

Dr. Nadejda Victor

Senior Associate

NISC, an IBM Company
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Expertise

Economist trained in math and statistics; extensive experience in long-term energy and environmental system projections at global and national levels; extensive experience in conducting studies on energy related technologies, environmental science and research policy; research on primary and secondary energy market; experience in developing and maintaining energy databases, MARKAL, GIS systems; collaboration with international organizations, including World Energy Council (WEC) & Intergovernmental Panel on Climate Change (IPCC).

Current positions

1/08-present **Senior Associate**, NISC, an IBM Company. c/o U.S. Department of Energy, National Energy Technology Laboratory, 4000 Brownsville Road P.O. Box 429, South Park, PA 15129

Analysis and evaluation Unconventional Natural Gas and Other Petroleum Resources R&D Program; cost/benefits estimations of different exploration technologies; taxation scenarios for carbon dioxide allowances; long-term technology deployment impacts analysis (MARKAL modeling); analysis of learning experience in different technologies relate to the bio refinery industry; second generation biofuels modeling (the NREL's contract).

01/02 – 1/08 **Research Fellow, Program on Energy and Sustainable Development (PESD), Institute for International Studies, Stanford University, Stanford**

The energy market analysis and projections for China (MARKAL modeling, developing technological database; energy prices forecasts for China).

Developing and maintaining database on performance of Energy Companies. National oil companies and their future roles in oil and gas

markets. Geopolitical implications of the shift to natural gas (historical case study on Soviet/Russian gas export). Hydrogen Economy (analysis of different technologies H2 production, storage and transportation). Traditional biomass energy in developing countries (analysis, projections). <http://pesd.stanford.edu/people/nadejdamvictor/>

7/99 – 12/2004 **Research Associate, Cowles Foundation, Economics Department, Yale University, New Haven**

Developing new spatially referenced economic database (G-ECON) to explore relationships among economic activity, energy development, and geography, (see on line: http://www.econ.yale.edu/~nordhaus/GEcon/Gecon_data_v1.htm)

2/99 - present **Consulting, 'Program for the Human Environment,' Rockefeller University, New York City**

Analysis of technical change bearing on the environment; projects have included study of materials flows and energy balance in US electricity sector; rates and patterns of technical change in information and computer industries; R&D in energy sector and H2.

Highlights:

2010—An expert reviewer of the Global Energy Assessment (GEA).

2006—International Conference on Energy and Security in preparation for G-8 Summit 2006, Moscow, Russian Federation, 13-14 March 2006, speaker, “Global Natural Gas Market and Russian Gas Supply”.

2004—US Department of Energy, Integrated Assessment of Climate Change, Office of Biological and Environmental Research, Washington, DC, reviewer, the application review panel.

2001—Division for Environmental Programmes, United Nations Office of Project Services, New York, ‘World Energy Assessment’ report.

1999—2000 SRES writing team: Intergovernmental Panel on Climate Change, Working Group III: Mitigation of Climate Change, Special Report on Emissions Scenarios (SRES), <http://www.grida.no/climate/ipcc/emission/>

1998—Lead author, IIASA/WEC comprehensive report on long-term energy and economic development scenarios, energy system financing requirements, and environmental impacts: *Global Energy Perspectives*, N. Nakicenovic, A. Grubler, and A. McDonald, eds (Cambridge, Cambridge University Press, 1998).

1997—Presenter: ‘Economic Development and Energy Intensity: Past Trends and Future Projections in World Regions,’ International Energy Workshop, Energy Modeling Forum, Laxenburg, Austria, IIASA, 23–25 June; reviewer, IPCC Technical Paper, ‘Technologies, Policies, and Measures for Mitigating Climate Change.’

1996—Research and editorial assistant, review of economic and scientific analysis of climate change: *Climate Change: Integrating Science, Economics, and Policy*, N. Nakicenovic, W.D. Nordhaus, R. Richels and F.L. Toth, eds (Laxenburg, IIASA).

1995—Research team, IIASA/WEC report on long-term scenarios for economic and energy development: *Global Energy Perspectives to 2050 and Beyond* (London, WEC).

Previous work experience

11/93 - 12/98 **Research Scholar, Project on ‘Environmentally Compatible Energy Strategies, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria**
Research in long-term development of economic & energy systems at regional and global scales, including scenarios of infrastructure financing, trade in energy carriers, and environmental impacts (MESSAGE modeling); collaboration with international organizations, including World Energy Council (WEC) & Intergovernmental Panel on Climate Change (IPCC).

Selected consulting and advisory activities

- 8/06 – 8/06 **Consultant, International Institute for Applied System Analysis, Transitions to New Technologies Program, Laxenburg, Austria**
Rural electrification modeling in developing countries.
- 5/06 – 7/06 **Consultant, Chevron, Corporate Strategic Planning, 6001 Bolinger Canyon Rd. San Ramon, CA 94583-2324**
Emerging markets analysis, gas sector in FSU.
- 04/04 – 05/04 **Consultant, International Institute for Applied System Analysis, Laxenburg, Austria**
Post-SRES activity (long term energy projections for 11 global regions, MESSAGE modeling).
- 10/03 – 8/04 **Consultant, Planning and Economic Studies Section Department of Nuclear Energy International Atomic Energy Agency (IAEA), Vienna, Austria**
Developing EEDB database, statistical analysis, Sustainable Energy Development Index evaluation.
- 2004 **US Department of Energy, Integrated Assessment of Climate Change, Office of Biological and Environmental Research, Washington, DC, reviewer, the application review panel**
- 2001 **Division for Environmental Programmes, United Nations Office of Project Services, New York, ‘World Energy Assessment’ report**
- 2000 **Intergovernmental Panel on Climate Change, Working Group III: Mitigation of Climate Change, SRES writing team, <http://www.grida.no/climate/ipcc/emission/>**
- 1999 **UN Division for Sustainable Development, Energy and Transport Branch, New York, Scenario development and energy systems forecasts at the global and**

regional levels, with emphasis on developing countries; analysis of renewable energy supply technologies.

- 1999 **Consortium for International Earth Science Information Network (CIESIN), Columbia University**, Palisades, New York, helped implement web-based framework to query and visualize results from "integrated assessment" models of global energy system, atmosphere, and climate change.

Education

- 1987 - 1992 **Moscow State University, Department of Economics, Moscow, Russia**, Ph.D. with emphasis on mathematical modeling of technological changes.
- 1978 - 1983 **Departments of Economics and Mathematics, Moscow State University, Moscow, Russia**

Selected publications

Victor, N. and Sayfer, I. (2010), *GAZPROM: The Struggle for Power*, Cambridge, Cambridge University Press, 2010 (in press).

Victor, N., *Russia: more investment needed*, *Regional Fundamentals of the World Gas Industry*, 2008, *Petroleum Economist*, UK, 2008

Gazprom: Gas Giant Under Strain, Working Paper Working Paper #71, January 2008, PESD, Stanford, 2008

Victor, N.M, *Russian Geopolitical Geometry through a Gas Prism*, in *Russia Watch: Essays in Honor of George Kolt*, Edited by Eugene B. Rumer and Celeste A. Wallander, page 59-70, CSIS Significant Issues Series, November 2007

Nadejda M. Victor and Jesse H. Ausubel, *EARTH AT NIGHT- IF THE REST OF THE WORLD LIVED LIKE AMERICA*, *Electronic Journal of Sustainable Development*, Volume 1, Issue 1, Summer 2007

Victor, N. M. , *On Measuring the Performance of National Oil Companies (NOCs)*, Working Paper #64, PESD, Stanford, 2007, <http://pesd.stanford.edu/publications/nocperformance/>

Victor, N.M., *Russia's Gas Crunch: Looming Shortfall Poses a Tough Choice*, *The Washington Post*, Thursday, April 6, 2006; Page A29, <http://www.washingtonpost.com/wp-dyn/content/article/2006/04/05/AR2006040501954.html>

Victor, N. M. and Victor, D.G., *Bypassing Ukraine: Exporting Russian Gas to Poland and Germany* , in *Geopolitics of Natural Gas*, Cambridge, Cambridge University Press, 2006.

Nordhaus, W., Azam, O., Corderi, D., Victor, N.M., Mohammed, M. and Miltner , M., 'The G-Econ Database on Gridded Output: Methods and Data', Yale University, November 11, 2005, http://www.econ.yale.edu/~nordhaus/GEcon/Gecon_data_v1.htm

Grübler, A., N. Nakićenović, J. Alcamo, G. Davis, J. Fenhann, B. Hare, S. Mori, B. Pepper, H. Pitcher, K. Riahi, H. Rogner, E. L. La Rovere, A. Sankovski, M. Schlesinger, R.P. Shukla, R. Swart, Na. Victor and T. Y. Jung, 'Emission scenarios: A final response, Energy & Environment '15 1, pp 11-24, 2004.

Victor, D.G., Heller, T.C., Victor, N. M., 'Political Economy and the Hydrogen Revolution', The Program on Energy and Sustainable Development Working Paper #17, September 2003

Nakicenovic, N., A. Grübler, S. Gaffin, T.T. Jung, T. Kram, T. Morita, H. Pitcher, K. Riahi, M. Schlesinger, P.R. Shukla, D. van Vuuren, G. Davis, L. Michaelis, R. Swart, N. Victor, 'IPCC SRES Revisited: A response', Energy & Environment Vol.14, No. 2 & 3: 187 – 214, 2003

Victor, D.G. and Victor, N. M., 'Axis of Oil?', in *Foreign Affairs*, March 2003.

Victor, N. M. and Ausubel, J.H., 'DRAMs as Model Organisms for Study of Technological Evolution,' *Technological Forecasting and Social Change*, 69:243-262, 2002.

Victor, D.G., Victor, N.M., 'Macro Patterns in the Use of Traditional Biomass Fuels ', The Program on Energy and Sustainable Development Working Paper #10, November 2002

Victor, D.G., Nakicenovic, N., and Victor, N., 'The Kyoto Protocol Emission Allocation: Windfall Surpluses for Russia and Ukraine', in *Climatic Change*, Vol. 49, N.3:263-277, 2001

Special Report on Emissions Scenarios, IPCC Special Report on Emissions Scenarios (SRES), Working Group III, *Intergovernmental Panel on Climate Change (IPCC)*, Cambridge University Press, Cambridge, 595 pp. , 2000
<http://www.grida.no/climate/ipcc/emission/index.htm>

Nakicenovic, N., Victor, N., and Morita, T., 'Emissions Scenarios Database and Review of Scenarios,' in *Mitigation and Adaptation Strategies for Global Change* 3: 95-120, 1998.

Victor, D.G., Nakicenovic, N., and Victor, N., 'The Kyoto Protocol Carbon Bubble: Implications for Russia, Ukraine, and Emission Trading,' *Interim Report 98-094*, IIASA, Laxenburg, 1998.

'Global Energy Perspectives', N. Nakicenovic, A.Grübler, and A.McDonald, eds , Cambridge, Cambridge University Press, 1998, (Makarova, N., one of the lead authors)

Skills

Computers: Windows and Unix systems; MS Office (including Word, Excel, Visual Basic, Access, Powerpoint); Lotus 1-2-3; SPSS; MatLab, ARC/INFO; ArcView; Internet.

Analytical methods: econometric models, linear programming energy system models, statistical analysis.

Russian language is native.

References

Jesse H. Ausubel

Director, Program for the Human Environment, The Rockefeller University. Program Director for the Alfred P. Sloan Foundation. Director of Studies for the Carnegie Commission on Science, Technology, and Government. Member of the Council on Foreign Relations (CFR), has led CFR activities on energy and on forests.

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Nebojsa Nakicenovic

Leader of the Energy and Transitions to New Technologies Programs, Co-Leader of the Greenhouse Gas Initiative at the International Institute for Applied Systems Analysis (IIASA), Professor of Energy Economics at the Vienna University of Technology, and Director of the Global Energy Assessment (GEA). He is also an Associate Editor of the International Journal on Technological Forecasting and Social Change, Editor of International Journal on Energy, and Climate Policy, Member of Editorial Board of the International Journal of Energy Sector Management, a Coordinating Lead Author of the Intergovernmental Panel of Climate Change, and Coordinating Lead Author of the Millennium Ecosystem Assessment.

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William D. Nordhaus

Sterling Professor of Economics, Cowles Foundation. Professor, School of Forestry and Environmental Studies. Yale University

He is a member of the National Academy of Sciences, and has been on the Brookings Panel on Economic Activity since 1972. From 1977-79, Nordhaus was a member of the Council of Economic Advisers during the Carter administration.

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