BEFORE THE
The Mississippi Public Service Commission

Docket No. 2008-AD-158

In: Re Proceeding to Review Statewide Electric Generation Needs

PREPARED PRELIMINARY TESTIMONY OF WILLIAM STEINHURST ON BEHALF OF THE SIERRA CLUB

June 10, 2008

Q. Please state your name, title and business address.

A. My name is William Steinhurst, and I am a Senior Consultant with Synapse Energy Economics (Synapse). My business address is 45 State Street, #394, Montpelier, Vermont 05602.

Q. Please describe Synapse Energy Economics.

A. Synapse Energy Economics ("Synapse") is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission and distribution system reliability, market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Synapse's clients include state consumer advocates, public utilities commission staff, attorneys general, environmental organizations, federal government and utilities. A complete description of Synapse is available at our website, www.synapse-energy.com.

Q. Please describe your educational and employment background.

A. I have over twenty-five years' experience in utility regulation and energy policy, including work on renewable portfolio standards and portfolio management practices for default service providers and regulated utilities, green marketing, distributed resource issues, economic impact studies, and rate design. Prior to joining Synapse, I served as Planning Econometrician and Director for Regulated Utility Planning at the Vermont Department of Public Service, the State's Public Advocate and energy policy agency. I have written or co-authored numerous papers and reports on utility regulation, energy policy, statistics, and modeling and provided consulting services to the Illinois Energy Office, the Massachusetts

Executive Office of Energy Resources, the Natural Resources Defense Council, the Regulatory Assistance Project, the Delaware Public Service Commission, the Nova Scotia Utility and Review Board, the Connecticut Office of Consumer Counsel, the Maine Office of the Public Advocate, AARP, the Conservation Law Foundation, the Vermont Auditor of Accounts, the James River Corporation, and the Newfoundland Department of Natural Resources.

I have testified as an expert witness in approximately 30 cases on topics including utility rates and ratemaking policy, prudence reviews, integrated resource planning, demand side management policy and program design, utility financings, regulatory enforcement, green marketing, power purchases, statistical analysis, and decision analysis. I have been a frequent witness in legislative hearings and represented the State of Vermont and various consulting clients in numerous collaborative processes and other alternative dispute resolution processes for addressing energy efficiency, resource planning and distributed resources.

I was the lead author or co-author of Vermont's long-term energy plans for 1983, 1988, and 1991, as well as the 1998 report *Fueling Vermont's Future: Comprehensive Energy Plan and Greenhouse Gas Action Plan*, as well as Synapse's study *Portfolio Management: How to Procure Electricity Resources to Provide Reliable, Low-Cost, and Efficient Electricity Services to All Retail Customers*.

I hold a B.A. in Physics from Wesleyan University, and an M.S. in Statistics and Ph.D. in Mechanical Engineering from the University of Vermont.

More detail about my experience is contained in my resume attached as Exhibit WS-1.

Q. Do you anticipate that any of your colleagues from Synapse will provide testimony in this proceeding?

A. Yes. It is possible that Dr. Ezra Hausman, Mr. David Schlissel, or both will present testimony in this proceeding. A final decision will be made once we and the Sierra Club have had an opportunity to review the direct testimony of the other parties to this proceeding so that we can best determine whose areas of experience and expertise will be most applicable to the issues at hand. The current resumes for Dr. Hausman and Mr. Schlissel are available at the Synapse website given above.

Q. On whose behalf are you appearing in this proceeding?

A. I am appearing on behalf of the Sierra Club.

Q. What is your assignment for this testimony?

A. Synapse has been asked by to outline the issues that it currently anticipates that it will evaluate through its review of the planning documents to be filed by the utilities on June 10, 2008. In addition, I present certain recommendations concerning implementation of the resource planning requirements for the Commission's consideration.

Q. In general, what type of practices and guidelines do you recommend that the Commission consider in its activities under MC § 77-3-14. Construction of electrical generating and transmitting facilities?

A. As explained below, I recommend that Commission and electric utilities follow the general practices and guidelines for integrated resource planning ("IRP") in their activities under that section of the Code, beginning now in the current proceeding.

Q. Why are IRP practices and guidelines relevant and appropriate to the Commission's activities under MC § 77-3-14. Construction of electrical generating and transmitting facilities?

A. MC § 77-3-14 provides, in part, that "no public utility or other person shall begin the construction of any facility for the generation and transmission of electricity to be directly or indirectly used for the furnishing of public utility service in this state, even though the facility be for furnishing the service already being rendered, without first obtaining from the commission a certificate that the public convenience and necessity requires, or will require, such construction."

The statute, in subdivision (2) further requires the Commission to

> develop, publicize and keep current an analysis of the long-range needs for expansion of facilities for the generation of electricity in Mississippi, including its estimate of the probable future growth of the use of electricity, the probable needed generation reserves, the extent, size, mix and general location of generating plants and arrangements for pooling power to the extent not regulated by the Federal Energy Regulatory Commission and other arrangements with other utilities and energy suppliers to achieve maximum efficiencies for the benefit of the people of Mississippi, and shall consider such analysis in acting upon any petition by any utility for construction

and requires each electric public utility to

> submit to the commission its forecasts and plans for the addition of generating capacity planned by the utility for an ensuing five-year period and shall furnish to the commission such documents and proof with respect to the need therefor as the commission may reasonably require.

Two key provisions in these excerpts are the phrases "analysis [by the Commission] of the long-range needs for expansion of facilities for the generation of electricity in Mississippi" and "forecasts and plans [by the utilities] for the addition of generating capacity planned by the utility." Another key provision in this passage is "such . . . proof with respect to the need therefore as the commission may reasonably require."

Q. Please explain the policy significance of these passages and their relation to your conclusions concerning IRP practices and guidelines.

The utilities are required to submit, and the Commission is required to develop, and analyze related, forward-looking assessments of electric resource needs and plans for meeting those needs. (I will refer to these products, broadly, as "resource plans.") The resource plans called for in the statute serve precisely the same purposes as IRPs, and are widely recognized in the field of electric utility planning to be the purposes for which IRPs are prepared in many jurisdictions. In my opinion, it would be appropriate and wise for the Commission to recognize the more than twenty-five years of IRP experience nationally in the field of power planning and, as a matter of policy, to interpret, and implement the above statutory language as requiring IRPs.

Q. Do IRP practices and guidelines call for such planning to be done in specific ways?

A. Yes. In particular, there are two broad principles that are central to IRP practice. The first is that all resources are to be considered on a "level playing field." That is, the development of the IRP considers all resources that may contribute to meeting need. It also means that energy efficiency and demand response (together, demand-side management) resources, transmission and distribution resources (including improvements to transmission and distribution efficiency), and all types of generation resources must be considered on an equal basis. The second broad principle is that the planning process should result in an integrated portfolio of resources with the mix of resources that will provide adequate and reliable service at the lowest life cycle cost. Life cycle cost comparisons (between resources or portfolios) should be made using either the Total Resource Cost ("TRC") Test or the Societal Test. Each of these tests has its own advantages, but generally speaking the TRC Test is somewhat easier to implement, while the Societal Test is more comprehensive in the costs and benefits that it considers. As

both of these IRP practices are calculated to lead to adequate and reliable utility service at least cost to consumers, it would be sound public policy for the Commission to require that the resource plans called for in the statute abide by those practices and, in general, the practices and guidelines for IRP.

Q. Is there any support for these principles in Mississippi law?

A. The statute cited above provides that

> (3) In acting upon any petition for the construction of any facility for the generation of electricity, the commission shall take into account the utility's arrangements with other electric utilities for interchange of power, pooling of plant, purchase of power *and other methods for providing reliable, efficient and economical electric service*. [*emph. added*]

While I am not an attorney, I am aware that "efficient and economical electric service" is widely understood in the practice of electric utility planning and management to mean service at the lowest life-cycle cost. In addition, based on my knowledge of and experience in electric utility regulation, I believe that practitioners of utility resource planning would implement the phrase "other methods for providing . . . electric service" by considering (and incorporating) in utility resource plans energy efficiency and demand response (together, demand-side management) resources, transmission and distribution resources (including improvements to transmission and distribution efficiency), and all types of generation resources, including renewable generation, in utility resource plans. Such consideration must be on an equal basis ("level playing field") across all types of resources if it is to result in efficient and economical service and to serve the public interest. Therefore, I conclude that subdivision (3) of the cited statute means that the Commission should follow the practices and guidelines of least-cost integrated resource planning.

Q. What implications, if any, do the above conclusions have for Commission oversight of electric utilities in Mississippi?

A. These conclusions have a very important implication for Commission oversight of the electric utilities. In terms of practical implementation, there is a clear linkage among the following items in the statute: (1) the Commission's duty to analyze electricity need and resources, (2) the utilities' obligation to submit data, analyses and plans, and (3) the Commission's duty to make construction planning decisions "tak[ing] into account the utility's arrangements with other electric utilities for interchange of power, pooling of plant, purchase of power and other methods for providing reliable, efficient and economical electric service." Given the essentially "straight line" logical sequence from utility data and plans to Commission analyses to Commission permitting decisions, the logical conclusion is that the Commission will be able to implement its analysis and permitting activities most efficiently and accurately only if it requires the utilities to prepare the "forecasts and plans" in accordance with practices and guidelines of IRP, as described above. Failure to do so would hobble the Commission in the execution of its duty under subdivisions (2) and (3) of the statute, potentially resulting in resource decisions that would severely harm the public good for decades into the future.

Q. Do you have any other recommendations at this time for the Commission with regard to implementing the Commission's activities under MC § 77-3-14?

A. Yes, I have one other recommendation. As stated above, a key provision in this passage is "such . . . proof with respect to the need therefore as the commission may reasonably require." For the reasons just explained, I believe that it would be reasonable for the Commission require, in support of implementation of its analytical duties under the statute, that the utilities submit resource plans that comply with the practices and guidelines of IRP as an essential component of the "the proof with respect to the need [for the addition of generating capacity planned by the utility]." I recommend that the Commission require the utilities to do so as part of this proceeding.

Q. Are there other important points the utilities and the Commission should have in mind when preparing, reviewing, or implementing a plan?

A. Yes. The two most important are assessment of (1) uncertainties and risk and (2) consideration of environmental impacts.

Q. Please provide some examples of the uncertainties and risks that the Commission should consider.

A. The resource portfolio that is projected to have the lowest life cycle cost under one set of assumptions about the future, may or may not also be the best under another set of assumptions. Assumptions that can make a material difference to the performance of resource portfolios include, but are not limited to:

- load growth, weather and other factors affecting the size and timing of resource needs over time, such as trends in customer types, end use make up and load shape,
- cost, availability and deliverability of fuels, equipment, construction materials and expertise, labor, land, transmission service and other goods

and services that determine the cost of the various resources in the portfolio,

- financial factors, such as inflation rates, utility bond ratings and changes in the rating criteria, cost and availability of various types of insurance, cost and availability of various types of capital,
- factors relating to implementation schedules and "lumpiness" of various resource options, such as construction or installation times or delays in those times, risk of project failure or cost increase,
- environmental and regulatory risks, such changes in emission standards (including the likelihood of CO_2 regulations), new emission standards or fees, permitting risk, and
- planning risk, for example, the risk that a resource will become obsolete or unnecessary while under construction.

Q. Please explain the assessment of uncertainties and risk in the context of utility resource planning.

A. While the technicalities can be somewhat abstract, the essence of risk and uncertainty assessment in this context is to measure the variability of a resource portfolio's results due to uncertainties in factors or assumptions such as those listed in the preceding answer. The Commission should look for (1) a thorough inventory and description of the relevant risks, together with an assessment of their probabilities, (2) an objective analysis of how those risks impact the performance of various resource plans individually and in combination, (3) development of a plan relying on a portfolio of resources that manages risk and uncertainty to a reasonable level while delivering the lowest life-cycle cost over the fullest possible range of plausible future scenarios.

Q. The practices and guidelines you recommend seem to include substantial analysis and date gathering. To what standards should the Commission hold those actions?

A. In order to facilitate review by the Commission and parties, and to promote accuracy, I recommend that these assessment and data gathering activities should be transparent (clear and understandable to the Commission, the parties and the

public), fully documented and supported by work papers and methodologies that allow the Commission and the parties to determine their validity, quantitative whenever possible, and treat all resources on a level playing field. Cost-benefit comparisons of resources and portfolios should be carried out using one or both of the two tests recommended above.

Q. Please explain the consideration of environmental impacts in the context of utility resource planning.

A. Any resource choice will entail some environmental impacts. If the Commission chooses to employ the Societal Test for comparing resources and resource plans, it will automatically include those environmental costs that it can quantify. (Other environmental costs may show up as constraints on which resources are feasible or as non-quantified considerations to be balanced by the Commission.) If the Commission chooses to rely on the TRC Test, then it should adopt for planning purposes monetary proxies for those environmental costs that are likely to impact resource costs in the future.

Q. What topics form a necessary part of IRP development?

A. While there are many details that may vary from situation to situation, in general, the following aspects of IRP development need careful consideration:

- establish objectives;
- survey energy use patterns and develop demand forecasts;
- investigate electricity supply options;
- investigate demand-side management measures;
- prepare and evaluate supply plans;
- prepare and evaluate demand-side management plans;
- integrate supply- and demand-side plans into candidate integrated resource plans;
- select the preferred plan based on the selected benefit-cost test, uncertainty and risk analysis, and other factors; and

- during implementation of the plan, monitor, evaluate, and iterate (plan revision and modification).

In testimony in this proceeding, the Sierra Club expects to provide information on best practices and suitable guidelines regarding these and other related topics.

Q What other issues do you anticipate evaluating in your review of the planning documents provided by the utilities on June 10?

A. My colleagues and I expect to review a variety of issues. These include, but are not limited to:

- What is the potential for and what are the utilities' assumptions concerning energy efficiency, combined heat and power applications, and renewable generating technologies within each utility's service territory? Are these assumptions reasonable and are they properly integrated into their forecasts or considered as a separate resource option?
- What is the potential for and what are the utilities' assumptions concerning demand response within each utility's service territory? Are these assumptions reasonable and are they properly integrated into their forecasts or considered as a separate resource option?
- Have the utilities made reasonable assumptions regarding future generating resource capital and operating costs and performed realistic sensitivity analyses in this area?
- What are likely future emissions costs for CO_2 and other pollutants, and how have these costs be incorporated in utility planning?
- How have the utilities treated the requirements for individual utility and statewide reserve margins?
- How do the utilities accommodate sharing of reserves, demand response and transmission enhancements to improve reserve sharing vs. generation in peaking resources?
- Have the utilities considered transmission and demand management on a comparable economic basis with new generation?
- How are capital costs and operating costs and their respective uncertainties treated?
- How have the utilities accommodated likely future technological advances, such as the potential for carbon capture and sequestration?

Q. Do you expect the scope of testimony that you will file later this summer to match precisely your list of issues?

A. Not necessarily. It is possible that the scope of issues that we will address will be affected by the planning materials and information that the utilities will file on June 10, 2008 and that they provide during discovery in this proceeding.

Q. Does this complete your testimony at this time?

A. Yes.

STATE OF Vermont

COUNTY OF Washington

NOW BEFORE ME, the undersigned authority, personally came and appeared, William Steinhurst, who after being duly sworn by me, did depose and say:

The above and foregoing is his sworn testimony in this proceeding and that he knows the contents thereof, that the same are true as stated, except as to matters and things, if any stated on information and belief, and that as to those matters and things, he verily believes them to be true.

William Steinhurst

SWORN AND SUBSCRIBED BEFORE ME

THIS 10th DAY OF JUNE 2008

NOTARY PUBLIC

ANNABEL L GONYAW
NOTARY PUBLIC, VERMONT
MY COMMISSION EXPIRES FEB. 10, 2011

My commission expires

EXHIBIT WS-1

William Steinhurst

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PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA.
Senior Consultant, July 2003 to Present
Provided consulting services to consumer advocates, environmental organizations, and utility regultors on power supply procurement, electric industry restructuring, green marketing, portfolio management, rate design, economic impacts of efficiency and renewable generation programs, and other utility and energy topics. Expert witness services and litigtation advice. Co-authored reports, journal articles and conference presentations on portfolio management, energy efficiency programs, and electric reliability.

Vermont Department of Public Service, Montpelier, VT.
Director for Regulated Utility Planning, 1986-2003
Responsible for preparation of Vermont's long range policy plans in the areas of electric utilities, energy and telecommunications, including oversight of research, modeling, public input processes, policy analysis and writing. Development of policy positions and drafting of legislation and rules concerning utility resource planning, least cost provision of service, power supply acquisition, generation and transmission permitting, environmental costing, energy efficiency and alternative generation, utility restructuring and retail choice, distributed utility planning, rate setting and rate design, mergers, financing and acquisitions, decision analysis, power contract restructuring, Qualifying Facility contracts and permits, net metering, and other critical regulatory issues. Extensive expert testimony on those matters, as well as utility bankruptcy, prudence reviews, and critical utility policy matters. Extensive legislative testimony.

Planning Econometrician, 1981-1986
Energy demand forecasting, economic and demographic projections, economic and policy impact analysis, avoided cost estimates, and other quantitative analysis for utility and energy policy making. Development of State's basic policies regarding least cost planning and resource selection, including methodologies for evaluation of and program design for generation, transmission and demand-side options. Implementation of utility energy efficiency program requirements.

Vermont Agency of Human Services, Montpelier, VT.
Director of Planning, 1979-1981

Vermont Department of Social and Rehabilitation Services, Waterbury, VT.
Director of Planning and Evaluation, 1977-1979
Acting Deputy Commissioner, 1977

Vermont Department of Corrections, Montpelier, VT.
Director of Planning and Research, 1974-1977
Chief of Research and Statistics, 1973-1974

Energy Consulting

Ill. Energy Office, 1986.
Mass. Exec. Office of Energy Resources, 1986.
Northern Technology, Inc., Gorham, NH, 1983-1985.
James River Corporation, Green Bay, WI, 1985.
Newfoundland Department of Natural Resources, 1995

Teaching

University of Vermont, Burlington, Vt., 1977 to 1989
Adelphi University, Garden City, N.Y., 1980 to 1988
University of N. H., Complex Systems Ctr., Grad. Studies Comm., 1992-1994
Institute of International Education, Least Cost Planning Seminar, 1999
Community College of Vermont, 2002

Miscellaneous

National Science Foundation Undergraduate Research Grant, 1965.
Wesleyan University Astronomy Prize, 1967.
Association for Criminal Justice Research (Northeast/Canada), Director, 1973 to 1981, Secretary/Treas., 1973 to 1980.
University of Vermont Graduate Award in Statistics, May, 1980.
Contributing Editor, Current Index to Statistics, 1976-1985.
Chair, Session on Energy Economics, New England Business and Economics Association Annual Meeting, 1983.
Member, Intl. System Dynamics Soc., Tau Beta Pi.
Northeast International Committee on Energy, New England Governors' Conference/Eastern Canadian Premieres, various periods, 1986 to 2003
Director, Vermont Girl Scout Council, 1989-1991; Secy., 1991-1997
Editor, Intl. System Dynamics Soc. Bibliography, 1990-
Advisory Group Member, New England Project, MIT Analysis Group for Regional Electricity Alternatives, 1991-1995.
Chair, Steering Committee & Modeling Subcommittee, New England Governors Conf. Regional Energy Planning Project, 1991-1995.
Member, Montpelier School System Technology Steering Committee and Montpelier High School Technology Committee, 1992-1993.
Reviewer, Vermont Experimental Program to Stimulate Competitive Research, 1993-
Invited Speaker, 3rd Intl. Conf. on Externality Costs, Ladenburg, FDR, 1995.
Member, Steering Committee, New England Governors Conference, Restructuring/ Environmentally Sustainable Technolgies Project, 1996-1997
U. S. DOE Distributed Generation Collaborative, 2000-2

EDUCATION

Degrees

B.A., Physics, Wesleyan University, Middletown, CT, 1970
M.S., Statistics, University of Vermont, Burlington, VT, 1980
Ph.D., Mechanical Engineering , University of Vermont, Burlington, VT, 1988

Continuing Education

Seminar in Electricity and Telecommunications Demand, 1981
Advanced Workshop in Regulation and Public Utility Economics, June, 1982 and
June, 1983, Rutgers University
Transmission Reliability Assessment, Power Technologies, Inc., 1986
Regional Forecasting and Simulation Modeling, January, 1991, U. Massachusetts-Amherst

TESTIMONY

Vermont Public Service Board

Docket 4661 - Green Mountain Power Rate Increase

Dockets 5009/5112 - Vt. Electric Coop. Rate Increase

Dockets 5108/5109 - Vt. Marble Co. Small Power Rate

Docket 5133 - Moretown Hydro Energy Co. Small Power Rate

Docket 5202 - VPPSA Refinancing

Docket 5248 - DPS Ontario Hydro Power Purchase

Docket 5270 - Least Cost Planning and Demand-Side Management

Docket 5270-GMP-1 - Highgate Apartments Fuel Switching

Docket 5270-CV-1&3 - Demand-Side Management Preapproval and
Ratemaking Principles

Docket 5270-CV-4 - IRP

Docket 5270-VGS-1 - Demand-Side Management Preapproval

Docket 5270-WEC-1 - Demand-Side Management Preapproval

Dockets 5270-BRTN-1, 5270-CUC-3, 5270-HDPK-1, 5270-JHNS-1, 5270-JKSN-1,
5270-LDLW-1, 5270-LYND-1, 5270-MRSV-1, 5270-ORLN-1, 5270-RDSB-1,
5270-ROCH-1, 5270-STOW-1, 5270-SWNT-1, 5270-VMC-1 - IRP's

Docket 5270-VGS-2 - Demand-Side Management Preapproval

Vermont Public Service Board (cont.)

Docket 5277 - DPS Ontario Hydro Transactions Agreement

Docket 5330A - Hydro Quebec Power Purchase

Docket 5330E - Hydro Quebec Power Purchase, Waiver and Amendment

Docket 5372 - CVPSC Rate Increase

Docket 5491 - CVPSC Rate Increase

Docket 5630/32 - VEC Debt Restructuring & Rate Increase

Docket 5634 - NET Toll Dialing Plan

Docket 5638 - CVPSC Mack Molding*

Docket 5664 - EPACT Standards

Docket 5810/11/12 - VEC Debt Restructuring & Rate Increase

Docket 5825 - Ludlow IRP*

Docket 5832 - Lyndonville IRP*

Docket 5854 - Electric Restructuring*

Docket 5857 - GMP Rate Increase*

Docket 5859 - Citizens Utilities Prudence Review & Revocation Petition

Docket 5971 - VEC Bankruptcy Reorganization*

Docket 5980 - Proposal for Statewide Efficiency Utility

Docket 5983 - GMP Rate Increase (HQ Issues)

Docket 6018 - CVPSC Rate Increase (HQ Issues)

Docket 6107 - GMP Rate Increase (HQ Issues)

Docket 6140 - Electric Industry Restructuring (various presentations)*

Docket 6033/6053/6110/6142/6158/6326/6327/6371/6462/6464 - various municipal electric rate increases* (HQ and Settlement Issues)

Docket 6290 - Distributed Generation*

Docket 6300 - Sale of Vermont Yankee

Docket 6330 - Petition of CVPSC and GMP on Restructuring (various presentations)*

Docket 6149/6315 - WEC electric rate increases* (HQ and Settlement Issues)

Docket 6460 - CVPSC Rate Increase (HQ Issues)

Docket 6495 - Vermont Gas Systems Rate Increase (Deferral Account and Hedging)

Docket 6565 - Various station service contracts

Docket 6596 - CUC rate Increase (HQ Issues)

Docket 6758 - Fourteen Utilities - Violations of Statutes on Special Contracts and Special Rates -- Phases I & II

Vermont State Environmental Board
Docket 5W0584-EB - Developers Diversified Land Use Permit

Public Utilities of Ohio
Restructuring Roundtable – System Benefit Charges*

Federal Energy Regulatory Commission
Docket Nos. ER95-1586-000 and EL96-17-000 - Citizens Utilities Company

Connecticut Department of Public Utility Control
Docket Docket No. 03-07-16 - Alternative Transitional Standard Offer (live testimony, prefiled comments)*

* No prefiled testimony

TECHNICAL REPORTS

Allen, R., V. L. McCarren and W. Steinhurst. *Vermont Telecommunications Plan:* Final Draft and *Final*. Vt. DPS, 1992.

Backus, G., J. Amlin, W. Steinhurst and P. Cross. *Champlain Pipeline Project: Energy and Economic Systems – Assessment*. Vt. DPS, 1989.

Bartels, C., R. Squires, and W. Steinhurst. *Electric Power Supply in Vermont.* Vt. DPS, 1983.

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Blomberg, L., B. Hausauer, and W. Steinhurst, et al., *Fueling Vermont's Future: Comprehensive Energy Plan and Greenhouse Gas Action Plan: Public Review Draft*. Vt. DPS, 1997 and *Final*, 1998.

Copp, L., W. Steinhurst, et al. *Electric Power Issues in Vermont*. Vt. DPS, 1982.

------- *Electric Power in Vermont: Statistical Sourcebook*. Vt. DPS, 1982.

------- *Electric Power in Vermont: Twenty-Year Plan*. Vt. DPS, 1983.

Copeland, R. and W. Steinhurst. *Private Sector Day Care Rates*. Vt. Dept. of SRS, 1979.

Huffman, B., W. Steinhurst, et al., *Energy Use in Vermont and the Public Interest*. Vt. DPS, 1984.

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------- *Vermont Telecommunications Plan: Final Draft*. Vt. DPS, 1999 and *Final*, 2000.

Steinhurst, W., *Hypothesis Tests for Parole Survival Analysis*. Masters thesis, University of Vermont, May, 1980.

------- *Residential Price Elasticity of Electric Demand in the Northeast*, Vt. DPS, 1982.

------- *Long Range Forecast of Electric Loads for Vermont*. Vt. DPS, 1983.

------- *Electricity Conservation in Vermont*. Vt. DPS, 1983.

------- *Twenty Year Electric Plan: Public Review Draft*. Vt. DPS, 1987, and *Final*, 1988.

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------- *On Some Aspects of the Thermoplastic in Engineering*. Ph.D. Dissertation. Univ. of Vermont, 1988.

-------, et al. *Vermont Comprehensive Energy Plan*. Vt. DPS, 1991.

-------, R. Allen, et al. *Shutdown Assessment of the Vermont Yankee Nuclear Power Facility: Interim Report*. Vt. DPS, 1987.

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------- and D. Lamont. *Building Energy Code Study*. Vt. DPS, 1985.

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------- and B. Patterson. *Weeks School Recidivism Study*. Vt. Corrections Dept., 1976.

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Wilson, D., J. O'Rourke, W. Steinhurst, et al. *Welfare Reform: A Vermont Perspective*. Vt. AHS, 1980.

von Turkovich, B., and W. Steinhurst. "Plastic Flow Localization and Instability in Metal Processing." *Proc. 14th N. Amer. Manuf. Res. Conf*., Minneapolis, May, 1986, pp. 340-347.

ARTICLES AND PRESENTATIONS

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------- "Hypothesis Tests for Parole Survival Analysis." *Evaluation Review*, 5, 699-711 (1981).

------- "Don't Throw Out the Baby: Some Design Requirements for Federalism Reform." *New England Journal of Human Services*, 1, 41 - 45 (1981).

------- "Environmental Externalities: Analysis and Advocacy." *Proc. 3rd Intl. Conf. on Externality Costs*, Springer-Verlag: Berlin.

------- and G. Backus. "Application of System Dynamics to an Integrated Economic and Environmental Policy Assessment." In D. F. Andersen, et al., *System Dynamics '90, Proc. of the 1990 International System Dynamics Conf.*, Boston, MA., pp. 1060-1074.

------- and W. Merten. "Statistical Analysis of Thermal Shock Tests." *Statistics in Manufacturing*, S. G. Kapoor and M. R. Martinez, eds., ASME Proc., PED-9 (83), 51-56.

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------- and B. von Turkovich. "Material Influences on Plastic Flow Localization and Instability in Metal Processing." *Proc. 2nd Intl. Conf. on Technology of Plasticity*, Stuttgart, 1987.

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