentation for the Joint Review Panel for the Mackenzie Gas Project hearings in Inuvik, NWT, 22 February 2006.
- Robert B. Gibson, "Sustainability assessment as an approach to integrated decision making," keynote paper presented to *Biodiversity Conservation and Sustainable Development in Mountain Areas of Europe: the challenge of interdisciplinary research*, European Bioscience Research Project conference, Ioannina, Greece, 23 September 2005.
- Robert B. Gibson, "Integration through sustainability assessment: a non-pillar approach," paper presented at *International experience and perspectives in SEA* (a

- global conference on Strategic Environmental Assessment organized by the International Association for Impact Assessment), Prague, Czech Republic, 28 September 2005.
- Robert B. Gibson, "Sustainability assessment as an approach to the integration of socio-economic effects considerations under the *Yukon Environmental and Socio-economic Assessment Act*," *Proceedings of a Workshop on Socio-economic Effects Assessment in the Yukon*, Whitehorse, 1-3 February 2005.
- Robert B. Gibson, "Sustainability assessment and implications for regional effects assessment," in CD proceedings of Environment Canada *International Workshop on Regional and Strategic Environmental Assessment and the Petroleum Industry*, Halifax, Nova Scotia, 23-24 May 2003, published on workshop CD, 2004.
- Robert B. Gibson, "Sustainability assessment: basic components of a practical approach," in CD proceedings of the 24th annual conference of the International Association for Impact Assessment, *Whose business is it? impact assessment for industrial development*, Vancouver, BC, 24-30 April 2004, published in 2004.
- Carol Hunsberger, Robert B. Gibson and Susan K. Wismer, "Citizen involvement in sustainability-centred environmental assessment follow-up," in CD proceedings of the 24th annual conference of the International Association for Impact Assessment, *Whose business is it? impact assessment for industrial development*, Vancouver, BC, 24-30 April 2004, published in 2004.
- Erin Rogozinski and Robert B. Gibson, "Sustainability assessment as a means of meeting environmental assessment obligations and policy commitments at CIDA: implications for policy integration and process consolidation," a policy memorandum plus appendices, prepared for the Environmental Assessment Division, Policy Branch, Canadian International Development Agency, Gatineau, Québec, 30 March 2004, 31pp.
- Erin Rogozinski and Robert B. Gibson, *Sustainability assessment as a means of meeting environmental assessment obligations and policy commitments at CIDA: implications for policy integration and process consolidation*, a summary of consultation project results and implications, prepared for the Environmental Assessment and Compliance Division, Policy Branch, CIDA, 6 November 2003; 26pp, including appendices.
- Robert B. Gibson, Erin Rogozinski and Hendrik Rosenthal, *Integrating sustainability assessment into CIDA decision-making frameworks*, a consultation report prepared for the Environmental Assessment and Compliance Division, Policy Branch, CIDA, 30 April 2003; 126pp., includes project overview and three major consultation papers:
- Erin Rogozinski, "Integrating sustainability assessment in Program-Based Approaches at CIDA,"
  - Hendrik Rosenthal "Approaches to integrating sustainability assessment in the planning, approval and review stages of CIDA programs and projects," and
  - Erin Rogozinski, "Options for strengthening the integration and comprehensiveness of CIDA policies in light of sustainability objectives."
- Robert B. Gibson, "From environmental assessment to sustainability assessment," invited paper presented at the *2003 International Convention of the Prospectors and Developers Association of Canada*, Toronto, 11 March 2003.
- Robert B. Gibson, "Power, sustainability and adaptation: environmental conflict resolution in the agreements to proceed with the Voisey's Bay nickel mine," invited



case study paper presented at conference *Towards Adaptive Conflict Resolution: Lessons for Canada and Chile*, Liu Centre for the Study of Global Issues, University of British Columbia, Vancouver, British Columbia, 25 September 2002. [published on subsequent CD: Alejandro Rojas and Bernardo Reyes, editors, *De la Confrontación a la creatividad social: hacia una resolución adaptativa de los conflictos ambientales / From the fires of destruction to the flames of creativity: towards an adaptive resolution of environmental conflicts* (Santiago, Chile: Instituto de Ecología Política, Vancouver: University of British Columbia, 2003)].

Robert B. Gibson, "From Wreck Cove to Voisey's Bay: The evolution of federal environmental assessment in Canada," invited paper presented at a session on "Evaluating environmental laws" at the annual meetings of the Association for Politics and the Life Sciences, Montréal, Québec, 11 August 2002.

Robert B. Gibson, *Sustainability assessment as a means of integrating sustainability-based decision making within the Canadian International Development Agency (CIDA)*, consultation paper prepared for the Environmental Assessment and Compliance Division, Policy Branch, Canadian International Development Agency, Hull, Québec, 26 July 2002, 58pp. plus appendices.

Robert B. Gibson, "Proposed improvements to Bill C-19, an Act to amend the *Canadian Environmental Assessment Act*," invited presentation to the House of Commons Standing Committee on Environment and Sustainable Development, Hon. Charles Caccia, Chair, Ottawa, 9 April 2002, published in *Hansard* of the Standing Committee on Environment and Sustainable Development, 9 April 2002.

Robert B. Gibson, "Taking sustainability seriously in assessment and planning," invited paper presented at BC Regional Conference of the Environmental Studies Association of Canada, *Ecological Theory, Politics, and Action*, session on Environmental Planning, University of British Columbia, 17 March 2002.

Robert B. Gibson, "Significance when sustainability matters" and "Sustainability-based criteria and significance judgements," core presentations at the Canadian Environmental Assessment Agency Research and Development Seminar, *New Perspectives on Significance*, Morris J. Wosk Centre for Dialogue, Vancouver, British Columbia, 1 March 2002.

Research project grants/contracts, last 12 years (as principal investigator or co-investigator):

"Impact and Benefit Agreements as private environmental governance schemes: assessing efficacy and legitimacy," co-applicant (principal investigator Dan McCarthy, ERS), SSHRC Insight Development Grant, \$70,495, 2012-2015.

"Exploring Social Innovation as a Contributor to Social-Ecological Resilience and Sustainability in Environmental Management," co-applicant (principal investigator Frances Westley, UW) SSHRC Partnership Development Grant, \$196,088, 2012-2015.

"Framework for environmental assessment law renewal," principal investigator, with Meinhard Doelle (Dalhousie Law School) and John Sinclair (Natural Resources Institute, University of Manitoba), SSHRC Standard Research Grant, 15 October 2010, \$121,870, 2011-2015.

"Sustainability Framework and Sustainability Assessment Tool for the Town of Caledon," principal investigator, with Tanya Markvart (PhD candidate, School of

- Planning) response to a request for quotations to the Town of Caledon, 29 October 2010, \$8,060, 2010-2011.
- "Environmental governance for sustainability and resilience: innovations in Canadian Biosphere Reserves and Model Forests," co-investigator (principal investigator Maureen Reed, School of Environment and Sustainability, University of Saskatchewan), SSHRC Standard Research Grant, special call for environmental proposals, 5 November 2008, \$249,272, 2009-2012.
- "Law and Policy Options for Strategic Environmental Assessment in Canada," contribution agreement with the Canadian Environmental Assessment Agency, 21 July 2008, \$25,000, 2008.
- "Sustainability and resilience assessment frameworks: consolidation and application at the landscape scale," principal investigator, with George Francis, Phil Taylor and Graham Whitelaw, SSHRC Standard Research Grant, \$138,820, 2008-2011.
- "Exploring Stewardship, Livelihoods and Learning on the Oak Ridges Moraine and Adjacent Greenbelt Lands," co-applicant with Dan McCarthy, George Francis and Debbe Crandall, Oak Ridges Moraine Foundation, \$66,180, 2007-2008.
- "Oak Ridges Moraine as a Biosphere Reserve: nomination and implications for research and governance for sustainability," principal investigator with George Francis, Debbe Crandall, Dan McCarthy and Susan Wismer, Oak Ridges Moraine Foundation, \$45,000, 2006-2007.
- "Exploration of the role of citizen engagement in governance for socio-ecological sustainability: conceptual framework and case studies," principal investigator, with George Francis and Susan Wismer, SSHRC Standard Research Grants Program, \$151,408, 2005-2008.
- "An exploration of the role of citizen engagement in new governance for socio-ecological integrity in Canadian Biosphere Reserves and similar initiatives," University of Waterloo/Social Sciences and Humanities Research Council Seed Grant Program, with George Francis, and Susan K. Wismer, \$5,314, 2004.
- "How to strengthen citizen participation in follow-up monitoring of human and ecological impacts," Canadian Environmental Assessment Agency, Research and Development Program, with Susan Wismer and Carol Hunsberger, \$33,283.50, 2003-2004.
- "Sustainability assessment options and implications for Canadian International Development Agency (CIDA)," Policy Branch, CIDA, \$11,782.54, 2003.
- "Integrating sustainable development principles into CIDA frameworks," contract for consultation paper for the Environmental Assessment and Compliance Division, Policy Branch, CIDA, \$48,000, 2002-2003.
- "Sustainability assessment as a means of integrating sustainability-based decision making within the Canadian International Development Agency (CIDA)," contract for consultation paper for the Environmental Assessment and Compliance Division, Policy Branch, CIDA, \$13,140, 2002.
- "Specification of sustainability-based environmental assessment decision criteria and implications for determining the significance of environmental effects," principal investigator, with 1 co-investigator (John Robinson, SDRI, UBC), research grant from the Canadian Environmental Assessment Agency Research and Development Programme, \$57,475, 2000-2002, plus additional \$3000 for 2002-2003.

Teaching (major courses):

University of Waterloo (1981-present)

ERS 241/215 Introduction to Environmental Assessment

ERS 330/430 Environmental Journalism I and II

ERS 351 Organizations and Environmental Management: the Canadian North

ERS 395/310 Development of Environmental Thought I [now ERS 310

Environmental Analysis and Solutions V: Thoughts & Attitudes]

ERS 445/415 Advanced Environmental and Sustainability Assessment

ERS 475M Globalisation and the Americas

ERS 496 Development of Environmental Thought II

Plan/Geog 667 Issues in Resource Management

ERS 680A/B Implications of a Sustainable Society for Environment and Resource Studies

ERS 701 Sustainability Foundations

ERS 675J Advanced Environmental Journalism

University of Toronto (1981-1990)

INI 454 / JVP 2606/7 Politics of the Environment

INI 320 Canadian Environmental Issues

INI 421 Environmental Thought

University of Victoria (1997)

LAW 343-S04 / EnvS 490-S01 Environmental Assessment and Planning

Current University of Waterloo positions:

Associate Chair Graduate Studies, Department of Environment and Resource Studies

Director of Diploma Programme in Environmental Assessment

Other current and recent positions and activities:

Standards Council of Canada, Canadian Advisory Committee on Social Responsibility – member, 2005-2010; ISO/TMB/Sustainability Development Guide Group – member, 2011-present

Commission for Environmental Cooperation – member of the Panel of Experts for the Environmental Assessment of the North American Free Trade Agreement (NAFTA), 2010-2012

Green Energy Coalition – advisor on review of the Ontario Power Authority's Integrated Power Systems Plan, 2007-2009

Friends of the Greenbelt Foundation – member of Greenbelt Advisory Committee, 2007-present

Government of Canada, Minister of the Environment's Regulatory Advisory Committee on Environmental Assessment, sub-committee on Strategic Environmental Assessment – member representing the Canadian Environmental Network's Environmental Assessment and Planning Caucus, 2005-? [activities suspended early 2009]

Partnership for the Sustainable Development of Digby Neck and Islands Society, Experts Committee – member, 2004-2007

George Cedric Metcalf Charitable Foundation – advisor to the environment programme, 2003-present

*Alternatives Journal: Canadian environmental ideas and action* – co-editor 1984-1987, editor 1987-2000, co-editor 2000-2002, chair of editorial board 2003-present, columnist 2009-present

Alternatives Inc. (non-profit charitable corporation with mandate to facilitate publication of *Alternatives Journal*) – member of board of directors, 1987-present

Clean Annapolis River Project – technical advisor on sustainability assessment, 2007

Ontario Power Authority – member of advisory committee on the Integrated Power System Plan, 2006

Canadian International Development Agency – advisor on integration of sustainability objectives into environmental assessment of programmes and projects outside Canada, 2002-05

New Brunswick Environment Network – advisor on new provincial environmental assessment legislation, 2004

Governance for Sustainable Development Project (led by the Sustainable Europe Research Institute based in Austria and the Factor Ten Institute based in France) – member of advisory team, 2003-05

# DOUGLAS J. GOTHAM

## PROFESSIONAL EMPLOYMENT

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August 1992 to present	State Utility Forecasting Group, Purdue University, West Lafayette, IN 47907-1293
July 2005 to present	<i>Director</i>
November 1998 to July 2005	<i>Associate Director</i>
May 1997 to November 1998	<i>Senior Analyst</i>
May 1994 to May 1997	<i>Research Analyst</i>
August 1992 to May 1994	<i>Graduate Research Assistant</i>

The State Utility Forecasting Group (SUGF) is an independent research and analysis group, established by the Indiana General Assembly, funded by the state government through the Indiana Utility Regulatory Commission (IURC), and dedicated to providing forecasts of electricity consumption, production, and prices for eight utilities in the state. SUGF has performed several policy studies for the IURC, analyzing such diverse topics as new construction needs, impacts of environmental regulation, renewable and intermittent resources, demand-side management and load conservation, advanced metering infrastructure, and the impacts of proposed deregulation of Indiana's electricity generation industry on Indiana customers and utilities.

The Director is responsible for the daily operation and planning of SUGF; serves as the primary liaison with the IURC, utilities, press, and other interested parties; is responsible for the preparation of staff reports; prepares and presents regulatory and legislative testimony; supervises the SUGF staff on the development, maintenance, and improvement of various SUGF models; works with various University faculty on the direction of graduate student research; negotiates and writes research proposals; and manages the budgets and expenditures of active research projects.

Previous duties included serving as one of two Indiana delegates to the Eastern Interconnection States Planning Council (EISPC), an organization consisting of 39 states, the District of Columbia and various Canadian provinces. EISPC worked with various stakeholders to perform long-term resource planning for the Eastern Interconnection. Current responsibilities include serving as an engineering consultant to EISPC. Additional EISPC responsibilities include serving as head of the Modeling Work Group and as a member of various other work groups, task forces, and teams.

June 1983 to June 1989 *Nuclear Operator, United States Navy*

Controlled electric power generation and power distribution for nuclear powered warship. Operated nuclear propulsion plant. Performed preventive and corrective maintenance on electric motors, generators, control panels, and switchgear. Supervised electric maintenance and administrative workcenters. Prepared and delivered training lectures to other nuclear operators.

## EDUCATION

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December 1996      *Doctor of Philosophy*  
Major Professor: Dr. Gerald T. Heydt  
Purdue University  
West Lafayette, IN 47907

December 1993      *Master of Science in Electrical Engineering*  
Major Professor: Dr. Gerald T. Heydt  
Purdue University  
West Lafayette, IN 47907

May 1992            *Bachelor of Science in Electrical Engineering*  
Magna Cum Laude  
Michigan Technological University  
Houghton, MI 49934

## THESES

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Gotham, D. J. Ph.D. Dissertation. "Flexible AC Transmission Systems in Power Network Analysis and for Power Flow Control," December 1996.

Gotham, D. J. MSEE Thesis. "Automatic Generation Control Response in Power Systems Using Short Term Load Forecasting Information," December 1993.

## EXPERT TESTIMONY

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Indiana General Assembly Senate Utilities Committee, February 2013, on natural gas prices.

Indiana General Assembly Regulatory Flexibility Committee, annual reporting on the status of renewable energy resources in the state of Indiana and various other SUFG reports, September 2005 - 2013.

Indiana General Assembly House Commerce Committee, January 2010, on SUFG's forecast.

Indiana General Assembly House Ways and Means Committee, February 2005, on SUFG's forecast.

IURC Cause No. 42145, regarding the need for proposed new capacity from both a statewide and individual utility basis, the appropriateness of the type of proposed new capacity, and the adequacy of the bulk transmission system to transfer the output of the proposed new capacity to the customers, July 2002.

## **MEMBERSHIPS**

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IEEE (1992-present)	Member Power Engineering Society Journal Article Reviewer
Indiana Biomass Working Group (2008-present)	Member
Indiana Energy Conference Planning Committee (2010-present)	Member
Organization of PJM States Independent States' Agencies Committee (2012-present)	Member
Vectren Energy Efficiency Oversight Board (2006-2012)	Member
Indiana Wind Working Group (2005-2011)	Member
Eastern Interconnection States' Planning Council (2009-2011)	Delegate Reference Case Workgroup Modeling Workgroup - leader

## **CLASSROOM TEACHING EXPERIENCE**

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ECE 432, "Elements of Power System Engineering," Spring semester 2005, Purdue University. Student instructor evaluation score, 3.38 on a 4.0 scale; department average for undergraduate courses, 3.04.

Guest lecturer, IE 590, "Power Systems and Smart Grid," February 2012, Purdue University.

Guest lecturer, V600: Capstone in Public and Environmental Affairs, "Electricity Future," March 2009, School of Public and Environmental Affairs, Indiana University.

Guest lecturer (two weeks), ECE 532, "Computational Methods for Power System Analysis," October 2000, Purdue University.

## **OTHER TEACHING EXPERIENCE**

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Instructor, 2006 - 2013 Advanced Regulatory Studies Programs, Institute of Public Utilities, Michigan State University.

Instructor, 2007 - 2011, 2013 Camp NARUC, Institute of Public Utilities, Michigan State University.

Instructor, 2010 - 2011, 2013 Grid Schools, Institute of Public Utilities, Michigan State University.

Instructor, 2010 - 2012 Forecasting Workshops/Schools, Institute of Public Utilities, Michigan State University.

Short-course instructor, "Tutorial on Electric Power Systems," October 1993.

Training lecturer, U. S. Navy nuclear operators, USS Arkansas, CGN-41, 1987-1989.



## **SPONSORED RESEARCH**

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"Proposal to Provide Assistance and Expert Testimony to the Need For and Alternatives To (NFAT) Proceeding Regarding Manitoba Hydro's Proposed Keeyask Hydroelectric Facility," Public Interest Law Centre, September 2013 - March 2014, Principal Investigator, \$34,994.

"Proposal to Provide Transmission Engineering Assistance to the Eastern Interconnection States' Planning Council (EISPC)," National Association of Regulatory Utility Commissioners, September 2013 - November 2014, Principal Investigator, \$180,671.

"To Continue the Work of the State Utility Forecasting Group," Indiana Utility Regulatory Commission, July 2013 - June 2015, Co-Principal Investigator, project budget \$1,139,653.

"Assessing the Prospects for Biopower," U.S. Department of Agriculture Office of the Chief Economist, September 2012 - December 2013, Co-Principal Investigator, project budget \$46,698.

"Proposal to Assist the Eastern Interconnection States' Planning Council (EISPC) Members with Transmission Planning Services," National Association of Regulatory Utility Commissioners, February 2011 - August 2013, Principal Investigator, \$152,023.

"To Continue the Work of the State Utility Forecasting Group," Indiana Utility Regulatory Commission, July 2011 - June 2013, Co-Principal Investigator, project budget \$1,139,653.

"A Proposal to Develop a Statewide Database of Energy Efficiency Efforts in Indiana," Indiana Office of the Lieutenant Governor, Office of Energy Development, May 2010 - May 2012, Principal Investigator, project budget, \$97,474.

"To Continue the Work of the State Utility Forecasting Group," Indiana Utility Regulatory Commission, July 2009 - June 2011, Co-Principal Investigator, project budget \$1,298,974.

"Development of a Primer to Aid Rural Utilities in the Evaluation of Renewable Power Opportunities," U.S. Department of Agriculture Office of the Chief Economist, August 2008 - December 2010, Co-Principal Investigator, project budget \$66,196.

"Long-term Electricity Forecast for the State of Mississippi," Mississippi Development Authority, July 2008 - December 2008, Principal Investigator, project budget \$17,906.

"To Continue the Work of the State Utility Forecasting Group," Indiana Utility Regulatory Commission, July 2007 - June 2009, Co-Principal Investigator, project budget \$1,299,166.

"To Continue the Work of the State Utility Forecasting Group," Indiana Utility Regulatory Commission, July 2005 - June 2007, Co-Principal Investigator, project budget \$1,293,617.

"Economics of Criticality in the Restoration of Energy Infrastructures," Sandia National Laboratories, August 2004 - September 2005, Principal Investigator, project budget \$8,758.

"Center for Security of Large Scale Systems/Task 5," P. C. Krause and Associates, Inc./U. S. Army, March 2004 - August 2005, Co-Principal Investigator, personal portion of the task budget \$30,000.

"Enhancing the Operation of Highly Varying Industrial Loads to Increase Electric Reliability, Quality, and Economics," DOE research program with NIPSCO and Colorado School of Mines, 2000 - 2002, Principal Investigator, Purdue University portion of the project budget \$441,572.

“Costs and Proper Charges for Serving Widely Varying Loads,” Electric Power Research Institute, July 1997 - June 1998, Co-Principal Investigator, total project budget \$61,500.

### **THESIS COMMITTEES**

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Liwei Lu, Doctor of Philosophy, Agricultural Economics, in progress.

Emrah Ozkaya, Doctor of Philosophy, Industrial Engineering, in progress.

Juan Giraldo, Master of Science, Agricultural Economics, “An Economic Analysis of the Electricity Generation Potential from Biogas Resources in the State of Indiana,” 2013.

Clay Davis, Doctor of Philosophy, Agricultural Economics, “Three Essays on the Effect of Wind Generation on Power System Planning and Operations,” 2013.

Benjamin Allen, Master of Science, Agricultural Economics, “An Economic and Emissions Analysis of Electricity Generation Using Biomass Feedstock in Co-fired and Direct Fired Facilities,” 2011.

Samuel Brown, Master of Science, Agricultural Economics, “Rural Electric Cooperatives’ Adoption of Renewable Energy Technologies, 2010.

Devendra Canchi, Doctor of Philosophy, Agricultural Economics, “Financial Transmission Rights Valuation and Auction Structure,” 2010.

Monique Fahie, Master of Science, Agricultural Economics, “Cap-and-trade Policy: The Influence on Investments in CO2 Reducing Technologies in Indiana,” 2010.

Suriya Ruangpattana, Doctor of Philosophy, Industrial Engineering, “Analysis of Load Factor for Fuel Diversification,” 2010.

Liwei Lu, Master of Science, Agricultural Economics, “Assessment of the Reliability of Indiana’s Electricity Generation System,” 2009.

Veeradech Siriariyaporn, Doctor of Philosophy, Industrial Engineering, “Reducing the Cost of Serving Uncertain Loads Via the Portfolio of Supply Contracts,” 2005.

Ramu Naidoo, Doctor of Philosophy, Industrial Engineering, “Planning Models for Electricity Transmission Network Expansion,” 2004.

### **REFEREED JOURNAL PUBLICATIONS**

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Davis, C. D., Gotham, D. J., Preckel, P. V., Liu, A., “Determining the Impact of Wind on System Costs via the Temporal Patterns of Load and Wind Generation,” *Energy Policy*, v.60, pp. 122-131, September 2013.

Ruangpattana, S., Preckel, P., Gotham, D., Muthuraman, K., Velastegui, M., Morin, T., Uhan, N., “Diversification of Fuel Costs Accounting for Load Variation,” *Energy Policy*, v.42, pp. 400-408, March 2012.

Sparrow, F. T., Preckel, P. V., Bowen, B. H., Yu, Z., Gotham, D. J., "Regional Electricity Markets and the Cost of Natural Flow Dam Operation," *Energy Systems*, v. 2, No. 3-4, pp.325-357, November 2011.

Gotham, D., Muthuraman, K., Preckel, P., Rardin, R., Ruangpattana, S. "A Load Factor Based Mean-Variance Analysis for Fuel Diversification," *Energy Economics*, v. 31, No. 2, pp. 249-256, March 2009.

Gotham, D. J., Holland, F. D., and Nderitu D. G. "The Projected Impacts of NOx Emissions Reductions on Electricity Prices: A Case Study for the State of Indiana." *Utilities Policy*, v. 9, No. 2, June 2000.

Gotham, D. J. and Heydt G. T. "Power Flow Control in Systems with FACTS Devices." *Journal of Electric Machines and Power Systems*, v. 26, No. 9, pp. 951-962, November 1998.

Gotham, D. J. and Heydt G. T. "Steady State Power Flow Control and Power Flow Studies for Systems with FACTS Devices." *IEEE Transactions on Power Systems*, v. 13, No. 1, pp. 60-65, February 1998.

#### **BOOK CHAPTERS**

---

Gotham, D. J., Angel, J. R., Pryor, S. C., "Vulnerability of the Electricity and Water Sectors to Climate Change in the Midwest," in the book *Climate change impacts, risks, vulnerability and adaptation in the Midwestern United States*, 2012, Indiana University Press.

#### **CONFERENCE PROCEEDINGS**

---

Canchi, D., Preckel, P. V., Gotham, D. J., Sparrow, F. T., "Easy Money in FTR Auctions," Agricultural and Applied Economics Association 2010 Annual Meeting, Denver, CO, July 25-27, 2010.

Lu, L., Preckel, P., and Gotham, D., "Assessment of the Reliability of Indiana's Electricity Generation System," *Proceedings of the 41st Annual North American Power Symposium*, Mississippi State University, Starkville, MS, October 4-6, 2009.

Preckel, P. V., Sparrow, F. T., Bowen, B. H., Yu, Z., Gotham, D. J., "Preserving Low Cost Electricity While Improving the Riverine Environment: Part Two – Model Results," 2009 IEEE Power Engineering Society General Meeting, July 26-30, 2009.

Preckel, P. V., Sparrow, F. T., Bowen, B. H., Yu, Z., Gotham, D. J., Yang, Z., "Preserving Low Cost Electricity While Improving the Riverine Environment: A Case Study of Ghana's Akosombo Dam Complex," 2008 IEEE Power Engineering Society General Meeting, July 20-24, 2008.

Ruangpattana, S., Gotham, D., Muthuraman, K., Preckel, P., Rardin, R., "Applying Load Factors to the Mean-Variance Analysis for Fuel Diversification," *The 10th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS 2008)*, May 25-29, 2008, Rincon, PR.

Gotham, D., Muthuraman, K., Rardin, R., Ruangpattana, S., "A Load Factor Based Mean-Variance Analysis for Fuel Diversification," Third Annual Carnegie Mellon Electricity Conference, March 13-14, 2007, Pittsburgh, PA.

Siriariyaporn, V., Sparrow, F. T., Gotham, D. J., "A Two-Stage Stochastic Unit Commitment with Electricity Derivatives," *The Proceedings of the 38<sup>th</sup> Annual North American Power Symposium*, September 17-19, 2006, Carbondale, IL.

Siriariyaporn, V., Sparrow, F. T., Gotham, D. J., "Modeling Power Portfolio with Supply Contracts for Mitigating Risks of Serving Uncertain Demand," *The 9<sup>th</sup> International Conference on Probabilistic Methods Applied to Power Systems (PMAPS 2006)*, June 11-15, 2006, Stockholm, Sweden.

Siriariyaporn, V., Gotham, D., Sparrow, F. T., "Determining the Incremental Cost to Electric Utilities in Serving Highly Varying Loads," *The Proceedings of the 2<sup>nd</sup> IEEE Conference on Electric Utility Deregulation, Restructuring, and Power Technologies*, v. 2, pp. 580-585, April 5-8, 2004, Hong Kong.

Rardin R. L., Naidoo, R., Ong, C. M., Sparrow, F. T., Gotham, D., Yu, Z., "Multi-Period Electric Transmission Expansion Using AC Power Flow Equations," *Institute for Operations Research and the Management Sciences Annual Meeting (INFORMS)*, October 24-27, 2004, Denver, CO.

Siriariyaporn, V., Gotham, D. J., Kramer, R. A., Sparrow, F. T., "Measuring the Cost of Providing the Regulation Ancillary Service with Highly Varying Loads," *The Proceedings of the 34<sup>th</sup> Annual North American Power Symposium*, October 14-15, 2002, Tempe, AZ.

Nderitu, D. G., Yu, Z., Gotham, D. J., Sparrow, F. T., "Quantifying the Benefits of Distributed Generation in Imperfectly Competitive Electricity Markets," *Proceedings of the Power System 2002 Conference: Impact of Distributed Generation*, March 13-15, 2002, Clemson, SC.

Yu, Z., Sparrow, F. T., Gotham, D. J., Holland, F. D., Nderitu, D. G., Morin, T. L. "The Impact of Transmission on Imperfect Electricity Competition," *Proceedings of the IEEE Power Engineering Society Winter Meeting*, January 27-31, 2002, New York, NY.

Yu, Z., Sparrow, F. T., Gotham, D. J., Holland, F. D., Nderitu, D. G., Morin, T. L. "A Large Oligopoly Competition Model with an Application to the Midwest Electricity Markets," *Proceedings of the IEEE Power Engineering Society Summer Meeting*, July 15-19, 2001, Vancouver, BC.

Yu, Z., Sparrow, F. T., and Gotham, D., "Evaluating the Effect of Mergers on Deregulated Electricity Markets," *Proceedings of the Conference on Large Engineering Systems - Power Engineering, 2001*, July 2001, Halifax, NS.

Yu, Z., Nderitu, D. G., Sparrow, F. T., Gotham, D. J. "Optimal and Reliable Dispatch of Supply and Demand Bids for Competitive Electricity Markets," *Proceedings of the IEEE Power Engineering Society Summer Meeting*, July 16-20, 2000, Seattle, WA.

Sparrow, F. T., Yu, Z., Gotham, D. J., Bowen, B. H., Nderitu, G., Wang, J., Smardo, F. J., Stamber, K. "A Multi-Regional Electricity Trade Study for the Southern African Power Pool," *Proceedings of the American Power Conference, 60<sup>th</sup> Annual Meeting*, April 14-16, 1998, Chicago, IL, Vol. 60, pp. 715-720.

Yu, Z., Sparrow, F. T., Gotham, D. J., Gupta, R. "A Linear Mixed Integer Formulation of Multi-Area Energy Production Simulation with Unconditional Constraints," *Proceedings of the American Power Conference, 59<sup>th</sup> Annual Meeting*, April 1-3, 1997, Chicago, IL, Vol. 59-I, pp. 365-370.

Gotham, D. J. and Heydt G. T. "FACTS Device Models for Power Flow Studies," *The Proceedings of the 27<sup>th</sup> Annual North American Power Symposium*, October 2-3, 1995, Montana State University, Bozeman, MT, pp. 514-519.

Gotham, D. J. and Heydt G. T. "The Response of Systems under AGC Using Load Forecasting Information," *The Proceedings of the 26<sup>th</sup> Annual North American Power Symposium, September 26-27, 1994*, Kansas State University, Manhattan, KS, pp. 508-516.

#### **TECHNICAL & STAFF REPORTS**

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Nderitu, D., Carnegie, R., Gotham, D., Preckel, P., Mize, D., Velastegui, M. and Phillips, T., "2013 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana General Assembly, September 2013.

Davis, C., Gotham, D., and Preckel, P., "Valuation of Energy Storage with Wind Generation," August 2013.

Giraldo, J., Preckel, P., and Gotham, D., "An Assessment of the Potential for Electricity Generation in Indiana from Biogas Resources," June 2013.

Carnegie, R., Gotham, D., Nderitu, D., and Preckel, P., "Utility Scale Energy Storage Systems: Benefits, Applications, and Technologies," June 2013.

Davis, C., Gotham, D., and Preckel, P., "The Impact of Wind on Electricity Generation Costs in Indiana," June 2013.

Giraldo, J., Gotham, D., Nderitu, D., Preckel, P., and Mize, D., "Fundamentals of Nuclear Power," prepared for the Indiana Utility Regulatory Commission, December 2012.

Nderitu, D., Ozkaya, E., Gotham, D., Preckel, P., Mize, D., Velastegui, M. and Phillips, T., "2012 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana General Assembly, September 2012.

State Utility Forecasting Group, "Statewide Database of Energy Efficiency Efforts in Indiana: 2011," prepared for the Indiana Office of Energy Development, June 2012.

Velastegui, M., Gotham, D., Phillips, T., Preckel, P., and Nderitu, D., "The Impacts of Federal Environmental Regulations on Indiana Electricity Prices," prepared for the Indiana Utility Regulatory Commission, January 2012.

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Holland, F., Velastegui, M., Gotham, D., Nderitu, D., Preckel, P., Phillips, T., and Mize, D., "Indiana Electricity Projections: The 2011 Forecast," prepared for the Indiana Utility Regulatory Commission, September 2011.

Nderitu, D., Ji, T., Allen, B., Gotham, D., Preckel, P., Mize, D., Holland, F., Velastegui, M. and Phillips, T., "2011 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana General Assembly, September 2011.

Velastegui, M., Gotham, D., Preckel, P., Nderitu, D., and Holland, F., "Wind Generation's Contribution to the Management of Average Cost and Cost Volatility for Indiana," March 2011.

Davis, C., Gotham, D., and Preckel, P., "Determining the Impact of Wind on System Costs via the Temporal Patterns of Load and Wind Generation," March 2011.

Nderitu, D., Allen, B., Gotham, D., Holland, F., Velastegui, M., and Preckel, P., "2010 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana General Assembly, September 2010.

Holland, F., Velastegui, M., Gotham, D., Nderitu, D., and Preckel, P., "Indiana Electricity Projections: The 2009 Forecast," prepared for the Indiana Utility Regulatory Commission, December 2009.

Nderitu, D., Gall, E., Gotham, D., Holland, F., Velastegui, M., and Preckel, P., "2009 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana General Assembly, September 2009.

Holland, F., Agarwal, V., Gotham, D., and Preckel, P., "Electricity Sales Projections for the State of Mississippi," research report, State Utility Forecasting Group, Purdue University, West Lafayette, Indiana, October 2008.

Nderitu, D., Agrawal, M., Gotham, D., Holland, F., and Preckel, P., "2008 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana General Assembly, September 2008.

Gotham, D., Holland, F., Nderitu, D., Preckel, P., Raymond, L., Shively, G., and Yu, Z., "The Projected Impacts of Carbon Dioxide Emissions Reduction Legislation on Electricity Prices in Indiana," February 2008.

Gotham, D., Holland, F., Nderitu, D., Preckel, P., and Yu, Z., "Indiana Electricity Projections: The 2007 Forecast," prepared for the Indiana Utility Regulatory Commission, December 2007.

Gotham, D., Holland, F., Madore, W., Nderitu, D., Preckel, P., and Yu, Z., "2007 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana General Assembly, September 2007.

State Utility Forecasting Group, "Energy Trends Report," prepared for the Indiana Utility Regulatory Commission, July 2007.

State Utility Forecasting Group, "Clean Coal Technologies," prepared for the Indiana Utility Regulatory Commission, June 2007.

Gotham, D., Nderitu, D., Facetti, G., Holland, F., Rardin, R., and Yu, Z., "2006 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana Legislature, September 2006.

State Utility Forecasting Group, "The Projected Impacts of Mercury Emissions Reductions on Electricity Prices in Indiana," prepared for the Indiana Utility Regulatory Commission and the Indiana Department of Environmental Management, September 2006.

State Utility Forecasting Group, "The Projected Impacts of the Clean Air Interstate Rule on Electricity Prices in Indiana," prepared for the Indiana Utility Regulatory Commission and the Indiana Department of Environmental Management, March 2006.

Rardin, R. L., Gotham, D. J., Holland, F. D., Yu, Z., Nderitu, D. G., and Thomas, A. D., "Indiana Electricity Projections: The 2005 Forecast," prepared for the Indiana Utility Regulatory Commission, December 2005.

Rardin, R. L., Gotham, D. J., Holland, F. D., Yu, Z., Nderitu, D. G., and Thomas, A. D., "Indiana Electricity Projections: The 2005 Forecast Summary," prepared for the Indiana Utility Regulatory Commission, December 2005.

State Utility Forecasting Group, "2005 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana Legislature, September 2005.

State Utility Forecasting Group, "Natural Gas Purchase Incentive Regulation and Benchmarking," prepared for the Indiana Utility Regulatory Commission, July 2005.

State Utility Forecasting Group, "2004 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana Legislature, September 2004.

Bowen, B. H., Holland, F. D., Sparrow, F. T., Rardin, R. L., Gotham, D. J., Yu, Z., Black, A. F., "Expanding the Utilization of Indiana Coals," prepared for the Center for Coal Technology Research, August 2004.

State Utility Forecasting Group, "Comparison of Distributed Generation Interconnection Rules in California, Delaware, Michigan, New York, Ohio, Texas and Wisconsin," prepared for the Indiana Utility Regulatory Commission, July 2004.

Sparrow, F. T., Gotham, D. J., Nderitu, D. G., and Siriariyaporn, V., "The Economic Impact of Integrating Multiple Distributed Generators into Modern Distribution Systems," Final report prepared for the National Renewable Energy Laboratory and Nisource Energy Technologies, December 2003.

Sparrow, F. T., Gotham, D. J., Holland, F. D., Yu, Z., Nderitu, D. G., Bridwell, P. M., and Green, R. J., "Indiana Electricity Projections: The 2003 Forecast," prepared for the Indiana Utility Regulatory Commission, September 2003.

Sparrow, F. T., Gotham, D. J., Holland, F. D., Yu, Z., Nderitu, D. G., Bridwell, P. M., and Green, R. J., "Indiana Electricity Projections: The 2003 Forecast Summary," prepared for the Indiana Utility Regulatory Commission, September 2003.

Rardin, R., Naidoo, R., Gotham, D., Holland, F., Yu, Z., Nderitu, D. G., and Bridwell, P. M., "2003 Indiana Renewable Energy Resources Study," prepared for the Indiana Utility Regulatory Commission and the Regulatory Flexibility Committee of the Indiana Legislature, September 2003.

State Utility Forecasting Group, "Indiana Natural Gas Modeling System: A Technical Report," prepared for the Indiana Utility Regulatory Commission, June 2003.

State Utility Forecasting Group, "Indiana Electricity Projections: The 2002 Forecast Update," prepared for the Indiana Utility Regulatory Commission, July 2002.

Gotham, D. J., Sparrow, F. T., Siriariyaporn, V., and Nderitu, D. G., Status Report for Year 2 of the Project "Enhancing the Operation of Highly Varying Loads to Increase Electric Reliability, Quality,

and Economics," prepared for the U.S. Department of Energy and Northern Indiana Public Service Company, January 2002.

State Utility Forecasting Group, "Sufficiency of Indiana Generating Capacity in NO<sub>x</sub> Retrofit Outage Periods," prepared for the Indiana Utility Regulatory Commission, November 2001.

Sparrow, F. T., Holland, F. D., Gotham, D. J., Yu, Z., and Bridwell, P. M., "Indiana Electricity Projections: The 2001 Forecast," prepared for the Indiana Utility Regulatory Commission, November 2001.

Sparrow, F. T., Holland, F. D., Gotham, D. J., Yu, Z., and Bridwell, P. M., "Indiana Electricity Projections: The 2001 Forecast Summary," prepared for the Indiana Utility Regulatory Commission, November 2001.

Sparrow, F. T., Gotham, D. J., Holland, F. D., Yu, Z., Nderitu, D. G., and Bridwell, P. M., "Factors Affecting Indiana Electricity Prices in Competitive Markets," prepared for the Indiana Utility Regulatory Commission, November 2001.

Gotham, D. J., Sparrow, F. T., and Siriariyaporn, V., Status Report for Year 1 of the Project "Enhancing the Operation of Highly Varying Loads to Increase Electric Reliability, Quality, and Economics," prepared for the U.S. Department of Energy and Northern Indiana Public Service Company, January 2001.

State Utility Forecasting Group, "The Projected Impacts of NO<sub>x</sub> Emissions Reductions on Electricity Prices in Indiana," prepared for the Indiana Utility Regulatory Commission and the Indiana Department of Environmental Management, June 2000.

Sparrow, F. T., Holland, F. D., Gotham, D. J., Yu, Z., and Bridwell, P. M., "Indiana Electricity Projections: The 1999 Forecast," prepared for the Indiana Utility Regulatory Commission, October 1999.

Sparrow, F. T., Holland, F. D., Gotham, D. J., Yu, Z., and Bridwell, P. M., "Indiana Electricity Projections: The 1999 Forecast Summary," prepared for the Indiana Utility Regulatory Commission, October 1999.

Sparrow, F. T., Holland, F. D., Gotham, D. J., Yu, Z., and Sanders, P. M., "The Projected Impact of Restructuring on Indiana Electricity Prices: An Interim Report," prepared for the Indiana Utility Regulatory Commission, May 1998.

Robinson, P. B., Sparrow, F. T., and Gotham, D. J., "Wheeling Charges and Loose Power Pools: North American Experience and its Relevance for the Southern Africa Power Pool," prepared for the Sixth Joint Plenary Session of the Southern Africa Power Pool Meetings, May 13, 1997, Harare, Zimbabwe.

Sparrow, F. T., Gunel, I., Holland, F. D., Gotham, D. J., Yu, Z., Sanders, P. M., Stamber, K. L., and McKinzie, L. D., "The 1996 Indiana Electricity Projections," prepared for the Indiana Utility Regulatory Commission, October 1996.

Sparrow, F. T., Gunel, I., Holland, F. D., Gotham, D. J., Yu, Z., Sanders, P. M., Stamber, K. L., and McKinzie, L. D., "The 1996 Indiana Electricity Projections: An Executive Summary," prepared for the Indiana Utility Regulatory Commission, October 1996.



Sparrow, F. T., Cearley, R. W., Holland, F. D., McKinzie, L. D., Gotham, D. J., Lee, J. S., and Frye, E., "The 1994 Indiana Electricity Projections," prepared for the Indiana Utility Regulatory Commission, May 1995.

Sparrow, F. T., Cearley, R. W., Holland, F. D., McKinzie, L. D., Gotham, D. J., Lee, J. S., and Frye, E., "The 1994 Indiana Electricity Projections: Executive Summary," prepared for the Indiana Utility Regulatory Commission, May 1995.

Alyasin, S., Chung, L., Gotham, D., Hu, D., Kwon, B., Lee, J., Mok, A., Risal, A., and Sasaki, R., "Selected Topics on Demand-Side Management," TR-EE 94-14. Published by the School of Electrical Engineering, Purdue University, West Lafayette, IN, May 1994.

Sparrow, F. T., Cearley, R. W., Holland, F. D., McKinzie, L. D., Gotham, D. J., and Lee, J. S., "Indiana Electricity Demand: The 1993 Forecast," prepared for the Indiana Utility Regulatory Commission, June 1993.

Sparrow, F. T., Cearley, R. W., Holland, F. D., McKinzie, L. D., Gotham, D. J., and Lee, J. S., "Indiana Electricity Demand: Technical Appendix," prepared for the Indiana Utility Regulatory Commission, June 1993.

Sparrow, F. T., Cearley, R. W., Holland, F. D., McKinzie, L. D., Gotham, D. J., and Lee, J. S., "Indiana Electricity Demand: An Executive Summary," prepared for the Indiana Utility Regulatory Commission, June 1993.

Benedict, E., Collins, T., Gotham, D., Hoffman, S., Karapides, D., Pekarek, S., Ramabhadran, R., "Losses in Electric Power Systems," TR-EE 92-54. Published by the School of Electrical Engineering, Purdue University, West Lafayette, IN, December 1992.

## **REGULATORY AND CONFERENCE PRESENTATIONS**

---

"The Evolution of Indiana's Supply and Demand for Energy," Indiana Conference on Energy Management, Indianapolis, IN, August 2013.

"Indiana Electricity Projections and Renewable Energy," 2012 Energy & Water Education Conference, Indianapolis, IN, May 2012.

"Indiana Energy Status: A View from 30,000 Feet," Indiana Conference on Energy Management, Indianapolis, IN, June 2010.

"Regional Electricity Forecasting," Michigan Forum on Economic Regulatory Policy, East Lansing, MI, January 2010.

"Indiana Electricity Projections: The 2009 Forecast," Indiana Utility Regulatory Commission, Indianapolis, IN, December 2009.

"Powering the Future: A Forecast of Indiana's Electricity Consumption, Prices and Resource Requirements," Program on Law and State Government Fellowship Symposium, IUPUI Law School, Indianapolis, IN, October 2009.

"History and Functions of the State Utility Forecasting Group," Institute of Public Utilities, 6th Commission Executive Management Forum, East Lansing, MI, October 2008.

"Indiana Energy Status," Indiana Conference on Energy Management, Indianapolis, IN, June 2008.

"Impacts of CO2 Restrictions on Indiana Electricity Prices," Indiana Utility Regulatory Commission/Indiana Office of the Consumer Counselor, Indianapolis, IN, April 2008.

"Indiana Electricity Projections: The 2007 Forecast," Indiana Utility Regulatory Commission, Indianapolis, IN, December 2007.

"Indiana Energy Status: A View from 30,000 Feet," Indiana Conference on Energy Management, Indianapolis, IN, July 2007.

"Indiana Energy Status: A View from 30,000 Feet," Indiana Conference on Energy Management, Indianapolis, IN, October 2006.

"Indiana Electricity Projections: The 2005 Forecast," Indiana Utility Regulatory Commission, Indianapolis, IN, January 2006.

"Electricity and Natural Gas Linkages: A Forecasting Perspective," 36th Annual Regulatory Policy Conference, Institute of Public Utilities, Charleston, SC, December 2004.

"Indiana Electricity Projections: The 2003 Forecast," Indiana Utility Regulatory Commission, Indianapolis, IN, September 2003.

"Indiana Natural Gas Modeling System: A Technical Report," the Indiana Utility Regulatory Commission Gas Price Forum, Indianapolis, IN, July 2003.

"Retirements, Repowering and New Construction: The Expected Impact on Coal and Natural Gas Demand," Indiana Coal Mining Institute Annual Conference, Evansville, IN, May 2002.

"Deregulation of the Electric Utilities: California Comparisons," Indiana Society of Mining and Reclamation 2001 Technology Transfer Seminar, Jasper, IN, December 2001.

"Indiana's Current and Future Energy Reserves," Indiana Energy Summit, Logansport, IN, June 2001.

"The Midwest Electricity Supply Situation," Wabash Valley Power Authority C & I Symposium, Kendallville, IN, May 2001.

"Midwest Market Power Monitoring," National Regulatory Research Institute Market Power Conference, Columbus, OH, April 2001.

"SUFGE 2000 Studies on Electricity Restructuring," Indiana Utility Regulatory Commission, Indianapolis, IN, February 2001.

"State Utility Forecasting Group Forecasting Models and Data Requirements," Indiana Utility Regulatory Commission Reliability Proceeding (Session 5), Indianapolis, IN, October 2000.

"Summer 1999 Forecast," Indiana Industrial Energy Consumers 1999 Energy Workshop, Indianapolis, IN, May 1999.

"FACTS Device Models for Power Flow Studies," 27th Annual North American Power Symposium, Bozeman, MT, October 1995.

"The Response of Systems under AGC Using Load Forecasting Information," 26<sup>th</sup> Annual North American Power Symposium, Manhattan, KS, September 1994.

#### **OTHER PRESENTATIONS AND SEMINARS (SINCE 1998)**

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"Utility Scale Energy Storage Systems," University at Buffalo Department of Electrical Engineering and IEEE Buffalo Section, Buffalo, NY, November 2013.

"Indiana Electricity Price Projections," Indiana Chapter of the International Association of Electrical Inspectors, Lafayette, IN, February 2013.

"Indiana Electricity Projections and Environmental Regulations Study," Hoosier Energy Board of Directors, French Lick, IN, August 2012.

"SUFGE Forecasting Model," Integrated Modeling Workshop, Indianapolis, IN, November 2011.

"Indiana Electricity Projections: The 2011 Forecast," Indiana Industrial Energy Consumers, Inc., Indianapolis, IN, November 2011; Center for Coal Technology Research Advisory Panel Meeting, South Bend, IN, August 2011.

"Indiana Electricity Industry: Future Needs and Issues," Indiana University Public Policy Institute Energy and Environment Committee, Indianapolis, IN, December 2010.

"The Economic Downturn – Lessons on the Correlation between Economic Growth and Energy Demand," Indiana Bar Association Utility Law Spring Seminar, Indianapolis, IN, April 2010.

"Indiana Electricity Projections: The 2009 Forecast," Center for Coal Technology Research Quarterly Meeting, Indianapolis, IN, March 2010.

"Natural Gas Prices: Past Trends and Future Projections," Vectren Energy Delivery Trade Ally Meeting, Lafayette, IN, September 2009.

"Impacts of CO<sub>2</sub> Restrictions on Indiana Electricity Prices," Richmond Power & Light and the Economic Development Corporation of Wayne County, Richmond, IN, May 2009.

"Economics of Clean Coal," Kazakhstan Visiting Team to Purdue Energy Center, West Lafayette, IN, May 2009.

"Load Forecasting," Midwest Independent Transmission System Operator Advisory Board, Carmel, IN, March 2009.

"The Transmission Grid: Understanding How It Works to Understand Who Should Pay," Organization of MISO States Cost Allocation and Regional Planning Workshop, St. Paul, MN, January 2009.

"Renewable Resources," Purdue Women's Club, West Lafayette, IN, November 2008.

"Indiana Energy Status and SUFG Electricity Projections," Indiana Chamber of Commerce Energy Roundtable, Indianapolis, IN, August 2008.

"Impacts of CO<sub>2</sub> Restrictions on Indiana Electricity Prices," Duke Energy/Hoosier Energy/Indiana Municipal Power Agency/Wabash Valley Power Association, Plainfield, IN, April 2008; Indiana Industrial Energy Consumers, Inc., web conference, April 2008.

"Electricity Price Impacts from CO2 Restrictions," Indiana Center for Coal Technology Research, Indianapolis, IN, March 2008.

"Energy Forecasting Methods," Indiana Utility Regulatory Commission/Indiana Office of the Utility Consumer Counselor, Indianapolis, IN, November 2007.

"Indiana Electricity Projections: The 2007 Forecast," Citizens Action Coalition, Indianapolis, IN, November 2007; Indiana Utility Regulatory Commission staff, Indianapolis, IN, November 2007; Office of the Utility Consumer Counselor, Indianapolis, IN, November 2007; NiSource, Merrillville, IN, November 2007; Indiana Office of Energy and Defense Development, Indianapolis, IN, November 2007; Hoosier Energy, Bloomington, IN, November 2007; Indianapolis Power & Light, Indianapolis, IN, November 2007; Wabash Valley Power Association, Indianapolis, IN, November 2007; Duke Energy, Plainfield, IN, November 2007.

"Current and Future Status of Indiana's Electricity and Natural Gas Industries," Indiana Chamber of Commerce Energy Committee, Indianapolis, IN, August 2007.

"Climate Change Legislation in the 110th Congress: April 23 Energy Forum hosted by Congressman Buyer," Social, Economic, and Political Aspects of Energy group of the Energy Center at Discovery Park, Purdue University, West Lafayette, IN, April 2007.

"Future of Electricity: Regional/National," Wabash Valley Power Association Annual Meeting, West Lafayette, IN, April 2007.

"History and Functions of the State Utility Forecasting Group," Albanian regulatory delegation, Carmel, IN, October 2006.

"Overview of Indiana's Electricity and Natural Gas Industries," Indiana Chamber of Commerce Energy Committee, Indianapolis, IN, August 2006.

"Indiana Renewable Resources," Hoosier Energy Board of Directors, Vevay, IN, August 2006.

"Indiana Electricity Projections: The 2005 Forecast," Wabash Valley Power Association, Indianapolis, IN, December 2005; Indianapolis Power & Light, Indianapolis, IN, November 2005; NiSource, Merrillville, IN, November 2005; Citizens Action Coalition, Indianapolis, IN, November 2005; Office of the Utility Consumer Counselor, Indianapolis, IN, November 2005; American Electric Power, West Lafayette, IN, November 2005; Vectren, Evansville, IN, November 2005; and Cinergy, Plainfield, IN, October 2005.

"Status of Indiana's Electricity and Natural Gas Industries," Indiana Chamber of Commerce Energy Committee, Indianapolis, IN, October 2005.

"Indiana Electric Utility Infrastructure," Indiana Society of Professional Engineers, Indianapolis, IN, May 2005.

"Indiana Electricity Needs," League of Women Voters of Greater Lafayette, Lafayette, IN, January 2004.

"Indiana Electricity Projections: The 2003 Forecast," Indiana Coal Council, Indianapolis, IN, December 2003; Hoosier Energy, West Lafayette, IN, August 2003; Northern Indiana Public Service

Company, Merrillville, IN, July 2003; Citizens Action Coalition, Indianapolis, IN, July 2003; American Electric Power, West Lafayette, IN, July 2003; Wabash Valley Power Association, Indianapolis, IN, July 2003; Cinergy, Plainfield, IN, July 2003; Indiana Department of Commerce Energy & Recycling Division, Indianapolis, IN, July 2003; Indianapolis Power & Light, Indianapolis, IN, July 2003; and Indiana Industrial Energy Consumers, Inc., Indianapolis, IN, July 2003.

"Status of Indiana's Electricity and Natural Gas Systems," Indiana Chamber of Commerce Energy Committee, Indianapolis, IN, June 2003.

"The History and Functions of the State Utility Forecasting Group (SUGF)," presented to the Associate Dean for Research, Schools of Engineering, Purdue University, West Lafayette, IN, December 2002.

"State Utility Forecasting Group Modeling and Current Efforts," presented to delegates of the Economic Community of West African States, West Lafayette, IN, August 2002.

"Research Update: Economic Optimization," Northern Indiana Public Service Company, Merrillville, IN, March 2002.

"Research Update: Control Allocation," Northern Indiana Public Service Company, Merrillville, IN, August 2001.

"Factors Affecting Indiana Electricity Prices in (not so?) Competitive Wholesale Markets," Indiana Industrial Energy Consumers, Inc., Indianapolis, IN, July 2001.

"Can it Happen Here? The California Electricity Crisis and the Situation in the Midwest," Lafayette Lions Club, West Lafayette, IN, May 2001.

"Can it Happen Here? The California Electricity Crisis and the Situation in the Midwest," Tecumseh Kiwanis Club, West Lafayette, IN, April 2001.

"Performing the Independent Market Monitor Function for the Midwest Independent Transmission System Operator, Inc.," Midwest Independent Transmission System Operator, Inc., Indianapolis, IN, February 2001.

"Costs Associated with the Regulation Ancillary Service," Northern Indiana Public Service Company, Merrillville, IN, February 2001.

"Competitive Electricity Market Prices and Imperfections," Indiana Industrial Energy Consumers, Inc. annual planning retreat, Fishers, IN, December 2000.

"Midwest Market Monitoring," Public Utility Commission of Ohio, Columbus, OH, November 2000.

"Policy Implications of Market Power Modeling," SUGF Market Power Workshop, West Lafayette, IN, January 2000.

"Demand-Side Market Power Modeling," SUGF Market Power Workshop, West Lafayette, IN, January 2000.

"Indiana Electricity Projections: The 1999 Forecast," Citizens Action Coalition, Indianapolis, IN, September 1999; Southern Indiana Gas & Electric Company, Evansville, IN, July 1999; American

Electric Power Company, Fort Wayne, IN, July 1999; Wabash Valley Power Authority, Indianapolis, IN, July 1999; Indiana Municipal Power Agency, Carmel, IN, July 1999; Northern Indiana Public Service Company, Merrillville, IN, June 1999; Cinergy Corporation, Plainfield, IN, June 1999; Indianapolis Power & Light Company, Indianapolis, IN, June 1999; and Indiana Utility Regulatory Commission, Indianapolis, IN, April 1999.

"The 1999 State Forecast," Indiana AFL-CIO Executive Board Meeting, Indianapolis, IN, March 1999.

"The Projected Impact of Restructuring on Indiana Power Needs and Prices," Commonwealth Edison Company, Lombard, IL, December 1998.

"Update on Decomposing ACE for Apportioning Regulation and Load Following Costs," Center for the Advanced Control of Energy and Power Systems Industry Advisory Board meeting, Phoenix, AZ, November 1998.

"The Projected Impact of Restructuring on Indiana Power Needs and Prices," Citizens Action Coalition, Indianapolis, IN, November 1998.

"Generation Adequacy and Reliability Measures," Southern African Power Pool training workshop, Capetown, South Africa, July 1998.

"Update on Alleviating Transmission Congestion Using FACTS Devices," ACEPS Industry Advisory Board meeting, Golden, CO, May 1998.

"Alleviating Transmission Congestion Using FACTS Devices," Carnegie Mellon University, Pittsburgh, PA, May 1998.

"Alleviating Transmission Congestion Using FACTS Devices," University of Illinois Urbana-Champaign power systems seminar, Urbana, IL, April 1998.

"Electric Utility Restructuring and its Impact on University Research and Teaching," University of Missouri Rolla, Rolla, MO, March 1998.

"Electric Utility Restructuring and its Impact on University Research and Teaching," University of Minnesota, Minneapolis, MN, March 1998.

"The Projected Impact of Electric Utility Restructuring on Indiana Prices," Midwest Builders Convention, Indianapolis, IN, February 1998.

"Alleviating Transmission Congestion Using FACTS Devices," University of Missouri Rolla power systems seminar, Rolla, MO, February 1998.

"The Projected Impact of Restructuring on Indiana Electricity Prices," Kentucky Public Service Commission, Frankfort, KY, January 1998.