

STEVEN E. PLOTKIN

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EXPERTISE:

Technical and policy analysis and project management in energy development and conservation, transportation, and environmental protection.

EDUCATION:

M(Eng), Graduate School of Aerospace Engineering, Cornell University, 1966.
B.S., Civil Engineering, Columbia University School of Engineering and Applied Science, 1965.
Doctoral studies in applied physics/aerospace engineering, Cornell University, 1966-1967.
Graduate studies in urban and regional planning, George Washington University, 1970-1972

SUMMARY OF PROFESSIONAL STRENGTHS:

- 40+ years of professional experience in technology assessment and policy analysis, with successful completion of a broad range of projects in the transportation, energy, and environmental area;
- wide-ranging interest in and knowledge of other scientific areas
- a solid engineering education (focus: mechanics, applied mathematics and physics);
- excellent public speaking skills and writing ability (including substantial experience in drafting and delivering testimony to Congress), as well as excellent communication skills in informal settings. Winner of Society of Automotive Engineers 1998 and 1999 awards for excellence in oral presentation

substantial professional recognition, including selection as the 2005 recipient of the SAE's Barry D. McNutt Ward for Excellence in Automotive Policy Analysis, and selection to be a lead author in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report on mitigation, chapter on transportation (published 2008).

AREAS OF SPECIAL EXPERTISE:

Transportation, including automobile fuel economy (including advanced technologies), alternative fuels, transportation energy savings; oil and gas resource issues; analyses of environmental and other effects of large-scale energy development; energy conservation.

EMPLOYMENT HISTORY:

- 1995-present **Transportation Energy and Environmental Systems Analyst, Center for Transportation Research, Argonne National Laboratory.** Provide objective, innovative analysis of technical, economic, and institutional issues associated with energy and environmental technologies and policies, with a primary focus on transportation technology and policy. Provide technical services to the Department of Energy's Office of Transportation Technologies and Office of Energy Efficiency and Alternative Fuels. Manage the Hybrid Electric Vehicle Total Energy Cycle Assessment. Participate in interlaboratory policy analyses on energy conservation and greenhouse gas reduction strategies.
- Major accomplishments: Played a key management role in producing a report on global warming policy (*Policies and Measures for Reducing Energy Related Greenhouse Gas Emissions*) for DOE's Policy Office; co-authored (with David Greene of ORNL) the transportation chapters of the Interlaboratory Working Group reports on *Scenarios of U.S. Carbon Reductions: Potential Impacts of Energy Technologies by 2010 and Beyond*, and *Scenarios for a Clean Energy Future*. Co-authored (with David Greene and K.G. Duleep) report on *Examining the Potential for Voluntary Fuel Economy Standards in the United States and Canada*. Won two Society of Automotive Engineers Awards for Excellence in Oral Presentation. Successfully completed technology assessment of Hybrid Electric Vehicles. Co-author (with David Greene) of *Reducing Greenhouse Gases from U.S. Transportation* for the PEW Center on Global Climate Change. Author of chapter on international fuel economy initiatives for the Encyclopedia of Energy. Lead author on Intergovernmental Panel on Climate Change Fourth Assessment Report on Mitigation (Transport Chapter). Author of *Examining Hydrogen Transitions* (2007), which examines key issues in evaluating a transition to hydrogen in the transport sector and their application to hydrogen transition models being developed by DOE.
- 1988-1995 **Senior Associate and Project Director, Energy, Transportation, and Infrastructure program, Office of Technology Assessment, U.S. Congress.** Designed and directed assessments of technological issues concerning transportation, energy supply, and new energy technologies, and provided guidance and technical review on energy and resource issues to the agency as a whole; supervised staff and contractors; acted as principal investigator/analyst and principal author of the final reports; provided testimony to Congress.
- Sampling of completed projects: Advanced Automotive Technologies: Visions of a Superefficient Family Car; Saving Energy in U.S. Transportation; Retiring Old Cars: Programs to Save Gasoline and Reduce Emissions, Improving Automobile Fuel Economy: New Standards, New Approaches, Replacing Gasoline: Alternative Fuels for Light-Duty Vehicles, Oil Production in the Arctic National Wildlife Refuge: The Technology and the Alaskan Oil Context.
- 1978-1988 **Senior Analyst and Project Director, Energy and Materials Program, OTA.** Managed the environmental impact/policy analysis portions of OTA energy assessments; directed assessments on oil and gas resource issues. Key assessments directed: US. Natural Gas Availability: Gas Supply Through the Year 2000; U.S. Oil Production: The Effect of Low Oil Prices. Environmental assessments: coal development (direct combustion and synthetic fuel production), biomass energy, cogeneration, automotive fuel conservation, and residential energy conservation.
- 1972-1978 **Senior Environmental Engineer, Office of Energy, Minerals, and Industry, Office of Research and Development, U.S. Environmental Protection Agency.** Designed and supervised assessment of large-scale coal development in the Western United States; assessed proposed environmental/energy legislation; represented the Agency on interagency projects involving coal development (e.g., President's Task Force on Anthracite Coal Development, Interagency Task

Force on the Socioeconomic Impacts of Coal Development); managed research on transportation energy conservation and the effect on energy demand of environmental regulations.

1968-1972 **Member, Technical Staff, TRW Systems Group, TRW, Inc.** Primary responsibilities: engineering analyst on a technology assessment of high speed ground transportation systems; principal investigator for a mass transit study of the Tampa Bay Region; task manager for a study of air quality strategies for urban areas. The latter task combined responsibility for carrying out research on air pollution control models for the U.S. Environmental Protection Agency, and supporting state agencies in preparing Air Quality Implementation Plans.

ADDITIONAL PROFESSIONAL ACTIVITIES:

1. Taught a seminar course on energy, environmental, and transportation issues for the Winter quarter of the Stanford in Washington program, 1996-2003 (Stanford in Washington brings Stanford University students to Washington, DC for a quarter of study and interning in Federal and non-profit agencies; the Winter quarter focuses on environmental issues).
2. Served as tutorial leader in energy, environment, and transportation for the Winter quarter of the Stanford in Washington program, 1993-1995, 2000.
3. Served as a member of the National Research Council's Committee on Undiscovered Oil and Gas Resources, and have participated in U.S. Department of Energy-sponsored national assessments of U.S. gas resources and oil resources
4. Member, Transportation Research Board Project Panel H-19 (managing project on *Guidebook to Estimate and Present Benefits and Disbenefits of Public Transit*).
5. Member, Transportation Research Board (member of the Energy Committee) and Society of Automotive Engineers
6. Consultant to National Research Council Committee on the Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards
7. Consultant to the National Highway Traffic Safety Administration on CAFE reform.
8. Frequent lecturer on vehicle technology and policy at classes in energy given at the Johns Hopkins School of Advanced International Studies.

PUBLICATIONS: Steven E. Plotkin

REFEREED JOURNALS

Examining Fuel Economy and Carbon Standards for Light Vehicles, Steven Plotkin, in *Energy Policy*, Vol 37, 3843-3853, 2009.

Energy Efficiency Technologies for Road Vehicles, Kobayashi, S., Plotkin, S., and Ribeiro, S.K., in *Energy Efficiency*, Vol 2 No 2, pp.125-137, May 2009.

Examining New U.S. Fuel Economy Standards, Steven E. Plotkin, in *Environment*, July/August 2007, Vol 49, No. 6.

Is Bigger Better? Moving Toward a Dispassionate View of SUVs, Steven Plotkin, in *Environment*, November 2004, Vol. 46 No. 9.

European and Japanese Fuel Economy Initiatives: What They Are, Their Prospects for Success, Their Usefulness as a Guide for U.S. Action, by Steven E. Plotkin, *Energy Policy*, Vol 29, 1073-1084, 2001

Energy Futures for the U.S. Transport Sector, David L. Greene and Steven E. Plotkin, *Energy Policy*, Vol 29, 1255-1270, 2001.

Technologies and Policies for Controlling Greenhouse Gas Emissions from the U.S. Automobile and Light Truck Fleet, by Steven E. Plotkin, *Transportation Quarterly*, Vol 53 No 2, Spring 1999.

Prospects for Improving the Fuel Economy of Light-Duty Vehicles, by Steven E. Plotkin and David Greene, *Energy Policy*, Vol 25 Nos. 14-15, December, 1997.

The Road to Fuel Efficiency in the Passenger Vehicle Fleet, by Steven E. Plotkin, in *Environment*,. Vol. 31, No. 6, July/Aug. 1989.

From Surface Mine to Cropland, by Steven E. Plotkin, in *Environment*, Vol. 28, No. 1, Jan./Feb. 1986.

Incorporating the Risk of Control Failure into Environmental Assessments, by Steven E. Plotkin, in *Environmental Impact Assessment Review*, June 1983, Vol. 4, No.2.

Forecasting Trends in Auto Safety, by Steven E. Plotkin, in *Environment*, Oct. 1982, Vol. 24, No. 8.

Energy from Biomass: The Environmental Effects, by Steven E. Plotkin, in *Environment*, Nov. 1980, Vol. 22, No. 9.

Water and Energy in the Western Coal Lands, by Steven Plotkin, Harris Gold and Irvin White, *Water Resources Bulletin*, Vol. 15, No. 1, Feb. 1979.

REPORTS

Greene, D.L. and Plotkin, S.E., *Reducing Greenhouse Gases from U.S. Transportation*, PEW Center on Global Climate Change, January, 2011.

Metz, B., et al, *Climate Change 2007: Mitigation of Climate*, Working Group III Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, 2007 (S.E. Plotkin is a lead author for the Transportation Sector chapter).

Argonne Reports for the U.S. Department of Energy

Plotkin, S. and Singh, M, *Multi-Path Transportation Futures Study: Vehicle Characterization and Scenario Analyses*, ANL/ESD/09-5, July, 2009.

Plotkin, S., *Examining Hydrogen Transitions*, Argonne National Laboratory, ANL 07/09, February 2007.

Plotkin, S., Greene, D., and Duleep, K.G., *Examining the Potential for Voluntary Fuel Economy Standards in the United States and Canada*, Argonne National Laboratory ANL/ESD/02-5, October 2002.

Plotkin, S., et al, *Hybrid Electric Vehicle Technology Assessment: Methodology, Analytical Issues, and Interim Results*, Argonne National Laboratory ANL/ESD/02-2, October 2001.

Assessment of PNGV Fuels Infrastructure: Infrastructure Concerns Relative to Alternative Fuel Safety, Steven E. Plotkin, Argonne National Laboratory, prepared for Office of Transportation Technology.

Reports for the U.S. Department of Energy

Scenarios for a Clean Energy Future, Interlaboratory Working Group on Energy-Efficient and Clean-Energy Technologies, prepared for the Office of Energy Efficiency and Renewable Energy (I was co-author of the Transportation Chapter, with David Greene of Oak Ridge National Laboratory), ORNL/CON-476, November, 2000.

Scenarios of U.S. Carbon Reductions: Potential Impacts of Energy Technologies by 2010 and Beyond, Interlaboratory Working Group on Energy-Efficient and Low-Carbon Technologies, prepared for Office of Energy Efficiency and Renewable Energy (I was co-author of the chapter on the Transportation Sector, with David Greene of Oak Ridge National Laboratory), U.S. Department of Energy, undated (released 1998).

Technology Opportunities to Reduce U.S. Greenhouse Gas Emissions, prepared by National Laboratory Directors for the U.S. Department of Energy (I was a member of the Transportation Working Group, responsible for conventional technologies), November 13, 1997.

Policies and Measures for Reducing Energy Related Greenhouse Emissions: Lessons from Recent Literature, multiple authors (I was co project manager and co author), Office of Policy and International Affairs, U.S. Department of Energy, DOE/PO-0047, July 1996.

Office of Technology Assessment Reports (as project director and principal investigator or author)

Advanced Automotive Technologies: Visions of a Super-Efficient Family Car, OTA-ETI-638, Sept. 1995.

Saving Energy in U.S. Transportation, Office of Technology Assessment, OTA-ETI-589, July 1994.

Retiring Old Cars: Programs to Save Gasoline and Reduce Emissions, Office of Technology Assessment, OTA-E-536, July 1992.

Improving Automobile Fuel Economy: New Standards, New Approaches, Office of Technology Assessment, OTA-E-504, Oct. 1991.

Replacing Gasoline: Alternative Fuels for Light-Duty Vehicles, Office of Technology Assessment, OTA-E-364, Sept. 1990.

Oil Production in the Arctic National Wildlife Refuge: The Technology and the Alaskan Oil Context, (with William Westermeyer and Peter Johnson) Office of Technology Assessment, OTA-E-394, Feb. 1989.

U.S. Oil Production: The Effects of Low Oil Prices - Special Report, Office of Technology Assessment, OTA-E-348, Sept. 1987.

Staff Memorandum on Reclaiming Prime Farmlands and Other High-Quality Croplands After Surface Coal Mining, Office of Technology Assessment, U.S. Congress, Dec. 1985.

U.S. Natural Gas Availability: Gas Supply Through the Year 2000, Office of Technology Assessment, U.S. Congress, Feb. 1985.

Staff Memorandum on the Effects of Decontrol on Old Gas Recovery, Office of Technology Assessment, U.S. Congress, Feb. 1984.

U.S. Natural Gas Availability: Conventional Gas Supply Through the Year 2000 - A Technical Memorandum, Office of Technology Assessment, U.S. Congress, Sept. 1983.

Office of Technology Assessment Reports (as contributor of environmental chapters)

Increased Automobile Fuel Efficiency and Synthetic Fuels: Alternatives for Reducing Oil Imports, with T.E. Bull, et al., Office of Technology Assessment, U.S. Congress, Sept. 1982.

Energy from Biological Processes, Volumes I and II, with T.E. Bull, et al., Office of Technology Assessment, U.S. Congress, July and Sept. 1980.

Gasohol - A Technical Memorandum, with T.E. Bull, et al., Office of Technology Assessment, U.S. Congress, Sept. 1979.

Residential Energy Conservation, with N.C. Naismith, et al., Office of Technology Assessment, U.S. Congress, July 1979.

The Direct Use of Coal: Prospects and Problems of Production and Combustion, with Alan T. Crane, Marvin Ott, A. Jenifer Robinson, and Curtis Seltzer, Office of Technology Assessment, U.S. Congress, April 1979.

U.S. Environmental Protection Agency Reports

Energy Conservation Strategies, by Marquis R. Seidel, Steven E. Plotkin and Robert O. Reck, EPA-R-73-021, U.S. Environmental Protection Agency, July 1973.

Control Strategy Evaluation Using Models, by D. H. Lewis and S.E. Plotkin, U.S. Environmental Protection Agency, May 1972.

TRW Systems Group Reports

Proposed Permit System for Sources of Air Pollution in the State of Alabama, by S. E. Plotkin, TRW Systems Group 18425.008, prepared for U.S. Environmental Protection Agency, Nov. 1971.

Controlling Air Quality: St. Louis AQCR Case Study, by S.E. Plotkin and D.H. Lewis, TRW Systems Group, June 1971.

Some Applications of the Implementation Planning Program, by D.H. Lewis, S.E. Plotkin, and KR. Woodcock, TRW Systems Group, April 1971.

Tampa Bay Mass Transit: Planning for Tomorrow, TRW Systems Group, April 1970 (Available in Clearinghouse, published anonymously as per TRW policy at that time).

BOOK CONTRIBUTIONS AND CONFERENCE PUBLICATIONS

Examining Fuel Economy and Carbon Standards for Light Vehicles, Steven E. Plotkin, published by International Transport Forum, Organization for Economic Cooperation and Development, 2007.

Fuel Economy Initiatives: A Worldwide Comparison, Plotkin, S., in *The Encyclopedia of Energy*. Elsevier Press, March, 2004.

Total Energy-Cycle Energy and Emissions Impact of Hybrid Electric Vehicles, Wang, M.Q., S. Plotkin, DJ Santini, D. J., He, L. Gaines and P. Patterson, presented at the 14th International Electric Vehicle Symposium, Orlando, FL, Dec. 15-17.1999, reviewed.

Gasoline-Fueled Hybrid vs. Conventional Vehicle Emissions and Fuel Economy, Santini, D.J., J. Anderson, J. He, S. Plotkin, A. Vyas, and D. Bharathan, Ninety-Second Annual Meeting and Exhibition of the Air and Waste Management Association, Paper 99-851, St. Louis, MO, June 1999, *reviewed*.

The Potential for Energy-Efficient Technologies to Reduce Carbon Emissions in the United States: Transport Sector, D.L.Greene, S. Plotkin, and K.G. Duleep, *Proceedings of the 32nd Intersociety Energy Conversion Engineering Conference*, July 27-Aug 1, 1997, American Institute of Chemical Engineers, N.Y., N.Y.

The Future Fuel Economy of the U.S. Light Duty Fleet -- A Policy Dilemma, Steven E. Plotkin, Conference on Energy and the Environment in the 21st Century, Massachusetts Institute of Technology, Cambridge, Mass., March 26-28, 1990, conference proceedings.

What are the Prospects of Slowing Oil Import Growth in the United States?, by Steven E. Plotkin, *Energy Internationale 1988-1989*, L'Institut D'Economie et de Politique de L'Energie, 1988.

Technology Choices for the U.S. Long-Term Energy Future, By Steven E. Plotkin, Symposium of the World Long-Term Energy Futures, 50th Anniversary of the Establishment of Petroleos Mexicanos, May 17-19, 1988, Mexico City, Mexico.

Effects of Low Oil Prices on U.S. Oil Production, by Steven E. Plotkin, *Proceedings of the Eight Annual North American Conference of the International Association of Energy Economists*, Cambridge, MA, Nov. 19-21, 1986.

The Office of Technology Assessment's Review of Prime Farmland Reclamation Under the 1977 Surface Mining Control and Reclamation Act, by Steven E. Plotkin, *Proceedings of the National Mined Land Reclamation Conference*, Oct. 28-29, 1986.

Environmental Effects of Obtaining Liquid Fuels from Biomass, Steven E. Plotkin, in *Energy Sources -- Conservation and Renewables*, D. Hafemeister, H. Kelly, and B. Levi, eds., American Institute of Physics Conference Proceeding Number 135, 1985.

The Uncertain Future of Natural Gas Production in the U.S. Lower 48 States, by Steven E. Plotkin, in *Economics and the Explorer*, R.E. Megill, ed., American Association of Petroleum Geologists Studies in Geology #19.

Environmental Impacts and Public Policy Implications of Increased Coal Use, by Steven Plotkin, in *Increasing Understanding of Public Problems and Policies - 1980*, Farm Foundation, 1981.

Transportation Fuels from Biomass-An Overview, by Steven E. Plotkin and Thomas E. Bull, presented at AAAS Annual Meeting, Toronto, Canada, Jan. 8, 1981.

Perspectives on the Use of Technology Assessment in the United States, by Steven Plotkin, U.S. Round Table Discussion Paper, Spring Plenary 1980, NATO Committee on Challenges to Modern Society, Brussels, May 1980. (published in *Assessment of Technological Systems*, NATO CCMS Report No. 115).

Integrated Assessment of Energy Development in the Western U.S., by Steven E. Plotkin, proceedings of the Second Annual Conference on Health, Environmental Effects and Control Technology of Energy Use, Washington, D.C., June 6, 1977.

Technology Assessments of Regional Energy Development, by Steven E. Plotkin, presented at Annual Conference of the International Society for Technology Assessment, Ann Arbor, Michigan, Oct. 26, 1976.

EPA's Integrated Assessment Program, by Steven E. Plotkin, proceedings of First Annual Conference on Health, Environmental Effects, and Control Technology of Energy Use, Washington, D.C., Feb. 11, 1976.

An Advanced Door-to-Door System for Inter-Urban Transportation, co-authored with Richard K. Boyd and Kenneth K. Tang, SAE International Automotive Congress and Exposition, Cobo Hall, Detroit, Jan. 1969.

CONGRESSIONAL TESTIMONY

Testimony to the Committee on Commerce, Science, and Technology, U.S. Senate, for a Hearing on Public Policy Options for Encouraging Alternative Automotive Fuel Technologies, November 15, 2005.

Testimony to the Committee on Energy and Natural Resources, U.S. Senate, on S. 2557, a bill to reduce U.S. oil import dependence, June 15, 2000.

The Market Perspective for Electric Vehicles, presented to the Committee on Governmental Affairs, U.S. Senate. Feb. 18, 1992.

Alternatives to Gasoline: Do They Make Economic Sense?, presented to the Subcommittee on Economic Stabilization, Committee on Banking, Finance, and Urban Affairs, U.S. House of Representatives, Nov. 19, 1991.

Legislative Proposals to Increase Automotive Fuel Economy and Promote Alternative Transportation Fuels, presented to the Subcommittee on Energy and Power, Committee on Energy and Commerce, U.S. House of Representatives, April 17, 1991.

Estimating Feasible Levels of Corporate Average Fuel Economy, presented to the Senate Committee on Energy and Natural Resources, March 20, 1991.

Improving Corporate Average Fuel Economy: Comments on 5.341, the National Energy Security Act, presented to the Senate Committee on Energy and Natural Resources, Feb. 28, 1991.

Improving the Fuel Economy of the U.S. Automobile Fleet, presented to the Subcommittee on Energy and Power, Committee on Energy and Commerce, U.S. House of Representatives, Oct. 1, 1990.

Use of Alternative Transportation Fuels as a Clean Air Strategy, (with R. Friedman) presented to the Subcommittee on Energy and Power, Committee on Energy and Commerce, U.S. House of Representatives, Oct. 19, 1989.

Methanol as a Transportation Fuel, (with R. Friedman) presented to the Committee on Energy and Natural Resources, U.S. Senate, Oct. 17, 1989.

The Fuel Economy Potential of the U.S. Automobile Fleet, presented to the Subcommittee on Energy and Power, Committee on Energy and Commerce, U.S. House of Representatives, July 12, 1989.

Increasing the Efficiency of Automobiles and Light Trucks -- A Component of a Strategy to Combat Global Warming and Growing U.S. Oil Dependence, presented to the Consumer Subcommittee, Committee on Commerce, Science, and Transportation, U.S. Senate, May 2, 1989.

Increased Efficiency Potential for the U.S. Fleet of Highway Passenger Vehicles, presented to the Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, U.S. House of Representatives, April 10, 1989.

Untitled, on OTA's assessment of natural gas resources in the lower 48 states, presented to the Subcommittee on Energy Regulation, Committee on Energy and Natural Resources, U.S. Senate, April 26, 1984.

Untitled, on the U.S. energy future (with Richard Rowberg), presented to the Subcommittee on Natural Resources, Agricultural Research and Environment, Committee on Science and Technology, U.S. House of Representatives, April 13, 1983.

Untitled, on the Clean Air Act and its relationship to energy development, presented to the Subcommittee on Health and Environment, Committee on Energy and Commerce, U.S. House of Representatives, May 19, 1981.

Untitled, on control of air pollution from coal combustion, presented to the Subcommittee on Environment, Energy and Natural Resources, Committee on Government Operations, U.S. House of Representatives, Sept. 13, 1979.

Other Testimony (I wrote and presented the testimony)

Presentation to the Hearing on Automotive Fuel Efficiency, California Energy Commission, March 12, 1992.

Increasing Automobile and Light Truck Fuel Economy, presented to the California Energy Commission, May 11, 1989.

Presentation to the California Energy Resources Conservation and Development Commission, Fossil 1 & 2 Public Hearing, July 28, 1979.