

Elson Advocacy

October 4, 2021

Ms. Christine Long

Registrar
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, Ontario
M4P 1E4

Dear Ms. Long:

**Re: Enbridge 2022 to 2027 Demand Side Management (“DSM”) Plan
EB-2021-0002**

I am writing pursuant to Procedural Order #3 to describe and provide a cost estimate for the evidence that the Green Energy Coalition (“GEC”) and Environmental Defence (“ED”) propose to jointly commission from Chris Neme of Energy Futures Group. We have conferred with several other parties who have indicated that they will not be bringing forward expert evidence in light of this proposal. We have also conferred with Board Staff to ensure that there is no overlap with its expert. The proposed evidence and estimated cost of this evidence is detailed below.

Proposed Evidence – Overview

The proposed evidence will focus on the following three questions:

1. What are the appropriate overall gas savings levels and DSM investment levels in light of the OEB’s guidance? (Issues 6 & 9)
2. Are specific adjustments to the proposed portfolio mix, program design, scorecards, and/or incentive structure appropriate, excluding topics to be addressed by OEB Staff’s evidence? (Issues 5, 9 & 10)
3. Does Enbridge’s proposed approach result in appropriate coordination between natural gas DSM programs, electricity conservation programs, and greenhouse gas (“GHG”) reduction programs? (Issue 16)

Further details on each of these three topics is outlined below.

Experience of Chris Neme

Mr. Neme is a leading expert in DSM generally and the Ontario DSM context. Over the past three decades, Mr. Neme has worked for energy regulators, utilities, government agencies and other organizations in more than 30 states, 7 Canadian provinces and several European countries. He has defended expert witness testimony in approximately 60 cases before regulatory commissions in 13 different jurisdictions. He has also testified before several state legislatures.

Mr. Neme served on the Enbridge and Union Gas DSM audit committees since their inception around 20 years ago. He has earned broad respect and trust from the Ontario regulatory community and has been elected to the DSM audit committees by other intervenors. He is currently serving on the OEB's DSM evaluation committee and has provided expert testimony in numerous OEB DSM cases. Mr. Neme's CV is attached.

Proposed Evidence – Details

Topic 1 – Appropriate Gas Savings Targets and Investment Levels

The first proposed topic asks what the appropriate gas savings levels and DSM investment levels are in light of the OEB's guidance. The OEB and intervenors would greatly benefit from an independent perspective on this topic because Enbridge has provided only one option for the OEB to consider in terms of overall gas savings and investment levels. The overall savings and investment levels are critically important and the OEB's guidance on this topic requires careful consideration based on expert knowledge. Mr. Neme would provide an important contribution based on his deep knowledge of DSM in Ontario and in leading jurisdictions.

This topic would primarily fall under Issues 5 and 9. Issue 5 reads as follows: "Does Enbridge Gas's proposed budget, including program costs and portfolio costs, result in reasonable rate impacts while addressing the OEB's stated DSM objectives in its letter issued on December 1, 2020, including having regard to consumers' economic circumstances?" Issue 9 asks, among other things, whether Enbridge's targets are appropriate.

To ensure that there is no duplication, we have confirmed with OEB Staff that its experts are not addressing the appropriate overall gas savings and investment levels. There is no overlap on this topic.

Enbridge appears to be proposing no substantial increases in gas savings levels and no increases in resource acquisition program investments in real dollar terms.¹ The proposed evidence would consider whether this is appropriate in light of the guidance provided to Enbridge by the OEB, and if not, what reasonable gas savings and investment levels would be appropriate. The proposed evidence would consider OEB guidance, including, but not limited to, the following guidance from the OEB's letter of December 1, 2020:

- "Enbridge Gas's DSM plan application should be informed by the results of the 2015-2020 DSM plans, the OEB's Mid-Term Review Report, the 2019 Achievable Potential Study, information received through the post-2020 DSM consultation to date, and the government's policies and commitments in the Environment Plan as they continue to evolve, including as expressed in the November 27, 2020 letter from the Associate Minister of Energy and the Minister of the Environment, Conservation and Parks to the OEB regarding the Ontario government's current policy objectives related to DSM."

¹ See EB-2021-0002, Submissions of Environmental Defence, July 6, 2021, pp. 10 & 17 ([link](#)).

- “[T]he primary objective of ratepayer-funded natural gas DSM is assisting customers in making their homes and businesses more efficient in order to help better manage their energy bills.”
- “In working towards the primary objective, Enbridge Gas’s future ratepayer-funded DSM plan should also consider the following secondary objectives:
 - Help lower overall average annual natural gas usage
 - Play a role in meeting Ontario’s greenhouse gas reductions goals
 - Create opportunities to defer and/or avoid future natural gas infrastructure projects”
- “The OEB anticipates modest budget increases to be proposed by Enbridge Gas in the near-term in order to increase natural gas savings, and expects Enbridge Gas to seek to improve the cost-effectiveness of programs. However, the appropriate level of ratepayer funding expended for DSM programs must weigh the cost-effective natural gas savings to be achieved against both short-term and long-term customer bill impacts.”

If the proposed evidence recommends higher gas savings and investment levels, it will include high-level commentary on realistic ramp-up periods.

Topic 2 – Specific Plan Recommendations

The second proposed topic is whether specific adjustments to the proposed portfolio mix, program design, scorecards, and/or incentive structure are appropriate, excluding topics to be addressed by OEB Staff’s evidence. This portion of the evidence will focus primarily on improving the overall effectiveness of the proposed plan. This would include, for example, a recommendation to return to a primary performance metric of lifetime of gas savings (instead of first year savings) to encourage programs with longer-lived results.²

Mr. Neme will ensure that there is no overlap with the experts retained by OEB Staff by directly communicating with those experts.

Topic 3 – Coordination with Electric Efficiency Programs

The third and final proposed topic is whether Enbridge’s approach would result in appropriate coordination between natural gas DSM programs, electricity conservation programs, and GHG reduction programs. This is covered by Issue 16. This topic was also specifically highlighted in the OEB’s letter of December 1, 2020, which noted that “[t]he centralization of electricity CDM programs under the IESO may lead to new opportunities for DSM-CDM collaboration and a greater level of overall energy savings.”

² For other examples, see the Submissions of GEC, July 6, 2021 ([link](#)); those submissions were informed by an initial assessment of Enbridge’s proposals by Mr. Neme.

To ensure that there is no duplication, we have confirmed with OEB Staff that its experts are not putting forward alternative proposals to improve coordination with electric and general GHG reduction programming. There is no overlap on this topic.

Coordination between gas, electricity and general GHG reduction programs has always been important, in part because of the large overlap in building envelope measures between each sector. However, coordination is more important now than ever for two reasons. First, investments in government programming are increasing, such as the federal government's Greener Homes Grant. Second, customers increasingly need to consider gas and electric alternatives when deciding how best to reduce their energy bills (e.g., gas heat pumps versus electric heat pumps versus hybrid heating). If the design and delivery of programming is not fuel-neutral, customers could be advised to adopt inferior options and incentive dollars could be wasted on programs that do not optimize spending between the available options.

In addition, options involving high-efficiency electric heat pumps could have impacts on the electricity system that need to be considered. This includes potential positive impacts whereby greater winter heating loads lead to lower electricity rates because peak demand is in the summer and fixed generation, transmission, and distribution costs can be spread over a greater number of kilowatt hours. Program design and delivery should account for these impacts and encourage equipment that will result in lower electricity costs (e.g., high-efficiency heat pump water heaters that shift load off peak periods).

Mr. Neme would assess Enbridge's proposed coordination approach and consider alternative options, including third-party delivery of programs that require a higher degree of coordination in program design and delivery.

Budget

Mr. Neme estimates that his expert report will cost \$48,000 to prepare. The cost for interrogatory responses, a technical conference, and hearing will be in addition to that amount. Note that it is impossible to predict such additional costs with certainty because they depend primarily on the actions of other parties. In some cases the questions asked of Mr. Neme have been very minimal, while in other cases they have been very extensive. In ballpark terms, we would expect that the time for such additional steps beyond the preparation of evidence may add an additional 30% to the costs, subject to the caveats noted above.

Mr. Poch and I estimate the incremental counsel costs required in relation to the preparation of Mr. Neme's evidence will be between \$6,000 and \$10,000.

Conclusion

We believe the OEB and intervenors would greatly benefit from the proposed evidence. An independent perspective would be very helpful to consider in comparison to the single option put forward by Enbridge for overall DSM savings and investment levels. In addition, specific plan recommendations could help to make the plan more effective. Finally, an additional perspective

on coordination with electric and GHG reduction programming could lead to new approaches that will reduce customer costs, reduce DSM program costs, and improve accessibility.

Enbridge is planning to spend over \$750 million from 2023 to 2027 on DSM. Mr. Neme's evidence will be extremely good value-for-money in light of the overall sums at stake and the potential for improvements and additional savings.

Yours truly,

A handwritten signature in blue ink, appearing to read 'K. Elson', with a stylized, cursive script.

Kent Elson

cc: Parties to the above proceeding

Professional Summary

Chris specializes in analysis of markets for energy efficiency, demand response, renewable energy and strategic electrification measures, as well as the design and evaluation of programs and policies to promote them. During his 25+ years in the clean energy industry, Mr. Neme has worked for energy regulators, utilities, government agencies and advocacy organizations in more than 30 states, 7 Canadian provinces and several European countries. He has defended expert witness testimony in more than 60 cases before regulatory commissions in 13 different jurisdictions; he has also testified before several state legislatures. Chris has also authored numerous reports and papers regarding clean energy policies and programs, including the first edition (Spring 2017) of the National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources, an update of that Manual addressing all distributed energy resources (June 2020), and several reports on non-wires alternatives.

Experience

2010-present: Principal, Energy Futures Group, Hinesburg, VT

1999-2010: Director of Planning & Evaluation, Vermont Energy Investment Corp., Burlington, VT

1993-1999: Senior Analyst, Vermont Energy Investment Corp., Burlington, VT

1992-1993: Energy Consultant, Lawrence Berkeley National Laboratory, Gaborone, Botswana

1986-1991: Senior Policy Analyst, Center for Clean Air Policy, Washington, DC

Education

M.P.P., University of Michigan, 1986

B.A., Political Science, University of Michigan, 1985

Selected Projects

- **Natural Resources Defense Council (Illinois, Michigan and Ohio).** Critically review multi-year efficiency, demand response, electrification, distribution system investment and integrated resource plans filed by Illinois, Michigan & Ohio utilities. Draft/defend regulatory testimony on critiques. Represent NRDC in regular stakeholder-utility engagement processes. Also represent NRDC in collaborative development of non-wires alternative pilots. Support development of Illinois clean energy legislation. (2010 to present)
- **Ontario Energy Board.** Serve on provincial gas DSM Evaluation Advisory Committee. Work includes input on multi-year evaluation plans, input on scopes of work for evaluation studies, serving on OEB teams that review and score proposals submitted in response to evaluation RFPs, and critical review and input on independent evaluator assessments of utilities' annual gas savings

Energy Futures Group, Inc

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claims. Also serve on advisory committees on gas and electric efficiency potential studies and advisory committee on carbon price forecast studies. (2015-present)

- **Green Energy Coalition (Ontario).** Represent coalition of environmental groups in regulatory proceedings, utility negotiations and stakeholder meetings on DSM policies (including integrated resource planning on pipeline expansions) and utility proposed DSM Plans. (1993 to present)
- **E4TheFuture.** Co-authored first edition (Spring 2017) of the National Standard Practice Manual (NSPM) for cost-effectiveness analysis of energy efficiency. Presenting the NSPM for EE to a wide variety of audiences across the U.S. and Canada; helping several to assess how to use it to refine current practices. Co-authoring updated NSPM (expected June 2020) that will expand focus from just EE to address all distributed energy resources. (2016 to present)
- **New Jersey Board of Public Utilities.** Serve on management team responsible for statewide delivery of New Jersey Clean Energy Programs. Lead strategic planning; support regulatory filings, cost-effectiveness analysis & evaluation work. (2015 to present). Served on management team for start-up of residential and renewables programs for predecessor project. (2006-2010)
- **Regulatory Assistance Project - U.S.** Provide guidance on efficiency policy and programs. Lead author on strategic reports on program options for decarbonizing Vermont buildings, achieving 30% electricity savings in 10 years, using efficiency to defer T&D system investments, & bidding efficiency into capacity markets. (2010 to present)
- **Energy Efficiency Alberta.** Assisting EEA in providing input to Alberta Utilities Commission on the role efficiency resources can play in reducing electric system costs. (2019 to present)
- **Citizens Action Coalition of Indiana.** Critically reviewing how energy efficiency resources are being modeled in IRPs of several Indiana electric utilities, as well as the design of energy efficiency program portfolios. (2018 to present)
- **Consumers Association of Canada (Manitoba) and Winnipeg Harvest.** Critically reviewed and filed regulatory testimony on Efficiency Manitoba's first three-year plan (2020-2023), with particular emphasis on the extent to which the plan supported advanced heat pump technology as both an electric efficiency measure and a key to future building electrification. (2019-2020).
- **Efficiency Vermont.** Provided technical support in review of avoided cost assumptions, as well as related policies on cost-effectiveness analyses of efficiency resources (2019).
- **Earth Justice and Southern Alliance for Clean Energy.** Helped critically review Florida utilities' efficiency potential studies and proposed 2020-2024 energy efficiency savings targets. (2019)
- **Regulatory Assistance Project - Europe.** Provide on-going support on efficiency policies and programs in the United Kingdom, Germany, and other countries. Reviewed draft European Union policies on Energy Savings Obligations, EM&V protocols, and related issues. Drafted policy brief on efficiency feed-in-tariffs and roadmap for residential retrofits. (2009 to 2018)
- **Green Mountain Power (Vermont).** Support development and implementation of GMP's compliance plan for Vermont RPS Tier 3 requirement to reduce customers' direct consumption of fossil fuels, with significant emphasis on strategic electrification strategies. Also developed 10-year

forecast of sales that could result from three different levels of policy/program promotion of residential electric space heating, electric water heating and electric vehicles. (2016 to 2018)

- **Alberta Energy Efficiency Alliance.** Drafted white paper how treatment of “efficiency as a resource” could be institutionalized in Alberta. The paper followed several presentations to government agencies and others on behalf of the Pembina Institute. (2017 to 2018)
- **Southern Environmental Law Center.** Assessed reasonableness of Duke Energy’s historic efficiency program savings claims, as well as the design of their efficiency program portfolios for 2019. Filed expert witness testimony on findings in North Carolina dockets (2018).
- **Toronto Atmospheric Fund.** Helped draft an assessment of efficiency potential from retrofitting of cold climate heat pumps into electrically heated multi-family buildings (2017).
- **Northeast Energy Efficiency Partnerships.** Helped manage Regional EM&V forum project estimating savings for emerging technologies, including field study of cold climate heat pumps. Led assessment of best practices on use of efficiency to defer T&D investment. (2009 to 2015)
- **Ontario Power Authority.** Managed jurisdictional scans on leveraging building efficiency labeling/disclosure requirements and non-energy benefits in cost-effectiveness screening. Supported staff workshop on the role efficiency can play in deferring T&D investments. Presented on efficiency trends for Advisory Council on Energy Efficiency. (2012-2015)
- **Vermont Public Interest Research Group.** Conducted comparative analysis of the economic and environmental impacts of fuel-switching from oil/propane heating to either natural gas or efficient, cold climate electric heat pumps. Filed regulatory testimony on findings. (2014-2015)
- **New Hampshire Electric Co-op.** Led assessment of the co-op’s environmental and social responsibility programs’ promotion of whole building efficiency retrofits, cold climate heat pumps and renewable energy systems. Presented recommendations to the co-op Board. (2014)
- **National Association of Regulatory Utility Commissioners (NARUC).** Assessed alternatives to first year savings goals to eliminate disincentives to invest in longer-lived measures and programs. (2013)
- **California Investor-Owned Utility.** Senior advisor on EFG project to compare the cost of saved energy across ~10 leading U.S. utility portfolios. The research sought to determine if there are discernable differences in the cost of saved energy related to utility spending in specific non-incentive categories, including administration, marketing, and EM&V. (2013)
- **DC Department of the Environment (Washington DC).** Part of VEIC team administering the DC Sustainable Energy Utility (SEU). Helped characterize the DC efficiency market and supporting the design of efficiency programs that the SEU will be implementing. (2011 to 2012)
- **Ohio Sierra Club.** Filed and defended expert witness testimony on the implications of not fully bidding all efficiency resources into the PJM capacity market. (2012)
- **Regulatory Assistance Project – Global.** Assisted RAP in framing several global research reports. Co-authored the first report – an extensive “best practices guide” on government policies for achieving energy efficiency objectives, drawing on experience with a variety of policy mechanism employed around the world. (2011)

- **Tennessee Valley Authority.** Assisted CSG team providing input to TVA on the redesign of its residential efficiency program portfolio to meet aggressive new five-year savings goals. (2010)
- **New York State Energy Research and Development Authority (NYSERDA).** Led residential & renewables portions of several statewide efficiency potential studies. (2001 to 2010)
- **Ohio Public Utilities Commission.** Senior Advisor to a project to develop a web-based Technical Reference Manual (TRM). The TRM includes deemed savings assumptions, deemed calculated savings algorithms and custom savings protocols. It was designed to serve as the basis for all electric and gas efficiency program savings claims in the state. (2009 to 2010)
- **Vermont Electric Power Company.** Led residential portion of efficiency potential study to assess alternatives to new transmission line. Testified before Public Service Board. (2001-2003)
- **Efficiency Vermont.** Served on Sr. Management team. Supported initial project start-up. Oversaw residential planning, input to regulators on evaluation, input to regional EM&V forum, development of M&V plan and other aspects of bidding efficiency into New England's Forward Capacity Market (FCM), and development and updating of nation's first TRM. (2000 to 2010)
- **Long Island Power Authority Clean Energy Plan.** Led team that designed the four major residential programs (three efficiency, one PV) incorporated into the plan in 1999. Oversaw extensive technical support to the implementation of those programs. This involved assistance with the development of goals and budgets, development of savings algorithms, cost-effectiveness screening, and on-going program design refinements. (1998 to 2009)

Selected Publications and Reports

- *National Standard Practice Manual for Assessing Cost-Effectiveness of Distributed Energy Resources*, (with Tim Woolf and others), forthcoming Summer 2020
- *Reducing CO₂ Emissions from Vermont Buildings: Potential and Cost-Effectiveness of Select Program Options*, Regulatory Assistance Project, February 13, 2019 (with Richard Faesy)
- *Pumping Energy Savings: Recommendations for Accelerating Heat Pump Adoption in Ontario's Electrically Heated Multi-Residential Buildings*, Toronto Atmospheric Fund, July 2018 (with Devon Calder, Brian Purcell and Judy Simon)
- *National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources*, Edition 1, Spring 2017 (with Tim Woolf, Marty Kushler, Steven Schiller and Tom Eckman)
- *The Next Quantum Leap in Efficiency: 30% Electricity Savings in 10 Years*, Proceedings of the 2016 ACEEE Summer Study on Energy Efficiency in Buildings, Volume 9, pp. 1-14 (with Jim Grevatt, Rich Sedano and Dave Farnsworth)
- *The Next Quantum Leap in Efficiency: 30% Electricity Savings in Ten Years*, published by the Regulatory Assistance Project, February 2016 (with Jim Grevatt)
- *Energy Efficiency as a T&D Resource: Lessons from Recent U.S. Efforts to Use Geographically Targeted Efficiency Programs to Defer T&D Investments*, published by Northeast Energy Efficiency Partnerships, January 9, 2015 (with Jim Grevatt)
- *Unleashing Energy Efficiency: The Best Way to Comply with EPA's Clean Power Plan*, Public Utilities Fortnightly, October 2014, pp. 30-38 (with Tim Woolf, Erin Malone and Robin LeBaron)
- *The Resource Value Framework: Reforming Energy Efficiency Cost-Effectiveness Screening*, published by the National Efficiency Screening Project, August 2014 (with Tim Woolf et al.)
- *U.S. Experience with Participation of Energy Efficiency in Electric Capacity Markets*, Regulatory Assistance Project, August 2014 (with Richard Cowart)
- *The Positive Effects of Energy Efficiency on the German Electricity Sector*, IEPEC 2014 Conference, September 2014 (with Friedrich Seefeldt et al.)
- *Final Report: Alternative Michigan Energy Savings Goals to Promote Longer Term Savings and Address Small Utility Challenges*, prepared for the Michigan Public Service Commission, September 13, 2013 (with Optimal Energy)
- *Energy Efficiency Feed-in-Tariffs: Key Policy and Design Considerations*, Proceedings of ECEEE 2013 Summer Study, pp 305-315 (with Richard Cowart)
- *Can Competition Accelerate Energy Savings? Options and Challenges for Efficiency Feed-in-Tariffs*, published in *Energy & Environment*, Volume 24, No. 1-2, February 2013 (with Richard Cowart)
- *An Energy Efficiency Feed-in-Tariff: Key Policy and Design Considerations*, published by the Regulatory Assistance Project, March/April 2012 (with Richard Cowart)

- *U.S. Experience with Efficiency as a Transmission and Distribution System Resource*, published by the Regulatory Assistance Project, February 2012 (with Rich Sedano)
- *Achieving Energy Efficiency: A Global Best Practices Guide on Government Policies*, published by the Regulatory Assistance Project, February 2012 (with Nancy Wasserman)
- *Residential Efficiency Retrofits: A Roadmap for the Future*, published by the Regulatory Assistance Project, May 2011 (with Meg Gottstein and Blair Hamilton)
- *Is it Time to Ditch the TRC?* Proceedings of ACEEE 2010 Summer Study on Energy Efficiency in Buildings, Volume 5 (with Marty Kushler)
- *Energy Efficiency as a Resource in the ISO New England Forward Capacity Market*, in Energy Efficiency, published on line 06 June 2010 (with Cheryl Jenkins and Shawn Enterline)
- *A Comparison of Energy Efficiency Programmes for Existing Homes in Eleven Countries*, prepared for the British Department of Energy and Climate Change, 19 February, 2010 (with Blair Hamilton et al.)
- *Energy Efficiency as a Resource in the ISO New England Forward Capacity Market*, Proceedings of the 2009 European Council on an Energy Efficient Economy Summer Study, pp. 175-183 (with Cheryl Jenkins and Shawn Enterline)
- *Playing with the Big Boys: Energy Efficiency as a Resource in the ISO New England Forward Capacity Market*, Proceedings of ACEEE 2008 Summer Study Conference on Energy Efficiency in Buildings, Volume 5 (with Cheryl Jenkins and Blair Hamilton)
- *Recommendations for Community-Based Energy Program Strategies, Final Report*, developed for the Energy Trust of Oregon, June 1, 2005 (with Dave Hewitt et al.)
- *Shareholder Incentives for Gas DSM: Experience with One Canadian Utility*, Proceedings of ACEEE 2004 Summer Study on Energy Efficiency in Buildings, Volume 5 (with Kai Millyard)
- *Cost Effective Contributions to New York's Greenhouse Gas Emission Reduction Targets from Energy Efficiency and Renewable Energy Resources*, ACEEE 2004 Summer Study Proceedings, Volume 8 (with David Hill et al.)
- *Opportunities for Accelerated Electric Energy Efficiency Potential in Quebec: 2005-2012*, prepared for Regroupement national des conseils regionaux de l'environnement du Quebec, Regroupement des organismes environnementaux energie and Regroupement pour la responsabilite sociale des entreprises, May 16, 2004 (with Eric Belliveau, John Plunkett and Phil Dunskey)
- *Review of Connecticut's Conservation and Load Management Administrator Performance, Plans and Incentives*, for Connecticut Office of Consumer Counsel, October 31, 2003 (with John Plunkett, Phil Mosenthal, Stuart Slote, Francis Wyatt, Bill Kallock and Paul Horowitz)
- *Energy Efficiency and Renewable Energy Resource Development Potential in New York State*, for New York Energy Research and Development Authority, August 2003 (with John Plunkett, Phil Mosenthal, Stave Nadel, Neal Elliott, David Hill and Christine Donovan)

- *Assessment of Economically Deliverable Transmission Capacity from Targeted Energy Efficiency Investments in the Inner and Metro-Area and Northwest and Northwest/Central Load Zones*, for Vermont Electric Power Company, Final Report: April 2003 (with John Plunkett et al.)
- *Residential HVAC Quality Installation: New Partnership Opportunities and Approaches*, Proceedings of ACEEE 2002 Summer Study Conference on Energy Efficiency in Buildings, Volume 6 (with Rebecca Foster, Mia South, George Edgar and Put Murphy)
- *A Modified Delphi Approach to Predict Market Transformation Program Effects*, Proceedings of ACEEE 2000 Summer Study Conference on Energy Efficiency in Buildings, Volume 6 (with Phil Mosenthal et al.)
- *Using Targeted Energy Efficiency Programs to Reduce Peak Electrical Demand and Address Electric System Reliability Problems*, published by the American Council for an Energy Efficient Economy, November 2000 (with Steve Nadel and Fred Gordon)
- *Energy Savings Potential from Addressing Residential Air Conditioner and Heat Pump Installation Problems*, American Council for an Energy Efficient Economy, February 1999 (with John Proctor and Steve Nadel)
- *Promoting High Efficiency Residential HVAC Equipment: Lessons Learned from Leading Utility Programs*, Proceedings of ACEEE 1998 Summer Study Conference on Energy Efficiency in Buildings, Volume 2 (with Jane Peters and Denise Rouleau)
- *PowerSaver Home Program Impact Evaluation*, report to Potomac Edison, February 1998 (with Andy Shapiro, Ken Tohinaka and Karl Goetze)
- *A Tale of Two States: Detailed Characterization of Residential New Construction Practices in Vermont and Iowa*, Proceedings of ACEEE 1996 Summer Study Conference on Energy Efficiency in Buildings, Volume 2 (with Blair Hamilton, Paul Erickson, Peter Lind and Todd Presson)
- *New Smart Protocols to Avoid Lost Opportunities and Maximize Impact of Residential Retrofit Programs*, in Proceedings of ACEEE 1994 Summer Study on Energy Efficiency in Buildings (with Blair Hamilton and Ken Tohinaka)
- *Economic Analysis of Woodchip Systems and Finding Capital to Pay for a Woodchip Heating System*, Chapters 6 and 8 in Woodchip Heating Systems: A Guide for Institutional and Commercial Biomass Installations, published by the Council of Northeastern Governors, July 1994
- *PSE&G Lost Opportunities Study: Current Residential Programs and Relationship to Lost Opportunities*, prepared for the PSE&G DSM Collaborative, June 1994 (with Blair Hamilton, Paul Berkowitz and Wayne DeForest)
- *PSE&G Lost Opportunities Study: Preliminary Residential Market Analysis*, prepared for the PSE&G DSM Collaborative, May 1994 (with Blair Hamilton, Paul Berkowitz and Wayne DeForest)
- *Long-Range Evaluation Plan for the Vermont Weatherization Assistance Program*, prepared for the Vermont Office of Economic Opportunity, February 1994 (with Blair Hamilton and Ken Tohinaka)

- *Impact Evaluation of the 1992-1993 Vermont Weatherization Assistance Program*, prepared for the Vermont Office of Economic Opportunity, December 1993 (with Blair Hamilton and Ken Tohinaka)
- *Electric Utilities and Long-Range Transport of Mercury and Other Toxic Air Pollutants*, published by the Center for Clean Air Policy, 1991
- *Coal and Emerging Energy and Environmental Policy*, in *Natural Resources and Environment*, 1991 (with Don Crane)
- *Acid Rain: The Problem*, in *EPA Journal*, January/February 1991 (with Ned Helme)
- *An Efficient Approach to Reducing Acid Rain: The Environmental Benefits of Energy Conservation*, published by the Center for Clean Air Policy, 1989
- *The Untold Story: The Silver Lining for West Virginia in Acid Rain Control*, published by the Center for Clean Air Policy, 1988
- *Midwest Coal by Wire: Addressing Regional Energy and Acid Rain Problems*, published by the Center for Clean Air Policy, 1987
- *Acid rain: Road to a Middleground Solution*, published by the Center for Clean Air Policy, 1987 (with Ned Helme)