

M. GRANGER MORGAN

Curriculum Vitae

BORN: 1941 March 17, Hanover, New Hampshire
CITIZENSHIP: U.S.A.
FAMILY: Elizabeth Nichols Morgan (wife) b 1941, m 1963
Kristiana M. Provasnik (daughter) b 1968, m 1991 to Stephen Provasnik
Frederick M. Morgan (son) b 1971, m 1995 to Debbie Bellinger

Education

- University of California at San Diego, 1965-1969, Ph.D., Department of Applied Physics and Information Science.
- University of California at Berkeley, 1965, graduate work in modern Latin American History.
- Cornell University, 1963-1965, M.S., Program in Astronomy and Space Science. Experimental thesis work at Arecibo Ionospheric Observatory.
- Harvard College, 1959-1963, B.A., concentrated in Physics, graduated cum laude in General Studies.

Professional Positions

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| 2003-Present | University Professor. |
| 1996-Present | Lord Chair Professor of Engineering. |
| 1980-Present | Head, Department of Engineering and Public Policy. Professor of Engineering and Public Policy and of Electrical and Computer Engineering. Also Professor in The H. John Heinz III School of Public Policy and Management. |
| 1986-1995 | Director of the Carnegie Mellon Program in International Peace and Security. |
| 1981-1982 | Acting Head (Planning and Recruiting), Department of Electrical Engineering, Carnegie Mellon University, Pittsburgh, PA. |
| 1977-1980 | Head, Department of Engineering and Public Policy and Associate Professor of Electrical Engineering and Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA. |
| 1974-1977 | Assistant Professor of Electrical Engineering and Engineering and Public Policy (EPP) and Coordinator of the Graduate Program in EPP, Carnegie Mellon University, Pittsburgh, PA. |
| 1974 | Visiting Associate Physicist (May - November) Brookhaven National Laboratory, Associated Universities, Inc., Upton, NY. |
| 1972-1974 | Associate Program Director and later Program Director, Division of Computer Research, National Science Foundation, Washington, D.C. |
| 1970-1972 | Lecturer (1970-1971) and Acting Assistant Professor (1971-1972), Department of Applied Physics and Information Science, University of California at San Diego. |

- 1969-1972 Director, Computer Jobs through Training Project, A job vocational and pre-vocational motivational program for disadvantaged high school students and young adults, University of California at San Diego.
- 1959-1969 Research Assistant, Graduate Research Assistant and NASA Fellow at: Dartmouth College, Jicamarca Radar Observatory, Cornell University, Arecibo Observatory, and University of California at San Diego.

Professional Activities and Memberships

- Member of the National Academy of Sciences
- Chair of the Scientific and Technical Council of the International Risk Governance Council
- Member of the NRC Report Review Committee
- Member of the NRC Division on Engineering and Physical Sciences Committee
- Member of the NAS Roundtable on Science and Technology for Sustainability
- Member of the NAS Committee on Human Rights (correspondent)
- Member of the Advisory Board for the Center for Science, Technology and Policy (CSTEP), Bangalore, India
- Member of the Visiting Committee of Engineering Systems Division, MIT
- Member of the Visiting Committee of the Department of Environmental Sciences (D-UWIS) at ETH Zurich
- Member of the Task Force on Innovation for China's Environmentally Friendly Society of the China Council for International Cooperation on Environment and Development
- Member of the Intelligent Transportation Systems (ITS) Advisory Committee, U.S. Department of Transportation
- Member of the Advisory Board of the Competence Center Environment and Sustainability of the ETH Domain
- Member of Leadership Board for the Sustainable Energy, Environment and Economy, University of Calgary
- Member of the International Advisory Panel for the Division of Engineering & Technology Management (D-ETM), National University of Singapore
- Chair of the NRC Committee on Enhancing the Robustness and Resilience of Electrical Transmission and Distribution in the United States to Terrorist Attack
- Member of the Environmental Technology Advisory Board, Alcoa Corp.
- Member of Pittsburgh Indicators Steering Committee
- Past Chair of the EPA Science Advisory Board
- Past Chair of the Advisory Council of the Electric Power Research Institute and Member of the Strategic Issues Committee
- Member of the following professional societies:

- American Association for the Advancement of Science - Fellow; Past member of the Editorial Board, *Science 86*; Past member of committee on Science and International Security
- American Geophysical Union
- Bioelectromagnetics Society - Past member of the Board; Past Chairman of the Awards and Public Policy Committees
- Institute of Electrical and Electronic Engineers - Fellow; Past member of the Editorial Board, *IEEE Spectrum*; Past member of the Publications Board; Past member of the Editorial Board, *The Proceedings*; Past Editor IEEE Press Reprint Books; Past Member, Committee on Man and Radiation; Past Member of the Editorial Board, *The Institute*
- Society for Risk Analysis- Fellow; Member of the Editorial Board, *Risk Analysis*; Past Member of the Board; Past member of the Awards and other Committees
- Past Member of the Board of Directors, Association of Public Policy and Management and, Past Book Review Editor for *JPP&M* in the area of Technology and Policy
- Member of the Advisory Board of *Environmental Science & Technology*
- Member of the Board of Advisors, *Scientific American*
- Member of the Editorial Board, *Reliability Engineering and Systems Safety* and *Environmental Science & Policy*
- Member of Advisory Board, *Innovations: Technology/Government/Globalization*
- Past member of program advisory boards at Heinz Center, RFF, IIASA, Stanford, TUDelft and other Dutch technology and policy programs, MISTRA, and Tsinghua

Research Interests

Research interests are focused on policy problems in which technical and scientific issues play a central role. Methodological interests include problems in the integrated analysis of large complex systems; problems in the characterization and treatment of uncertainty; problems in the improvement of regulation; and selected issues in risk analysis and risk communication. Application areas of current interest include global climate change; decarbonization and the future of the energy system, especially electric power; risk analysis including risk ranking; health and environmental impacts of energy systems; security aspects of engineered civil systems; national R&D policy; and a number of general policy, management, and human resource issues involving science and technology.

Publications

Refereed Journal Publications:

- M. Granger Morgan and Kenneth L. Bowles, "Cross-Correlation and Cross-Spectral Methods for Drift Velocity Measurements", *Science*, 161, 1139-1142, 1968.
- M. Granger Morgan, "A Laboratory Model for Radio Star Scintillation and Other Diffraction Phenomena", *Journal of Geophysical Research*, 76, 2469-2486, 1971.
- M. Granger Morgan, "Topics in Technology and Modern Social Problems ... A New Course for Advanced Undergraduate Science Students", *American Journal of Physics*, 40, 116-120, 1972.
- M. Granger Morgan, Barbara R. Barkovich and Alan K. Meier, "The Social Costs of Producing Electric Power from Coal: A First Order Calculation", *Proceedings of the IEEE*, 61, 1431-1442, 1973.
- M. Granger Morgan and Samuel C. Morris, "Needed: A National R&D Effort to Develop Individual Air Pollution Monitor Instrumentation", *Journal of the Air Pollution Control Association*, 27, 670-673, 1977.
- M. Granger Morgan, Samuel C. Morris, Alan K. Meier and Debra L. Shenk, "A Probabilistic Methodology for Estimating Air Pollution Health Effects from Coal-Fired Power Plants", *Energy Systems and Policy*, 2, 287-310, 1978.
- M. Granger Morgan, Samuel C. Morris, William R. Rish and Alan K. Meier, "Sulfur Control in Coal-Fired Power Plants: A Probabilistic Approach to Policy Analysis", *Journal of the Air Pollution Control Association*, 28, 993-997, 1978.
- M. Granger Morgan and Sarosh N. Talukdar, "Electric Power Load Management: Some Technical, Economic, Regulatory, and Social Issues", *Proceedings of the IEEE*, 67, 241-312, 1979.
- William R. Rish and M. Granger Morgan, "Regulating Possible Health Effects from AC Transmission Line Electromagnetic Fields", *Proceedings of the IEEE*, 67, 1416-1427, 1979.
- Alex Hills and M. Granger Morgan, "Telecommunications in Alaskan Villages: A technical, economic, and institutional analysis", *Science*, 211, 241-248, 1981.
- M. Granger Morgan and Francis Clay McMichael, "A Characterization and Critical Discussion of Models and Their Use in Environmental Policy", *Policy Sciences*, 14, 345-370, 1981.
- M. Granger Morgan, "Probing the Question of Technology-Induced Risk", *IEEE Spectrum*, 18, (11), 58-64, 1981 November.
- M. Granger Morgan, "Choosing and Managing Technology-Induced Risk", *IEEE Spectrum*, 18(12), 53-60, 1981 December.
- Indira Nair, M. Granger Morgan and Max Henrion, "Office Automation: Assessing Energy Implications", *Telecommunications Policy*, 207-222, 1982 September.
- EPP Graduate Research Methods Class, "On Judging the Frequency of Lethal Events: A Replication", *Risk Analysis*, 3, 11-16, 1983 March.
- M. Granger Morgan, Samuel C. Morris, Max Henrion, Deborah A.L. Amaral and William R. Rish, "Technical Uncertainty in Quantitative Policy Analysis: A Sulfur Air Pollution Example," *Risk Analysis*, 4, 201-216, 1984 September.
- Max Henrion and M. Granger Morgan, "A Computer Aid for Risk and Other Policy Analysis," *Risk Analysis*, 5, 195-208, 1985 September.

- M. Granger Morgan, Samuel C. Morris, Max Henrion and Deborah A. L. Amaral, "Uncertainty in Environmental Risk Assessment: A case study involving sulfur transport and health effects", *Environmental Science and Technology*, 19, 662-667, 1985 August.
- M. Granger Morgan, Paul Slovic, Indira Nair, Dan Geisler, Donald MacGregor, Baruch Fischhoff, David Lincoln and H. Keith Florig, "Power line Frequency Electric and Magnetic Fields: A Pilot Study of Risk Perception", *Risk Analysis*, 5, 139-150, 1985 June.
- M. Granger Morgan, H. Keith Florig, David Lincoln and Indira Nair, "Power-line Fields and Human Health", *IEEE Spectrum*, 22, 62-68, 1985 February.
- Max Henrion, M. Granger Morgan, Indira Nair, and Charles Wiecha, "Evaluating an Information System for Policy Modelling and Uncertainty Analysis", *Journal of the American Society for Information Science*, 37, 319-330, 1986 September.
- H. Keith Florig, James F. Hoburg, and M. Granger Morgan, "Electric Field Exposure from Electric Blankets", *IEEE Transactions on Power Delivery*, Vol. PWRD-2(2), 527-536, 1987 April.
- Harald Ibrekk and M. Granger Morgan, "Graphical Communication of Uncertain Quantities to Nontechnical People", *Risk Analysis*, 7(4), 519-529, 1987.
- M. Granger Morgan, Max Henrion and Charles Wiecha, "DEMOS: A computer aid for engineering-economic policy modeling and uncertainty analysis", *Large Scale Systems*, 383, 1987.
- H. Keith Florig and M. Granger Morgan, "Measurements of Housing Density Along Transmission Lines", *Bioelectromagnetics*, 9, 87-93, 1988.
- M. Granger Morgan, "Quantitative Risk Assessment: Low frequency electromagnetic fields as an example", *Statistical Science*, 3(3), 314-319, 1988.
- Xiaolin Xi and M. Granger Morgan "Energizing China: First itself, next the world", *IEEE Spectrum*, 1989 March.
- Gordon Hester, M. Granger Morgan, Indira Nair and Keith Florig, "Small Group Studies of Regulatory Decision Making for Power-Frequency Electric and Magnetic Fields", *Risk Analysis*, 10, 213-228, 1990.
- Indira Nair and M. Granger Morgan, Three-Part Special Report: "Part 1: Biological Effects", 23-27; M. Granger Morgan and Indira Nair, "Part 3: Managing the Risks", 32-35, *IEEE Spectrum*, 27, 1990 August.
- Emilie Roth, M. Granger Morgan, Baruch Fischhoff, Lester B. Lave and Ann Bostrom, "What Do We Know About Making Risk Comparisons?", *Risk Analysis*, 10(3), 375-392, 1990.
- M. Granger Morgan, H. Keith Florig, Indira Nair, Concepcion Cortes, Kevin Marsh and Karen Pavlosky, "Lay Understanding of Power-Frequency Fields", *Bioelectromagnetics*, 11, 313-335, 1990.
- M. Granger Morgan, "Probing the Question of Technology-Induced Risk", *IEEE Spectrum*, 18(11), 58-64, 1981 November and "Choosing and Managing Technology-Induced Risk", *IEEE Spectrum*, 18(12), 53-60, 1981 December. Reprinted in *Readings in Risk*, T. Glickman and M. Gough (eds.), Resources for the Future, Johns Hopkins Press, 5-29, 1990.
- Gregory W. Fischer, M. Granger Morgan, Baruch Fischhoff, Indira Nair and Lester B. Lave, "What Risks are People Concerned About?", *Risk Analysis*, 11(2), 303-314, June 1991.
- M. Granger Morgan and Indira Nair, "Alternative Functional Relationships Between ELF Field Exposure and Possible Health Effects: Report of an expert workshop", *Bioelectromagnetics*, 13, 335-350, 1992.

- M. Granger Morgan, Baruch Fischhoff, Ann Bostrom, Lester Lave and Cynthia J. Atman, "Communicating Risk to the Public", *Environmental Science & Technology*, 26(11), 2048-2056, November 1992.
- Ann Bostrom, Baruch Fischhoff and M. Granger Morgan, "Characterizing Mental Models of Hazardous Processes: A methodology and an application to radon", *Journal of Social Issues*, 48(4), 85-100, 1992.
- Hadi Dowlatabadi and M. Granger Morgan, "A Model Framework for Integrated Studies of the Climate Problem", *Energy Policy*, 21(3), 209-221, March 1993. Reprinted in *The International Library of Critical Writings in Economics*, Mark Blaug (Series Editor), *The Economics of Natural Hazards*, Howard Kunreuther and Adam Z. Rose (eds), Edward Elgar Publishing Company, 1040pp, 2004.
- Michael Maharik, Baruch Fischhoff and M. Granger Morgan, "Risk Knowledge and Risk Attitudes Regarding Nuclear Energy Sources in Space," *Risk Analysis*, 13, 345-353, 1993.
- Ann Bostrom, M. Granger Morgan, Jack Adams and Indira Nair, "Preferences for Exposure Control of Power-Frequency Fields Among Lay Opinion Leaders," *Risk: Health, Safety & Environment*, 5(4), 295-318, Fall 1994.
- Cynthia J. Atman, Ann Bostrom, Baruch Fischhoff and M. Granger Morgan, "Designing Risk Communications: Completing and correcting mental models of hazardous processes, Part I," *Risk Analysis*, 14(5), 779-788, October 1994. Also reprinted in Simon Gerrard, R. Kerry Turner, and Ian Bateman (eds.), *Environmental Risk Planning and Management*, Chapter 18, Edward Elgar Publishers, 251-260, 2001.
- Ann Bostrom, Cynthia J. Atman, Baruch Fischhoff and M. Granger Morgan, "Evaluating Risk Communications: Completing and correcting mental models of hazardous processes, Part II," *Risk Analysis*, 14(5), 789-798, October 1994. Also reprinted in Simon Gerrard, R. Kerry Turner, and Ian Bateman (eds.), *Environmental Risk Planning and Management*, Chapter 19, Edward Elgar Publishers, 261-270, 2001.
- Donald G. MacGregor, Paul Slovic and M. Granger Morgan, "Perception of Risks from Electromagnetic Fields: A Psychometric Evaluation of a Risk-Communication Approach," *Risk Analysis*, 14(5), 815-828, October 1994.
- Ann Bostrom, M. Granger Morgan, Baruch Fischhoff and Daniel Read, "What Do People Know About Global Climate Change? Part 1: Mental models," *Risk Analysis*, 14(6), 959-970, 1994.
- Daniel Read, Ann Bostrom, M. Granger Morgan, Baruch Fischhoff and Tom Smuts, "What Do People Know About Global Climate Change? Part 2: Survey studies of educated laypeople," *Risk Analysis*, 14(6), 971-982, 1994.
- M. Granger Morgan and David Keith, "Subjective Judgments by Climate Experts," *Environmental Science & Technology*, 29(10), 468A-476A, October 1995.
- M. Granger Morgan, Indira Nair, and Jun Zhang, "A Method for Assessing Alternative Effects Functions That Uses Simulation With EMDEX Data," *Bioelectromagnetics*, 16, 172-177, 1995.
- John G. Adams, Jun Zhang, M. Granger Morgan, and Indira Nair, "A Method for Evaluating Transmission Line Magnetic Field Mitigation Strategies That Incorporates Biological Uncertainty," *Risk Analysis*, 15(3), 313-318, 1995.
- M. Granger Morgan and Hadi Dowlatabadi, "Learning from Integrated Assessment of Climate Change," *Climatic Change*, 34, 337-368, 1996.
- Jun Zhang, Indira Nair, and M. Granger Morgan, "Effects Function Simulation of Residential Appliance Field Exposures," *Bioelectromagnetics*, 18, 116-124, 1997.

- M. Granger Morgan and Daniel Read, "The Efficacy of Different Methods for Informing the Public About the Range Dependency of Magnetic Fields from High Voltage Power Lines," *Risk Analysis*, 18(5), 603-610, October 1998.
- M. Granger Morgan, Milind Kandlikar, James Risbey, and Hadi Dowlatabadi, Editorial - "Why Conventional Tools for Policy Analysis Are Often Inadequate for Problems of Global Change," *Climatic Change*, 41, 271-281, 1999.
- Elizabeth A. Casman, M. Granger Morgan and Hadi Dowlatabadi, "Mixed Levels of Uncertainty in Complex Policy Models," *Risk Analysis*, 19(1), 33-42, 1999.
- M. Granger Morgan, H. Keith Florig, Michael DeKay, Paul Fischbeck, Kara Morgan, Karen Jenni, and Baruch Fischhoff, "Categorizing Risks for Risk Ranking," *Risk Analysis*, 20(1), 49-58, 2000.
- M. Granger Morgan, Louis F. Pitelka and Elena Shevliakova, "Elicitation of Expert Judgments of Climate Change Impacts on Forest Ecosystems," *Climatic Change*, 49, 279-307, 2001.
- Elizabeth Casman, Baruch Fischhoff, Mitchell Small, Hadi Dowlatabadi, Joan Rose and M. Granger Morgan, "Climate Change and Cryptosporidiosis: A qualitative analysis," *Climatic Change*, 50, 219-249, 2001.
- H. Keith Florig, M. Granger Morgan, Kara M. Morgan, Karen E. Jenni, Baruch Fischhoff, Paul S. Fischbeck and Michael L. DeKay, "A Deliberative Method for Ranking Risks (I): Overview and test bed development," *Risk Analysis*, 21(5), 913-921, 2001.
- Kara M. Morgan, Michael L. DeKay, Paul S. Fischbeck, M. Granger Morgan, Baruch Fischhoff, "A Deliberative Method for Ranking Risks (II): Evaluation of validity and agreement among risk managers," *Risk Analysis*, 21(5), 923-937, 2001.
- Michael L. DeKay, Mitchell J. Small, Paul S. Fischbeck, R. Scott Farrow, Alison Cullen, Joseph B. Kadane, Lester B. Lave, M. Granger Morgan, Kazuhisa Takemura, "Risk-based Decision Analysis in Support of Precautionary Policies," *Journal of Risk Research*, 5(4), 391-417, 2002.
- Edward A. Parson, Robert W. Corell, Eric J. Barron, Virginia Burkett, Anthony Janetos, Linda Joyce, Thomas R. Karl, Michael C. MacCracken, Jerry Melillo, M. Granger Morgan, David S. Schimel, and Thomas Wilbanks, "Understanding Climatic Impacts, Vulnerabilities, and Adaptation in the United States: Building a capacity for assessment," *Climatic Change*, 57, 9-42, March 2003.
- M. Granger Morgan, "Characterizing and Dealing with Uncertainty: Insights from the Integrated Assessment of Climate Change," *Integrated Assessment*, 4(1), 46-55, 2003.
- Sarosh N. Talukdar, Jay Apt, Marija Ilic, Lester Lave and M. Granger Morgan, "Cascading Failures: Survival versus Prevention," *The Electricity Journal*, 25-31, November 2003.
- Margo T. Brown and M. Granger Morgan, "Expert Assessment of the Performance of the US System for Environmental Regulation," *Journal of Risk Research*, 7(5), 507-521, July 2004.
- Henry H. Willis, Michael L. DeKay, M. Granger Morgan, H. Keith Florig, and Paul S. Fischbeck, "Ecological Risk Ranking: Development and evaluation of a method for improving public participation in environmental decision making," *Risk Analysis*, 24, 363-378, April 2004.
- Minh Ha-Duong, Elizabeth A. Casman, and M. Granger Morgan, "Bounding Poorly Characterized Risks: A lung cancer example," *Risk Analysis*, 24(5), 1071-1084, 2004.
- Elizabeth A. Casman, Minh Ha-Duong, and M. Granger Morgan, "Response to Sander Greenland's Critique of Bounding Analysis," *Risk Analysis*, 24(5), 1093-1096, 2004.

- Claire R. Palmgren, M. Granger Morgan, Wändi Bruine de Bruin, and David W. Keith, "Initial Public Perceptions of Deep Geological and Oceanic Disposal of Carbon Dioxide," *Environmental Science & Technology*, 38(24), 6441-6450, 2004.
- Elizabeth Casman and M. Granger Morgan, "Use of Expert Judgment to Bound Lung Cancer Risks," *Environmental Science & Technology*, 39, 5911-5920, 2005.
- Henry H. Willis, Michael L. DeKay, Baruch Fischhoff, and M. Granger Morgan, "Aggregate, Disaggregate, and Hybrid Analyses of Ecological Risk Perceptions," *Risk Analysis*, 25(2), 405-427, 2005.
- M. Granger Morgan, Robin Cantor, William C. Clark, Ann Fisher, Henry D. Jacoby, Anthony C. Janetos, Ann P. Kinzig, Jerry Melillo, Roger B. Street, and Thomas J. Wilbanks, "Learning from the U.S. National Assessment of Climate Change." *Environmental Science & Technology*, 39, 9023-9032, 2005.
- David Keith, Julie A. Giardina, David Keith, M. Granger Morgan, and Elizabeth Wilson, "Regulating the Underground Injection of CO₂," *Environmental Science & Technology*, 499A-504A, December 15, 2005.
- Bill Strauss, M. Granger Morgan, Jay Apt and Daniel Stancil, "Unsafe at Any Airspeed: Cellphones and other electronics are more of a risk than you think," *IEEE Spectrum*, 43(3), 44-49, 2006.
- M. Granger Morgan, Peter Adams, and David W. Keith, "Elicitation of Expert Judgments of Aerosol Forcing," *Climatic Change*, 75, 195-214, 2006.
- Jay Apt, Lester B. Lave, and M. Granger Morgan, "A More Reliable U.S. Electric System," *Issues in Science & Technology*, 22(4), 51-58, 2006.
- Anand B. Rao, Edward S. Rubin, David W. Keith, and M. Granger Morgan, "Evaluation of Potential Cost Reductions from Improved Amine-based CO₂ Capture Systems," *Energy Policy*, 34, 3765-3772, 2006
- Jay Apt, David W. Keith, and M. Granger Morgan, "Promoting Low-Carbon Electricity Production," *Issues in Science & Technology*, 37-43, Spring 2007.
- Kirsten Zickfeld, Anders Levermann, Till Kuhlbrodt, Stefan Rahmstorf, M. Granger Morgan and David Keith, "Expert Judgements on the Response on the Atlantic Meridional Overturning Circulation to Climate Change," *Climatic Change*, 82, 235-265, 2007.
- Douglas King and M. Granger Morgan, "Customer-focused Assessment of Electric Power Microgrids," *Journal of Energy Engineering*, 150-164, September 2007.
- M. Granger Morgan, "Moving to a Low-Carbon Future: Perspectives on nuclear and alternative power sources," *Health Physics*, 93(5), 568-570, November 2007. Proceedings for the 2006 Annual Meeting on "Chernobyl at Twenty.
- Adam Newcomer, Seth Blumsack, Jay Apt, Lester Lave and M. Granger Morgan, "Short Run Effects of a Price on Carbon Dioxide Emissions from US Electric Generators," *Environmental Science & Technology*, 22(9), 3139-3144, 2008.
- Elizabeth Wilson, M. Granger Morgan, and 16 other authors, "Regulating the Geological Sequestration of Carbon Dioxide," *Environmental Science & Technology*, Feature issue on Greenhouse Gas Mitigation and Utilization, 2718-2722, April 15, 2008.
- Jacqueline Anne MacDonald, Mitchell J. Small and M. Granger Morgan, "Explosion Probability of Unexplored Ordnance: Expert Beliefs," *Risk Analysis*, 28, 825-841, 2008.
- M. Granger Morgan and David Keith, "Improving the Way We Think About Projecting Future Energy Use and Emissions of Carbon Dioxide," *Climatic Change*, 90(3), 189-215, October 2008.

- Aimee Curtright, M. Granger Morgan and David Keith, "Expert Assessment of Future Photovoltaic Technology," *Environmental Science & Technology*, 42(24), 2008.
- David G. Victor, M. Granger Morgan, Jay Apt, John Steinbruner, and Katharine Ricke, "The Geoengineering Option," *Foreign Affairs*, 88(2), 64-76, March/April 2009.
- Inês M. Lima Azevedo, M. Granger Morgan and Fritz Morgan, "The Transition to Solid-State Lighting," *Proceedings of the IEEE*, 97(3), 481-510, March 2009.
- M. Granger Morgan, "Energy for Change: Creating Climate Solutions," special issue of *Innovations on Energy and Climate Change*, 4(4), 167-171, Fall 2009.
- Iris Grossmann and M. Granger Morgan, "Tropical Cyclones, Climate Change, and Scientific Uncertainty: What do we know, what does it mean, and what should be done?," *Climatic Change*, revised in response to reviewers comments and now pending.
- Kirsten Zickfeld, M. Granger Morgan, David Frame and David W. Keith, "Expert Judgments About Transient Climate Response to Alternative Future Trajectories of Radiative Forcing," favorably reviewed by *Proceedings of the National Academy of Sciences* and now being revised.
- Katharine Ricke, M. Granger Morgan and Myles R. Allen, "Solar Radiation Management Used to Stabilize Global Temperature Produces Diverging Regional Climate Responses," in review at *Nature Geoscience*.
- Robert L. Gresham, Jay Apt, M. Granger Morgan and Sean T. McCoy, "Implications of Compensating Property-Owners for Geologic Sequestration of CO₂," submitted to *Environmental Science & Technology*.
- Travis Reynolds, Ann Bostrom, Daniel Read and M. Granger Morgan, "Now What Do People Know About Climate Change,?" under review at *Risk Analysis*, 2010.

Books

- M. Granger Morgan, editor, *Energy and Man: Technical and Social Aspects of Energy*, 536pp, IEEE Press, New York, 1975.
- M. Granger Morgan, Max Henrion, with Mitchell Small, *Uncertainty: A guide to dealing with uncertainty in quantitative risk and policy analysis*, 332pp, Cambridge University Press, New York, 1990. (Paperback edition 1992. Latest printing (with revised Chapter 10) 1998.)
- M. Granger Morgan, Baruch Fischhoff, Ann Bostrom and Cynthia Atman, *Risk Communication: A mental models approach*, 351pp, Cambridge University Press, New York, 2002.
- M. Granger Morgan and Jon Peha (eds.), *Science and Technology Advice to the Congress*, RFF Press, Washington, DC, 236pp, 2003.

Contributions to Books

- Authored two chapters for the undergraduate text *Physical Science Today*, CRM Books, 1973.
- Authored a Commentary (93-95) on M.H. Glantz, J. Robinson and M.E. Krenz, "Climate-Related Impact Studies: A Review of Past Experiences", in *Carbon Dioxide Review* 1982, William C. Clark, ed., Oxford University Press, 1982.
- Authored Chapter 8, "Uncertainty and quantitative assessment in risk management", 111-129, in Joseph V. Rodricks and Robert G. Tardiff, *Assessment and Management of Chemical Risks*, ACS Symposium Series 239, American Chemical Society, 1984.
- Authored Final Chapter, "Risk assessment and risk management decision-making for chemical exposures", in Gary Blau and Brock Neely (eds.), *Environmental Exposure from Chemicals*, CRC Press, Vol. II, 107-143, 1985.
- Principal author of the National Research Council Committee on Uranium Mill Tailings Committee's report titled *Scientific Basis for Risk Management of Uranium Mill Tailings*, National Academy Press, 264pp, 1986.
- Authored "Electromagnetic Fields", 172-173, in *McGraw-Hill Yearbook of Science and Technology*, 1987.
- Co-Authored with Gordon Hester, Indira Nair and Keith Florig, Chapter 18, "Small Group Studies of Regulatory Decision Making for Power-Frequency Electric and Magnetic Fields", 415-457, in *Communicating Risks to the Public*, R.E. Kasperson and P.M. Stallen (eds.), Kluwer Academic Publishers, 1990.
- A major contributor to the National Academy of Sciences' Committee on Science, Engineering and Public Policy's report titled *Finding Common Ground: U.S. export controls in a changed global environment*, National Academy Press, 390pp, 1991.
- Co-Authored with Mitchel Wallerstein, "Controlling the High-Technology Militarization of the Developing World", 285-299 in *The Proliferation of Advanced Weaponry: Technology, Motivations, and Responses*, W. Thomas Wander and Eric H. Arnett (eds.), American Association for the Advancement of Science, published in conjunction with the 1992 AAAS Colloquium on Science and Security, 1992.
- M. Granger Morgan, "Power-Frequency Electric and Magnetic Fields: Issues of risk management and risk communication," 297-319, in *Biological Effects of Electric and Magnetic Fields: Clinical applications and therapeutic effects*, Volume 2, D.O. Carpenter and S. Ayapetyan (eds.), Academic Press, Inc., San Diego, CA, 1994.
- M. Granger Morgan and Mitchel Wallerstein, "Controlling the High-Technology Militarization of the Developing World", in *Regional Conflicts: The challenge to U.S.-Russian Cooperation*, J.E. Goodby (ed.), Oxford University Press, New York, 1995.
- M. Granger Morgan, "Transmission Lines," in *Encyclopedia of Conservation and Environmentalism*, R. Paehlke (ed.), Garland Publishing, New York, 639-640, 1995.
- M. Granger Morgan, "Quantitative Risk Ranking: More promise than Hattis and Goble suggest," in *Worst Things First? The debate over risk-based national environmental priorities*, A.M. Finkel and D. Golding (eds.), Johns Hopkins University Press, 368pp, 1995.
- M. Granger Morgan, Baruch Fischhoff, Lester Lave, and Paul Fischbeck, "A Proposal for Ranking Risk within Federal Agencies," in *Comparing Environmental Risks: Tools for setting government priorities*, J. Clarence Davies (ed.), 111-148, Resources for the Future, 1996.

- Chaired the committee, wrote extensive sections, and edited report, *Shopping for Safety: Providing consumer automotive safety information*, Transportation Research Board, National Research Council, National Academy Press, 160pp, 1996.
- M. Granger Morgan, "Policy Analysis for Decisionmaking About Climate Change," in *Economic and Policy Issues in Climate Change*, William D. Nordhaus (ed.), Resources for the Future, 25-58, 1998.
- M. Granger Morgan, "The Role of Research and New Technology in a Restructured Networked Energy System," in *Designing Competitive Electricity Markets*, Hung-po Chao and Hillard G. Huntington (eds.), Kluwer Academic Publishers, 141-158, 1998.
- Made substantial contributions to several sections of the report *Our Common Journey: A transition toward sustainability*, a report of the Board on Sustainable Development, National Research Council, National Academy Press, 384pp, 1999.
- Made substantial contributions to *Climate Change Impacts on the United States*, Overview Report of the National Assessment Synthesis Team for the US National Assessment of the Potential Consequences of Climate Variability and Change, Cambridge University Press, 154pp, 2000.
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- M. Granger Morgan with advice and contributions from Hadi Dowlatabadi, Max Henrion, David Keith, Robert Lempert, Sandra McBride, Mitchell Small, and Thomas Wilbanks, *Best Practice Approaches for Characterizing, Communicating and Incorporating Scientific Uncertainty in Climate Decision Making*, Climate Change Science Program's Synthesis and Assessment Product 5.2, in production.

Television

Host of the two hour show "Frontiers of High Technology" produced by *IEEE Spectrum* and aired nation-wide on the Learning Channel in 1986 November. Sole guest on half hour edition of "The Editors", WQED-TV, on energy policy, April 7, 1989. Miscellaneous shorter appearances. Spokesman on promotional spot for IEEE Membership, 1994.

Book Reviews

Author of numerous book reviews. For several years served as science, technology, and policy book reviewer for the *Journal of Public Policy and Management* which involved about 20 reviews per year. Have also been a regular reviewer for *IEEE Spectrum*. The following are selected examples:

- *Current of Death: Power lines, computer terminals, and the attempt to cover up their threat to your health* by Paul Brodeur, Simon and Schuster, 1989, reviewed in *Scientific American*, 118-123, April 1990.
- *Science and the Navy: The history of the office of Naval Research*, Harvey M. Sapolsky, Princeton, 1990, reviewed in *IEEE Spectrum*, 11, February 1991.
- *Technologies Without Boundaries: On telecommunications in a global age*, Ithiel de Sola Pool, edited by Eli M. Noam, Harvard, 1990, reviewed in *IEEE Spectrum*, 6, June 1991.
- *Steinmetz: Engineer and Socialist* by Ronald R. Kline, The Johns Hopkins University Press, 1992, reviewed in *American Scientist*, 182-183, March-April 1993.
- *Elements of Risk: The politics of radon* by Leonard A. Cole, AAAS Press, reviewed in *Chemical and Engineering News*, 35-36, October 11, 1993.
- *The Highest Stakes: The economic foundations of the next security system*, A BRIE project with chapters contributed by Wayne Sandholtz, Michael Borrus, John Zysman, Oxford University Press, 1992, reviewed in *IEEE Spectrum*, 16-18, September 1993.
- *The Elusive Transformation: Science, Technology and the Evolution of International Politics*, Eugene B. Skolnikoff, Princeton University Press, 1993, reviewed in *IEEE Spectrum*, 14-15, December 1993.
- *Phantom Risk: Scientific inference and the law*, Kenneth R. Foster, David E. Beirnsstein, and Peter W. Huber (eds.), MIT Press, 1993, reviewed in *IEEE Spectrum*, 12, June 1994.
- *Compass and Gyroscope: Integrating science and politics for the environment* by Kai N. Lee, Island Press, 1993, reviewed in *American Scientist*, 475-476, September-October 1994.
- *Soothing the Establishment: The impact of foreign-born scientists and engineers* by David S. North, University Press of America, 1995, reviewed in *IEEE Spectrum*, 12-14, April 1996.
- *Endless Frontier: Vannevar Bush, engineer of the American century* by G. Pascal Zachary, The Free Press, 1997, reviewed in *IEEE Spectrum*, March 1998.
- *Consuming Power, A social history of American energies* by David E. Nye, MIT Press, 1997, reviewed in *Science*, April 24, 1998.

- *The Invention that Changed the World: How a small group of radar pioneers won the second world war and launched a technical revolution* by Robert Buder, Simon and Schuster, 1996, reviewed in *IEEE Spectrum*, August 1998. Reviewed with my father, Millett G. Morgan.
- *Pasteur's Quadrant: Basic Science and Technological Innovation* by Donald E. Stokes, Brookings Institution Press, 1997. Reviewed in *IEEE Spectrum*, January 1999.
- *Forged Consensus: Science, technology and economic policy in the United States, 1921-1953* by David M. Hart, Princeton University Press, 1998, reviewed in *IEEE Spectrum*, June 1999.
- *The Sun, the Genome and the Internet: Tools of scientific revolutions* by Freeman J. Dyson, Oxford University Press, 1999, reviewed in *IEEE Spectrum*, November 1999.
- *The Collapse of the Kyoto Protocol: And the struggle to slow global warming* by David G. Victor, Princeton University Press, 2001, reviewed in *IEEE Spectrum*, July 2001.
- *Uncertain Science...Uncertain World* by Henry N. Pollack, Cambridge University Press, 2003, reviewed in *Climatic Change*, 65, 2004.
- *What We Know About Climate Change* by Kerry Emanuel, MIT Press, 2007, review in press at *IEEE Spectrum*.

Awards and Recognition

- Carnegie Institute of Technology Ladd Award for Outstanding Young Faculty, 1976.
- U.S. Environmental Protection Science Advisory Board "Hit List" (under Gorsuch), citation: "Get Him Out", 1982.
- "Outstanding Editorial Board Member", *IEEE Spectrum*, 1983, 1986 and 1988.
- Listed in *American Men and Women in Sciences*.
- Life Fellow of IEEE.
- Carnegie Mellon University Robert Doherty Prize Award for "substantial and sustained contributions to excellence in education", 1989.
- Fellow of SRA.
- Fellow of AAAS.
- 1995 Society for Risk Analysis Distinguished Achievement Award.
- 1996 Lord Chaired Professor of Engineering, Carnegie Mellon.
- 2002 Designated "National Associate" of the U.S. National Academies.
- 2003 named "University Professor," Carnegie Mellon.
- 2007 elected to the National Academy of Sciences.
- 2008 recipient of the EPA Federal Advisory Committee Act (FACA) Impact Award in recognition for efforts as Chairman of the EPA's Science Advisory Board.

Ph.D. Theses

Played a significant role in the supervision of the following Ph.D. theses at Carnegie Mellon:

1. Alex Hills, "Television and Telephone Service in Alaskan Villages: A technical, economic, and organizational analysis," 1979 June.
2. Steven Goldstein, "Uncertainty in Life Cycle Demand and the Preference Between Flexible and Dedicated Mass-Production Systems", 1981 December.
3. H. Gilbert Miller, "The Reliability and Cost Impacts of Alternative Levels of Centralization in Electric Power Systems", 1981 December.
4. William R. Rish, "Characterizing Uncertainty in Estimating Impacts for Energy Systems: Two case studies," successfully defended 1981 June, requirements completed 1982 October.
5. Max Henrion, "The Value of Knowing How Little You Know", 1982 May.
6. William P. Marberg, "A Technical and Regulatory Assessment of Direct Broadcast Satellite Systems", 1983 January.
7. Felix B. "Yemisi" Dayo, "Choice Between Alternative Nuclear Energy Systems: A Decision Analytical Model for Less Developed Countries", 1983 January.
8. Deborah A.L. Amaral, "Estimating Uncertainty in Policy Analysis: Health Effects from Inhaled Sulfur Oxides", 1983 August.
9. John D. Graham, "Automobile Safety: An Investigation of Occupant-Protection Policies", 1983 September.
10. Leonard Wojcik, "Separation Requirements for Protection of High Altitude Satellites for Coorbital Antisatellites Weapons", 1984 December.
11. John Moteff, "The Advanced Gas Turbine and the Uncooled Diesel: Maximizing the potential benefits from two advanced engine systems", 1985 August.
12. Ben P. Wise, "An Experimental Comparison of Uncertain Inference Systems", 1986 June.
13. Charles F. Wiecha, "An Empirical Study of How Visual Programming Aids in Comprehending Quantitative Policy Models", 1986 June.
14. Theresa Mullin, "Understanding and Supporting the Process of Probabilistic-Estimation", 1986 September.
15. H. Keith Florig, "Population Exposures to Power-Frequency Fields: Concepts, components and control", 1986 November.
16. Daryl Ditz, "Courting Needless Risks: The United States Environmental Protection Agency and hazardous waste incineration at sea", 1987 September.
17. Grace Hammonds, "Crowd-Pleasing Cryptosystems: Utility evaluations for Standardization Decisions", 1987 November.
18. Susan R. Bereiter, "Looking for Trouble: Troubleshooters' Information Utilization in Computer-Controlled Manufacturing Systems", 1988 April.
19. Eric H. Arnett, "Gunboat Diplomacy and the Bomb: Nuclear Proliferation and the U.S. Navy", 1988 July.

20. Martin Weiss, "Technological Choice in Voluntary Standards Committees: An empirical analysis", 1988 December.
21. Ike Ezekoye, "An Examination of the Prospects for Widescale Use of Methanol in Motor Fuels: Technical, economic and policy issues", 1989 May.
22. Gordon Hester, "Three Perspectives on Institutional Arrangement for Making Decisions About Managing Technological Risks", 1989 December.
23. Urbano A. Lopez Gomez, "Communicating Very Low Probability Events", 1990 May.
24. Cynthia J. Atman, "Network Structures as a Foundation for Risk Communication: An investigation of structure and format differences", 1990 August.
25. Kathryn Jackson, "Building a Better Mouse: Examination of product development processes product design quality in the cursor control industry", 1990 August.
26. Ann H. Bostrom, "A Mental Models Approach to Exploring Perceptions of Hazardous Processes", 1990 September.
27. David P. Reed, "An Engineering, Economic and Public Policy Analysis of Integrated Broadband Networks in Subscriber Loop: Interdisciplinary Implications for the Telephone Company/Cable Television Cross Ownership Debate", 1991 May.
28. Jayant Kalagnanam, "The Qualitative Analysis of Systems Behavior", 1991 May.
29. Jon Merz, "Toward a Standard of Disclosure for Medical Informed Consent: Development and demonstration of a decision-analytic methodology", 1991 August.
30. Lan Xue, "Technology Choice and Manufacturing Performance: An empirical analysis of the implementation of computer integrated manufacturing technologies", 1991 August.
31. Michael Maharik, "Public Perceptions of the Risks of an Unfamiliar Technology: The case of using nuclear energy sources for space missions", 1992 May.
32. Robert Axtell, "Theory of Model Aggregation for Dynamical Systems with Application to Problems of Global Change, 1992 December.
33. Xiaolin Xi, "Energy System Development and CO₂ Emissions in China", 1992 December.
34. Marek J. Druzzdel, "Probabilistic Reasoning in Decision Support Systems: From computation to common sense", 1992 December.
35. Jun Zhang, "A Parametric Approach to the Quantitative Assessment of Possible Health Risks from Power Frequency Fields", 1993 May.
36. Anand Patwardhan, "Incorporating Time Dynamics and Uncertainty in Policy Analysis: Evaluating responses to sea-level change", 1993 May.
37. Hector Salgado, "A Simulation Analysis on Dynamic Channel Assignment for Open Access Personal Communication Services", 1993 December.
38. Irving Lachow, "The Global Positioning System: Managing the tension between defense needs and civilian applications", 1994 May.
39. Hubert Vasseur, "Manufacturing Quality and Process Precision: A cost-based analysis", 1994 August.

40. Milind Kandlikar, "Reconciling Uncertainties in Integrated Science and Policy Models: Applications to global climate change", 1994 December.
41. Laura Painton, "Combinatorial Optimization Under Uncertainty with Applications to Engineering Synthesis and Design Reliability Models", 1994 December.
42. William Wescott, "The Influence of Organizational Factors on the Effectiveness of Environmental Management," 1995 May.
43. Joseph Mertz, "Using a Cognitive Architecture to Design Instructions," 1995 May.
44. Luis Cifuentes, "Social Costs of Air Pollution Related Mortality," 1995 May.
45. Richard Sonnenblick, "A Framework for Improving the Cost-Effectiveness of Demand-Side Management Program Evaluations," December 1995.
46. Lucien Randazzese, "The Activity and Performance of University-Industry Research Centers in the United States," December 1995.
47. Peter Ashcroft, "Integration of Air and Ground-based Methane Measurements with those of the NASA earth observing system," May 1996.
48. Elena Shewliakowa, "An Application of Statistical Methods for Modeling Impacts of Climate Change on Terrestrial Ecosystems," May 1996.
49. Paul Parfomak, "Electricity Conservation Programs: Empirical Studies of Impacts and Cost-Effectiveness," 1996 May.
50. Linda (Jean) Camp, "Privacy and Reliability in Internet Commerce," 1996 August.
51. Garrick Louis, "A Systems Evaluation of Regional Integrated Municipal Solid Waste Management in the North Eastern United States," 1996 August.
52. John Howard, "An Analysis of Security Incidents on the Internet 1989-1995," 1997 May.
53. Karen Jenni, "Attributes for Risk Evaluation," 1997 May.
54. Charles Linville, "General Methodology/Modeling/Computer-based Tools," 1998 May.
55. Vasiliki Hartonas-Garmhausen, "Formal Verification of Computer Systems," 1998 August.
56. Rahul Tongia, "Energy Development Especially for Third-World Countries," 1998 August.
57. Daniel Teitelbaum, "Intelligent Agents for the Study of Technological Change and Pollution Control," 1998 August.
58. John Chung-I Chuang, "Economies of Scale in Information Dissemination Over the Internet," 1998 December.
59. Kara Morgan, "The Development and Evaluation of a Risk Ranking Method," 1999 May.
60. James Corbett, "An Assessment of Air Pollution and Environmental Impacts from International Maritime Transportation Including Engineering Controls and Policy Alternatives," 1999 May.
61. Hiroshi Hayakawa, "Automobile Risk Perceptions and Insurance-Purchasing Decisions: A Japan-US Comparison During Deregulation," May 2000.
62. Kathy Notarianni, "The Role of Uncertainty in Improving Fire Protection Regulation," 2000 May.

63. Neil Strachan, "Adoption and Supply of a Distributed Energy Technology," 2000 December.
64. Guodong Sun, "Effectiveness, Efficiency, and Governance: An integrated study of China's air pollution management," 2001 May.
65. SHUI Bin, "Consumer Lifestyles Approach: A paradigm for understanding the role of consumers in energy use and environmental impacts," 2002 May.
66. Henry Willis, "Ecological Risk Perception and Ranking: Toward a method for improving public participation in environmental decision making," 2002 August.
67. Timothy Johnson, "Electricity Without Carbon Dioxide: Assessing the role of carbon capture and sequestration in US electric markets," 2002 August.
68. Anshu Bharadwaj, "Biomass Gasification and Combustion Technologies and Their Application to Rural Power Systems in India, 2002 December.
69. Felicia Wu, "Bt or Not Bt? Tools for Regulatory Decision Making Concerning Genetically Modified (Bt) Corn," 2002 December.
70. Bert Neal Davis, "A Technical and Policy Analysis of Building Integrated PV Systems," 2002 December.
71. Anand B. Rao, "A Technical, Environmental, and Economic Assessment of Amine-Based Carbon Capture Technologies for Greenhouse Gas Control," 2003 December.
72. Hisham Zerriffi, "Electric Power Systems Under Stress: An evaluation of centralized versus distributed system architectures," 2004 August.
73. Joseph DeCarolis, "The Economics and Environmental Impacts of Large-Scale Wind Power in a Carbon Constrained World," 2004 December.
74. Elizabeth Wilson, "Managing the Risks of Geologic Carbon Sequestration: A regulatory and legal analysis," 2004 December.
75. Graham W. Strauss, "Portable Electronic Devices Onboard Commercial Aircraft: Assessing the risks," 2005 May.
76. Shalini P. Vajjhala, "Mapping Alternatives: Facilitating Citizen Participation in Development Planning and Environmental Decision Making," 2005 July.
77. Claudia N. Gonzalez-Brambila, "Exploring Academic Scientific Productivity for the Design of Public Policies," 2005 December.
78. Joan French Adams, "A Study of Polymer Innovation in the Chemical Industry," 2005 December.
79. Ketra Schmitt, "Combining Information in Human Health Risk Assessment," May 2006.
80. Rajiv Sharma, "Understanding and Improving the Flow of Islamic Students Into Technical Education in Andhra Pradesh, India," August 2006.
81. Douglas King, "Electric Power Micro-grids: Opportunities and Challenges for an Emerging Distributed Energy Architecture," August 2006.
82. Jacqueline MacDonald, "Risks of Unexploded Ordnance (UXO) at Former Military Training Ranges: Mathematical Modeling and Assessment," May 2007.

83. Paul Hines, "A Decentralized Approach to Reducing the Social Costs of Cascading Failures," August 2007.
84. John Dawson, "Response of Regional and Urban Air Quality to Global Climate Change," December 2007.
85. Pavan Racherla, "The Sensitivity of Ozone and Fine Particulate Matter Concentrations to Global Change at Different Spatiotemporal Scales," December 2007.
86. Brian J. Ficarek, "Globalization, Offshoring and the Location of Innovation: A case study of rare earth technology," May 2008.
87. Sean T. McCoy, "The Economics of CO₂ Transport by Pipeline and Storage in Saline Aquifers and Oil Reservoirs," May 2008.
88. Christopher Weber, "Trade, Consumption, and Climate Change: An input-output study for the United States," May 2008.
89. Rahul S. Walawalkar, "Economics of Emerging Electric Energy Storage Technologies and Demand Response in Deregulated Electricity Markets," May 2008.
90. Adam Newcomer, "Limiting the Financial Risks of Electricity Generation Capital Investments under Carbon Constrains: Applications and opportunities for public policies and private investments," August 2008.
91. Faheem Hussain, "Effectiveness of Technological Interventions for Education and Information Services in Rural South Asia," August 2008.
92. Constantine Samaras, "A Life-cycle Approach to Technology, Infrastructure, and Climate Policy Decision Making: Transitioning to plug-in hybrid electric vehicles and low-carbon electricity," December 2008.
93. Inês Lima Azevedo, "Energy Efficiency in the U.S. Residential Sector: An engineering and economic assessment of opportunities for large energy savings and greenhouse gas emissions reductions," May 2009.
94. Elaine M. Newton, "Biometrics and Surveillance: Identification, De-Identification, and Strategies for Protection of Personal Data," May 2009.
95. Hari Chandan Mantripragada, "Techno-economic Modeling of Coal-to-Liquids (CTL) Plants and Their Impacts on Environment Resources," December 2009.