HOWARD J. HERZOG

Senior Research Engineer MIT Energy Initiative Room E19-370L Cambridge, MA 02139 Tel: (617) 253-0688 FAX: (617) 253-8013 email: hjherzog@mit.edu http://sequestration.mit.edu

EDUCATION:

Feb 1975	B.S., Chemical Engineering, Massachusetts Institute of Technology
	Honors:

- American Institute of Chemists' Student Award

- Phi Lambda Upsilon (Honorary Chemical Society)
- Tau Beta Pi (Honorary Engineering Society)
- Feb 1975 M.S., Chemical Engineering Practice, Massachusetts Institute of Technology

June 1980 Chemical Engineer's Degree, Massachusetts Institute of Technology

PROFESSIONAL EXPERIENCE:

1989 - present Massachusetts Institute of Technology

Current Research Interests:

- Controlling CO2 Emissions from Power Plants
- Greenhouse Gas Mitigation Technologies
- Geothermal Energy and Heat Mining
- Hazardous Waste Disposal and Environmental Remediation

Phi Lambda Upsilon

Tau Beta Pi

- Industrial Energy Use and Analysis
- 1986 1988 Laser Analytics Division, Spectra-Physics, Inc.
- 1981 1986 Aspen Technology, Inc.
- 1980 1981 Massachusetts Institute of Technology Energy Laboratory ASPEN Project
- 1975 1978 Stone & Webster Engineering Corp.
- Summers Eastman Kodak Company 72,73,74

PROFESSIONAL AND HONOR SOCIETIES:

American Institute of Chemical Engineers EIT Certificate

CONSULTING (Partial list, 1989-present):

Aspen Technology, Inc.	Mannesmann
Air Products	Metalor USA Refining Corporation
BP	Monitor Scientific
Cabot Corporation	New Energy and Industrial Technology
Clean Harbors	Development Organization (Japan)
EPRI	OECD Environmental Directorate
European Commission	Praxair
General Electric Company	U.S. Department of Energy
Kværner Engineering	VerTech Treatment System

SELECTED PUBLICATIONS (2000-present):

Singelton, G., H. Herzog and S. Ansolabehere, "Public Risk Perspectives on the Geologic Storage of Carbon Dioxide," *International Journal of Greenhouse Gas Control* **3**(1): 100-107 (2009).

The Future of Coal: Options for a Carbon-Constrained World, An Interdisciplinary MIT Study (2007). - One of 13 co-authors

Bohm, M.C., H.J. Herzog, J.E. Parsons and R.C. Sekar, "Capture-Ready Coal Plants—Options, Technologies and Economics," *International Journal of Greenhouse Gas Control* **1**: 113-120 (2007).

Sekar, R.C., J.E. Parsons, H.J. Herzog and H.D. Jacoby, "Future Carbon Regulations and Current Investments in Alternative Coal-fired Power Plant Technologies," *Energy Policy* **35**: 1064–1074 (2007).

Reiner, D.M., T.E. Curry, M.A. de Figueiredo, H J. Herzog, S.D. Ansolabehere, K. Itaoka, F. Johnsson, and M. Odenberger, "American Exceptionalism? Similarities and Differences in National Attitudes Toward Energy Policy and Global Warming," *Environ. Sci. Technol.***40**(7): 2093-2098 (2006).

McFarland, J.R.and H.J. Herzog, "Incorporating Carbon Capture and Storage Technologies in Integrated Assessment Models," *Energy Economics* **28**:632-52 (2006).

Intergovernmental Panel on Climate Change (IPCC) Special Report, *Carbon Dioxide Capture and Storage*, New York: Cambridge University Press (2005). Coordinating lead author, Chapter 8 (Costs)

de Figueiredo, M.A., H.J.Herzog and D.M. Reiner, "Framing the Long-Term Liability Issue for Geologic Carbon Storage in the United States," *Mitigation and Adaptation Strategies for Global Change*, **10**: 647-657 (2005).

Reiner, D.M. and H.J. Herzog, "Developing a Set of Regulatory Analogs for Carbon Sequestration," *Energy* **29**: 1561-1570 (2004).

Herzog, H.J. and D. Golomb, "Carbon Capture and Storage from Fossil Fuel Use," *Encyclopedia of Energy*, Elsevier, **1**:277-287 (2004).

McFarland, J.R., J.M. Reilly and H.J. Herzog, "Representing Energy Technologies in Top-Down Economic Models using Bottom-up Information," *Energy Economics* **26**(4): 685-707 (2004).

Herzog, H., K. Caldeira, and J. Reilly, "An Issue of Permanence: Assessing the Effectiveness of Temporary Carbon Storage," *Climatic Change*, **59**(3): 293-310 (2003).

Hoffert, M.I. *et al.*, "Advanced Technology Paths to Global Climate Stability: Energy for a Greenhouse Planet," *Science* **298**: 981-987 (2002). - One of 18 co-authors

Herzog, H., "What Future for Carbon Capture and Sequestration?" *Environmental Science and Technology*, **35**(7): 148A–153A (2001).

Herzog, H., K. Caldeira, and E. Adams, "Carbon Sequestration via Direct Injection," Steele, J, S Thorpe, and K Turekian, eds. *Encyclopedia of Ocean Sciences*, London: Academic Press, **1**: 408–414 (2001).

Herzog, H., B. Eliasson and O. Kaarstad, "Capturing Greenhouse Gases," *Scientific American*, **282**(2): 72-79 (2000).