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Summary of Qualifications

- 21 years of experience in systems engineering focused on designing and developing models used to assess various aspects of electric utility and other industries, including power purchasing and marketing, financial and production costing, and energy efficiency and generation impact on carbon emissions
- Demonstrated expertise in analyzing economic impacts of electrical restructuring at the national, regional, and state levels; of energy efficiency and generation technologies on national carbon emissions; and of overall uses of renewable technologies in the electric industry

Work History and Accomplishments

1992 to present **Oak Ridge National Laboratory, Oak Ridge, Tenn.**
Engineering Science and Technology Division, Cooling, Heating and Power Group

- Using various national surveys and databases to calculate the potential for Combined Heat and Power (CHP) projects in federal facilities across the country. The results were segregated by type of buildings, agency, size, and state in order to better identify target opportunities for CHP.
- Using the National Energy Modeling System (NEMS) to analyze the potential savings from energy efficiency programs and technologies for the state of Iowa.
- Assisting the Department of Energy's Office of Critical Infrastructure Protection in development of their Research Program Plan for FY2001 and named the ORNL contact for that office.
- Participating in the Clean Energy Futures study and was the main author for the Electricity Sector chapter. This study analyzed the potential impacts of various national energy policies to lower the emissions of carbon and other pollutants. It involved researchers from five national laboratories and used a version of the NEMS model from the Energy Information Administration. The study built on the 1997 5-Lab study that evaluated carbon reduction scenarios.
- Developing a regional competitive bulk power market model (ORCED) for the Environmental Protection Agency, Department of Energy, and Federal Energy Regulatory Commission to analyze the effect of deregulation on generating plant profitability, prices, carbon emissions, and other factors.
- Analyzing the economics of the process steps for manufacturing lightweight materials such as aluminum and titanium for use in lightweight vehicles. This involved research on all steps from mining of raw materials to assembly of final components, and included the use of a detailed model of the aluminum rolling industry.
- Developing an electric utility financial and production-costing model (ORFIN). It has been used in studies on electric utility restructuring, retail wheeling, stranded investments, the financial impact of demand-side management, and performance-based rates. It has been translated into Russian for use by Russian utility executives and analysts. Numerous other private sector and regulatory groups have requested copies of the model for use in their own studies.
- Performing financial analyses of treatment options involving consolidated procurements from private firms for mixed low level waste across the DOE complex and for Lockheed Martin-managed sites.
- Assisting in a life cycle analysis of recycling versus disposal of the scrap metal from Building K-31 of the DOE K-25 site. Applied the LCA concepts to a study of the advisability of recycling scrap metal from the environmental restoration of the DOE facility at Fernald, Ohio.
- Performing an analysis of electric utility operational, financial, and demand-side management program data for use by the Energy Information Administration.

- Analyzing the effects of current tax and ratemaking policies on renewable energy versus conventional energy projects for a Congressional report. Compared the relative effects for the existence of barriers or incentives for renewable energy.
- Conducting a study of publicly-owned utilities that successfully implement demand-side management. Determined some of the causes behind their success in order to improve demand-side management programs at similar utilities.

1992 **ORNL Assessment Program Deputy Manager**
Providing expert assistance on risk-based prioritization to the DOE Safety & Health Five Year Plan national effort, including nation-wide training. Coordinated presentation of the DOE Facility Performance Monitoring Course to ORNL facility managers and other staff.

1989 - 1992 **Technical Assistant to the Associate Laboratory Directors for Environmental, Safety, and Health (ES&H) Compliance; Chemical, Environmental, and Health Protection Technologies; and Reactor Systems.**

- Developing the strategic implementation plan for ES&H issues at ORNL. Provided support in coordination of interactions with DOE and senior management (e.g., Performance Evaluation Committee, Institutional Plan, On-Site Review, Microbudget).
- Coordinating efforts in development and use of the Energy Systems risk-based prioritization matrix for evaluation of Tiger Team and other ES&H assessments and issues.

1981 - 1989 **Lockheed Martin Energy Systems, Inc. Operations Analysis and Planning Division Strategic Planning Department for Uranium Enrichment**

- Organizing a strategic planning process for the Uranium Enrichment Activity involving DOE top management and all contractors. Assisted in creation of the Uranium Enrichment government corporation.
- Developing enrichment pricing and finance models, power purchase optimizing models, and enrichment operations models for senior management. Analyzed effects on the enrichment business due to technological, business, and institutional changes.
- Analyzing spent fuel storage, reprocessing and disposal requirements and cost projections, nuclear and electric power growth forecasts, and fuel cycle model calculations.

1980 **Sandia National Laboratory, Albuquerque, New Mexico**
Assisting with nuclear plant cable-tray fire and turbine missile impact testing, including computer program development and field work as a graduate student

1978 - 1979 **Performance Testing & Consultants, Inc., Missouri**
Assisting with flue gas analysis and heat rate testing at coal-fired electric power plants as a technician

1977 **Burns and McDonnell, architect/engineers, Missouri**
Assisting with flue gas analysis at coal-fired power plants as a technician.

Education and Training

M.S., Nuclear Engineering, 1981, University of Missouri-Rolla
M.S., Engineering Management, 1981, University of Missouri-Rolla
B.S., Nuclear Engineering, 1979, University of Missouri-Rolla

Representative Publications

Oak Ridge Reports

Hadley, S. W., C. R. Hudson, D. W. Jones and D. P. Vogt, *The Potential Economic Impact of Electricity Restructuring in the State of Oklahoma: Phase II Report*, ORNL/CON-485, Oak Ridge National Laboratory, October 2001. http://www.ornl.gov/ORNL/BTC/Restructuring/OKPhaseIIforWeb1.pdf

Hadley, S. W., *The Potential for Energy Efficiency in the State of Iowa*, ORNL/CON-481, Oak Ridge National Laboratory, June 2001. http://www.ornl.gov/ORNL/BTC/Restructuring/IowaEEPotential.pdf

Hadley, S. W., C. R. Hudson and D. W. Jones, *The Potential Economic Impact of Electricity Restructuring in the State of Oklahoma: Phase I Report*, ORNL/CON-482, Oak Ridge National Laboratory, March 2001. http://www.ornl.gov/ORNL/BTC/Restructuring/OKRestructure2.pdf

Interlaboratory Working Group, *Scenarios for a Clean Energy Future,* ORNL/CON-476 and LBNL-44029, Oak Ridge National Laboratory and Lawrence Berkeley National Laboratory, November 2000. http://www.ornl.gov/ORNL/Energy_Eff/CEF.htm

Das, Sujit, T. Randall Curlee, Stanton W. Hadley, Donald W. Jones, Bruce E. Tonn, Amy K. Wolfe, Gary Davis, Rajive Dhingra, Jonathan Overly, and Susan Schexnayder, *Supporting Infrastructure and Acceptability Issues Associated with Two New Generation Vehicles: P2000 and ESX2*, ORNL/TM-2000/91, Oak Ridge National Laboratory, May 2000.

Hadley, S.W., S. Das, J.W. Miller, *Aluminum R&D for Automotive Uses and the Department of Energy's Role*, ORNL/TM-1999/157, Oak Ridge National Laboratory, March 2000.

Hirst, Eric and Stan Hadley, *Maintaining Generation Adequacy in a Restructuring U.S. Electricity Industry*, ORNL/CON-472, Oak Ridge National Laboratory, October 1999. http://www.ornl.gov/ORNL/BTC/Restructuring/Con472.pdf

Delene, J. G., J. Sheffield, K.A. Williams, R. L. Reid, S. Hadley, *An Assessment of the Economics of Future Electric Power Generation Options and the Implications for Fusion*, ORNL/TM-1999-243, Oak Ridge National Laboratory, September 1999.

Hadley, Stanton W., *The Impact of Carbon Taxes or Allowances on the Electric Generation Market in the Ohio and ECAR Region*, ORNL/CON-463, Oak Ridge National Laboratory, July 1998. http://www.ornl.gov/ORNL/BTC/Restructuring/con463.pdf

Hadley, Stan, and Eric Hirst, *ORCED: A Model to Simulate the Operations and Costs of Bulk-Power Markets*, ORNL/CON-464, Oak Ridge National Laboratory, June 1998. http://www.ornl.gov/ORNL/BTC/Restructuring/con464.pdf

Journal Articles and Proceedings

Hadley, S. W., and W. Short, "Electricity Sector Analysis in the Clean Energy Futures Study," *Energy Policy* 29, no. 14 (2001): 1285-1298.

Sale, M. J., and S. W. Hadley. "Estimating Hydropower's Contribution to the Control of Greenhouse Gas Emissions," Waterpower XII Conference, Salt Lake City, Utah, July 9–11, 2001.

Delene, J. G., J. Sheffield, K. A. Williams, R. L. Reid, and S. Hadley, "An Assessment of the Economics of Future Electric Power Generation Options and the Implications for Fusion," *Fusion Technology* 39, no. 2 (2001).

Dhingra, Rajive, Jonathan G. Overly, Gary A. Davis, Sujit Das, Stan Hadley and Bruce Tonn, *A Life-Cycle-Based Environmental Evaluation: Materials in New Generation Vehicles*, SAE Technical Papers Series 2000-01-0595, SAE International, Warrendale, Pa., March 2000.

Hirst, Eric, and Stan Hadley, "Generation Adequacy: Who Decides," *Electricity Journal* 12, no. 9 (1999): 11-21.

Hadley, Stanton W., "The Impact of Carbon Charges on Generation Mix with Elasticity of Demand: A Case Study," pp. 20–29 in *Proceedings of the 20th Annual North American Conference of the USAEE*, United States Association for Energy Economics, Cleveland, 1999.

Hirst, Eric, Brendan Kirby, and Stan Hadley, *Generation and Transmission Adequacy in a Restructuring U.S. Electric Industry*, Industry Structure Monograph Series – Number 14, Edison Electric Institute, Washington, D.C., June 1999.

Hirst, Eric, and Stan Hadley, "Designing True-up Mechanisms to Recover Transition Costs," *Electricity Journal* 11, no. 9 (1998): 1-70.

Certification of Accuracy

This resumé has been certified for accuracy by Stanton W. Hadley on February 21, 2002, and by Jeffrey E. Christian, Center Director, ORNL Buildings Technology Center, on February 21, 2002.