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Education

PhD, Applied Physics, Columbia University, New York, 1992
BS, Physics, University of California, Los Angeles, 1987

Objective

To use my analytic and communications skills in ways both challenging and gratifying.

Major Accomplishments

Contributions include multiple analyses and projections of long-term natural resource consumption trends from sectors including minerals, forest products, agriculture and energy in the US and globally. Develop graduate course curricula for Industrial Ecology.

Employment History

- 2010 – The Rockefeller University, Program for the Human Environment, *Senior Research Associate*, Research on global technology trends affecting natural resources and national security
- 2010 - 2018 City College of New York, *Lecturer*, Industrial Ecology, Life Cycle Assessment, Energy Systems
- 2004 - 2009 St. Lukes-Roosevelt Medical Center, Department of Radiation Oncology, *Medical Physicist*, Clinical responsibilities (and limited research) in external beam radiation treatment planning, brachytherapy, and imaging diagnostics
- 2004 - 2007 USEPA Radiation Protection Division, Center for Responsible Environmental Strategies, *Consultant*, Research on substitutes for commercial uses of radionuclides
- 2002 - 2004 World Resources Institute, *Senior Associate*, Conduct public policy analysis on national physical resource accounting systems
- 2000 - 2002 ECOS Technologies, *Co-founder & VP Content Development*, Design and manage development of digital Environmental Knowledge Management platform (Dot Com)
- 1997 - 2000 Columbia University, Columbia Earth Institute & Dept. of Earth and Environmental Engineering, *Research Scientist*, Develop/teach courses in Industrial Ecology; Develop organizational strategy and goals for the Columbia Earth Institute
- 1992 - 1997 The Rockefeller University, Program for the Human Environment, *Research Associate*, Industrial Ecology research on social and technological trends influencing resource consumption and land use.
- 1990 - 1994 Stern College for Women, *Lecturer*, undergraduate physics

Affiliations: Senior Fellow (Since 2015), Breakthrough Institute, Oakland, California

Recent media:

June & July 2020 Book Reviews published National Review Online

<https://www.nationalreview.com/2020/06/book-review-a-question-of-power-explores-essential-role-of-electricity/> &
<https://www.nationalreview.com/2020/07/apocalypse-never-the-polar-bears-are-alive-and-well/>

PUBLICATIONS

PE Kauppi, G Stål, L Arnesson-Ceder, I Hallberg Sramek, HF Hoen, A Svensson, IK Wernick, P Högberg, T Lundmark, A Nordin, 2022, Managing existing forests can mitigate climate change, *Forest Ecology and Management*, Volume 513, 20186

<https://www.sciencedirect.com/science/article/pii/S0378112722001803>

IK Wernick, P Ciais, J Fridman, P Högberg, KT Korhonen, A Nordin & PE Kauppi, 2021, Quantifying forest change in the European Union (Matters Arising), *Nature*, Volume 592, pp. E13–E14 (2021)

PE Kauppi, P Ciais, P Högberg, A Nordin, J Lappi, T Lundmark and IK Wernick, 2020, Carbon benefits from Forest Transitions promoting biomass expansions and thickening, *Global Change Biology*, 26(10):5365-70 October 2020. <https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.15292>

I Wernick, 2020, Book Review, *More from Less: The Surprising Story of How We Learned to Prosper Using Fewer Resources—and What Happens Next*, by Andrew McAfee, *Journal of Industrial Ecology*; 1-2 September 2020. doi: 10.1111/jiec.13068

I Wernick, 2020, The Big Data Mindset, *Issues in Science and Technology* January 2020

<https://issues.org/the-big-data-mindset/>

JH Ausubel, AS Curry, IK Wernick, 2018, *Maritime Environment 2050: Implications for U.S. National Security*. Program for the Human Environment, The Rockefeller University, New York (available upon request)

IK Wernick, 2017, Populist Environmentalism?

<http://www.theamericanconservative.com/articles/populist-environmentalism/>

A Yazdanbakhsh, LC Bank, T Baez, I Wernick, 2017, Comparative LCA of concrete with natural and recycled coarse aggregate in the New York City area, *The International Journal of Life Cycle Assessment*, 23, pages 1163–1173 (2018). doi: 10.1007/s11367-017-1360-5

IK Wernick, 2016, Jews in Space and Time, *International Journal of Anthropology*, 31:1-2(93-109), https://phe.rockefeller.edu/docs/Wernick_JewsTimeSpace_January%202016.pdf

M Swain and IK Wernick, 2015, 'If We Quit Oil, Then What? Ditching oil would hugely increase electricity demand. Here's why that's a good thing for the environment' <http://ensia.com/voices/if-we-quit-oil-then-what/>

CC Liu, YH Yu, IK Wernick and CY Chang, 2015, Using the Electronic Industry Code of Conduct to Evaluate Green Supply Chain Management: An Empirical Study of Taiwan's Computer Industry, *Sustainability*, 7, 2787-2803. doi:10.3390/su7032787 <http://www.mdpi.com/2071-1050/7/3/2787>

IK Wernick, Living in a Material World, 2014, *Issues in Science and Technology*, Winter 2014. <https://phe.rockefeller.edu/docs/Wernick%20IS&T%20Winter%202014.pdf>

JH Ausubel, IK Wernick, PE Waggoner, 2013, Peak Farmland and the Prospect for Land Sparing, *Population Development and Review* 38:219-242.

<http://phe.rockefeller.edu/docs/Peak%20Farmland%202013.pdf>

IK Wernick, 2012, Book Review, Love Your Monsters: Post-Environmentalism and the Anthropocene. M. Shellenberger and T. Nordhaus (eds). *Journal of Industrial Ecology* June 2012, 449-50.

KL Maletz, RD Ennis, J Ostenson, A Pevsner, A Kagen, IK Wernick, 2012, Comparison of CT and MR–CT Fusion For Prostate Post-Implant Dosimetry, *Int. J. Radiation Oncology Biol. Phys.*, Vol. 82,

No. 5, pp. 1912–1917. doi:10.1016/j.ijrobp.2011.01.064

A Rautiainen, IK Wernick, PE Waggoner, JH Ausubel, PE Kauppi, 2011 A National and International Analysis of Changing Forest Density. *PLoS ONE* 6(5): e19577. doi:10.1371/journal.pone.0019577

AV Young, AW Wortham, IK Wernick, A Evans, RD Ennis, 2011, Atlas-Based Segmentation Improves Consistency and Decreases Time Required For Contouring Postoperative Endometrial Cancer Nodal Volumes, *Int. J. Radiation Oncology Biol. Phys.*, Vol. 79, No. 3, pp. 943–947. doi:10.1016/j.ijrobp.2010.04.063

IK Wernick, 2010, Book Review, Changing Stocks, Flows and Behaviors in Industrial Ecosystems & The Dynamics of Regions and Networks in Industrial Ecosystems edited by Matthias Ruth and Brynhildur Davidsdottir. *Journal of Industrial Ecology* 14(6):978-80.

IK Wernick, PE Waggoner, PE Kauppi, RA Sedjo, and JH Ausubel, 2010, Quantifying forest change, *PNAS*, Vol. 107 No. 38. doi: 10.1073/pnas.1008669107

JD Blasberg, SJ Belsley, GS Schwartz, A Evans, IK Wernick, RC Ashton Jr, FY Bhora, and CP Connery, 2010, Robotic Brachytherapy and Sublobar Resection for T1 Non-Small Cell Lung Cancer in High-Risk Patients. *Ann. Thorac. Surg.*, February 2010; 89: 360 – 367

D Rogich, A Cassara, IK Wernick, and M Miranda, 2008, Material Flows in The United States: A Physical Accounting of the U.S. Industrial Economy, World Resources Institute, Wash., DC, 51 pp.

IK Wernick, 2008, Book Review, *Useless Arithmetic: Why Environmental Scientists Can't Predict the Future* by Orrin H. Pilkey and Linda Pilkey-Jarvis Columbia University Press, *Journal of Industrial Ecology* 12(2): 249-251

IK Wernick, 2007, Global Warming and the Industrial System, International Relations and Security Network (ISN), Zurich, Switzerland. <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=30366>

JH Ausubel, IK Wernick, AM Barret, and P Waggoner, 2006, Industrial Ecology for Leverage to Let Loose Less Cadmium, *Progress in Industrial Ecology* 3(6):522-537.

LT Lu, IK Wernick, TY Hsiao, YH Yu, YM Yang, HW Ma, 2006, Balancing the life cycle impacts of notebook computers: Taiwan's experience, *Resources, Conservation and Recycling* (2006) 48:13-25.

JH Ausubel, PE Waggoner, and IK Wernick, 2005, Foresters and DNA in Williams, C.G. (ed.), *Landscapes, Genomics and Transgenic Forests*, Springer New York, LLC.

IK Wernick and FH Irwin, 2005, Material Flow Accounts: A Tool for Making Environmental Policy, Policy Brief, The World Resources Institute, Washington, DC, 49 pp.

TY Hsiao, IK Wernick, YH Yu, and LT Lu, 2005, Materials Flow Analysis of Pollutants in Taiwan, *International Journal of Environment and Pollution*, Vol. 23(3):259-272.

IK Wernick, Book Review, 2005, The Economics of Industrial Ecology: Materials, Structural Change, and Spatial Scales, Jeroen C.J.M. van den Bergh, Marco A. Janssen (Eds.), *Journal of Ecological Economics* 55(3):449-51.

TY Hsiao, YT Huang, YH Yu, IK Wernick, 2003, Modeling materials flow of waste concrete from construction and demolition wastes in Taiwan, *Resources Policy* 28 (2003) 39–47.

IK Wernick, 2003, Environmental Knowledge Management, *Journal of Industrial Ecology* 6(2):7-9.

TY Hsiao, YH Yu, and IK Wernick, 2002, Analyzing Materials Flows from Construction Aggregates in Taiwan, *Journal of the Chinese Institute of Environmental Engineering* 12(2):103-112

- IK Wernick and P Eisenberger, 2002, A Task Driven Environmental/Business Taxonomy and Applications Delivery Platform Using an Enhanced Industrial Ecology Model. Provisional Patent filed 01/24/02. Application No. 60/352.064
- TY Hsiao, YH Yu, and IK Wernick, 2001, A Note on Material Flows of Construction Aggregates in Taiwan, *Resources Policy*, 27(2001)135-7.
- IK Wernick, 2001, Industrial Ecology and the Built Environment, pp. 177-195 in *Construction Ecology: Nature as a Basis for Green Buildings*, Edited by Charles J. Kibert, et al. Spon Press, London, UK
- IK Wernick, 2001, Industrial Ecology, in *Managing Human-Dominated Ecosystems*, pp. 235-248. Edited by Victoria C. Hollowell. Missouri Botanical Garden Press, St. Louis, MO.
- JH Ausubel, PS Meyer, and IK Wernick, 2001, Death and the Human Environment: The United States in the 20th Century *Technology in Society* 23(2):131-146.
- IK Wernick, 2001, Encyclopedia Entry "Industrial Metabolism," *International Encyclopedia of Social and Behavioral Sciences*, pp. 7331-3. N. J. Smelser and Paul B. Baltes (editors), Pergamon, Oxford.
- IK Wernick, PE Waggoner, and JH Ausubel, 2000, The Forester's Lever: Industrial Ecology and Wood Products, *Journal of Forestry* 98(10):8-14.
- IK Wernick, 2000, The Future of Metal Recycling, *American Metals Market*, p. 14A, January 1, 2000.
- IK Wernick, 2000, Book Review, Upsizing: The Road to Zero Emissions, More Jobs, More Income, and No Pollution, Pauli, G., *Journal of Industrial Ecology*, 3(2):190-1, 2000.
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- IK Wernick, 1999, The Role of U.S. and Soviet Scientists in Nuclear Arms Control Activities: The Example of the Committee on the International Security and Arms Control, online at: <https://www.cc.columbia.edu/sec/dlc/ciao/conf/nya02/nya02ai.html>
- IK Wernick, 1998, Material Flows: Definitions and Data, *Managing a Material World*, pp. 85-96. Edited by P. Vellinga, F. Berkhout, and J. Gupta. Kluwer Academic Publishers, Norwell, MA, USA.
- IK Wernick and NJ Themelis, 1998, Recycling Metals for the Environment, *Annual Review of Energy and Environment* 23:465-97.
- IK Wernick, PE Waggoner, and JH Ausubel, 1998, Searching for Leverage to Conserve Forests: The Industrial Ecology of Wood Products in the U.S., *Journal of Industrial Ecology*, 1(3):125-145.
- NJ Themelis and IK Wernick, 1997, Metal Production and Greenhouse Gases, Proceedings of The Julian Szekely Memorial Symposium on Materials Processing, Cambridge, MA October, 6-8 1997, pp. 595-610.
- IK Wernick and JH Ausubel, 1997, *Industrial Ecology: Some Directions for Research*, Report commissioned by the Energy and Environmental Systems Division, Lawrence Livermore National Laboratory, USDOE.
- IK Wernick, 1997, Book Review, "Design for Environment: Creating Eco-efficient Products and Processes" Fiksel, J. (ed.), *Journal of Industrial Ecology* (1)1, 1997.

- PE Waggoner, JH Ausubel, and IK Wernick, 1996, Lightening the Tread of Population on the Land: American Examples, *Population Development and Review* 22(3):531-45.
- IK. Wernick, R Herman, S Govind, and JH Ausubel, 1996, Materialization and Dematerialization: Measures and Trends", *Daedalus* 125(3):171-98.
- IK Wernick, 1996, Consuming Materials: The American Way, *Technological Forecasting and Social Change* 53(1):111-22.
- IK Wernick, 1996, Book Review, *Industrial Ecology and Global Change* by Socolow R., et al. (eds.), *Climatic Change* 32(1):117-19, 1996.
- IK Wernick, 1996, Guest Editorial, Better Risk Information for Communities, *Risk Analysis* 16(5):601-3, 1996.
- IK Wernick and JH Ausubel, 1995, National Materials Flows and the Environment, *Annual Review of Energy and the Environment* 20:462-92.
- IK Wernick (ed.), 1995, *Community Risk Profiles: A Tool to Improve Environment and Community Health*, 87 pp., Program for the Human Environment, New York.
- JH Ausubel, DG Victor, and IK Wernick, 1995, The Environment Since 1970, *Consequences* 1(3):3-15.
- IK Wernick and JH Ausubel, 1995, National Material Metrics for Industrial Ecology, *Resources Policy* 21(3):189-98, 1995.
- IK Wernick, 1995, Book Review, Lean and Clean Management, Romm, J., *International Journal of Environment and Pollution* 5(2/3):314-6, 1995.
- IK Wernick, 1994, Dematerialization and Secondary Materials Recovery: A Long-Run Perspective, *Journal of the Minerals, Metals, and Materials Society* 46(4):39-42.
- IK Wernick and TC Marshall, 1992, Experimental Test of the Free Electron Laser Accelerator Principle, *Physical Review A* 46(6):3566-68.
- IK Wernick and TC Marshall, 1992, An Inverse Free Electron Laser Auto-accelerator Experiment, *Nuclear Instruments and Methods of Physics Research A* 318:754-57.

PRESENTATIONS

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| Breakthrough Institute Dialogue 2019 | Resources for the Future Washington DC 2013, 2014 |
| Georgetown University 2014, 2015 | Robert Wood Johnson Foundation 1994 |
| Japanese Ministry of Environment 2003 | Technical Chamber of Greece (Greece) 2004 |
| Leiden University (Netherlands) 1997 | Technion University (Israel) 1996, 2012 |
| Massachusetts Institute of Technology 2003 | The New School 2009 |
| Missouri Botanical Garden 1999 | University of California Los Angeles 1998 |
| National Academy of Engineering 1993-6 | University of Florida Gainesville 1997 |
| National Academy of Sciences 1997, 2004 | University of Helsinki (Finland) 2011 |
| National Materials Advisory Board 1993 | USDA Forest Service Forest Products Laboratory 1996 |
| National Taiwan University 1998, 2003, 2017 | US Coast Guard Academy 2018 |
| Naval Research Laboratory 1992 | US Environmental Protection Agency 1996-2003 |
| National Science Council (Taiwan) 2003 | US Geological Survey 1997 - 2003 |
| New York Academy of Sciences 1997 | White House Office of Sci. & Tech. Policy 1999 |
| RAND Corporation (Santa Monica) 1994 | Wuppertal Institute (Germany) 2003 |
| | Yale University 2013 |